## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key to Course Descriptions</td>
<td>3</td>
</tr>
<tr>
<td>Course Descriptions</td>
<td>4 - 168</td>
</tr>
<tr>
<td>Aerospace Engineering</td>
<td>4</td>
</tr>
<tr>
<td>African American Studies</td>
<td>7</td>
</tr>
<tr>
<td>American Studies</td>
<td>11</td>
</tr>
<tr>
<td>Anatomy</td>
<td>12</td>
</tr>
<tr>
<td>Anthropology</td>
<td>12</td>
</tr>
<tr>
<td>Architecture</td>
<td>17</td>
</tr>
<tr>
<td>Art</td>
<td>21</td>
</tr>
<tr>
<td>Art History</td>
<td>25</td>
</tr>
<tr>
<td>Asian Studies</td>
<td>29</td>
</tr>
<tr>
<td>Athletics</td>
<td>30</td>
</tr>
<tr>
<td>Biochemistry</td>
<td>31</td>
</tr>
<tr>
<td>Biological Sciences</td>
<td>32</td>
</tr>
<tr>
<td>Biomedical Sciences</td>
<td>33</td>
</tr>
<tr>
<td>Biophysics</td>
<td>34</td>
</tr>
<tr>
<td>Biostatistics</td>
<td>34</td>
</tr>
<tr>
<td>Business Administration</td>
<td>35</td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>39</td>
</tr>
<tr>
<td>Chemistry</td>
<td>42</td>
</tr>
<tr>
<td>Chinese</td>
<td>44</td>
</tr>
<tr>
<td>Civil Engineering</td>
<td>45</td>
</tr>
<tr>
<td>Classics</td>
<td>48</td>
</tr>
<tr>
<td>Communication</td>
<td>50</td>
</tr>
<tr>
<td>Comparative Literature</td>
<td>54</td>
</tr>
<tr>
<td>Computer Science</td>
<td>55</td>
</tr>
<tr>
<td>Cora Maloney College</td>
<td>58</td>
</tr>
<tr>
<td>Counseling, School, and Education Policy</td>
<td>59</td>
</tr>
<tr>
<td>Dance</td>
<td>60</td>
</tr>
<tr>
<td>Economics</td>
<td>62</td>
</tr>
<tr>
<td>Education Minor</td>
<td>64</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>65</td>
</tr>
<tr>
<td>Engineering (SEAS)</td>
<td>69</td>
</tr>
<tr>
<td>English</td>
<td>70</td>
</tr>
<tr>
<td>English as a Second Language</td>
<td>76</td>
</tr>
<tr>
<td>Environmental Design/Planning</td>
<td>76</td>
</tr>
<tr>
<td>Exercise Science</td>
<td>79</td>
</tr>
<tr>
<td>French</td>
<td>80</td>
</tr>
<tr>
<td>General Education</td>
<td>82</td>
</tr>
<tr>
<td>Geography</td>
<td>82</td>
</tr>
<tr>
<td>Geological Sciences</td>
<td>85</td>
</tr>
<tr>
<td>German</td>
<td>88</td>
</tr>
<tr>
<td>History</td>
<td>89</td>
</tr>
<tr>
<td>Humanities</td>
<td>95</td>
</tr>
<tr>
<td>Industrial Engineering</td>
<td>96</td>
</tr>
<tr>
<td>Informatics</td>
<td>97</td>
</tr>
<tr>
<td>Italian</td>
<td>98</td>
</tr>
<tr>
<td>Japanese</td>
<td>99</td>
</tr>
<tr>
<td>Judaic Studies</td>
<td>100</td>
</tr>
<tr>
<td>Korean</td>
<td>102</td>
</tr>
<tr>
<td>Latino/a Studies</td>
<td>103</td>
</tr>
<tr>
<td>Learning Center</td>
<td>103</td>
</tr>
<tr>
<td>Legal Studies</td>
<td>104</td>
</tr>
<tr>
<td>Linguistics</td>
<td>104</td>
</tr>
<tr>
<td>Mathematics</td>
<td>106</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>110</td>
</tr>
<tr>
<td>Media Study</td>
<td>113</td>
</tr>
<tr>
<td>Medical Technology</td>
<td>116</td>
</tr>
<tr>
<td>Medicinal Chemistry</td>
<td>117</td>
</tr>
<tr>
<td>Methods of Inquiry</td>
<td>118</td>
</tr>
<tr>
<td>Microbiology</td>
<td>118</td>
</tr>
<tr>
<td>Millard Fillmore College</td>
<td>119</td>
</tr>
<tr>
<td>Music</td>
<td>123</td>
</tr>
<tr>
<td>Music Theatre</td>
<td>127</td>
</tr>
<tr>
<td>Nuclear Medicine Technology</td>
<td>127</td>
</tr>
<tr>
<td>Nursing</td>
<td>128</td>
</tr>
<tr>
<td>Nutrition</td>
<td>130</td>
</tr>
<tr>
<td>Occupational Therapy</td>
<td>131</td>
</tr>
<tr>
<td>Pharmaceutical Sciences</td>
<td>132</td>
</tr>
<tr>
<td>Pharmacology and Toxicology</td>
<td>132</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>133</td>
</tr>
<tr>
<td>Philosophy</td>
<td>133</td>
</tr>
<tr>
<td>Physics</td>
<td>136</td>
</tr>
<tr>
<td>Physiology</td>
<td>138</td>
</tr>
<tr>
<td>Polish</td>
<td>138</td>
</tr>
<tr>
<td>Political Science</td>
<td>139</td>
</tr>
<tr>
<td>Portuguese</td>
<td>143</td>
</tr>
<tr>
<td>Psychology</td>
<td>143</td>
</tr>
<tr>
<td>Religious Studies</td>
<td>146</td>
</tr>
<tr>
<td>Russian</td>
<td>147</td>
</tr>
<tr>
<td>Social Sciences Interdisciplinary</td>
<td>148</td>
</tr>
<tr>
<td>Sociology</td>
<td>150</td>
</tr>
<tr>
<td>Spanish</td>
<td>153</td>
</tr>
<tr>
<td>Speech and Hearing Sciences</td>
<td>156</td>
</tr>
<tr>
<td>Theatre</td>
<td>157</td>
</tr>
<tr>
<td>Undergraduate Education</td>
<td>161</td>
</tr>
<tr>
<td>University at Buffalo Experience</td>
<td>161</td>
</tr>
<tr>
<td>Visual Studies</td>
<td>162</td>
</tr>
<tr>
<td>Women's Studies</td>
<td>162</td>
</tr>
<tr>
<td>World Languages</td>
<td>166</td>
</tr>
</tbody>
</table>
# Key to Course Descriptions

The following abbreviations are used in course descriptions:

## Semester Offered

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Fall Semester</td>
</tr>
<tr>
<td>Sp</td>
<td>Spring Semester</td>
</tr>
<tr>
<td>Su</td>
<td>Summer Semester</td>
</tr>
</tbody>
</table>

Courses listed in this catalog without F, Sp, or Su designation—the semester(s) the course is offered varies from year to year.

## Instruction Types

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIS</td>
<td><strong>Discussion:</strong> Classroom instruction carried on primarily through interaction among students and instructor. In some cases, it may supplement a large lecture.</td>
</tr>
<tr>
<td>LAB</td>
<td><strong>Laboratory:</strong> An aggregate of individual activity under supervision as a group; the meeting place has substantial facilities, instruments, or equipment for the purpose of the meeting and for specific use by the individual student.</td>
</tr>
<tr>
<td>LEC</td>
<td><strong>Lecture:</strong> Classroom instruction, primarily through lecture, presented by an instructor, with discussion not precluded but incidental to lecture.</td>
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<tr>
<td>REC</td>
<td><strong>Recitation:</strong> Classroom instruction carried on through interaction between instructor and students, designed to supplement a large lecture.</td>
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<tr>
<td>SEM</td>
<td><strong>Seminar:</strong> Classroom instruction for a limited number of students who share with the instructor responsibility for preparation of material to be discussed in class.</td>
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<tr>
<td>TUT</td>
<td><strong>Tutorial:</strong> Individual study and instruction usually arranged by mutual agreement of instructor and student.</td>
</tr>
</tbody>
</table>
**Aerospace Engineering**

**MAE 177 Introduction to Engineering Drawing and CAD**

Credits: 2  
Prerequisites: None  
Corequisites: None  
Type: LEC/LAB  
Provides a first exposure to mechanical design for mechanical and aerospace engineers. Includes the nature and visual representation of mechanical components and principles of engineering drawing and sketching for mechanical design. Utilizes up-to-date computer-aided design software (such as AutoCad) for mechanical drawings and mechanical designs.

**MAE 204 Thermodynamics I**

Credits: 3  
Prerequisites: MTH 142 or equivalent  
Corequisites: None  
Type: LEC/REC  
Covers conservation of mass, first and second laws of thermodynamics, thermodynamic properties, equilibrium, and their application to physical and chemical systems.

**MAE 277 Introduction to Mechanical and Aerospace Engineering Practice**

Credits: 3  
Prerequisites: EAS 140, MAE 177  
Corequisites: None  
Type: LEC  
An overview of engineering in industry; introduces engineering design concepts, reverse engineering, case studies including a hands-on product dissection project, basics of manufacturing processes, elementary modeling of engineering systems, and technical communications. Students who have completed MAE 311, MAE 364, or MAE 377 should see the Director of Undergraduate Studies to select an alternative course.

**MAE 311 Machines and Mechanisms I**

Credits: 3  
Prerequisites: EAS 209  
Corequisites: MAE 381  
Type: LEC  
Examines analysis and design of machine elements; including theories of failure, fatigue strength, and endurance limits; fluctuating stresses; Goodman diagram; and fatigue design under torsional and combined stresses. Also covers design of bolted connections, fasteners, welds, springs, ball and roller bearings, journal bearings, gears, clutches, and brakes.

**MAE 334 Introduction to Instrumentation and Computers**

Credits: 3  
Prerequisites: EAS 209  
Corequisites: MAE 200  
Type: LEC/LAB  
Introduces data acquisition using A/D converters. Theory of A/D and D/A converters, fundamentals and examples of transducers used for mechanical measurements, static and dynamic response amplifiers, theory of A/D and D/A converters, error analysis, elementary statistics. Two lectures and one three-hour laboratory weekly.

**MAE 335 Fluid Mechanics**

Credits: 3  
Prerequisites: EAS 209  
Corequisites: MAE 204  
Type: LEC  
Hydro- and aerostatics; substantial derivatives; Reynolds transport equation; control volume approach for conservation of mass, linear momentum, moment of momentum, and the first law of thermodynamics; dimensional analysis and similarity; laminar and turbulent pipe flow of liquids; boundary-layer theory; one-dimensional, compressible flow; potential flow.

**MAE 336 Heat Transfer**

Credits: 3  
Prerequisites: EAS 204, EAS 209  
Corequisites: None  
Type: LEC  
Introduces the transport of heat by conduction, convection, and radiation. Topics include transient and steady-state, one- and multidimensional heat conduction (treated both analytically and numerically); single-phase, laminar and turbulent, and forced and natural convection both within ducts and on external surfaces (dimensional analysis and empirical correlations); two-phase transport (boiling and condensation); radiative properties of materials and analysis of radiative heat transfer in enclosures; and analysis of heat exchangers.

**MAE 338 Fluid and Heat Transfer Laboratory**

Credits: 1  
Prerequisites: MAE 335, MAE 336  
Corequisites: None  
Type: LAB  
Complements coursework in fluid mechanics and heat transfer.

**MAE 340 Systems Analysis**

Credits: 4  
Prerequisites: EAS 208, MAE 334  
Corequisites: MAE 376  
Type: LEC/LAB  
Modeling and analysis of system dynamics, with an emphasis on engineering design; characterization of electrical, mechanical, thermal, and hydraulic system components; characterization of transducers; use of state space and matrix notation in system modeling and analysis; formulation methods for systems containing multiterminal components; formulation of state equations; digital computer simulation techniques; and analog computer concepts. Three credit-hours of lecture, and one three-hour lab per week.

**MAE 364 Manufacturing Processes**

Credits: 3  
Prerequisites: None  
Corequisites: MAE 381  
Type: LEC  
Examines manufacturing processes including casting, forming, cutting, joining, and molding of various engineering materials (metals and non-metals). Also studies manufacturing considerations in design including material and process selection, tooling, product quality, and properties/processing trade-offs. Includes quality control and automation issues.

**MAE 376 Applied Mathematics for MAE**

Credits: 3  
Prerequisites: EAS 230, MTH 306  
Corequisites: None  
Type: LEC  
Considers the solution of engineering problems using computational methods. Topics include linear algebra, sets of linear and nonlinear equations, an introduction to Matlab, ordinary differential equations, and matrix eigenvalues. Also covers topics in statistics (particularly with normal distributions) and engineering applications involving error analysis. Considers interpolation, splines, and nonlinear curve fitting as time permits.

**MAE 377 Product Design in a CAD Environment**

Credits: 3  
Prerequisites: None  
Corequisites: MAE 209, MAE 277  
Type: LEC  
Examines mechanical design of functional, pragmatic products from inception through implementation, including topics in computer-aided design (CAD). Discusses the design process in the context of product redesign assignments using CAD. Includes a final design project with professional documentation including sketches, detailed and assembly CAD drawings, a comprehensive written design analysis, and cost breakdown.

**MAE 381 Engineering Materials Laboratory**

Credits: 1  
Prerequisites: MAE 381  
Corequisites: None  
Type: LAB  
Involves experiments designed to illustrate the relationships among the processing, internal structure and properties of engineering materials, emphasizing metals and their heat treatment, microstructure and mechanical properties. Provides hands-on experience in metallography, heat treatment and mechanical testing. Includes laboratory report writing and work in groups.

**MAE 412 Machines and Mechanisms II**

Credits: 3  
Prerequisites: EAS 208, MAE 376  
Corequisites: None  
Type: LEC  
Studies kinematics and dynamics of machinery; including linkages, geometry of motion, mobility, cam design, gear trains, and computing mechanisms. Also covers velocity and acceleration analysis by graphical, analytical, and numerical techniques; static and dynamic force analysis in machinery; engine analysis; flywheels; and balancing.

**MAE 415 Analysis of Structures**

Credits: 3  
Prerequisites: EAS 209, MAE 376  
Corequisites: None  
Type: LEC  
Examines the theory of elastic structural components; including elastic stress analysis; equilibrium, strain displacement, and compatibility; yield criteria; energy methods; finite element analysis and numerical methods.
MAE 416 Aerospace Structures  
Credits: 3  
Prerequisites: MAE 415  
Corequisites: None  
Type: LEC  
Explores the theory of light structures; including beam bending, shear stress, shear center, and composite beams; shearflow, warping stresses, and secondary warping; torsion of thin-walled single and multicell tubes; deformation of struts, plates, frames, and trusses; stress analysis of connections; composite structures and sandwich construction. Also covers computer implementation with applications to aircraft and aerospace structures.

MAE 417 Applied Orthopedic Biomechanics  
Credits: 3  
Prerequisites: EAS 209  
Corequisites: None  
Type: LEC  
Studies the design of implants and prostheses in relation to the biomechanics of the musculoskeletal system. Topics include bone physiology, testing methods (tension, compression, bending, torsion, shear, and fatigue), including nondestructive testing, strain gage application, composite theory of bone, stress fractures and fatigue properties in the musculoskeletal system, fracture healing, external/internal fixation (Ilizarov, etc.), aging and otoprosthetics, pathologies of osteoarthritis, joint replacement and arthroplasty, and spin biomechanics.

MAE 420 Biomechanics of the Musculoskeletal System  
Credits: 3  
Prerequisites: EAS 209  
Corequisites: None  
Type: LEC  
Reviews basic aspects of anatomy, including forces transmitted in the body, bones as structural members, and joint and muscle forces. Also considers kinematics of body motions, instantaneous centers of joint motions, behavior of normal and abnormal joints, remodeling, biomaterials, and ligaments and tendons. Also studies functions of orthotics and prostheses, including design considerations. Involves a weekly seminar and one to two laboratory sessions.

MAE 422 Gas Dynamics  
Credits: 3  
Prerequisites: MAE 335  
Corequisites: None  
Type: LEC  
Examines fundamentals of gas dynamics and compressible aerodynamics; including one-dimensional isentropic flow, one-dimensional flow with friction and with heating or cooling, and normal shocks. Also explores multidimensional flows, Prandtl-Meyer flow, oblique shocks, small perturbation theory, and supersonic airfoil theory.

MAE 423 Introduction to Propulsion  
Credits: 3  
Prerequisites: MAE 335  
Corequisites: None  
Type: LEC  
Reviews combustion thermodynamics; flow in nozzle, diffuser, and constant area duct with shock; analysis and performance of air breathing and chemical rocket propulsion systems; performance of single and multi-staged rocket vehicles; and space missions.

MAE 424 Aerodynamics  
Credits: 4  
Prerequisites: MAE 335  
Corequisites: None  
Type: LEC/LAB  
Examines flow over airfoils and wings; ideal flow theory, singularity solutions, superposition, source, and vortex panel methods; method of source panels; 2-D airfoil theory, pressure distributions and lift; effects of compressibility; finite wings; viscous aerodynamics; boundary-layer theory; and friction drag. Includes an aerodynamics laboratory experience, considering airflow characteristics, boundary-layer measurements, and jet flow.

MAE 425 Spacecraft Dynamics and Control  
Credits: 3  
Prerequisites: MAE 376  
Corequisites: None  
Type: LEC  
Introduces the concepts of spacecraft orbital mechanics and attitude dynamics. Orbital mechanics is the study of the positional motion, while attitude dynamics describes the orientation of the spacecraft. Topics include: review of rotational kinematics and dynamics, orbital mechanics, gravity turn and trajectory optimization, orbit lifetimes, three-body problem, orbit perturbations, orbit determination, spacecraft dynamics, spinning and three-axis stabilized spacecraft, and attitude determination.

MAE 428 Analytical Methods  
Credits: 3  
Prerequisites: MAE 376  
Corequisites: None  
Type: LEC  
Covers solution methods for practical problems in mechanical and aerospace engineering, involving partial differential equations. Explores Fourier series, orthogonal functions, Laplace transforms, examples of partial differential equations (e.g. waves and heat conduction equations), and Bessel functions. Also involves an introduction to complex variable theory, and application to potential flow.

MAE 429 Finite Element Techniques  
Credits: 3  
Prerequisites: MAE 311, MAE 376  
Corequisites: None  
Type: LEC  
Provides a detailed presentation of finite element techniques in the areas of solid mechanics, structures, heat transfer, and fluid flow. Selects applications from mechanical and aerospace engineering. Stresses computer applications.

MAE 431 Energy Systems  
Credits: 3  
Corequisites: MAE 336, MAE 337  
Corequisites: None  
Type: LEC  
Continuation of thermodynamics. Studies availability, psychrometrics, real gases, combustion thermochemistry, phase and chemical equilibrium, fuel cells, flow through nozzles, and blade passages.

MAE 434 Aircraft Design  
Credits: 3  
Prerequisites: MAE 436  
Corequisites: MAE 416  
Type: LEC  
Involves practice predicting performance of existing designs with comparison to actual performance; and analyzes performance of new, student-designed aircraft. Conceptual aircraft design for specific mission profiles is facilitated by course-licensed software.
MAE 443 Continuous Control System
Credits: 3
Prerequisites: MAE 340
Corequisites: None
Type: LEC
Examines system modeling and identification of plants to be controlled; use of feedback control systems; design of feedback control laws including P, I, D; block diagrams, transfer functions, and frequency response functions; control system design and analysis in the time domain and frequency domain; computer simulation of control systems; stability analysis using Routh-Hurwitz criterion; design for stability, speed of response, and accuracy; root locus, Bode, and Nyquist plots; compensation strategies; and state space control design and analysis.

MAE 444 Digital Control Systems
Credits: 3
Prerequisites: MAE 443
Corequisites: None
Type: LEC/LAB
Characterizes discrete time systems; analysis of discrete control systems by time-domain and transform techniques; stability analysis; Jury test, bilinear transformation, Routh stability test; deadbeat controller design; root-locus based controller design; discrete state variable techniques; synthesis of discrete time controllers; engineering consideration of computer controlled systems.

MAE 448 Issues in Concurrent Design
Credits: 3
Prerequisites: senior standing
Corequisites: None
Type: LEC
Current interest in incorporating quality and manufacturing concerns in the early stages of the design process has resulted in such concepts as concurrent engineering, total quality management, quality function deployment, robust design, Taguchi's quality functions, teaming approaches for complex design, and many others. The course addresses these concepts, particularly as they pertain to complex engineering design. Investigates industrial case studies and design projects incorporating some or all of the above concepts, provides first-hand experience.

MAE 449 Design of Complex Engineering Systems
Credits: 3
Prerequisites: senior standing
Corequisites: None
Type: LEC
Applies domain-independent design methods and decision-support theories and tools to the design of large-scale, complex systems. Covers the role of design, decision-making, and open engineering systems in a globally competitive society. Topics include descriptive and prescriptive models of design, decision theory, utility theory, game theory, design of experiments, approximation, and stochastic and deterministic processes.

MAE 451 Design Process and Methods
Credits: 3
Prerequisites: senior standing
Corequisites: None
Type: LEC
Discusses the fundamental concepts and activities of design processes. Investigates domain-independent topics of design processes. These topics include idea conception, teamwork, quality, experimental design, optimization, and technical communication. In addition, discusses fundamental methods of design, including decision making, conceptual design, cost evaluation, ethics issues, and intellectual property issues, which are investigated through interactive lectures and individual and group exercises.

MAE 453 Inelastic Stress Analysis
Credits: 3
Prerequisites: MAE 415
Corequisites: None
Type: LEC
Examines the physical basis of inelastic behavior of materials; inelastic constitutive laws; thermoelastic, viscoelastic, plastic, and nonlinear creep; applications; flexure of beams; torsion of bars; and plane strain.

MAE 454 Road Vehicle Dynamics
Credits: 3
Prerequisites: MAE 340
Corequisites: None
Type: LEC
Covers the forces and torques generated by tires (under both traction and braking) and by the relative wind; two-wheel and four-wheel models of a vehicle; simplified stability and control of transients; steady-state response to external disturbances; effects of the roll degree of freedom; equations of motion in body-fixed coordinates; lateral load transfer; fore-aft moment analysis; and applications of feedback-control theory to the design of subsystems for improved performance.

MAE 458 Tribology
Credits: 3
Prerequisites: senior standing or permission of instructor
Corequisites: None
Type: LEC
Explores friction, lubrication, and wear; contact of real surfaces; mechanics of friction; surface failures; boundary lubrication; fluid properties; thin-film lubrication; thick-film lubrication; and bearing and lubricant selection.

MAE 464 Manufacturing Automation
Credits: 3
Prerequisites: MAE 364
Corequisites: None
Type: LEC
Introduces the theory of automation as related to manufacturing and design integration, including hardware, software, and algorithm issues involved in fast and flexible product development cycles. Studies strategies of automated manufacturing systems; CAD/CAM; and integration, programming, and simulation. Additional topics include Robotics (e.g. applications in welding, material handling, and human intensive processes), Reverse Engineering (e.g. modeling product from laser and CMM data of parts), Virtual Environments (e.g. industrial applications of virtual reality and prototyping), Intelligent Diagnostics (e.g. sensor fusion for machine tool monitoring), Automated Inspection (e.g. computer vision and methods of automated quality control), and Design for Manufacturing (e.g. issues involved in concurrent product development).

MAE 465 Environmental Acoustics
Credits: 3
Prerequisites: senior standing
Corequisites: None
Type: LEC
Introduces engineering acoustics and applications. Covers fundamentals of wave motion; propagation of plane and spherical waves; transmission and absorption of sound; microphones, amplifiers, and instrumentation for sound measurement; effects of noise on hearing, and speech interference; environmental noise criteria; sound quality; room acoustics; enclosures, resonators, filters and mufflers; and sources of noise, including their mechanisms, identification, and reduction.

MAE 467 Vibration and Shock
Credits: 3
Prerequisites: MAE 340, MAE 311 or MAE 415
Corequisites: None
Type: LEC
Examines mechanical vibration and shock; including free and forced, periodic, and aperiodic, and vibration with single-degree and multidegree of freedom systems.

MAE 470 Thermodynamics of Engineering Materials
Credits: 3
Prerequisites: EAS 204, MAE 381
Corequisites: None
Type: LEC
The laws of classical thermodynamics are applied to the investigation of the general physical behavior required of all materials. In addition to the usual thermal and fluid (pressure) effects, electrical, magnetic, surface, and imposed stress/strain effects as well as their interactions are considered. The various attributes of pure (unary) and multi-component systems are analyzed such as: phase stability, metastability, and instability; and the construction and interpretation of phase diagrams. Finally, elementary principles of statistical thermodynamics and atomic/molecular mechanics are introduced in order to illustrate how thermodynamic properties may be predicted from first principles.

MAE 472 Guidance, Navigation & Control
Credits: 3
Prerequisites: MAE 340, knowledge of matrix theory
Corequisites: None
Type: LEC
Introduces the concepts of guidance, navigation and control (GN&C) of dynamical vehicles. Guidance equipment and software is first used to compute the vehicle location required to satisfy mission requirements. Navigation then tracks the vehicle's actual location, and control then transports the vehicle to the required location. Introduces theoretical foundations to perform basic GN&C operations. Topics include review of rotational kinematics and dynamics, orbital mechanics, Kalman filtering, GPS tracking and navigation, attitude and orbit determination, and advanced GN&C techniques. Gives examples using spacecraft, aircraft, launch, and missile vehicles.

MAE 473 Graphics in Computer-Aided Design
Credits: 3
Prerequisites: senior standing
Corequisites: None
Type: LEC
Examines basic programming concepts in computer-aided design (CAD) for mechanical engineers, including interactive computing in design; the role of graphics in CAD; 2-D graphics; computer graphic operations, including curve generation and splines; and 3-D graphics, including data structures, rotation, translation, reflection, isometric and perspective projection, hidden line removal, shading, surface generation, solid modeling concepts, and object-oriented programming. Involves computer programming projects in C++.
MAE 476 Mechatronics
Credits: 3
Prerequisites: MAE 334
Corequisites: None
Type: LEC
Studies the theory and practice of hardware and software interfacing of microprocessors with analog and digital sensor/actuators to realize mechatronic systems. Coverage includes microprocessor architectures, programming, digital and analog circuits, sensors, actuators, communication protocols, and real-time and operator interface issues as applicable to the design and implementation of simple mechatronic subsystems. Lectures emphasize basics of theory, architecture, and operation and are supplemented by labs aimed at building basic competence by hands-on practical implementation.

MAE 477 Computer-Aided Design Applications
Credits: 3
Prerequisites: senior standing
Corequisites: None
Type: LEC/LAB
Considers concepts in computer-aided engineering, including principles of computer graphics, finite element analysis, kinematic analysis, and animation of mechanical systems. Studies the use of integrated CAD/CAE tools. Incorporates projects in solid modeling, stress analysis of machine parts and structures, and mechanism response and animation.

MAE 478 Cardiovascular Biomechanics
Credits: 3
Prerequisites: MAE 335, senior standing in engineering
Corequisites: None
Type: LEC
Introduces the mechanical behavior of the cardiovascular system, basic physiology, and application of engineering fundamentals to obtain quantitative descriptions. Major topics include rheology of blood, mechanics of the heart, dynamics of blood flow in the heart and circulation, control of cardiac output, blood pressure, and regional blood flow.

MAE 482 Introduction to Composite Materials
Credits: 3
Prerequisites: MAE 381
Corequisites: None
Type: LEC
Provides a basic understanding of composite materials (manufacturing and mechanical properties). Examines behavior of 2D, directional and short-fiber composites; analysis of laminted composites; performance of composites, including fracture, fatigue, and creep under various conditions; fracture modes of composites; manufacturing and micro-structural characterization of composites; experimental characterization and statistical analysis; and polymeric, metallic, and ceramic composites.

MAE 484 Principles and Materials for Micro-Electro-Mechanical Systems (MEMS)
Credits: 3
Prerequisites: MAE 381
Corequisites: None
Type: LEC
Current interest in micro-electro-mechanical systems or MEMS is driven by the need to provide a physical window to the micro-electronics systems, allowing them to sense and control motion, light, sound, heat, and other physical forces. Such micro-systems that integrate microelectronics and sensing elements on the same chip present an interesting engineering problem in terms of their design, fabrication, and choice of materials. Addresses the design, fabrication, and materials issues involving MEMS. Displays these issues within the context of MEMS for mechanical sensing and actuation, magnetic devices, thermal devices, automotive applications, and BiOMEMS for biomedical applications.

MAE 487 Modern Theory of Materials
Credits: 3
Prerequisites: PHY 207, MAE 381
Corequisites: None
Type: LEC
Develops fundamentals of modern theories of solids. Topics include reciprocal lattices, diffraction theory, electron energy bands, and phonon dispersion.

MAE 493 Mathematical Methods in Robotics
Credits: 3
Prerequisites: MAE 412
Corequisites: None
Type: LEC
A mathematical introduction to modeling, analysis and control of robotic systems. The first part of the course deals with the theoretical frameworks for modeling, analysis (kinematics and dynamics) and control of generic robotic mechanical systems, rooted in rich traditions of mechanics and geometry. The rest of the course will examine many of these issues in the context of serial-chain and parallel-chain manipulators, wheeled mobile robots (and hybrid combinations of these systems).

MAE 494 Design Project
Credits: 3
Prerequisites: senior standing
Corequisites: MAE 451
Type: TUT
Students working in teams of two or three under the supervision of a faculty member complete an original engineering design, which in some cases results in hardware. Design problems are drawn from industry and initiated by faculty. Where practical, two or more teams compete to solve the same problem. Teams meet individually with faculty on a weekly basis to discuss their projects.

MAE 496 Engineering Project
Credits: 3
Prerequisites: Senior standing and permission of instructor
Corequisites: None
Type: TUT
Provides experience in real-world engineering problems for senior mechanical and aerospace students. Assigns projects from local industry. Normally requires students to spend eight hours weekly in an engineering office. Students must present written and oral reports.

MAE 498 Undergraduate Research & Creative Activity
Credits: 1
Prerequisites: permission of instructor
Corequisites: None
Type: TUT
Students collaborate with faculty research mentors on an on going project in a faculty member's laboratory or conduct independent research under the guidance of a faculty member. This experience provides students with an inquiry based learning opportunity and engages them as active learners in a research setting. Arrangements must be made with a specific faculty member before registration.

MAE 499 Independent Study in Mechanical Engineering
Credits: 1
Prerequisites: permission of instructor
Corequisites: None
Type: TUT
Independent engineering projects or reading courses may be arranged with individual faculty members. Students must make arrangements with the faculty member for work on a particular topic before registering.

African American Studies

AAS 100 Introduction to African American Studies
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Uses approaches and methods designed to explore and understand the African American experience and the African Diaspora. The course aims to acquaint students with the nature of African American studies as a field of intellectual inquiry and as a degree program offered by the University at Buffalo.

AAS 118 Introduction to African American Music
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Provides students with the history and traditions of African and African American music. Introduces students to all the various modes and genres such as spiritual, gospel, ragtime, jazz, rhythm ‘n blues, rock ‘n roll, soul and hip hop.

AAS 119 Research: Essential Composition Skills
Credits: 1
Prerequisites: None
Corequisites: None
Type: SEM
Offers instruction in the elements of composition, and helps students improve their writing skills. Focuses on understanding the logic and style of argumentative, descriptive, expository, and narrative writing. Concentrates especially on the arrangement and form of documented and undocumented essays such as book reviews and term papers. Gives attention to the selection, interpretation, and evaluation of source material and to the physical appearance of essays.

AAS 184 Classic Black Prose
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces students to classic writings of blacks in the Western Hemisphere. Readings include autobiographical or semi-autobiographical works that focus upon physical and mental servitude and colonialism, migration and liberation struggles in the United States and the Caribbean, specifically.

AAS 230 Topics in African American Studies
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Focuses upon a specific topic in the interdisciplinary field of African American Studies. Students prepare a bibliographical essay.
AAS 231 Topics in African American Studies
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Focuses upon a specific topic in the interdisciplinary field of African American Studies. Students prepare a bibliographical essay.

AAS 232 Topics in African American Studies
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
A specific topic in the interdisciplinary field of African American Studies. Students prepare a bibliographical essay.

AAS 233 Topics in African American Studies
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
A specific topic in the interdisciplinary field of African American Studies. Students prepare a bibliographical essay.

AAS 234 Topics in African American Studies
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
A specific topic in the interdisciplinary field of African American Studies. Students prepare a bibliographical essay.

AAS 235 Topics in African American Studies
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Focuses upon a specific topic in the interdisciplinary field of African American Studies. Students prepare a bibliographical essay.

AAS 236 Topics in African American Studies
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Focuses upon a specific topic in the interdisciplinary field of African American Studies. Students prepare a bibliographical essay.

AAS 237 Topics in African American Studies
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
A specific topic in the interdisciplinary field of African American Studies. Students prepare a bibliographical essay.

AAS 238 Topics in African American Studies
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
A specific topic in the interdisciplinary field of African American Studies. Students prepare a bibliographical essay.

AAS 239 Topics in African American Studies
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
A specific topic in the interdisciplinary field of African American Studies. Students prepare a bibliographical essay.

AAS 253 Blocks in Films 1
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the various roles of blacks, both in films produced by black and by white filmmakers. The course offers a range of films, including the early silents of the 1920s-1930s, the black films of the sixties and seventies, and contemporary films. Guest lecturers (film stars, directors) discuss informally their roles in films.

AAS 254 Blocks in Films 2
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Beginning in the late 1940s a change in films dealing with blacks became evident. The social consciousness of the post World War II generation had an effect on the values and conditions faced by blacks. The film industry began to reflect this awareness by producing films that addressed social issues. Deals with the reflective films of the last half of the 20th century.

AAS 260 Major Issues in African American Studies
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Overview of the major issues in the field of African American studies. Offered as a series of lectures and assigned readings, this course uses a variety of disciplines to survey the conditions and development of African Americans from the Atlantic slave trade to the present.

AAS 261 African American History
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Surveys the history and culture of African Americans in the United States from the period of arrival in North America to the present. The course involves study of African American social, economic and political institutions and slavery - North and South; theories of the social and psychological impact of slavery, free blacks; emancipation and reconstruction to discrimination; changing art forms north and south; and development of folk and jazz styles in music, dance and theatre.

AAS 264 Black Child in America
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Focuses on the various roles of blacks in the United States, including their experiences both during slavery in the Southern country towns and in the emerging “ghettos” in the North. The course also discusses historical development of social service programs such as Aid to Dependent Children and other government policies. It also explores various issues that contribute to the welfare of African American children.

AAS 265 Spiritual and Gospel Music
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
A study of spiritual and gospel music which constitutes the musical ensemble that deals with ways African slaves in America coped with hardships of slavery by expressing their dreams and hopes to be free. This was accomplished by using topics involving Biblical characters, folk songs from Africa, the slave American experience. Explores ways in which this tradition of music has been integrated into general American folk traditions of song and dance, well beyond the slave plantations where they originated.

AAS 280 Survey of African Studies
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Overview of African history and policies since the continent’s contact with Western Europe in the late fifteenth century. Covers the subject matter in three phases: precolonial times, colonialism, and the postcolonial era. We seek to understand the scope and consequences of the Arab and European slave trade in Africa, (2) examine the dynamics of European imperialism in Africa, and (3) offer perspectives on current African problems.

AAS 293 Race & The Law
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Explores that part of U.S. law that has dealt with the human and civil rights of African Americans (and by implication other racial and ethnic groups in U.S. society: Asian Americans, Hispanic Americans, Native Americans, etc.) We do this by examining the relevant legislation and U.S. Supreme Court decisions. However, where appropriate, decisions of the Executive branch made under various “Executive Orders” are also considered. Any understanding and appreciation of U.S. constitutional democracy requires us to acknowledge the powerful role of race in the evolution of this democracy. Consequently regardless of the time period—the lives of all in the U.S. (of whatever color and sex) have been touched by the interaction between law and race. In Part One of the course we concentrate on an area of legal studies called ‘Critical Race Theory,’ where our concern is to explore the interaction of law and race from the perspective of issues such as culture, history, gender, identity, politics, class, the media, etc. In Part Two we examine the interaction between race and law from the perspective of the historical evolution of democracy in the U.S.

AAS 294 Education of African Americans
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Examines education from the perspective of equality of educational opportunity for African Americans and other racial minorities. Considers both the history of the struggle for educational opportunity by African-Americans and the many dimensions of the struggle today - both inside and outside the classroom. Topics include: Brown v. Board of Education, the Civil Rights Movement, racial perspectives on intelligence, affirmative action, education groups, and socio-psychological basis of school achievement, teachers and racial identity, the multicultural curriculum, race and ethnicity in higher education, desegregation and re-segregation.
AAS 301 African American Literature: Prose
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
A survey of African American literature from mid-eighteenth century to the present. Explores historical, cultural, and aesthetic influences. Writers include those from the fugitive school, the Harlem Renaissance, the literary mainstreamers, the New Black Arts Movement and the modern Black womanist tradition.

AAS 302 Black Women Writers
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
A study of modern literature by Black women writers, with emphasis on the major traditions, i.e., naturalist, civil rights, the new Black Arts movement, Black womanism, etc. and the writers’ contributions to the shaping of modern literary culture. Explores the writers’ expressions of political, social, artistic and aesthetic issues.

AAS 305 Song, Sex, and Soul
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Uses the lyrics and rhythms of African American music to examine some of the cultural history of the United States. The examination emphasizes how the lyrics and rhythmic patterns of this music affect our daily lives.

AAS 306 Structure of Urban Policy
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
An introduction to poverty as a major social issue facing urban African-American communities. Uses an analysis of institutional discrimination to develop a comprehensive analysis of Black urban poverty as shaped by race, class, and gender. Topics covered might include surveying of how Black poverty has been analyzed in scholarship and public policy, assessing specific public policies such as Urban Renewal, school desegregation and busing, public housing, and Section 8 housing programs, for their effects on Black poverty, and exploring the special needs of specific poverty populations such as Black children.

AAS 315 Ancient African Civilizations
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Provides an intensive examination of humankind and society in ancient Africa, stretching back to humankind’s evolution and including an analysis of early forms of African state formations. Ancient Africa is cut off from the period of European presence in Africa, marked by the beginnings of the Atlantic Slave Trade. The course features the following themes and topics: (1) Prehistoric ancient Africa; (2) the desiccation of the Sahara and its consequences; (3) Africa and Mediterranean civilizations; (4) Coptic Christianity and the early history of Christianity; (5) Islam and its brush with Christianity in ancient Africa; (6) Africa’s ancient state formations; (7) the impact of Arab invasion and occupation on ancient African state formations; (8) the Bantu migration hypothesis; and (9) the mystery of the Great Zimbabwe. All of these lead to an examination of the dynamics of civilizations in ancient Africa, including their failed forms, using Arnold Toynbee’s perspectives on the rise and fall of civilizations as a theoretical point of departure.

AAS 326 African-American Political Development
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces students to black political development in the Western Hemisphere, particularly emphasizing the Caribbean area and the socio-political relationships between black West Indians and other black communities in the Western Hemisphere.

AAS 327 Current African History
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Considers major current events in Africa. However, in focusing on current events our approach involves examining the historical roots of these events.

AAS 333 Race, Ethnicity, and Education
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores how factors of race and ethnicity affect the relationship between schooling and society in the United States. Among the issues covered are school curriculum, equality of educational opportunity, socialization, power and ideology, school-government relations, and educational reform.

AAS 345 American Ethnicities
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Examines the phenomenon of ethnicity as a salient principle of social organization in America. The course seeks also to clarify what is unique about black ethnicity in America, analytically and historically, and to compare American ethnic experiences with those of other ethnic groups.

AAS 355 Race, Class, and Society
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Considers how the social divisions of race, gender, ethnicity, and class in the United States today influence the functioning of society in terms of politics, economics, culture, and so on. The course also places special emphasis on current and historical African American experiences.

AAS 358 African Diaspora
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Treats broad aspects of the black diasporic experience in both the eastern and western hemispheres. Also examines the pre-slave and post-slave eras, reviewing and analyzing a range of social, cultural, economic, and political movements and issues.

AAS 361 Slavery and the Underground Railroad
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Deals with an aspect of American history (roughly 1830-1860) involving the quest for freedom by African slaves who ran away from bondage through an elaborate system of escape routes stretching from the U.S. South to the North and Canada. Labeled the “Underground Railroad,” these networks were managed by “conduits” who helped their “passengers” (the escaped slaves) move from ‘station’ to ‘station’ and to reach freedom in the North. Probes the background history of slavery, the legislative backcloth of the Underground Railroad, its geography of routes, and the biography of its major “conduits.” Explores the local history of the Underground Railroad of Western New York, including planned visits to its ‘stations’ in Buffalo, Rochester, and Ontario.

AAS 363 Junior Seminar: Directed Readings
Credits: 3
Prerequisites: permission of instructor
Corequisites: None
Type: TUT
Introduces students to the interdisciplinary field of African American Studies, its relationship to other disciplines, and to social science research methodology. Students read the classic literature in the field and prepare annotated bibliographies. Topics covered may include slavery, colonialism, urbanization and migration, gender and gender construction, and intellectual movements.

AAS 372 Selected African American Writers
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Focuses on an adherence to traditional themes in the African American canon and those writers whose outstanding efforts have continued the evolution of that canon. Discusses the themes of community and freedom and literacy, as well as the trope of black signifying.

AAS 377 Caribbean Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Examines the literature of the Islands within the context of historical, social, political, and economic circumstances that manifest themselves across linguistic boundaries. This seminar is devoted to major prose works written in English or in translation. Includes introductory lectures that examine broader issues relating to Caribbean literature. The class experience is enriched by videos and guest lecturers. The creative prose works are selected with an eye to thematic and conceptual variety.

AAS 386 Male-Female Relationships
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Studies the function of various societal traits that dominate a relationship and how religion, education, economic status, family beliefs, racial beliefs, and friends influence the way a couple interacts. There are many struggles in relationships that take on such forms as dominance or subservience, fear or hope, and jealousy or acceptance.
AAS 392 The Black Church
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Explores the origin and development of the African American church and its role in the sociopolitical and economic organization of African Americans in a comprehensive historical and sociological overview of the African American religious experience. The course examines elements of the black church that have survived from Africa and includes considerations of the black presence in the Bible. It considers in some detail the enlarged black church in the post-emancipation era, including its social roles in the economy, education, etc., and its transformation during the great migration of the World War I Era. The course also considers the contribution of black theology to modern black liberation and the Civil Rights movement.

AAS 393 Survey of Black Middle Class
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Simultaneously examines two centuries of black middle class virtues and vices, while each student carries out a self-examination of his/her own middle-class status and/or aspirations. Achieves the second exercise with the aid of interest tests that serve as guides for each student's five-year plan after graduation.

AAS 414 Health Problems in the Black Community
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Addresses issues of health and disease in the African Diaspora from the point of view of African people's biology and culture. Includes African healing traditions in the Caribbean and North America, as well as black responses to modern medical revolutions. Examines selected public health issues in black communities, such as AIDS and homicide.

AAS 415 Black Face/White Forum
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Explores the cultural development of African Americans during the eighteenth, nineteenth, and twentieth century. Requires students to be familiar with the secondary literature on African Americans' history and culture. Also analyzes some aspects of black's social and political life in an urban setting.

AAS 416 Black/White View of America
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Examines how African Americans view themselves and how they view the opportunities available to them. We look at how the supposed differences in the viewpoints of blacks and whites divide American society into the haves and the have-nots, and how the similarities remain a secret hidden by our educational system and mass media.

AAS 417 Contemporary Black Film Culture
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Introduces the major images elements of sound, lights, space, and time-motion, and how they are used in film and television to influence perception. The course is designed to provide students with criteria to help them judge and experience media-articulated messages at different intellectual and emotional levels. Analyses and discusses specially selected television and film materials in terms of how media elements can be used to influence perception and emotions. Encourages students to do comparative analyses of different types of mass media communications to discover relevant cultural elements and the principles underlying their uses.

AAS 425 Liberation Struggles of the African Diaspora
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Focuses on the movements of people of African descent in search of freedom from colonialism, racial oppression, slavery, and apartheid. Uses a comparative approach to trace evolving programs and conceptions of the freedom struggle across generations and regions. Topics include the Haitian Revolution, the African-American civil rights movement, the South African anti-apartheid movement, and the anti-colonial movements of Africa and the Caribbean.

AAS 460 Black Women in United States History
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Examines the history of black women in the United States from the slave era through the reform movements that occurred after World War II. Focuses on the range of demands placed on black women during the Gilded and Progressive eras—the founding of the National Association of Colored Women in 1896, their participation in the women's suffrage movement, black struggles for liberation in the United States and in the African Diaspora, cultural movement, war, labor force participation, and health. Also explores black women's interaction with male-dominated groups and feminists from other racial and ethnic groups. Students will analyze black women as leaders, their leadership styles and the impact that they have made on constituents.

AAS 461 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
This research and reading seminar each semester explores a specific topic in African American Studies. Topics may include urbanization, women's history, archeology, slavery, civil rights, labor, etc.

AAS 496 Community Internship
Credits: 3
Prerequisites: None
Corequisites: None
Type: TUT
Assigns to students a research project with a community-based organization, agency, or center. Much time is spent studying how the agency structures and disseminates its services. Provision for effective research enables the student to participate in the black community and observe the dynamics of community activities and the role of the black community in decision making in government and social agencies and in the development of cultural and economic activities.

AAS 497 Honors Seminar
Credits: 4
Prerequisites: None
Corequisites: None
Type: TUT
Students conduct research or a project under the supervision of a member of the department's faculty.

AAS 498 Senior Seminar: Research Project
Credits: 3
Prerequisites: None
Corequisites: None
Type: TUT
One semester course; builds on AAS 363 and culminates in a research project in cooperation with a member of the department's faculty. Students complete AAS 463 with an awareness of the discipline's history, its changing foci and relation to other disciplines, its great works and pivotal intellectual figures, and its important research tools and resources.
**American Studies**

**AMS 100 Indian Image on Film**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Discusses the fabricated image of Native Americans in American film history, the media process that perpetuates such images, and the resulting stereotypes; also covers the relationship to social movements and alternatives for overcoming stereotypes.

**AMS 107 Introduction to American Studies**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces students to a variety of approaches that have been developed in American studies to assist understandings of how different people participate in this society and in the world. Also considers how experiences continue to shape present thinking and future possibilities.

**AMS 111 Contemporary Popular Music**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces historical developments that helped formulate today's jazz and rock movements; emphasizes roots and foundations of the forms.

**AMS 113 American Lives and Environments: Folklore and Social Groups**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC/SEM  
Examines patterned stories, sayings, designs, and ways of living that have been created and are continuously being recreated by groups of people; also investigates historical and social meanings of folklore.

**AMS 114 American Lives and Environments: Folklore and Social Groups**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC/SEM  
Examines patterned stories, sayings, designs, and ways of living that have been created and are continuously being recreated by groups of people; also investigates historical and social meanings of folklore.

**AMS 120 Afro-Latin Musical Praxis**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: SEM  
Uses basic musical techniques derived from various Afro-Western traditions.

**AMS 161 Natural World Perspective**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: SEM  
Examines cultural interactions and values affecting human distribution and location of social activities; provides theoretical explanations.

**AMS 162 New World Imaginations**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: SEM  
Studied the connection with all forms of life in evolutionary development and ecological processes. Also examines ecological processes. Also examines ecological processes.

**AMS 165 Cross Cultural Topics**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: SEM  
Examines traditional and contemporary art methods and techniques by various Indigenous groups in North and South America.

**AMS 209 Musics of the World**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Studies the connection with all forms of life in evolutionary development and ecological processes. Also examines ecological processes.

**AMS 210 Musics of the World**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces ethnomusicology; studies musical styles in a variety of cultures.

**AMS 211 Survey of Native American History**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: SEM  
Focuses on the spiritual side of the Native American, including substance, motivation, and character of the American Indian.

**AMS 217 Introduction to Native American History**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Examines perspectives and philosophies of Native American writers. Provides insight into why the American Indian has a unique perspective on caring for what happens to the Earth.

**AMS 285 Natural World vs. Legal Situation**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Looks at the legal status of Native North Americans in relation to the United States and its governmental predecessors.

**AMS 301 Introduction to Indigenous Women**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Examines conflict between the natural world perspective of Native American and the legal world perspective of U.S. culture.

**AMS 306 Native American Aesthetics**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Examines traditional and contemporary art methods and techniques by various Indigenous groups in North and South America.

**AMS 307 Introduction to American Studies**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces students to a variety of approaches that have been developed in American studies to assist understandings of how different people participate in this society and in the world. Also considers how experiences continue to shape present thinking and future possibilities.

**AMS 311 Contemporary Popular Music**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces historical developments that helped formulate today's jazz and rock movements; emphasizes roots and foundations of the forms.

**AMS 313 American Lives and Environments: Folklore and Social Groups**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC/SEM  
Examines patterned stories, sayings, designs, and ways of living that have been created and are continuously being recreated by groups of people; also investigates historical and social meanings of folklore.

**AMS 314 American Lives and Environments: Folklore and Social Groups**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC/SEM  
Examines patterned stories, sayings, designs, and ways of living that have been created and are continuously being recreated by groups of people; also investigates historical and social meanings of folklore.

**AMS 315 Afro-Latin Musical Praxis**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: SEM  
Uses basic musical techniques derived from various Afro-Western traditions.

**AMS 343 Human Ecology**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Studies social dimensions of space affecting human distribution and location of social activities; provides theoretical explanations.

**AMS 364 Seminar for Majors**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Examines traditional and contemporary art methods and techniques by various Indigenous groups in North and South America.

**AMS 379 Contemporary Problems of American Indians**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: SEM  
Introduces undergraduate students to some of the current difficulties facing Indigenous peoples in North America.

**AMS 381 Natural American Literature**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Examines perspectives and philosophies of Native American writers. Provides insight into why the American Indian has a unique perspective on caring for what happens to the Earth.

**AMS 382 Native American Literature**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: SEM  
Introduces undergraduate students to some of the current difficulties facing Indigenous peoples in North America.

**AMS 383 Natural World and Legal Situation**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Looks at the legal status of Native North Americans in relation to the United States and its governmental predecessors.

**AMS 400 Contemporary American Fiction**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Considers problems in American fiction from a cultural, historical, thematic, and stylistic perspective.
AMS 457 Problems in American Urban History
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Studies urban development aspects in the local community and more generally.

AMS 488 Violence and Nonviolence
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM/REC
Introduces the theory and practice of nonviolence.

AMS 499 Independent Study
Credits: 1
Prerequisites: permission of instructor
Corequisites: None
Type: TUT
Individually designed program of reading, research, or skills development in close association with an instructor.

Anatomy
ANA 113 Human Anatomy
Credits: 4
Prerequisites: None
Corequisites: None
Type: LEC/LAB
Comprehensive course focused on the gross anatomy and histology of human tissues and major organ systems. Designed for health sciences majors, this is a rigorous course emphasizing clinically relevant anatomy. Lectures are supplemented by a laboratory component consisting of demonstrations of cadaveric specimens.

ANA 407 Gross Human Anatomy
Credits: 6
Prerequisites: ANA 113 or APY 345/ APY 346
Corequisites: None
Type: LEC/LAB
Eight-week course for students in exercise science and occupational therapy only. Laboratories involve dissection of the human cadaver, emphasizing the musculoskeletal system. Lectures emphasize clinical correlations.

ANA 495 Supervised Teaching
Credits: 1
Prerequisites: Permission of instructor
Corequisites: None
Type: TUT
Teaching assistant in anatomy courses.

ANA 499 Independent Study
Credits: 1
Prerequisites: Permission of faculty member and/or Vice-Chair
Corequisites: None
Type: TUT
Undergraduate project.

Anthropology
APY 104 Great Sites and Lost Tribes: The Romantic Element in Archaeology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the romantic element in archaeology in the great sites of the world, such as Troy, Olmec Gorge, Stonehenge, and so forth. Since the sites cannot be separated from their discoverers and excavators, we also consider the lives of the most famous and romantic archaeologists, including Schliemann, Leakey, and Kenyon.

APY 105 Introduction to Anthropology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introductory survey of anthropology's major subfields: archaeology, physical anthropology, and cultural anthropology.

APY 106 Introduction to Cultural Anthropology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Surveys important ideas about culture and society that have shaped cultural anthropology. Studies the principal institutions of culture—language, social organization, religion, economics, politics, artistic expression, etc.—as well as their historical development.

APY 107 Introduction to Physical Anthropology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
For centuries preceding modern times, our uniqueness as a species was taken as a sign of special creation; we were not seen to be a part of nature. But as knowledge of human evolution, our closeness to other primates, and our adaptations to specific environments emerged, we have taken our place in the animal kingdom. Here, we learn how those insights developed, and about current methods of understanding human origins and the natural forces that have shaped us.

APY 108 Introduction to Archaeology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies the development of society from the earliest tools to the advent of history, analyzed in terms of spatial and temporal diversity, and as people’s means of adapting to their environment.

APY 120 Environmental Anthropology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
It is clear that our environment appears to us always to be kind to us. Whether we are exposed to toxins produced by industry, harsh temperatures or malnutrition, the outcome is often poorer health and shorter life. As a biological/behavioral science, anthropology is in a unique position to explore and expand our knowledge of what is or is not what this course covers.

APY 161 Heredity and Society
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Examines contemporary human genetics relevant to families and society as a whole. Topics include genetic diseases, family planning and demography, genetic counseling and prenatal diagnosis, genetic engineering, and genetics and the law.

APY 183 Peoples and Culture of Latin America
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
For non-majors. Modern Latin American nations; cultural history; current problems of national development; and future prospects.

APY 203 Anthropology and Film
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies culture through the use of visual materials (films, tapes, etc.). Emphasizes learning anthropological concepts, attitudes, and methodologies, with films as the primary medium for so doing. This is a class in anthropology, rather than a films course.

APY 205 American Norms and Deviations
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Points out ‘definitions of the situation’ that exclude and oppress some Americans for the apparent benefit of other Americans; explores categories of people (‘criminals,’ ‘bums,’ ‘criminals’ and so forth) as realities and as stereotypes, and analyzes their origins in American social history; also clarifies forces that sustain such categorizing.

APY 210 Musics of the World
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces ethnomusicology, considering musical styles in a variety of cultural contexts.
APY 215 Historic Archaeology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Reviews the growth of the unique possibilities of historic archaeology—growth that suggests that this subdiscipline can provide an important perspective on disciplinary goals, as well as on the history of North American societies.

APY 217 Warfare
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Intended for students who are interested in learning about the forms of armed combat, which occur in small-scale societies, and the causes of such violence. Focuses upon the ‘warfare’ of five different societies, and then explores several anthropological theories that address the causes and effects of internal violence and warfare.

APY 218 Men, Women and War
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Focuses on the experiences of men and women in war, both as members of military organizations and as noncombatants. Students learn (1) how martial values are inculcated into a population, particularly the youth; (2) what it is like to be a member of a military organization; (3) about the activities of military organizations in combat, in the treatment of captured enemy, and in peace; and (4) what it is like to be a member of a society at war.

APY 226 Human Adaptation
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines human subsistence and reproductive behavior from an evolutionary perspective. The course consists of five sections: (1) the theory of evolution, natural selection, and adaptation; (2) what our nearest relatives, the two chimpanzee species, can teach us about being human; (3) recent human evolutionary history in the Pliocene and Pleistocene periods; (4) hunter-gatherers; and (5) special issues related to reproduction.

APY 239 Archaeology of New York Colonial History
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Covers the archaeology of New York State, from the first human settlement to the nineteenth century.

APY 245 Survey of the Primates
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces the field of primatology, including primate taxonomy, ecology, and evolution. Uses a variety of visual aids. Encourages primate biology, and visits to the Buffalo Zoo and the Physical Anthropology Laboratory.

APY 246 Introduction to Primate Behavior
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Behavior, and social organization of nonhuman primates: current theories, evolutionary processes, and research methods, both in the field and in the laboratories.

APY 248 Human Genetics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines contemporary human genetics relevant to families and society, including genetic diseases, family planning and demography, genetic counseling and prenatal diagnosis, genetic engineering, and genetics and the law. Provides students with sufficient understanding of contemporary human genetics to intelligently address these issues.

APY 250 Topics in Archaeology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Topics vary. May be taken more than once for credit.

APY 253 Special Topics in Archaeology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Course content varies by instructor.

APY 256 Topics in Cultural Anthropology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Topics vary. May be taken more than once for credit.

APY 258 Topics in Physical Anthropology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Topics vary. May be taken more than once for credit.

APY 262 Anthropology and Justice
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines comparative studies of justice from the perspectives of local and global human problems, including analyses of the causes of conflict and dispute: inequality, poverty, racism, war and aggression, colonialism, sexism, economic exploitation, and so forth. Considers justice in the context of related cultural concepts and values (such as truth and harmony) and in a variety of institutional settings (such as the community, workplace, and nation). In addition, the course investigates aspects of crime, deviance, punishment and rehabilitation, and restitution.

APY 265 People of South East Asia
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the history and culture of both mainland and island Southeast Asia, emphasizing kinship, religion, and political systems, as well as art forms.

APY 275 Introduction to Medical Anthropology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Uses an ecological and cultural perspective to study human disease, stress, and adaptation. Topics covered include the ecology and epidemiology of disease; genetic, physiological, and cultural adaptation; nutrition; stress; culture change; and health repercussions of economic development and modernization. While the course is more ecological than ethnomedical, there are supplementary readings and films on ethnomedical use of hallucinogens and altered states of consciousness, as well as cooperation between indigenous healers and biomedically trained personnel.

APY 276 Introduction to Ethnomedicine
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Cross-cultural survey of beliefs and practices relating to health, illness, and treatment. Emphasizes understanding the cultural and social foundations of ethnomedical systems, including ethnomedical systems in the United States. Examines contemporary biomedicine as a cultural system.

APY 283 Peasant Societies and Cultures
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces anthropological thought on peasants and peasantry in complex society, including the nature of peasant communities, relations between peasants and non-peasants, agrarian/peasant movements, and depesasantization.

APY 302 Ancient Art and Cities of Central America and Yucatan
Credits: 3
Prerequisites: permission of instructor
Corequisites: None
Type: LEC
Involves field exploration of some of the most important cities of the ancient Maya. Together with the instructor, students visit the vast and mysterious ruins of ancient Maya: Tikal, Izimiché (Guatemala), Copan (Honduras), Tulum, Cobá, Chichen Itzá, Uxmal, Labná, Sayil, Dzibilchaltun, and Edzná (Mexico). Students meet and discuss recent investigations at these sites with Mexican and North American archaeologists who work in the Maya area. Important museums in Guatemala and Mérida are also visited, along with contemporary Maya communities. The overseas portion of this course lasts approximately two weeks and is conducted in January, before the beginning of spring semester.

APY 303 Physical Research
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
A first-level step-by-step introduction to research, which involves coming up with a question, background reading, methods design, data collection, and data analysis. The course is open to anyone with an interest in learning how to do research. Fulfills the practicum requirement for anthropology majors.

APY 309 Social Organization of Animals
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies systems of social organization throughout the animal kingdom; general principles of social behavior that may have relevance to humans.

APY 310 Early Social Development: Biological Bases
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Involves an overview of ways research on the social development of animals contributes to current approaches to the study of early human social development.
APY 311 Culture and Personality
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Social scientific, psychological, and psychiatric materials on normal and abnormal behavior in a variety of cultural settings; social and cultural change and personality; group functioning; forms of deviancy.

APY 312 Culture and Reproduction
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines cultural transmission processes, including analyses of American schooling.

APY 315 Cross-Cultural Study of Women
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Examines political, economic, and social systems of various non-Western societies in relationship to the roles women take as reproducers of cultural values or as activists working for change.

APY 320 Seminar in Cognitive Anthropology
Credits: 3
Prerequisites: specific prior work in anthropology not assumed; background in anthropology, psychology, linguistics, sociology, or similar fields is necessary
Corequisites: None
Type: SEM
Examines human thinking as a cultural and social, as well as a psychological (or computational) phenomenon. Regards cognition as closely interconnected with cultural forms, social systems, and everyday activities. The course also addresses the concept of a 'cognition' as a cultural product whose social and historical origins require investigation.

APY 321 Special Topics in Cultural Anthropology
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Examines cultural transmission procedures in different cultures from the point of view of anthropology. Thus, the course concerns the educative process (enculturation) at different points in the life cycle of an individual and in different social contexts. Brings anthropological methodology and content to bear on the subject matter, including analyses of American schooling. Probes various issues in education, as relevant.

APY 324 Approaches to the Study of Religion
Credits: 3
Prerequisites: APY 106
Corequisites: None
Type: LEC
Introduces different approaches to the study of religion, their main contributions and shortcomings, and the debates within the study of religion. Students become familiar with contemporary issues in the study of religion and apply theory with critical awareness in the analysis of religious phenomena.

APY 325 Contemporary Afro-Caribbean Religion
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Strengthen students with the rich cultural syncretism of Afro-Caribbean culture from a Latin American perspective, challenges the miasma of mysticism surrounding the religions as viewed by developed nations, and provides students with the basic skills necessary to conduct field research from an anthropological perspective.

APY 328 Biology Society & Culture
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies culture through the use of visual materials (films, tapes, etc.). Emphasizes learning anthropological concepts, attitudes, and methodologies, with film as the primary medium for doing so. This is a class in anthropology, rather than a film course.

APY 330 Prehistory of Europe
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines European prehistory from the Paleolithic period through the formation of the earliest states in Europe.

APY 331 Archaeology of New World
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines prehistoric development of Indian cultures in North and South America, from the initial aboriginal occupation of the Americas.

APY 332 Archaeology of the American Southwest
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
The American Southwest, a striking arid land, is rich in archaeological remains of mammoth hunters, cave dwellers, and Pueblo Indians. Reviews the evidence concerning those ancient people and their migrations, invasions, droughts, and abandonments. Also discusses field and laboratory techniques.

APY 333 North American Archaeology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the peopling of the continent, landscape evolution, origins and spread of agriculture, and the rise of chiefly forms of social organization. Also examines Meso-American influences, and the effects of European conquest.

APY 338 Field Research Archaeology
Credits: 6
Prerequisites: permission of instructor
Corequisites: None
Type: LAB
Archaeological research participation; includes techniques of site survey and excavation.

APY 344 Animal Communication
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Surveys natural communication systems within the animal kingdom, including the structure, functions, development, and evolution of natural communication systems among both human and non-human animals.

APY 345 Comparative Primate Anatomy
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC/LAB
Studies descriptive and functional primate anatomy, with relevance to the origin and adaptation of groups within the order of primates.

APY 346 Dissections in Comparative Primate Anatomy
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Covers basic primate gross anatomy learned by dissection and making comparative observations of various species of primates.

APY 348 Forensic Anthropological Osteology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC/LAB
Covers fundamentals of human skeletal anatomy through lecture, demonstration, and laboratory work. Considers procedures and applications in contemporary and historical human biology and in archaeology, stressing both technical approach and theoretical application. This lecture and laboratory course demonstrates the fundamentals of human skeletal biology and anatomy. Stresses procedures and applications used in evaluating archaeological and contemporary human populations. Considers forensic applications.

APY 350 Human Behavioral Ecology
Credits: 3
Prerequisites: introductory anthropology course; introductory biology course recommended
Corequisites: None
Type: LEC
Studies the archaeology of Africa, Asia, and Europe, from the Palolithic period through the appearance of the earliest civilizations.

APY 361 Anthropology of the Middle East
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines Middle Eastern society from a cultural perspective. Topics include kinship, gender, popular and orthodox Islam, nationalism, mass media, urbanization, and historical relations with the West.

APY 362 People and Culture of Japan
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines Middle Eastern society from a cultural perspective. Topics include kinship, gender, popular and orthodox Islam, nationalism, mass media, urbanization, and historical relations with the West.

APY 363 Cultural History of Oceania
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the development of Japanese culture patterns, their relationship to the Asian mainland, and changes of traditional patterns accompanying modernization.

APY 364 Peoples of Eastern Asia
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the peoples of East and Southeast Asia (though not northeastern peoples such as the Japanese or Koreans). Focuses mainly on Southeast Asia, especially Malaysia, and on social structure, ecology, and literature.
APY 366 Peoples of Asia
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Provides students with an anthropological introduction to the early periods of Chinese and Indian civilizations through lectures, audiovisual materials, and discussion. Compares these cultures with the West in terms of religious ideas, archaeological materials, political forms, family systems, and basic values.

APY 367 Meso-American Archaeology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines art, iconography, architectures, and archaeology of ancient Mexico, Guatemala, and Belize; also covers religious, political, and economic development from its beginning, around 2000 B.C.E., to its decapitation by the Spaniards in 1521.

APY 368 Theories in Archaeology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces archaeological theory and methods; including the proper design of archaeological research projects, data analysis, and interpretation of results.

APY 369 Peoples and Cultures of Sub-Saharan Africa
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores cultures of hunting, pastoral, and agricultural societies, including history, social structure, political and economic systems, religion, and aesthetics. Also considers the impact of colonialism, industrialization, urbanism, and political independence upon African societies and cultures.

APY 371 African American Culture
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Analyzes societies and groups in the Western Hemisphere derived from Africa; covers transplanted and emergent institutions, religions and aesthetics, and the role of African Americans in broader regional and national societies in the Americas.

APY 372 Maritime Anthropology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Investigates maritime orientations and adaptations in human societies past and present. We look at the symbolic, cognitive, technological, and ecological aspects of maritime orientations using materials from ethnography, archaeology, history, and literature.

APY 373 Indians of North America
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines native North American cultures, including contact history, impact of political relations with Euro-Americans, and contemporary realities. Also studies revitalization movements, pantribalism, and land claims actions.

APY 374 Anthropology and Health Careers
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Reviews anthropological concepts and methods for students preparing for community service careers and health professions; also applies anthropological methods to contemporary health concerns of North America.

APY 377 Magic, Witchcraft and Sorcery
Credits: 3
Prerequisites: junior/senior standing
Corequisites: None
Type: LEC
Understanding the nature of magic and the anthropology of sorcery and witchcraft beliefs around the world and throughout history offers insights into some fundamental aspects of human belief and behavior. Considers ‘primitive’ beliefs as representative of universal beliefs and as background to the course’s consideration of ‘occult’ interests and fears in contemporary America.

APY 380 Myth, Ritual, Symbolism
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Explores the ethnography of symbolic form and process in myth and ritual. Also examines metaphor and the problem of meaning in the structuralist, dramatistic, hermeneutic, and semantic approaches of Claude Levi-Strauss, Victor Turner, Clifford Geertz, Edmund Leach, and others.

APY 382 Indians of South America
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Surveys the indigenous societies of cultures and South America, including both highland Andean and lowland Amazonian people. Provides a perspective on the prehistory, history, and contemporary situation of native South Americans, examining traditional anthropological topics as well as current political issues surrounding indigenous rights, integration into national societies, and environmental destruction.

APY 383 South American Workers and Peasants
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores the development of modern Latin American culture, from aboriginal southeast European and African roots; gives attention to community studies and other approaches to the study of contemporary people.

APY 393 Anthropology of Religion
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Compares religious beliefs, rituals, and organization; also considers relationships of religion to other aspects of culture and society, and religion as a dynamic system.

APY 394 Religion and Healing in Native South America
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Surveys the contemporary religions and healing practices of Native South Americans through the ethnographies of a variety of South American groups. Explores Native South American concepts of time, space, power, order, destruction, and renewal and their manifestations in birth, initiation, healing, and death rituals. Attempts to understand different worldviews and practices that help us rethink our way of conceiving the world and our role in it.

APY 396 Methods in Urban Anthropology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores the ethnography of symbolic form and process in myth and ritual. Also examines metaphor and the problem of meaning in the structuralist, dramatistic, hermeneutic, and semantic approaches of Claude Levi-Strauss, Victor Turner, Clifford Geertz, Edmund Leach, and others.

APY 401 History of Anthropology
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Involves research projects formulated, planned, and carried out in the Buffalo area.

APY 402 Modern Europe: Anthropological Perspectives
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
In recent decades, Europe has become a major area of investigation for cultural anthropologists. In this seminar, we ask both what an anthropological perspective can contribute to our understanding of European peoples and also what a consideration of European peoples can contribute to anthropological theory and method. Europe is not the kind of place traditionally associated with anthropology; it is not ‘non-Western,’ it is not ‘undeveloped,’ it is not ‘nonliterate; it is most certainly not ‘without history,’ and perhaps most significantly, it is not the exclusive investigatory turf of anthropologists. The course focuses on issues of identity, history, and power as these shape and are shaped by social forms and local practices.

APY 403 Comparing Cultures Worldwide
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies various comparative methods in detail, including the cross-cultural survey method. Students learn to derive and test hypotheses using both large and small samples of cultures drawn from the Human Relations Area Files.

APY 404 Designing Material Culture
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Seminar in interpreting the form of material culture. Acquaints students with some forms of inferences used in analyses of material culture, familiarizes them with some questions addressed through analyses of material form, and provides them with an opportunity to design and implement an analysis of an artifact form.

APY 406 Advanced Social and Cultural Theory
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Considers both traditional and new methodological approaches to the diachronic and synchronic analyses of societies and cultures. For majors planning graduate study in anthropology.

APY 408 Ethnographic Field Methods
Credits: 3
Prerequisites: None
Corequisites: None
Type: TUT
Traditional and new methodological approaches to the diachronic and synchronic analysis of societies and cultures.
APY 409 Primate Social Behavior
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Examines systems of social organization among primates; also studies general principles of social behavior that may have relevance to humans.

APY 410 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Course content varies by instructor.

APY 411 Four Horsemen of the Apocalypse
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Studies the four horsemen in all their guises. Examines their importance historically and at present. They have been and are religious icons, symbols of the major processes of warfare, disease, famine, and death, as well as cultural, literary, and artistic symbols throughout the generations. The course traces one of the horsemen through both time and space in the intellectual area of the students’ choice.

APY 412 Culture and Astronomy
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Involves a cross-cultural and historical examination of a variety of astronomy focusing on practices and empirical realities. Compares in detail Medieval Western astronomy, Mayan calendrical astronomy, and Pacific Islanders’ navigational astronomy. Students participate in an in-class workshop dealing with an artifact from each of these systems, and research, report, and write on these and other astronomical systems. Students have the opportunity to use computer-based planetarium programs to simulate the sky at other times and places.

APY 414 Museum Management
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Introduces practical applications of museum management in conjunction with assigned readings. Areas of study include current issues in collection management procedures such as collections development, national and international law relating to the protection of cultural property, registration methods, conservation, exhibit preparation, and the role of new technologies used within museums and galleries.

APY 416 Human Evolutionary Ecology I: Reproduction
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Examines human reproductive and social behaviors from an evolutionary and ecological perspective. Discusses patterns of behavioral variability between and within human populations. Topics include sexual selection, mate choice, life history theory, parenting, and sexual coercion. For students interested in human ecology, cultural anthropology, archaeology, primatology, and human paleontology. One of a sequence that includes APY 417, although students can take one seminar without having taken the other.

APY 417 Human Evolutionary Ecology II: Subsistence
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Examines human subsistence behavior from an evolutionary and ecological perspective. Discussion focuses on patterns of behavioral variability between and within human populations. Topics include issues of reciprocity, foraging theory, the sexual division of labor, and evolutionary economics. Designed for students interested in human ecology, cultural anthropology, archaeology, primatology, and human paleontology. Seminar is designed to be one of a sequence that includes APY 416, although students can take one seminar without having taken the other.

APY 420 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Course content varies by instructor.

APY 421 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Course content varies by instructor.

APY 422 Comparative Urbanism
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Consider the origin of the city, starting with Mesopotamia. Defines urban and civilization, examines the urban environment, and compares the archaeological city to the modern city.

APY 429 Anthropology of Architecture
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the material culture of eastern North America from 1620 to the present. Focuses on the house and its contents as a means by which the settlers of the North American continent adapted to their environment. Uses a developmental perspective to organize the materials.

APY 432 Peoples of the Arctic and Subarctic
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Anthropological survey of arctic and subarctic populations, primarily focusing on Canada and Alaska, with some comparative coverage of Greenland, Siberia, and the Lapps of northern Europe. Develops multidisciplinary models using ethnographic, historical, and epidemiological sources to analyze traditional patterns and contemporary changes in northern communities. A variety of ecological and cultural systems have emerged in the North since the period of contact and settlement by Europeans, and the course encourages students to do comparative analyses of national, regional, and ethnic differences and similarities.

APY 433 Archaeology of Eastern North America
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Traces the variety of Native American cultures developmentally and regionally from the earliest occupation through the early historic period.

APY 434 Approaches to Archaeology
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Surveys the literature to identify the strategies and techniques of gathering and analyzing information in archaeology.

APY 435 Archaeological Techniques
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Skills course emphasizing the use of photography and drawing, both in the field and in illustrating site reports. Intended primarily for students with an archaeological career orientation, the course deals with factors in the preparation of art manuscripts: draftsmanship, work on drawings, maps, and plans, including line work and photography. Also considers artifact drawing, and processes of printing and production.

APY 439 Laboratory Techniques in Archaeology
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Involves individual instruction and guidance in the study of artifacts through laboratory projects.

APY 440 History of Archaeology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Summarizes the history of archaeology, beginning with its classical and European antecedents. Examines the major trends of seventeenth- through twentieth-century archaeology. Explores major archaeologists and sites, emphasizing the New World. Relates history of archaeology to history of science.

APY 441 Anthropological Demography
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Examines the development and demographic characteristics of human populations in the prehistoric and ethnographic record.

APY 442 Work Anthropology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Work is important because it produces the goods and services that make our lives possible, including raising children, growing food, producing knowledge and meaning, and making things. Nothing we strive to understand is more important, and this is one of those areas of research that is intuitively understood. Students can take one seminar without having taken the other.

APY 443 Advanced Physical Anthropology
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Topics vary. May be taken more than once for credit.

APY 448 Human Genetics/Legal and Ethical Issues
Credits: 3
Prerequisites: APY 248 or permission of instructor
Corequisites: None
Type: SEM
Recent advances in genetic technology have presented the scientific and lay communities with ethical and legal problems yet to be resolved. Examines the history of archaeology, beginning with its classical and European antecedents. Examines the major trends of seventeenth- through twentieth-century archaeology. Explores major archaeologists and sites, emphasizing the New World. Relates history of archaeology to history of science.
APY 449 Mayan Civilization: Past and Present
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Explores Mayan civilization from its earliest beginnings to the current situation. The seminar begins with the pre-classic roots of Mayan civilization, then moves through classic splendor, post-classic turbulence, the European invasion, and into the current period of revolution and ethnic resurgence. Students select a particular geographically and linguistically distinctive Mayan population and trace the group historically through artifacts, written records, life histories, and ethnographies. Student activities include active class participation in discussions and preparation of an annotated bibliography on a key aspect of Mayan civilization.

APY 457 Evolutionary Biology of Humans
Credits: 3
Prerequisites: one course with substantial evolutionary biology content
Corequisites: None
Type: LEC
Explores the application of evolutionary theory and method to modern human populations. Among the topics are heritability of biological and behavioral variables, developmental biology and natural selection, biological distance, biogeography and race, adaptive theory, adaptation to environmental change, and such emergent problems as crowding, hunger, epidemic disease, and global warming. Specific topics may vary depending on developments within the profession.

APY 474 Urban Anthropology
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Analyzes urban communities in cross-cultural perspective, the role of cities in large social cultural systems, utility of anthropological techniques in understanding complex communities, and contemporary American urban adaptations and research.

APY 475 Ecology and Cultural Adaptation
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces ecological anthropology or cultural ecology. Examines interrelations of social and cultural systems with the biotic and physical environment, including exploitative and subsistence systems (such as land use, land tenure, and settlement patterns).

APY 476 Health Care in the United States
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores the culture and social organization of health care systems in the United States, including mainstream allopathic medicine and nursing, as well as more 'alternative healing' modalities, such as faith healing, chiropractic, 'New Age' healing, and so forth. Gives students a specifically anthropological understanding of health care in American society. This anthropological perspective draws attention to the many diverse components of health care in the United States, from high-tech advanced medical science to faith healing.

APY 477 Topics in Medical Anthropology
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Reviews the growth of anthropology as a scientific discipline. Analyzes in detail major anthropological approaches and theories.

APY 480 Collapse of Civilization
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Explores the causes of societal disintegration from an archaeological perspective. The ancient Mayan and pre-Aztec civilizations of Mexico, as well as that of ancient Shang China, are the focus for analyzing various factors that might lead to the destruction of complex social and political systems.

APY 482 Peruvian Culture/Society
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies the complex society of Peru as the focus of social anthropological analysis. Considers the country's history and ethnohistory, economy, organization, development problems, and contemporary violence. Requires no knowledge of Spanish.

APY 488 Kinship and Social Structure
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines kinship and family patterns in simple and complex societies. Also examines the role of kinship in society and the human quality of kinship patterns, including plural marriage, divorce, the incest taboo, gender, clans, lineages, and joint families.

APY 490 Economic Anthropology
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Examines the production, distribution, exchange, and consumption systems of non-Western peoples; the integration of economic systems with other aspects of culture; and problems of underdeveloped areas.

APY 492 Political Anthropology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Considers systems of government and control in the non-Western world, emphasizing tribal organization. Focuses upon law and warfare, the two most important political functions or tasks engaged in by a political community.

APY 494 Senior Seminar
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Topics vary. Seniors have registration priority.

APY 495 Supervised Teaching
Credits: 1
Prerequisites: Permission of Instructor
Corequisites: None
Type: SEM
Course content varies by instructor.

APY 496 Internship
Credits: 1
Prerequisites: Permission of Instructor
Corequisites: None
Type: TUT
Students wishing to complete an internship with a host agency may register for this course with the agreement of the agency supervisor and the faculty advisor.

APY 499 Independent Study and Research
Credits: 1
Prerequisites: permission of instructor
Corequisites: None
Type: SEM/TUT
Involves a cross-cultural and historical examination of a variety of ethnographies focusing on practices and empirical realities. Compares in detail Medieval Western astronomy, Mayan calendrical astronomy, and Pacific Islanders' navigational astronomy. Students participate in an in-class workshop dealing with an artifact from each of these systems, and research, report, and write on these and other astronomical systems. Students have the opportunity to use computer-based planetarium programs to simulate the sky at other times and places.

APY 499 Independent Study and Research
Credits: 1
Prerequisites: permission of instructor
Corequisites: None
Type: SEM/TUT
Individually designed program of reading, research, or skills development in close association with an instructor.
ARC 121 Introduction to Architecture 1
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
An introductory course and approved arts general education course. Open to non-majors. Provides a view and understanding of the profession and the discipline of architecture. Introduces architectural education and practice in the United States. Architecture responds to the past, embodied in the stones of the built environment, and is a fundamental aspect of the present. Connects architecture history and theory in an effort to show why architecture has been called ‘the handwriting of humankind.’ Examines architecture as a way of viewing the constructed world in the context of a liberal arts education as a study of aesthetic, technological, behavioral, social, environmental, physical, and legal forces determining architectural forms, landscapes, and urban patterns.

ARC 122 Environment, Behavior, and Design
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
An introductory course. Open to non-majors. Examines contemporary perspectives on environmental psychology, focusing on the relationships between human behavior and designed environments, and explores implications of those relationships for the purpose, nature, and future direction of design education, design research, and design practice.

ARC 201 Architectural Design Studio 3
Credits: 6
Prerequisites: ARC 101, ARC 102
Corequisites: None
Type: LAB
A majors-only studio course. Emphasizes conceptualization, critical thinking, planning, and making. Analyzes the basic materials, methods, tools, and conventions of architectural design. Examines the connections between abstract design principles and the physical and visual environments. Project themes include transformation, connection, threshold, movement/storage, surface/structure, accessibility, and transition.

ARC 202 Architectural Design Studio 4
Credits: 6
Prerequisites: ARC 101, ARC 102
Corequisites: None
Type: LAB
A majors-only studio course. Emphasizes conceptualization, critical thinking, planning, and making. Analyzes the basic materials, methods, tools, and conventions of architectural design. Examines the connections between abstract design principles and the physical and visual environments. Project themes include transformation, connection, threshold, movement/storage, surface/structure, accessibility, and transition.

ARC 211 American Diversity and Design
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
An introductory course and approved American Pluralism general education course. Open to non-majors. Examines the history and diversity of cultural experiences within the United States and their attendant environmental issues. Specifically, the course concentrates on the ways in which our physical and media environments affect various populations in the U.S. and, in turn, the ways these populations have affected our environments. It introduces students to eight issues of U.S. diversity: race, ethnicity, gender, class, age, physical ability, cognitive ability, and religion. Writings, films, products, graphics, electronic media, buildings, and environments by and about diverse U.S. individuals and groups are examined. The U.S. history of our diverse physical and media environments are analyzed using theories and principles related to inclusive design.

ARC 231 Architecture History I: Ancient - 1450
Credits: 4
Prerequisites: None
Corequisites: None
Type: LEC/REC
A history/theory course; prehistory to renaissance. Open to non-majors. Introduces the development of urban and architectural form in a cultural context from the first settlements of Neolithic times to the consolidation of architecture as a discipline in the 1450s.

ARC 234 Architecture History II: 1450 - Present
Credits: 4
Prerequisites: ARC 231
Corequisites: None
Type: LEC/REC
A history/theory course; renaissance to modern. Open to non-majors. Introduces the fundamentals of architectural design from the theory and practice of the 1450s to the built and written manifestos of modern times. Examines the evolution of the architectural discipline within the context of social, cognitive and technological transformation.

ARC 280 Buffalo Niagara By Design
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
An urban design course. Explores the planning and design history of the Buffalo Niagara region in relation to the future. Examines proposals aimed at revitalizing the economy, improving the quality of life, and protecting the environment of Buffalo Niagara for future generations. Involves historical plus current plans and designs accompanied with lectures, discussions, films, and readings. Introduces urban design and regional development theory and practice. Provides an opportunity to understand community design, the full scope of small to large scale regional work, and comprehends location of place in relationship to the Buffalo Niagara region. Examines the history of Buffalo Niagara communities, examine the place as planned, and critically interpret its history, plans, and designs. Open to non-majors.

ARC 301 Architectural Design Studio 5
Credits: 6
Prerequisites: ARC 201, ARC 202
Corequisites: None
Type: LAB/REC
A majors-only studio course; theme is type and typology. Synthesizes design fundamentals with comprehensive architectural design. Uses the theme of type and transformation to convert various aspects of architectural design form, spatiality, materiality, structure, construction, use, context, aesthetics, zoning, codes, and cultural conditions.

ARC 302 Architectural Design Studio 6
Credits: 6
Prerequisites: ARC 301
Corequisites: None
Type: LAB/REC
A majors-only studio course; theme is type and typology. Synthesizes design fundamentals with comprehensive architectural design. Uses the theme of type and transformation to convert various aspects of architectural design form, spatiality, materiality, structure, construction, use, context, aesthetics, zoning, codes, and cultural conditions.

ARC 311 Architectural Communications I
Credits: 4
Prerequisites: architecture major
Corequisites: None
Type: LAB/REC
A majors-only techniques course. 2-D and 3-D representation techniques for developing and presenting design concepts. Freehand drawings, 2-D and 3-D projections, shadows, shadings, perspective, and reproduction techniques. Utilizes various media. May be offered on an intermittent basis.

ARC 312 Architectural Communications II
Credits: 3
Prerequisites: ARC 311 and architecture major
Corequisites: None
Type: LAB
A majors-only techniques course. Three-dimensional drawings as tools for design development and presentation. Development of model-making skills. May be offered on an intermittent basis.

ARC 318 Design Methods
Credits: 3
Prerequisites: architecture major or permission of instructor
Corequisites: None
Type: LEC
A majors-only techniques course. Topics vary annually. Past topics addressed issues in architecture, design, and production, using drawing and making as a mode of seeing and thinking. May be offered on an intermittent basis.

ARC 322 Introduction to Building Reuse
Credits: 3
Prerequisites: ARC 241 and architecture major/minor
Corequisites: None
Type: LEC
A history/theory course; topics vary annually. Past topics examined case studies of past uses, present conditions, and future functional and structural possibilities of older buildings. Analyzes opportunities for adaptive reuse. Discusses development of design concepts and space-use programs, including renovation, restoration, and reconditioning, as well as preservation. May be offered on an intermittent basis.

ARC 325 History of Design
Credits: 3
Prerequisites: ARC 211 and architecture major/minor
Corequisites: None
Type: LEC
A history/theory course. A topical introduction to the history of design, examining architecture, communication design, industrial design, landscape design, and urban design. Contemporary debates in design theory form the basis for exploring the underpinnings of design production in present and past situations. May be offered on an intermittent basis.

ARC 326 Building Types
Credits: 3
Prerequisites: ARC 352 and architecture major or permission of instructor
Corequisites: None
Type: LEC
A majors-only techniques course; topics vary annually. Past topics examined prototypical forms and organizations of important building types; developed understanding of sources for design decisions, and investigated various building structural systems. Studied braced frames, rigid frames, shear wall systems, tubs and hulled tubes. Reviewed innovations in digital technology and simulation programs, and their impact on the efficient integration of building systems. May be offered on an intermittent basis.
ARC 328 Historic Preservation
Credits: 3
Prerequisites: ARC 121 or ARC 234, and architecture major/minor
Corequisites: None
Type: LEC
A history/theory course. Historic preservation theory as related to architectural design, emphasizing preservation practice, including tools of effective preservation, legislation, community roles, economics, adaptive reuse, and project management.

ARC 343 Building Systems Technology I
Credits: 3
Prerequisites: ARC 202 and architecture major/minor or permission of instructor
Corequisites: None
Type: LAB
A landscape/environment course, topics vary annually. Past topics included detailed studies of design/build and existing systems available to meet needs of the built environment. Studied future possibilities of systems that meet the demands of a rapidly changing environment. Surveyed historical evolution of building systems, while emphasizing methodology of development and implementation. May be offered on an intermittent basis.

ARC 344 Building Systems Technology II
Credits: 3
Prerequisites: ARC 343 and architecture major/minor or permission of instructor
Corequisites: None
Type: LEC
A landscape/environment course, topics vary annually. Past topics investigated current design/build practices, especially those of practitioners in the northern US and Canada. Examined building system research, first hand case study investigation, materials exploration, system prototyping, planning and design, project administration, and construction. May be offered on an intermittent basis.

ARC 352 Structures I
Credits: 3
Prerequisites: ARC 241, PHY 101, and architecture major/minor
Corequisites: None
Type: LEC/LAB
A structures/construction course. Introduces the fundamentals of statics and strength of materials. Provides a theoretical and scientific basis for understanding how various structural systems and structural materials work and withstand loading. Investigates the concepts introduced during the course with qualitative methods, as well as quantitative analysis. The course's scope is limited to examining simple structural elements, such as trusses, beams, and columns.

ARC 354 Experimental Structures
Credits: 3
Prerequisites: ARC 352 and architecture major/minor
Corequisites: None
Type: LAB/SEM
A technics course; topics vary annually. Past topics included dimensional analysis, intersections of urban structure and metropolitan infrastructures, models, design prototypes, systems of forces and mass, structural materials, and contemporary theories. Reviewed experimental elements within three-dimensional structural systems for constructed environments. Discussed physical and immaterial structure, and studied stability of structural system elements within urban and built environments. May be offered on an intermittent basis.

ARC 357 Fabric Structures
Credits: 3
Prerequisites: ARC 352 and architecture major/minor
Corequisites: None
Type: LAB
A structures/construction course; topics vary annually. Past topics reviewed theory and practice of building with stressed fabric membranes, and explored principles of cable structures, nets, tension membranes, and air-supported and inflated membranes. Also examined minimal surfaces, curved surfaces, materials, joints, and details along with design development, production, erection, and performance in use. May be offered on an intermittent basis.

ARC 362 Performance Programming
Credits: 2
Prerequisites: architecture major/minor
Corequisites: None
Type: SEM
A society/culture course. Overview of architectural space programming process and approaches. Examines the performance concept applied to building design, using human factors as a basis for developing building programs. Introduces research methods used in pre-design activities.

ARC 403 Architectural Design Studio 7
Credits: 6
Prerequisites: ARC 301, ARC 302
Corequisites: None
Type: LAB
A majors-only senior capstone studio course; theme is sustainable and comprehensive design. Uses comprehensive architectural projects to address the complexity of the discipline-site conditions, construction technology, programming, safety and accessibility, codes and standards, and representation. Examines the values and ideologies architects bring forward in their work.

ARC 404 Architectural Design Studio 8
Credits: 6
Prerequisites: ARC 403
Corequisites: None
Type: LAB
A majors-only studio course; theme is advanced topics in architecture and design. Uses comprehensive architectural projects to address the complexity of the discipline-site conditions, construction technology, programming, safety and accessibility, codes and standards, and representation. Examines the values and ideologies that architects bring forward in their work. An undergraduate research and creative activity course.

ARC 406 Architectural Design Studio Abroad
Credits: 6
Prerequisites: ARC 301, ARC 302
Corequisites: None
Type: LAB
A majors-only studio course; locations vary annually. In the past, undergraduate students have participated in architectural design studios taught in Belgium, Costa Rica, Denmark, Germany, Ireland, Japan, and other international locations as organized by the Department of Architecture. Other in-house study abroad programs will be offered on an ad-hoc basis by the Department of Architecture, based upon faculty and student interest. An undergraduate research and creative activity course.

ARC 411 CAAD 1: Introduction to CAAD
Credits: 4
Prerequisites: ARC 202, junior/senior standing and architecture major
Corequisites: None
Type: LAB/LEC
A technics course; topics vary annually. Past topics examined theoretical and practical approaches of computing technologies in the design process through CAAD systems, drafting, graphic modeling, and rendering, with particular emphasis on architecture. May be offered on an intermittent basis.

ARC 412 CAAD 2: Models, Objects, & Environment
Credits: 3
Prerequisites: ARC 411, junior/senior standing, and architecture major
Corequisites: None
Type: LEC
A technics course; topics vary annually. Past topics introduced students to theoretical computing applications used for design, including theory of design evaluation, prediction, and generation. Investigated emerging techniques related to computer-aided design environments. Explored computing relational geometries in spatial and constructional systems.

ARC 419 Contemporary Theory
Credits: 3
Prerequisites: ARC 234 and architecture major/minor
Corequisites: None
Type: SEM
A history/theory course. Examines trends in design, contemporary theory, and criticism in art and architecture. May be offered on an intermittent basis.

ARC 426 Color Culture Theory
Credits: 3
Prerequisites: ARC 211 and architecture major, or permission of instructor
Corequisites: None
Type: LEC
A society/culture course. Examines recent approaches to the study of color in relation to space, surface, and representation through the lenses of expanding and overlapping practices. Students study color in painting, literature, film, consumer media, installation and architecture to develop an understanding of its cultural impact. May be offered on an intermittent basis.

ARC 435 American Architecture
Credits: 3
Prerequisites: ARC 121 or ARC 234 and architecture major/minor
Corequisites: None
Type: LEC
A history/theory course; topics vary annually. An introduction to the history of American architecture with emphasis on American design topics. Historical and contemporary review for exploring the underpinnings of American architecture in past and present situations.

ARC 439 Computer Modeling
Credits: 3
Prerequisites: ARC 411, junior/senior standing, and architecture major
Corequisites: None
Type: LEC
A technics course; topics vary annually. Past topics examined theoretical and practical approaches of computing technologies in the design process through CAAD systems, drafting, graphic modeling, and rendering, with particular emphasis on architecture. May be offered on an intermittent basis.

ARC 440 Computer Applications
Credits: 3
Prerequisites: ARC 411, junior/senior standing, and architecture major
Corequisites: None
Type: LEC
A technics course; topics vary annually. Past topics introduced students to theoretical computing applications used for design, including theory of design evaluation, prediction, and generation. Investigated emerging techniques related to computer-aided design environments. Explored computing relational geometries in spatial and constructional systems.
ART 105 Studio 1: Art & the Everyday
Credits: 3
Prerequisites: None
Corequisites: None
Type: LAB
Introduces the concepts and practices of photography, computer art, and video as the basis for visual communication and expression in contemporary art and design. We ground assignments in the development of semiotics, media literacy, media ethics, dissemination techniques, and teamwork. Lab fee.

ART 115 Introduction to New Media
Credits: 4
Prerequisites: None
Corequisites: None
Type: LEC/LAB
Introduces the desktop tools and fundamental concepts used in the development of interactive and non-interactive digital media. Reviews theoretical and practical aspects of creating digital messages with automatic presentation tools. Lays the foundation for creating a broad range of digital media. Lab fee.

ART 205 Intaglio Concepts 1
Credits: 3
Prerequisites: Accepted art major or permission of instructor
Corequisites: None
Type: LAB
Introduces the concepts and practices of intaglio and collage printmaking processes. Develops complex ideas using hand-drawn, photograpic, digital, and collage strategies, and emphasizes experimentation and image development over simple reproduction. Incorporates demonstrations, discussions, theoretical reading and analysis, private performance methods as forms of expression used in exploring the history and function of the human body in art. Introduces students to related issues such as sexual politics, post-colonialism and technology, and contextualizing their projects within a larger cultural framework. Required for first-year B.F.A. and B.A. majors. Lab fee.

ART 111 Drawing Fundamentals
Credits: 3
Prerequisites: None
Corequisites: None
Type: LAB
Involves drawing from still life, figure, and memory/imagination, utilizing a wide variety of media. Conceptual emphasis on line, gesture, shape, space, value, and texture. Covers compositional theory and development of visual expression. Lab fee.

ART 120 Studio 3: Public Space
Credits: 3
Prerequisites: None
Corequisites: None
Type: LAB
Involves drawing from still life, figure, and memory/imagination, utilizing a wide variety of media. Conceptual emphasis on line, gesture, shape, space, value, and texture. Covers compositional theory and development of visual expression. Lab fee.

ART 207 Drawing Concepts 1
Credits: 3
Prerequisites: Accepted art major
Corequisites: None
Type: LAB
Develops drawing and compositional strategies, languages, and methods that build on skills learned in Foundations courses and which are applicable to all other graphic/painting/sculpture/printmaking disciplines. Explores visual ideas ranging from the notational sketch to large, complex finished works in series. Lab fee.

ART 208 Drawing Concepts 2
Credits: 3
Prerequisites: ART 207
Corequisites: None
Type: LAB
Develops drawing and compositional strategies, languages, and methods that build on skills learned in Foundations courses and which are applicable to all other graphic/painting/sculpture/printmaking disciplines. Explores visual ideas ranging from the notational sketch to large, complex finished works in series. Lab fee.
ART 210 Introduction to Digital Photography
Credits: 3
Prerequisites: None
Corequisites: None
Type: LAB
Examines the historical, conceptual, and practical developments of the art of photography as embodied in the use of digital imaging. Students must have their own digital camera with manual exposure control and a minimum image size of 3.0 MB; a computer capable of handling image files, and a color printer. Lab fee.

ART 211 Basic Painting 1
Credits: 3
Prerequisites: Accepted art major
Corequisites: None
Type: LAB
Covers basic methods and materials in oil painting; including traditional and current approaches to form, color, and pictorial organization. Varied course structure includes direct interpretation of subject matter, as well as conceptually based visual problems. Lab fee.

ART 212 Basic Painting 2
Credits: 3
Prerequisites: ART 211
Corequisites: None
Type: LAB
Covers basic methods and materials in oil painting; including traditional and current approaches to form, color, and pictorial organization. Varied course structure includes direct interpretation of subject matter, as well as conceptually based visual problems. Lab fee.

ART 216 Pictorial Structure
Credits: 3
Prerequisites: Accepted art major
Corequisites: None
Type: LAB
Addresses the formal and conceptual aspects of 2D artwork. Art from the past and present is viewed, discussed, and utilized as a starting point for student-driven assignments. The nature of each assignment is based on the formal (visual) qualities of an idea paired with a conceptual (thematic) core. All student work is based upon and inspired by the ideas, theories, opinions, and reactions of art from a widely dispersed range of periods and regions. Lab fee.

ART 221 Typography
Credits: 3
Prerequisites: Accepted art major
Corequisites: None
Type: LAB
Introduces typographic history, type anatomy, type styles, application of legibility guidelines, and explorations with interpretive and experimental typography. Lab fee.

ART 223 Figure Drawing 1
Credits: 3
Prerequisites: None
Corequisites: None
Type: LAB
Uncover the transient and internal in a series of lessons that refines memory, facilitates speed, hones powers of perception and expression, all inspired by nothing less than the eternal nude. Gesture, spirit, memory, motion, essence, speed, measure, pace, balance, focus, weight, gravity, rhythm are all filters through which we examine and express human form. Technical experimentation is essential. Lab fee.

ART 225 Lithography Concepts 1
Credits: 3
Prerequisites: Accepted art major or permission of instructor
Corequisites: None
Type: LAB
Involves an intensive material and conceptual exploration of lithographic and related printmaking processes. Develops complex ideas using hand-drawn, photographic, digital and collage strategies, and emphasizes experimentation and image development over simple reproduction. Incorporates demonstrations, discussions, theoretical reading and analysis, private and group critiques, and working in class. Printmaking labs are open outside of class-time. Lab fee.

ART 229 Basic Sculpture
Credits: 3
Prerequisites: Accepted art major or permission of instructor
Corequisites: None
Type: LAB
Involves studies in the nature and concepts of 3-D art forms, and use of a variety of materials, techniques, processes. Lab fee.

ART 231 Painting for Nonmajors 1
Credits: 3
Prerequisites: None
Corequisites: None
Type: LAB
For students not singularly committed to becoming artists. We learn a basic approach to oil painting and experience a variety of visual points of view. Lab fee.

ART 232 Painting for Nonmajors 2
Credits: 3
Prerequisites: ART 231
Corequisites: None
Type: LAB
For students not singularly committed to becoming artists. We learn a basic approach to oil painting and experience a variety of visual points of view. Lab fee.

ART 240 History of Visual Communication
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Survey of the history of visual communication from prehistoric times to the present. Examines synchronic and diachronic relationships between art, media, critical theory, semiotics, literature and culture. Midterm and a final independent research paper or presentation of a scholarly nature required.

ART 250 Introduction to Digital Practices
Credits: 3
Prerequisites: None
Corequisites: None
Type: LAB
Surveys, in a hands-on fashion, the rich and unique resources the computer offers the artist/designer. Includes computer basics, letter manipulation, drawing and painting metaphors, image processing, 3-D modeling, sound/image synthesis, interactive scripting, and animation. Lab fee.

ART 259 Screen-Print Concepts 1
Credits: 3
Prerequisites: Accepted art major or permission of instructor
Corequisites: None
Type: LAB
Involves an intensive material and conceptual exploration of water-based screen-print printmaking processes. Develops complex ideas using hand-drawn, photographic, digital and collage strategies, and emphasizes experimentation and image development over simple reproduction. Incorporates demonstrations, discussions, theoretical reading and analysis, private and group critiques, and working in class. Printmaking labs are open outside of class-time. Lab fee.

ART 302 Alternative Print Processes
Credits: 3
Prerequisites: Accepted art major or permission of instructor
Corequisites: None
Type: LAB
Explores conventional, alternative and hybrid processes not covered within the lithography, intaglio, and screen print courses. The class provides students with new skills, material options, and tools for visual communication and expression. It also examines aspects of the history, practice, and theoretical underpinnings of printmaking. Lab fee.

ART 304 Screen Print Concepts 2
Credits: 3
Prerequisites: ART 259 or permission of instructor
Corequisites: None
Type: LAB
Continuation of ART 259. For students who are ready to uncover and articulate individual interests and talents, and to formulate research, contextualize, and execute a body of work. In addition to studio production this course integrates assigned readings and lectures to provide an introduction to and examination of the history, practice, and theoretical underpinnings of printmaking. Lab fee.

ART 306 Intaglio Concepts 2
Credits: 3
Prerequisites: ART 205 or permission of instructor
Corequisites: None
Type: LAB
Continuation of ART 205. For students who are ready to uncover and articulate individual interests and talents, and to formulate/research, contextualize, and execute a body of work. In addition to studio production, this course integrates assigned readings and lectures to provide an introduction to and examination of the history, practice, and theoretical underpinnings of printmaking. Lab Fee.

ART 307 Thematic Drawing
Credits: 3
Prerequisites: Accepted art major
Corequisites: None
Type: LAB
Can’t remember what we do not see (with eyes open or shut). So what happens to physical experience (like pain and pleasure) that has no image? Investigates recognition, cognition, and the credible and incredible in images that convey and practice the temporal as well as the instantaneous. Examines personal intention and collective interpretations in projects designed to facilitate perceptual and conceptual interpretations and highlight material experimentation. Lab fee.

ART 309 Digital Reproduction Processes
Credits: 3
Prerequisites: ART 221
Corequisites: None
Type: LAB
Introduces digital graphic reproduction processes, digital and conventional printing processes, and new digital prepress techniques. Includes digital print file preparation, cost estimates, digital transmission and imaging processes Lab fee.

ART 310 Photography Summer Workshop
Credits: 3
Prerequisites: None
Corequisites: None
Type: LAB
Involves use of a view camera and a landscape workshop (camera provided). Covers 4x5 camera techniques, and includes field trips, critiques, and darkroom time. Lab fee.

ART 311 Intermediate Painting 1
Credits: 3
Prerequisites: ART 212 or permission of instructor
Corequisites: None
Type: LAB
Applies the principles and techniques learned in basic painting. Stresses thematic content based upon individual interpretation. Explores theoretical form, color, and space. Compositional approaches include the use of appropriated imagery, allegory, and conceptualizations. Lab fee.
ART 312 Intermediate Painting 2
Credits: 3
Prerequisites: ART 311
Corequisites: None
Type: LAB
Applies the principles and techniques learned in basic painting. Stresses thematic content based upon individual interpretation. Explores theoretical form, color, and space. Compositional approaches include the use of appropriated imagery, allegory, and conceptualizations. Lab fee.

ART 313 Photography: Image and Text
Credits: 3
Prerequisites: ART 210
Corequisites: None
Type: LAB
Explores photographic concepts and techniques beyond the basic level, including combination with other 2-D and 3-D media. Involves camera, darkroom, and applied techniques. Emphasizes conceptual problem solving, and includes a written component. Lab fee.

ART 314 Photography Extended
Credits: 3
Prerequisites: ART 210
Corequisites: None
Type: LAB
Explores photographic concepts and techniques beyond the basic level, including combination with other 2-D and 3-D media. Involves camera, darkroom, and applied techniques. Emphasizes conceptual problem solving, and includes a written component. Lab fee.

ART 315 Black and White Film Photography
Credits: 3
Prerequisites: ART 210 or permission of instructor
Corequisites: None
Type: LAB
Introduces students to the art and techniques of black and white film photography and its associated chemically-based darkroom techniques. Through shooting assignments and darkroom work, they learn first the use of this medium as a form of personal expression. Secondly, they learn the various technical means such as camera control, exposure, Zone System theory, developing, printing and specialized chemical processes to accomplish this. Lab fee.

ART 319 Visual Communication
Credits: 3
Prerequisites: ART 221, accepted as communication design major
Corequisites: None
Type: LAB
Involves theoretical, analytical, and practical exposure to visual semiotics, and rhetoric as used by the communication designer. Also, introduces information design and the development of theme and image. Emphasizes print media produced with digital tools. Lab fee.

ART 320 Design for New Media
Credits: 3
Prerequisites: ART 221, accepted as communication design major
Corequisites: None
Type: LAB
Introduces time-based visual communication with sound and motion, exploring interactive and non-active structures for persuading and informing. Lab fee.

ART 322 Design for Print and Electronic Media
Credits: 3
Prerequisites: ART 221, accepted as communication design major
Corequisites: None
Type: LAB
Hands-on exploration of the designer’s role as author, visual editor, or art director of print and electronic publications: newsletter, newspaper, magazine, book, website, web site, etc. Review of historical and current publication media with a focus on purpose, formula and form. Lab fee.

ART 323 Figure Drawing 3
Credits: 3
Prerequisites: ART 223
Corequisites: None
Type: LAB
Explores issues concerning the nude, the gaze and gender, pose and possession, scale and scandal as we contextualize and historicize the tradition of figure drawing. Cross-temporal and cross-cultural visual and written texts inform and inspire our own projects and practice. Lab fee.

ART 324 Figure Drawing 4
Credits: 3
Prerequisites: ART 323
Corequisites: None
Type: LAB
Explores issues concerning the nude, the gaze and gender, pose and possession, scale and scandal as we contextualize and historicize the tradition of figure drawing. Cross-temporal and cross-cultural visual and written texts inform and inspire our own projects and practice. Lab fee.

ART 326 Lithography Concepts 2
Credits: 3
Prerequisites: ART 225 or permission of instructor
Corequisites: None
Type: LAB
Continuation of ART 225. For students who are ready to uncover and articulate individual interests and talents, and to formulate/research, contextualize, and execute a body of work. In addition to studio production, this course integrates assigned readings and lectures to provide an introduction to and examination of the history, practice, and theoretical underpinnings of printmaking. Lab fee.

ART 329 Intermediate Sculpture 1
Credits: 3
Prerequisites: ART 229
Corequisites: None
Type: LAB
Continuation of ART 229 directed primarily toward sculptural concepts. Lab fee.

ART 330 Intermediate Sculpture 2
Credits: 3
Prerequisites: ART 329
Corequisites: None
Type: LAB
Continuation of ART 229 directed primarily toward sculptural concepts. Lab fee.

ART 333 Casting, Foundry, and Metal Fabrication Techniques 1
Credits: 3
Prerequisites: Accepted art major or permission of instructor
Corequisites: None
Type: LAB
Examines techniques of casting in metal, including lost wax, and ceramic investing methods. Emphasizes creative and resourceful approaches to these techniques, as well as acquiring skills for casting effective sculptural objects. Lab fee.

ART 334 Casting, Foundry, and Metal Fabrication Techniques 2
Credits: 3
Prerequisites: ART 333
Corequisites: None
Type: LAB
Examines techniques of casting in metal, including lost wax, and ceramic investing methods. Emphasizes creative and resourceful approaches to these techniques, as well as acquiring skills for casting effective sculptural objects. Lab fee.

ART 337 Figurative Sculpture 1
Credits: 3
Prerequisites: None
Corequisites: None
Type: LAB
Examines the posed model in problems of representation. Studies anatomy, proportion, gesture, and distortion. Involves specialized study in modeling and casting, using the nude figure or portrait head. Lab fee.

ART 338 Figurative Sculpture 2
Credits: 3
Prerequisites: ART 337
Corequisites: None
Type: LAB
Examines the posed model in problems of representation. Studies anatomy, proportion, gesture, and distortion. Involves specialized study in modeling and casting, using the nude figure or portrait head. Lab fee.

ART 340 Historic and Experimental Photo Techniques
Credits: 3
Prerequisites: ART 210
Corequisites: None
Type: LAB
Examines watercolor and water-base media painting concepts in relation to space, volume, and form; applies techniques to the development of visual ideas as structured paintings. Lab fee.

ART 342 Design for Print and Electronic Media
Credits: 3
Prerequisites: ART 322
Corequisites: None
Type: LAB
Explores the book as object and as object form. Topics include typographic design, image-text relationship, sequential design/image making, book structure, construction, and production. Involves completion of semester-long projects. Emphasizes development and articulation of the student’s conceptual and aesthetic concerns. Lab fee.

ART 344 Watercolor Painting
Credits: 3
Prerequisites: ART 207 or permission of instructor
Corequisites: None
Type: LAB
Examines watercolor and water-base media painting concepts in relation to space, volume, and form; applies techniques to the development of visual ideas as structured paintings. Lab fee.

ART 350 Color Theory
Credits: 3
Prerequisites: ART 210
Corequisites: None
Type: LAB
Explores practical and chemical aspects, such as the view camera, silver photographic emulsions, developers, toners, special chemicals, archival processing, exposure, and zone-system theory. Lab fee.

ART 352 Electronic Media
Credits: 3
Prerequisites: ART 210
Corequisites: None
Type: LAB
Examines photographic studio lighting for both black/white and color; artificial lighting (tungsten and photo studio strobes), studio setups, portraiture, and large-scale printing. Lab fee.

ART 353 Studio Photography
Credits: 3
Prerequisites: ART 210
Corequisites: None
Type: LAB
Explores practical and chemical aspects, such as the view camera, silver photographic emulsions, developers, toners, special chemicals, archival processing, exposure, and zone-system theory. Lab fee.

ART 356 Exploring Identity
Credits: 3
Prerequisites: ART 150
Corequisites: None
Type: LAB
Studio course exploring the role of representation of identity in the issues regarding personal, cultural, ethnic, social, economic, sexual/biological, and gender identity. Investigates the expanding and changing function and form of the representation of “identity” tradition in contemporary art and, according to Foucault, how we “create ourselves as a work of art.”

ART 360 Photo Process Imagery
Credits: 3
Prerequisites: ART 210
Corequisites: None
Type: LAB
Studies the physical medium as the chief vehicle for creative expression, including pinhole, manipulated negatives, and prints. Lab fee.

ART 341 Book Design
Credits: 3
Prerequisites: Accepted art major or permission of instructor
Corequisites: None
Type: LAB
Explores the book as object and as object form. Topics include typographic design, image-text relationship, sequential design/image making, book structure, construction, and production. Involves completion of semester-long projects. Emphasizes development and articulation of the student’s conceptual and aesthetic concerns. Lab fee.

ART 344 Watercolor Painting
Credits: 3
Prerequisites: ART 207 or permission of instructor
Corequisites: None
Type: LAB
Examines watercolor and water-base media painting concepts in relation to space, volume, and form; applies techniques to the development of visual ideas as structured paintings. Lab fee.

ART 350 Color Theory
Credits: 3
Prerequisites: ART 210
Corequisites: None
Type: LAB
Explores practical and chemical aspects, such as the view camera, silver photographic emulsions, developers, toners, special chemicals, archival processing, exposure, and zone-system theory. Lab fee.

ART 352 Electronic Media
Credits: 3
Prerequisites: ART 210
Corequisites: None
Type: LAB
Examines photographic studio lighting for both black/white and color; artificial lighting (tungsten and photo studio strobes), studio setups, portraiture, and large-scale printing. Lab fee.

ART 356 Exploring Identity
Credits: 3
Prerequisites: ART 150
Corequisites: None
Type: LAB
Studio course exploring the role of representation of identity in the issues regarding personal, cultural, ethnic, social, economic, sexual/biological, and gender identity. Investigates the expanding and changing function and form of the representation of “identity” tradition in contemporary art and, according to Foucault, how we “create ourselves as a work of art.”
ART 361 Art and Research
Credits: 3
Prerequisites: Accepted art major or permission of instructor
Corequisites: None
Type: LAB
Students experiment with different research methods as a means to generate, inspire, and inform projects. This course is process-oriented, content-driven, and is designed for students who want to develop greater conceptual depth in their art practices. It is recommended to students who want to begin preparing themselves for Senior Thesis. Lab fee.

ART 362 Installation
Credits: 3
Prerequisites: Accepted art major or permission of instructor
Corequisites: None
Type: LAB
Focuses on the practice and history of installation and site-specificity in art. Integrates studio assignments with theoretical research and analysis. Investigates the following topics: public/private space, urban/rural environment, physical/social spheres, negotiation, and documentation. Undertakes a range of material and technical explorations in relation to concept development. Seeks out installation sites, and negotiates and utilizes them in the realization of student projects. Lab fee.

ART 380 Algorithmic Art
Credits: 3
Prerequisites: ART 250, accepted art major
Corequisites: None
Type: LAB
Hands-on exploration of image creation through direct coding of computer graphic, text, and sound data. Review of algorithmic art and artists. Introduction to basic programming, computer graphic data structures and processing, and a variety of algorithmic approaches for the creation of interactive or non-interactive, static or moving, art and design pieces. Lab fee.

ART 381 Computer Motion Imaging
Credits: 3
Prerequisites: ART 250, accepted art major
Corequisites: None
Type: LAB
Explores with computer graphics, the expressive and informative impact of real time and frame/cell animation; pixilation; metamorphosis; interaction of synthesized actors with backgrounds; the dynamics of sound/image synthesis; and time-space structures' application to computer animation. Lab fee.

ART 382 Computer Modeling and Simulation
Credits: 3
Prerequisites: ART 250, accepted art major
Corequisites: None
Type: LAB
Explores, in a hands-on fashion, computer processes that construct, model, transform, and render simulated 3-D objects in virtual space. These objects are utilized either as exploration and development tools for actual 3-D sculpture for packaging, product, interior, and exhibit design, or in the creation of virtual sculpture or virtual art installations. Lab fee.

ART 383 Interactive Computer Art 1
Credits: 3
Prerequisites: ART 250, accepted art major
Corequisites: None
Type: LAB
Studio course for creating experimental interactive computer productions for artist expression, and the presentation of knowledge in which participants observe and navigate in nonlinear directions and reorganize media components for other users. Students are exposed to the work of theorists, artists, designers and technologists relevant to selected projects. The course explores new approaches that define an aesthetic within this emerging art form. Lab fee.

ART 385 Computer Image Synthesis
Credits: 3
Prerequisites: ART 250, accepted art major
Corequisites: None
Type: LAB
Looks at the use of images in the digital age. Students work from a number of image sources, including printed images, photographic images, video, and computer-generated images. Explores the new imaging technology and tries to find pathways toward the development of an aesthetic discourse for the medium. Lab fee.

ART 387 Telematic Art and Design
Credits: 3
Prerequisites: ART 250, accepted art major
Corequisites: None
Type: LAB
Explores hands-on exploration of the technical, aesthetic, cultural, economic, ethical, and political aspects of computer-ized communication networks for artistic creation and information design. Lab fee.

ART 401 Professional Practices in Photography
Credits: 3
Prerequisites: ART 210
Corequisites: None
Type: LAB
Introduces professional practices of the working photographer. Lab fee.

ART 402 Tactical Media
Credits: 3
Prerequisites: junior standing
Corequisites: None
Type: LAB
An advanced undergraduate course in tactical media designed to bring artists from various specializations together to discuss methods and possibilities for independent public art activities, and to experiment with soft interventions in locations not typically accessed by artists. Pays particular attention to process (as opposed to product), to what can be creatively produced, and/or produced outside of the artist's studio; and to engaging the immediate and specific qualities of a given socio-phenomenological field. Lab fee.

ART 410 The Intersections of Design and Community
Credits: 3
Prerequisites: ART 309, ART 319, ART 320, or permission of instructor
Corequisites: None
Type: LAB
Using a collaborative approach, students work for the semester on creative projects for local, non-profit and for-profit organizations. Teams are responsible for concept development and design, schedules, budgets, production, printing, and client management. Entails information design, interactive media, print, product design, packaging design, exhibition design, and design for public space. Students will visit participating organizations, print houses, and project related lectures.

ART 411 Advanced Painting 1
Credits: 3
Prerequisites: ART 312
Corequisites: None
Type: LAB
Continuation of ART 311-ART 312. Emphasizes students' individual ideas and sensibilities. Develops methods and media as they relate to the thrust and direction of students' painting experiences. Encourages experimentation, and expects creative resolution of students' investigation. Lab fee.

ART 412 Advanced Painting 2
Credits: 3
Prerequisites: ART 411
Corequisites: None
Type: LAB
Continuation of ART 311-ART 312. Emphasizes students' individual ideas and sensibilities. Develops methods and media as they relate to the thrust and direction of students' painting experiences. Encourages experimentation, and expects creative resolution of students' investigation. Lab fee.

ART 419 Identity Design
Credits: 3
Prerequisites: ART 221, accepted communication design major
Corequisites: None
Type: LAB
Explores identity, image, and branding for non-profit and for-profit organizations, including product and service marks, stationery, packaging, 3D displays, exhibitions, and signage for identification and way-finding. Lab fee.

ART 422 Design Issues
Credits: 3
Prerequisites: ART 221, accepted communication design major
Corequisites: None
Type: LAB
Involves research, lectures, guest speakers, video interviews, readings, discussions, and presentations that investigate contemporary design issues and professional practices. Topics include design theory and criticism focusing on ethics and social responsibility, and design management within a wide range of professional practices. Lab fee.

ART 423 Figure Drawing 5
Credits: 3
Prerequisites: ART 324
Corequisites: None
Type: LAB
Explores the ways that representation and absence, ersatz eros, and the prurient present underlie the origins and continued allure of the figurative tradition. The scene is paramount in setting off the seen. Emphasizes the psychological and physical aspects of figured relationships and spaces that we portray in ambitious and subtle works that entice, revolt, and reclaim the viewers. Independent research and considerable out-of-class commitment bring in-class efforts to fruition. Lab fee.

ART 424 Figure Drawing 6
Credits: 3
Prerequisites: ART 423
Corequisites: None
Type: LAB
Explores the ways that representation and absence, ersatz eros and the prurient present underlie the origins and continued allure of the figurative tradition. The scene is paramount in setting off the seen. Emphasizes the psychological and physical aspects of figured relationships and spaces that we portray in ambitious and subtle works that entice, revolt, and reclaim the viewers. Independent research and considerable out-of-class commitment bring in-class efforts to fruition. Lab fee.

ART 426 Interactive Computer Art 2
Credits: 3
Prerequisites: ART 380 or ART 383 or permission of instructor
Corequisites: None
Type: LAB
Students create experimental interactive computer production to present knowledge and artistic expression, which participants observe, navigate in nonlinear directions, and recognize for other users. Lab fee.

ART 429 Advanced Sculpture—Studio Practice 1
Credits: 3
Prerequisites: ART 330
Corequisites: None
Type: LAB
Continuation of ART 320-Art 330. Develops an individual language and promotes extended exploration of media in sculpture. Lab fee.
ART 430 Advanced Sculpture—Studio Practice 2
Credits: 3
Prerequisites: ART 429
Corequisites: None
Type: LAB
Continuation of ART 329-ART 330. Develops an individual language and focus in sculpture. Also encourages extended exploration of and experimentation with personally relevant materials, media, and techniques. Lab fee.

ART 433 Advanced Casting and Foundry Techniques 1
Credits: 3
Prerequisites: ART 334
Corequisites: None
Type: LAB
Continuation of ART 333-ART 334, with more considered conceptual development. Lab fee.

ART 434 Advanced Casting and Foundry Techniques 2
Credits: 3
Prerequisites: ART 433
Corequisites: None
Type: LAB
Continuation of ART 333-ART 334, with more considered conceptual development. Lab fee.

ART 437 Advanced Figurative Sculpture 1
Credits: 3
Prerequisites: ART 338
Corequisites: None
Type: LAB
Continuation of ART 337-ART 338. Lab fee.

ART 438 Advanced Figurative Sculpture 2
Credits: 3
Prerequisites: ART 437
Corequisites: None
Type: LAB
Continuation of ART 337-ART 338. Lab fee.

ART 447 Studio Seminar
Credits: 3
Prerequisites: junior/senior standing in the fine arts, art history, or literature
Corequisites: None
Type: SEM
A combination of theory and practice involving a focused topic important to art. Assigned topics vary and are announced before preregistration. Requires the preparation of a visual or written work that addresses issues raised in the course. Lab fee if appropriate.

ART 448 Studio Seminar in Photography
Credits: 3
Prerequisites: ART 210 or ART 213
Corequisites: None
Type: SEM
Combines theory and practice (studio components) involving a particular topic. Assigned topics vary each semester and are announced before preregistration. Involves lectures, critiques, readings, writing, discussions, demonstrations, darkroom sessions, and slide presentations. Lab fee.

ART 476 Topics in Printmaking
Credits: 3
Prerequisites: ART 205, ART 225, ART 259, or permission of instructor
Corequisites: None
Type: LAB
Combines seminar (25%) and studio (75%) culminating in the research and production of a significant project. Readings, lectures, guest artists, visits to collections, and demonstrations serve as a springboard for discussion and production. All reproducible print processes are embraced. The topic or focus of this course changes each semester and pre-requisites vary depending on the topic. Not all topics require prior printmaking experience. Course outlines for the upcoming semester are posted in the print labs or contact the instructor for more information. Lab fee.

ART 489 Real-Space Electronic Art
Credits: 3
Prerequisites: ART 380 or ART 383 or permission of instructor
Corequisites: None
Type: LAB
Enables students to create sophisticated, self-generated projects using interactive electronic technologies other than mouse, keyboard, and CRT monitor, such as micro-controllers. Involves hands-on explorations of applied electronic principles; selected readings and discussions; short exercises; and a final, self-directed project. Lab fee.

ART 494 F/S Senior Thesis Project I & II
Credits: 3
Prerequisites: Senior standing in art
Corequisites: None
Type: LAB
Involves preparation, research, proposal development, and initial studio exploration for a senior thesis project to be completed in a two-semester sequence. The advanced work expected is demonstrated by technical expertise, independent motivation, maturing personal interpretation and expression, and understanding one’s work in relation to current works by mature artists. Students can work in one or a combination of studio art media: computer, drawing, installation, film, paint, photography, print, sculpture, type, or video. Lab Fee.

ART 496 Internship
Credits: 1
Prerequisites: Permission of Instructor
Corequisites: None
Type: LAB
Choose from the following:
• Arts Management Internship—Students are assigned to art galleries or other institutions within the university or the community to get hands-on experience as interns. May be repeated once in a different location.
• Communication Design Internship—An arranged experience within an agency and the printing industry familiarizes students with actual working conditions and considerations; students observe and participate in design for publication, mechanicals, and other facets of graphic arts production. May be repeated second semester.
• Photography Internship—Internship at an art gallery or with a commercial, portrait, or architectural photographic firm; provides professional experience and familiarizes students with working conditions and expectations in their field.

ART 499 Independent Study Studio Art
Credits: 1
Prerequisites: accepted art major, permission of instructor
Corequisites: None
Type: TUT
Open to studio majors only. Requires a written proposal of the project and its justification, and approval by a faculty member supervising the work.

Art History

AHI 101 Survey of Art History: Egypt to Northern Renaissance
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC/REC
Chronological survey of painting, architecture, and sculpture from the birth of civilization to the Northern Renaissance; stylistic analysis of works of art within social and historical contexts.

AHI 102 Survey of Art History: Italian Renaissance to Present
Credits: 3
Prerequisites: AHI 101 Recommended
Corequisites: None
Type: LEC/REC
Chronological survey of painting, architecture, and sculpture from the Italian Renaissance to modern European and American art; stylistic analysis of works of art within social and historical contexts.

AHI 103 Survey of Art History III
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Surveys art and culture of the Third and Fourth Worlds and the Americas with reference to indigenous people globally. Examines multiple historical markers of visual expression from precontact to contemporary Native, African, and Spanish/Latina America. Thematically, addresses “art” through creation or emergence stories; significance of land, corn, and ceremony; and the construction of colonial representation to the present day.

AHI 107 Introduction to Methods of Research in Art History
Credits: 1
Prerequisites: None
Corequisites: None
Type: LEC
Introduces students to the various methods employed in art historical investigation. Includes presentations on and discussions about methods of research developed from roughly the 19th into the late 20th centuries. Also includes two sessions on library research techniques.

AHI 155 Introduction to Contemporary Art
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Surveys contemporary art practices and the ideas that form them. Gives special attention to issues involved in the art featured in the University Art Gallery and other regional venues.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Corequisites</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHI 200</td>
<td>Sophomore Tutorial</td>
<td>1</td>
<td>None</td>
<td>None</td>
<td></td>
<td>Explores issues concerning the nude, the gaze and gender, pose and possession, scale and scandal as we contextualize and historicize the tradition of figure drawing. Cross-temporal and cross-cultural visual and written texts inform and inspire our own projects and practice. Lab fee.</td>
</tr>
<tr>
<td>AHI 203</td>
<td>Special Topics</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td></td>
<td>Examines a current topic of interest in art history, i.e. architecture, medieval, non-Western, Asian, etc.</td>
</tr>
<tr>
<td>AHI 204</td>
<td>Mythology in Ancient Art</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td></td>
<td>Greek and Near Eastern mythologies in ancient art; mythological representations in the art of these cultures and the differences in the manner each represented similar myths; readings in mythology.</td>
</tr>
<tr>
<td>AHI 206</td>
<td>Introduction to Chinese Art</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td></td>
<td>Familiarizes students with the major and minor arts of China from Neolithic to the Modern periods. Requires no prior exposure to the arts and culture of China. The course considers the artistic history of China in terms of its material culture, looking at techniques, materials, and processes, as well as stylistic influences and evolution.</td>
</tr>
<tr>
<td>AHI 210</td>
<td>Art of the Middle Ages</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td></td>
<td>Drawing upon examples of the made and built environment from ca. 300 to ca. 1400, the course considers a number of topics of current interest to medievalists: becoming Christian, the power of the image, who makes art, who sees art, such liminal experience as pilgrimage and crusade, the cult of relics, the construction of the ruler, imperial and papal programs, and civic and individual patronage.</td>
</tr>
<tr>
<td>AHI 212</td>
<td>Special Topics</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td></td>
<td>Examines a current topic of interest in Art History, i.e. architecture, medieval, non-Western, Asian, etc.</td>
</tr>
<tr>
<td>AHI 251</td>
<td>Introduction to Modern Art</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td></td>
<td>Major ideas defining the art of the modern world: painting, sculpture, architecture, and related arts; what these works mean and how they illustrate changing views of modernity.</td>
</tr>
<tr>
<td>AHI 254</td>
<td>Art of Nineteenth-Century France</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td></td>
<td>Painting and sculpture in France and its relationship to contemporary political, social, intellectual, and cultural developments; David, Ingres, Géricault, Delacroix, Daumier, Courbet, Manet, Monet, Degas, Rodin, Cézanne, Seurat, Van Gogh, and Gauguin; the modern artist in a society characterized by an accelerating sense of change.</td>
</tr>
<tr>
<td>AHI 262</td>
<td>Art in America: an Introduction</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td></td>
<td>Offers a highly selective survey of U.S. painting, sculpture, architecture, photography, and popular culture from the Colonial era to the present. Focusing on five thematic units - gods, nature/culture, consumer culture, gender, and the body - the class provides an overview of U.S. art, suggesting how our material record both expresses and forms America's social, political, and cultural climate.</td>
</tr>
<tr>
<td>AHI 275</td>
<td>Art and Revolution</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td></td>
<td>Relationship between the artist and revolutionary society; uses revolutions of 1789, 1830, 1848, and 1917 to examine artists like David, Delacroix, Daumier, Courbet, and Malevich.</td>
</tr>
<tr>
<td>AHI 300</td>
<td>Junior Tutorial</td>
<td>1</td>
<td>None</td>
<td>None</td>
<td></td>
<td>Explores the book as object and as object/form. Topics include typographic design, image-text relationship, sequential design/image making, book structure, construction, and production. Involves completion of semester-long projects. Emphasizes development and articulation of the student's conceptual and aesthetic concerns. Lab fee.</td>
</tr>
<tr>
<td>AHI 301</td>
<td>Art &amp; Archaeology of Egypt</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td></td>
<td>Introduces the student to the sculpture, painting and architecture of Ancient Egypt, tracing its development stylistically and chronologically. Art will be presented in its historical and religious context.</td>
</tr>
<tr>
<td>AHI 302</td>
<td>Art of Greece</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td></td>
<td>Architecture, painting, and sculpture of ancient Greece; archaic and classical periods; subsequent rise of new forms during the Hellenistic era.</td>
</tr>
<tr>
<td>AHI 303</td>
<td>Early Greek Art and the Holy Land</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td></td>
<td>Architecture, painting, and metal work of the Aegean area, 2200 B.C.E. to 1200 B.C.E., art forms of Minoan and Mycenaean civilizations and their indebtedness to eastern cultures.</td>
</tr>
<tr>
<td>AHI 304</td>
<td>Narration in Ancient Art</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td></td>
<td>Main themes in ancient art and on the manner in which they were narrated. These themes include mythological stories, historical events, political justifications, and propaganda. Media include wall painting, vase painting, and sculpture.</td>
</tr>
<tr>
<td>AHI 305</td>
<td>Greek Sculpture</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td></td>
<td>Significance of monumental bronze and marble sculptures of archaic and classical Greece; the development of sculptural style and content through the study of Greek literature and history.</td>
</tr>
<tr>
<td>AHI 307</td>
<td>Art of Early Greece</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td></td>
<td>Drawing upon examples of the made and built environment from ca. 300 to ca. 1400, the course considers a number of topics of current interest to medievalists: becoming Christian, the power of the image, who makes art, who sees art, such liminal experience as pilgrimage and crusade, the cult of relics, the church as heavenly Jerusalem, imperial and papal programs, and civic and individual patronage.</td>
</tr>
<tr>
<td>AHI 310</td>
<td>Early Medieval Art</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td></td>
<td>Explores the ruler, imperial and papal programs, and civic and individual patronage.</td>
</tr>
<tr>
<td>AHI 311</td>
<td>Non-Western Arts: Past, Present</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td></td>
<td>Sees the art of North and South American natives, Canadian natives, and aboriginal people of Australia from both the native and the nonnative perspective; discussions focus on differing world views or ideologies, in conjunction with the impact of colonialization.</td>
</tr>
<tr>
<td>AHI 312</td>
<td>Romanesque Art</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td></td>
<td>Painting, sculpture, architecture, and minor arts in France, Spain, Italy, and England from A.D. 1050 to A.D. 1150; the course addresses the importance of crusades, pilgrimage, and monastic reform.</td>
</tr>
<tr>
<td>AHI 317</td>
<td>Art of the Middle Ages</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td></td>
<td>Drawing upon examples of the made and built environment from ca. 300 to ca. 1400, the course considers a number of topics of current interest to medievalists: becoming Christian, the power of the image, who makes art, who sees art, such liminal experience as pilgrimage and crusade, the cult of relics, the church as heavenly Jerusalem, imperial and papal programs, and civic and individual patronage.</td>
</tr>
<tr>
<td>AHI 319</td>
<td>Special Topics</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td></td>
<td>Examines a current topic of interest in art history, i.e. architecture, medieval, non-Western, Asian, etc.</td>
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</table>
AHI 320 Northern Renaissance Art
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the variety of artistic achievement during the fifteenth and sixteenth centuries in northern Europe, primarily in Flanders and Germany. The works discussed range from the intense mystical realism of Jan van Eyck and Roger van der Weyden to the classical idealism of Albrecht Durer and to the visionary imagery of Bosch and Bruegel. Emphasizes painting, but devotes some time also to the newly developing art of printmaking and the elaborate tradition of wooden figure sculpture.

AHI 322 Italian Renaissance Art
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Painting and sculpture from early fifteenth-century Florentine art to the High Renaissance in Rome and Florence; covers the intellectual developments of fifteenth and sixteenth-century Italy, such as civic humanism and Neoplatonism.

AHI 324 Italian Mannerist Art
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Development of central Italian art in the early- and mid-sixteenth century; relationship of mannerism to Renaissance and High Renaissance; current definitions of mannerism.

AHI 325 Greek Art and Mythology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the mythological depictions in Greek vase painting, sculpture, and masonry before 700-300 B.C.E. Emphasizes Archaic and Classical vase painting and sculpture and its artistic and historical context. Students read Greek mythology and discuss Greek art.

AHI 328 Renaissance Architecture
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Reviews major architectural developments of the fifteenth and sixteenth centuries in Italy. Includes major works of Brunelleschi, Alberti, Michelangelo, Leonardo, and many others. Emphasizes how architecture reflects Renaissance humanist ideas. Investigates key building projects, such as St. Peter's in Rome, to examine the confluence of ideas from several disciplines.

AHI 330 Italian Baroque Art
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Art of central Italy, particularly Rome, in the early seventeenth century; its influence on the rest of Italy; how the change in cultural ideology affected artistic change.

AHI 331 Michelangelo and His Era
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Painting, sculpture, and architecture of Michelangelo; the uniqueness and impact on the development of Renaissance concepts; major historical events of the sixteenth century affecting Italian art; the Reformation and Counter Reformation; historiography of Michelangelo and his image; his popularity from the sixteenth century until the present day.

AHI 332 Rembrandt and His Era
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies the art of Holland in the baroque period, concentrating on the life and work of Rembrandt. Also emphasizes the careers of Hals and Vermeer, and the so-called “little masters.” Considers the distinct character of Dutch art and its relationship to that of the rest of baroque Europe.

AHI 334 Native American Art: Economic Renewal or Ruin
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Locates discussion at the crossroads of nineteenth- to twentieth-century indigenous North American and Euroamerican exchange. Enables students to understand the relationship among contact, trade, tourism, economics, and cultural confluence. Places art and native women at the center as ongoing strategies for survival. Demonstrates the conflation of Victorian aesthetics with Iroquoian, Algonquian, Cree, Micmac, and Ojibwa traditions in the art.

AHI 335 Northern Baroque Painting
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Painting in Holland and Flanders during the seventeenth century; investigates the rise of baroque painting from mannerism throughout Europe; dominant artists in each country.

AHI 341 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines a current topic of interest in art history, i.e., architecture, medieval, non-Western, Asian, etc.

AHI 342 Photography and the Colonial Gaze
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Critically explores the photographic representation of Native Americans and First Nation Canadians prior to the First World War and the advent of modernism. This period, which also coincides with the early years of photographic practice, covers the attempted assimilation of the Native American and the so-called Indian Wars of the 1850s-1890s.

AHI 343 Japanese Architecture
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores the development of Buddhist art and architecture in Japan from the introduction of Buddhism to Japan in the sixteenth century. Examines paintings, sculpture, and ritual implements, as well as architecture, temple plans, and landscape gardens. Considers the function of art in Buddhist practice, the perception of Buddhist art by lay and clerical audiences; the role of art in Buddhist philosophy; the relationship between the Buddhist arts of Japan and art in China, Korea, and India; syncretic elements in Japanese Buddhist art, especially those arising from Shinto beliefs; and the different forms of religious and artistic expression to be seen in the centers of power and the rural areas of ancient Japan.

AHI 344 Japanese Painting and Prints
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores the major trends in Japanese pictorial art from the seventh century to the early twentieth century. Focuses on important developments in style and subject matter, particularly emphasizing the relationship between Japanese art and that of continental Asia.

AHI 345 Modern Chinese Art
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Investigates the different forms of African American visual artistic traditions in relation to their historical origins and sociocultural context from the early days of slavery to the present time. Starts with an overview of African art, the experiences of the middle passage, and slavery in relation to African American traditions in the decorative arts, including pottery, architecture, ironwork, quilting, and basketry. This is followed by a fine-art survey starting with the eighteenth and nineteenth centuries, continuing through early twentieth-century Harlem Renaissance up to the present. Also explores certain issues related to African American arts and creativity, such as improvisation, Black aesthetic, Pan Africanism, and gender. Slides, films, and videos are used extensively to illustrate topics discussed in class.

AHI 346 Chinese Painting/Calligraphy
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores the representations of figures and landscapes from the dawn of Chinese painting in the pre-Han period through the Yuan dynasty. Particularly stresses important developments in style and subject matter. Supplements classroom study of visual images with readings from ancient Chinese critical and theoretical writings in translation and modern art historical readings. As appropriate, relates issues in style and subject matter to contemporary developments in philosophy, religion, government, society, and culture.

AHI 347 African American Art
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Investigates the different forms of African American visual artistic traditions in relation to their historical origins and sociocultural context from the early days of slavery to the present time. Starts with an overview of African art, the experiences of the middle passage, and slavery in relation to African American traditions in the decorative arts, including pottery, architecture, ironwork, quilting, and basketry. This is followed by a fine-art survey starting with the eighteenth and nineteenth centuries, continuing through early twentieth-century Harlem Renaissance up to the present. Also explores certain issues related to African American arts and creativity, such as improvisation, Black aesthetic, Pan Africanism, and gender. Slides, films, and videos are used extensively to illustrate topics discussed in class.

AHI 348 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Explores a current topic of interest in art history, i.e., architecture, medieval, non-Western, Asian, etc.

AHI 349 Junior Seminar
Credits: 3
Prerequisites: art history major or permission of instructor
Corequisites: None
Type: SEM
Topics course; the format is largely discussion but also includes classroom presentation and collaborative research. The specific topic varies with the instructor's area of expertise and involves some faculty-undergraduate research, with a general presentation at the end of the term. The course also takes advantage of current exhibition projects, visiting faculty, and regional events.
AHI 350 Eighteenth-Century European Art and Ideas
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
European rococo and neoclassical painting of the eighteenth century, including Tiepolo, David, Hogarth, and Gainsborough; sources in baroque and Renaissance art; effects on romantic painting.

AHI 353 Art of Islam
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces Islamic culture and its art and architecture. Uses both a chronological and geographical approach, beginning with the establishment of Islam in Arabia in the seventh century, following the course of its spread throughout Europe, Asian and Africa, and ending with contemporary Islamic art and architecture.

AHI 354 Topics in Islamic Art: Iran
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Familiarizes students with Islamic culture and its art and architecture by focusing on specific topics and issues, such as architecture, painting, patronage, or a geographic region. Concentrates on a different theme each time, such as Art of Islamic Iran, Art of the Ottoman Empire, History of Istanbul, Women and Islamic Art, and Islamic Painting.

AHI 355 Painting and Sculpture: 1789-1850
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Painting and sculpture produced in the new European democracies for a widening, critical public. Focus on neoclassicism, romanticism, and realism. Considers these styles in light of the Industrial Revolution in England, political revolution in France, and the intellectual currents of the Enlightenment.

AHI 356 Impressionism and Postimpressionism
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
French art from 1860-1900; Manet, Monet, Renoir, Degas, Seurat, Gauguin, Van Gogh, Toulouse-Lautrec, and Cézanne; the aesthetic nature of their works and the connection to contemporary literary, political, philosophical, and scientific developments. Impact of impressionism and postimpressionism on the art of the twentieth century.

AHI 360 Frank Lloyd Wright
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Wright's sources, innovations, major works, and his position between the nineteenth century and current modernism; visits to some of Wright's houses in Buffalo.

AHI 363 Eakins and Homer
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Undergraduate seminar; begins with a description of the artistic and cultural climate in which Eakins and Homer worked. Each following week addresses a specific theme of central importance to the artists' work. Such themes include realism, the artist in society, the nature/culture divide, masculinity, femininity, whiteness and blackness, and class. In addition to asking students to think about the multiple ways in which the form of art held meaning for different audiences, the seminar exposes students to a range of scholarly studies, encouraging them to evaluate the advantages and disadvantages of particular methodological approaches.

AHI 364 American Realism: The Evolution of the Real in American Art
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Begins with an introduction to European realism and a discussion of its adaptation to an American context during the final quarter of the nineteenth century. The course then denaturalizes Realism's ties with objectivity, explaining the movement as one in a series of subjective strategies for ordering one's relation to the world. Focusing on several discrete artistic movements, the course considers the changing cultural functions of “the real”, ranging from the early nineteenth through the late twentieth centuries. Movements to be addressed include romanticism, sentimentality, naturalism, impressionism, urban realism, regionalism, abstract expressionism, neo-realism, and postmodernism.

AHI 365 Art and Culture in Victorian America
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines how American writers and artists negotiated the complexities of U.S. society during the final third of the nineteenth century. Emphasizing issues ranging from women's rights to laissez-faire capitalism, and from Reconstruction to manifest destiny, we consider how the era's cultural products provided artists, patrons, and audiences with metaphorical coping strategies to counteract what Victorians perceived to be the period's overwhelming social and political changes.

AHI 372 Art Between World Wars I and II
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Art produced between 1920 and 1940 in France, Germany, Russia, and the United States; impact of social and political events on culture.

AHI 380 Image and Gender
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Considers the representation of gender (femininity and masculinity) in pictures, and the impact of gender on making and looking at art and media. Discusses works from several historical periods, concentrating on nineteenth- and twentieth-century art and media. Topics and issues considered are the professionalization of the artist and myths of genius; artists and models; the problems of a “feminine” aesthetic; the nude; and the gendered spectator.

AHI 383 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines a current topic of interest in art history, i.e. architecture, medieval, non-Western, Asian, etc.

AHI 386 Twentieth-Century Architecture
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
German expressionism, Frank Lloyd Wright, and the architects of the international style as initiators of contemporary architectural trends; the city as a twentieth-century problem.

AHI 387 American Art
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Surveys the development of twentieth-century U.S. art, emphasizing art since 1945. Through a close examination of a diverse range of visual arts, including painting, film, video, photography, sculpture, earth works, and performance art, we explore what contemporary art reveals about American culture. While offering students exposure to many issues that are of critical concern to contemporary society, the course pays particular attention to questions surrounding sexuality, gender, race, and consumer culture.

AHI 390 American Architecture as American Pluralism
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Native American building, colonial, neoclassical, and eclectic styles, and the rise of industrialism, the impact of builders’ guides, and the development of the architectural profession highlight this survey of American architecture to the Civil War.

AHI 395 Contemporary Art
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Art of contemporary life; art criticism; art and politics; art in the media; pop and minimal art; conceptual art, earthworks, realism, feminist art, and performance. Requires attendance at events and exhibitions at local galleries.

AHI 400 Senior Tutorial
Credits: 1
Prerequisites: permission of instructor
Corequisites: None
Type: TUT
A written proposal outlining and justifying the work must be presented to and approved by the faculty member with whom the work is to be done.

AHI 411 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines a current topic of interest in art history, i.e. architecture, medieval, non-Western, Asian, modern, etc.

AHI 448 History of Photography
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Reviews photography's contribution to the visual arts of the nineteenth and twentieth centuries. Studies individual photographers, the nature and development of various styles, photography's relationship to other art media, and the effect of photographic imagery on our culture.

AHI 461 Architectural Preservation: History, Theory, and Practice
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces students to the history, theory, and practice of historic building preservation, a field that began in the nineteenth century and has continued to expand its scope and develop and refine its approaches and techniques throughout the twentieth century. Following a grounding in historic styles and the history and development of approaches to historic preservation, the course culminates with site visits and student presentations on specific local preservation projects and issues. Buffalo and Western New York function as a laboratory for case studies of individual preservation projects.
AHI 480 Museum Studies
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Provides an understanding of the purposes, function, and organization of art museums and introduces managerial and curatorial skills and techniques essential to museum work. Writing assignments are intended to have students carefully examine works of art, compile information about works of art, describe works of art and express opinions and ideas about works of art.

AHI 494 Aims and Methods of Art History
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Looks closely at the ways in which influential art historians have analyzed and discussed works of art, and at the significance of the strategies that these art historians developed. The first half of the semester covers subjects like iconography, connoisseurship, formal and structural analysis, and psychoanalytical approaches.

AHI 496 Museum Internship
Credits: 3
Prerequisites: None
Corequisites: None
Type: TUT
Museum and gallery internships are available at such institutions as the Albright-Knox Art Gallery, the CFA Art Gallery, the University Art Gallery, the Amherst Museum and the Castellani Art Museum of Niagara University. The opportunity is by permission only. Students are encouraged to take AHI 480 Museum Studies, before applying for an internship.

AHI 497 Honors Thesis Tutorial
Credits: 3
Prerequisites: Permission of Instructor
Corequisites: None
Type: TUT
Accepted senior pursuing a specialized, independent study leading to an honors thesis. For further information, please contact the director of undergraduate studies

AHI 499 Independent Study
Credits: 1
Prerequisites: None
Corequisites: None
Type: TUT
Three credit hours of independent study may be undertaken with a faculty member. It must be an outgrowth of coursework already completed, and not a substitution for any of the required coursework. Only three credit hours may be applied toward the degree.

AHI 220 Culture & Arts of East Asia
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces traditional and contemporary aesthetics, thought, literature, and theatre of East Asia. The arts of China, Japan, and Korea had fascinated observers in the West for centuries, and reveal much about the rich cultures and vibrant societies of East Asia. Team-taught by Asian specialists in the humanities from several UB departments.

AS 270 Asian American Women Writers
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines Asian American women’s writings and the social, cultural, and historical contexts that shape their thematic concerns, narrative strategies, and poetic styles. Through Asian American women’s prose and poetry, we seek to understand the formation of gender, racial, and sexual identities, and their effects on Asian American women’s literary traditions and innovations. Examines the relations between gender and genre, between race and class, and between culture and sexuality.

AS 348 Asian Americans and the Visual Media
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Investigates Hollywood representations of Asians and Asian Americans and Asian Americans’ self-representations. Through a comparative analysis of Hollywood films and Asian American films and videos, we seek a better understanding of the tactics and specific historical contexts for constructing identities of ‘race,’ gender, ethnicity, and sexuality. This understanding provides a historical and critical perspective for examining both the content and technique of Asian Americans’ films and videos.

AS 392 Asian Religions
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Provides an overview of the major religions of Asia (Hinduism, Buddhism, and Islam) in the light of their sacred texts, and focuses on the theological underpinnings and practices of each tradition. This course fosters a better understanding of religion in general, and familiarity with the spiritual values that shape everyday lives in many different locales worldwide.

AS 393 Topics in Asian Studies
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Varying topics in Asian studies, chosen by the instructor.

AS 394 Topics in Asian Studies
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Varying topics in Asian American studies, chosen by the instructor.

AS 395 Topics in Asian Studies
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Varying topics in Asian studies, chosen by the instructor.

AS 396 Topics in Asian American Studies
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Varying topics in Asian American studies, chosen by the instructor.

AS 397 Topics in Asian American Studies
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Varying topics in Asian American studies, chosen by the instructor.

AS 398 Topics in Asian American Studies
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Varying topics in Asian American studies, chosen by the instructor.

AS 498 Senior Research in Asian Studies
Credits: 3
Prerequisites: Majors only
Corequisites: None
Type: TUT
A capstone course required for all majors in Asian Studies. Research, writing, and oral presentation of project carried out under the guidance of a faculty member.

AS 499 Independent Study
Credits: 1
Prerequisites: None
Corequisites: None
Type: TUT
The content of this course is variable and therefore it is repeatable for credit. The University Grade Repeat Policy does not apply.
### Athletics

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Corequisites</th>
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<tr>
<td>ATH 106</td>
<td>Volleyball</td>
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<td>Fitness and Conditioning</td>
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<td>Lifeguard Training</td>
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<td>Introduction to Ice Skating</td>
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<td>Elementary Judo and Self Defense</td>
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<td>Self Defense for Women</td>
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<td>Beginning Racquetball</td>
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<td>Social Dance: Swing and American Rhythms</td>
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<td>Beginning Backpacking</td>
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<td>ATH 160</td>
<td>Canoeing</td>
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**Undergraduate Course Descriptions 2007-08 • University at Buffalo**
ATH 173 Aerobic Dance  
Credits: 1  
Prerequisites: None  
Corequisites: None  
Type: LEC/LAB  
Aerobic activities and exercises that emphasize flexibility, coordination, and cardiovascular endurance.

ATH 190 Introduction to Wellness  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Develops an understanding of the techniques and personnel problems that confront managements on a regional basis. Includes lab, which allows students to experience specific activities.

ATH 201 Organization and Administration of Recreational Sports  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The study of skills in programming and administration necessary for the development and organization of programs in recreational sports: instructional sports, intramural sports, extramural sports, informal sports, adventure pursuits, fitness, sport clubs, aquatics and facilities.

ATH 220 Principles of Athletic Training  
Credits: 2  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Practical application of specialized athletic training techniques; basic life support; injury recognition, fundamentals of adhesive taping, strapping, and bracing applications.

ATH 221 First Aid and Personal Safety  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Theory and practice of first aid for the injured. ARC standard course. Special attendance requirements leading to certification. Fee of $20.00.

ATH 222 Care and Prevention of Athletic Injuries  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Casual and preventive factors influencing sports injuries; appropriate first-aid emergency care; injuries and their management on a regional basis.

ATH 230 Theories and Techniques of Coaching  
Credits: 3  
Prerequisites: ATH 221, ATH 222, ATH 299  
Corequisites: None  
Type: LEC  
Develops an understanding of the technical and personnel problems that confront the coach of an athletic team.

ATH 299 Philosophy, Principles, and Organization of Athletics  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Organization of basic athletic programs. Includes discussions of national, state league, and local regulations and policies governing operation of public school athletic programs. Also includes philosophy and principles of administering an athletic program.

ATH 496 Coaching Internship  
Credits: 3  
Prerequisites: ATH 221, ATH 222, ATH 230, ATH 299  
Corequisites: None  
Type: LAB  
Lab experience designed to enhance coaching certification for nonphysical education majors.

ATH 499 Independent Study  
Credits: 1  
Prerequisites: None  
Corequisites: None  
Type: TUT  
For students who want to gain confidence in dealing with their own bodies, both mentally and physically, in a fitness and conditioning program leading to overall wellness. Includes lab, which allows students to experience specific activities.

BCH 401 Introduction to Research  
Credits: 1  
Prerequisites: accepted biochemistry major  
Corequisites: None  
Type: SEM  
Elective course that familiarizes students with up-to-date concepts in eukaryotic gene expression. Through a classroom discussion of selected papers, introduces students to current issues in gene transcription, mRNA processing, and their regulation. Augments classroom learning with detailed problem sets.

BCH 403 Biochemical Principles  
Credits: 4  
Prerequisites: BIO 200 and CHE 202  
Corequisites: None  
Type: LEC  
One semester general biochemistry course for science majors and students of pharmacy. Covers protein and membrane structure and function, metabolism, and nucleic acid structure and molecular biology.

BCH 404 Advanced Topics in Biochemistry  
Credits: 3  
Prerequisites: BCH 401, BCH 403, BCH 404, or permission of instructor  
Corequisites: None  
Type: SEM  
Covers five areas of biochemistry beyond the basic survey course BCH 403. Requires literature reading. Covers each subject area in 5 lectures; 3 didactic lectures, one faculty led paper discussion, and one student presentation.

BCH 405 Research Topics in Biochemistry  
Credits: 3  
Prerequisites: BCH 401, BCH 403, BCH 404, or permission of instructor  
Corequisites: None  
Type: SEM  
Focuses on learning cutting-edge biochemistry by reading, analyzing, and discussing research papers. Emphasizes molecular and mechanistic aspects of signal transduction in growth, differentiation, development and cancer, and signaling in response to hormones to the nervous system.

BCH 407 Research Presentations  
Credits: 1  
Prerequisites: senior standing in biochemistry  
Corequisites: None  
Type: SEM  
Students attend one research seminar of their choosing per week involving biochemistry and write a two- to three-page report of that seminar. If the student obtains a paper by the seminar speaker and incorporates that into the report, it takes the place of a seminar.

BCH 408 Gene Expression  
Credits: 2  
Prerequisites: permission of instructor  
Corequisites: None  
Type: SEM  
Under the direction of faculty, the course consists of an original investigative project involving library and lab work. Open to majors as a research project. Requires one poster presentation. Students must complete 8 credit hours.

BCH 498 Undergraduate Research Participation in Biochemistry  
Credits: 1  
Prerequisites: Permission of instructor  
Corequisites: None  
Type: TUT  
For students having specific academic interests or objectives; requires a department faculty sponsor before preregistration.
**Biological Sciences**

**BIO 101 Licit and Illicit Drugs**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Biological significance of commonly used medicinal and special drugs. Influence of such drugs as aspirin, tranquilizers, alcohol, marijuana.

**BIO 129 Perspectives in Human Biology**

Credits: 3.5  
Prerequisites: None  
Corequisites: None  
Type: LEC/LAB  
Lectures and laboratory for students who need to fulfill one year of science plus one semester of lab, and general education requirement. Structural and functional characteristics of living things emphasizing human biology and genetics; the significance of these characteristics with respect to humanity's future.

**BIO 130 Perspectives in Human Biology**

Credits: 3.5  
Prerequisites: None  
Corequisites: None  
Type: LEC/LAB  
Lectures and laboratory for students who need to fulfill one year of science plus one semester of lab, and general education requirement. Structural and functional characteristics of living things emphasizing human biology and genetics; the significance of these characteristics with respect to the future of humanity.

**BIO 200 Evolutionary Biology**

Credits: 5  
Prerequisites: None  
Corequisites: None  
Type: LEC/LAB  
Evidence for evolution; principle of genetics; population genetics; selection (natural, sexual, and kin); evolution of major groups of organisms; speciation; adaptation; coevolution; and sociobiology.

**BIO 201 Cell Biology**

Credits: 4  
Prerequisites: None  
Corequisites: None  
Type: LEC/LAB  
Lectures emphasize experimental foundations of our understanding of cells and cell organelles and cover the mechanisms underlying cell reproduction, cell motility, and cell energetics. Laboratories provide practice in quantitative analysis emphasizing pipetting, pH, spectrophotometry, and centrifugation.

**BIO 205 Fundamentals of Biological Chemistry**

Credits: 3  
Prerequisites: CHE 201  
Corequisites: None  
Type: LEC  
Basic course in the fundamentals of biological chemistry for students majoring in biological science and nonmajors with an interest in the subject.

**BIO 215 Fundamentals of Biological Chemistry Laboratory**

Credits: 2  
Prerequisites: None  
Corequisites: None  
Type: LAB/LEC  
Introductory laboratory course in biological chemistry. Experiments deal with the basic methods of isolation, measurements, and characterization of macromolecules.

**BIO 302 Introduction to Molecular Biology**

Credits: 3  
Prerequisites: BIO 201  
Corequisites: None  
Type: LEC  
Structure and function of molecules, such as carbohydrates, proteins, lipids, and nucleic acids. Enzymes and energetics. Nucleic acid synthesis, replication, transcription, protein synthesis, and the genetic code.

**BIO 309 Ecology Lecture**

Credits: 3  
Prerequisites: BIO 200  
Corequisites: None  
Type: LEC  
Processes that control the abundance and distribution of organisms in their natural environments; emphasizing population, community and evolutionary ecology.

**BIO 310 Ecological Methods**

Credits: 2  
Prerequisites: BIO 309  
Corequisites: BIO 309  
Type: LAB/LEC  
Field exercises to illustrate major concepts of modern ecology, and the techniques and procedures used in ecological research.

**BIO 318 Plant and Fungal Morphology**

Credits: 4  
Prerequisites: BIO 200, or permission of instructor  
Corequisites: None  
Type: LEC/LAB  
Structure and reproduction of both plant kingdom members and fungi: algae, liverworts, mosses, ferns, and seed plants.

**BIO 319 Genetics**

Credits: 3  
Prerequisites: BIO 205 or BCH 403  
Corequisites: None  
Type: LEC  
Basic genetic principles emphasizing the molecular basis of heredity: Structure, replication, and function of the genetic material, regulation of gene expression, and genetic recombination.

**BIO 328 General Physiology**

Credits: 3  
Prerequisites: BIO 201  
Corequisites: None  
Type: LEC  
Covers general physiology principles, using cells, plants, and animals as models to illustrate mechanisms by which living organisms maintain internal function and adapt to their external environment.

**BIO 329 Genetics Laboratory**

Credits: 2  
Prerequisites: BIO 319  
Corequisites: BIO 319  
Type: LAB/LEC  
A semester-long series of experiments planned to simulate an actual research project. Students generate a mutation and isolate the normal gene to complement it. The normal and mutant genes are analyzed using techniques from molecular biology and bioinformatics.

**BIO 338 General Physiology Laboratory**

Credits: 3  
Prerequisites: BIO 328  
Corequisites: BIO 328  
Type: LAB/LEC  
Hands-on opportunity to learn technical skills with a variety of physiological instrumentation and to observe model systems discussed in BIO 328.

**BIO 367 Developmental Biology**

Credits: 3  
Prerequisites: BIO 319  
Corequisites: None  
Type: LEC  
Cellular and molecular mechanisms involved in growth and differentiation in animal development.

**BIO 369 Fungi and Their Medical Importance**

Credits: 3  
Prerequisites: BIO 201  
Corequisites: None  
Type: LEC  
Interaction from a biological perspective. Lectures and laboratory for students who need to fulfill one year of science plus one semester of lab, and general education requirement. Emphasizes the experimental basis underlying our current knowledge.

**BIO 370 Developmental Biology Laboratory**

Credits: 4  
Prerequisites: BIO 367  
Type: LEC  
Studies the morphological aspects of vertebrate development as seen in the chick embryo. Presents various techniques used to study developmental processes.

**BIO 400 Bioinformatics / Genome Analysis**

Credits: 4  
Prerequisites: BIO 319 or permission of instructor  
Corequisites: None  
Type: LEC/LAB  
Computerized analysis of genetic information from a biological perspective. Lectures focus on assumptions, limitations, and strategies of bioinformatics algorithms and statistics. Labs use computers to address biological questions.

**BIO 401 Advanced Biological Chemistry**

Credits: 4  
Prerequisites: BIO 205 or BCH 403  
Corequisites: None  
Type: LEC  
Structure and function of biological macromolecules: proteins, nucleic acids; mechanisms of enzyme catalysis, energy transduction, and metabolic regulation.

**BIO 402 Advanced Cell and Developmental Biology 1**

Credits: 4  
Prerequisites: BIO 205  
Corequisites: None  
Type: LEC  
Covers major topics in cell and developmental biology at the advanced textbook level. Emphasizes the experimental basis underpinning our current knowledge.

**BIO 404 Advanced Molecular Genetics**

Credits: 4  
Prerequisites: BIO 319  
Corequisites: None  
Type: LEC  
Biological information flow, replication, transcription, RNA processing, translation and gene expression.

**BIO 405 Advanced Cell and Developmental Biology 2**

Credits: 4  
Prerequisites: permission of instructor  
Corequisites: None  
Type: LEC  
A continuation of BIO 402 covering recent advances in cell and developmental biology. Presents and discusses aspects of cell organization, structure and function.

**BIO 407 Advanced Ecology**

Credits: 3  
Prerequisites: BIO 309  
Corequisites: None  
Type: LEC  
Advanced course in the foundations of ecology emphasizing population and community ecology. Supplements lectures on basic ecological principles and models with discussions of both current and historically important issues.

**BIO 410 Biophysical Aspects of Macromolecules**

Credits: 4  
Prerequisites: BIO 205 or BCH 403  
Corequisites: None  
Type: LEC  
Applications of spectroscopic techniques to determinations of kinetic, thermodynamic, and equilibrium constants characterizing interactions between biological macromolecules. Microtubule assembly, hormone/receptor interactions, and lac repressor binding to DNA.

**BIO 411 Tropical Marine Ecology**

Credits: 3  
Prerequisites: BIO 309  
Corequisites: None  
Type: LEC  
Surveys tropical marine ecosystems, emphasizing coral reef communities. Examines processes controlling abundance and distribution of marine taxa using primary literature.
BIO 412 Field Course in Tropical Marine Ecology
Credits: 3
Prerequisites: BIO 411
Corequisites: None
Type: LEC/LAB
An intensive two week field course in the Bahamas focusing on coral reef communities. Combining lectures, fieldwork, and laboratory analyses, students conduct in depth studies of Caribbean marine habitats.

BIO 417 Neurobiology
Credits: 3
Prerequisites: BIO 205
Corequisites: None
Type: LEC
Lectures and class discussions concerning nervous systems and neural functions of humans and other organisms. Emphasizes the physiology, biochemistry, and molecular biology of motor functions, learning, and memory.

BIO 440 Experimental Endocrinology
Credits: 2
Prerequisites: junior standing in biology or other life sciences, or permission of instructor
Corequisites: None
Type: LEC
Molecular mechanisms mediating cellular integration of peptide hormone influences: role of hormones in cellular function, surface membrane receptor-transduction mechanisms, and nonmembrane receptor-transduction mechanisms.

BIO 449 Evolutionary and Developmental Biology
Credits: 3
Prerequisites: BIO 367
Corequisites: None
Type: LEC
Explores how growing knowledge of developmental circuits, and their variation, affects our understanding of how organisms evolve.

BIO 458 Molecular Ecology
Credits: 2
Prerequisites: permission of instructor
Corequisites: None
Type: LEC/LAB
The use of molecular genetic markers is becoming a widespread and important approach to studying ecological phenomena, such as population structure, migration, mating systems, and natural selection. Students learn to isolate and use molecular markers for ecological and evolutionary studies.

BIO 461 Basic Radiation Science
Credits: 4
Prerequisites: None
Corequisites: None
Type: LEC/LAB
Production, properties, interactions, dosimetry, detection, and instrumentation of radiation from radioisotopes, radiation-producing equipment and nuclear reactors, safe-handling procedures, and survey methods.

BIO 467 Techniques in Immunology
Credits: 3
Prerequisites: BIO 468
Corequisites: BIO 468
Type: LAB
Studies antigen-antibody interactions; agglutination; precipitation using Oudin and Ouchterlony reactions, immunoelectrophoresis, antibody purification.

BIO 468 Molecular Immunology
Credits: 3
Prerequisites: BIO 319
Corequisites: None
Type: LEC
Immunological phenomena; properties of antigens and antibodies, antigen-antibody interactions and detection, genetic basis of immunoglobulin biosynthesis, involvement of T and B cells in the humoral response.

BIO 495 Undergraduate Supervised Teaching
Credits: 1
Prerequisites: Permission of Instructor
Corequisites: None
Type: TUT
Enrollees participate as undergraduate teaching assistants under the supervision of faculty of the Department of Biological Sciences.

BIO 498 Undergraduate Research
Credits: 1
Prerequisites: Permission of Instructor
Corequisites: None
Type: TUT
Students collaborate with faculty research mentors on an ongoing faculty research project or conduct independent research under the guidance of a faculty member.

BIO 499 Independent Study
Credits: 1
Prerequisites: permission of instructor
Corequisites: None
Type: TUT
A program that may include laboratory experience, library research, or tutorial study arranged with a faculty sponsor in the Department of Biological Sciences.

BIO 499 Independent Study
Credits: 1
Prerequisites: Biomedical Sciences major
Corequisites: None
Type: SEM
Weekly meetings with scientists and clinicians in a seminar offered by various departments within the School of Medicine and Biomedical Sciences.

BIO 496 Biomedical Sciences Internship
Credits: 1
Prerequisites: Biomedical Sciences major
Corequisites: None
Type: TUT
A program that may include laboratory experience, library research, or tutorial study arranged with a faculty sponsor in the Department of Biological Sciences.

BIO 498 Biomedical Sciences Seminar
Credits: 1
Prerequisites: Biomedical Sciences major
Corequisites: None
Type: TUT
Exposes students to a nonacademic environment within which to apply the knowledge gained via traditional coursework. Students have the opportunity to work with a community, government, or private agency as a student intern. This volunteer, credit-bearing experience gives students the opportunity to experience specific job settings. Students may opt for biomedical sciences work sites whose primary focus is clinical, business, or research.

BMS 496 Biomedical Sciences Research
Credits: 1
Prerequisites: Biomedical Sciences major
Corequisites: None
Type: LAB
Students collaborate with research mentors on an ongoing project in a laboratory setting or conduct independent research under the guidance of their mentors. This experience provides students with an inquiry-based learning opportunity and engages them as active learners in a research setting. Makes available opportunities to hone students’ oral and written communication skills.
Biophysics

BPH 400 Biological Physics
Credits: 4
Prerequisites: BIO 201, CHE 203 or CHE 201, PHY 108
Corequisites: None
Type: LEC
Principles of biophysics and physics applied to biological problems as well as to single protein molecules will be discussed. The topics to be covered will be centered on biological cells and their molecules, molecular motion, energy, thermodynamics and chemical forces, cooperative phenomena, enzymes and molecular machines, and various molecular machines in biological membranes. The course addresses contemporary topics and their understanding in biophysical and physical principles underlying the function of individual molecules in biology.

BPH 402 Biophysics Problems for Undergraduates
Credits: 1
Prerequisites: permission of instructor
Corequisites: None
Type: LAB
Individual research projects in biophysics of mutual interest to student and instructor; experimental or theoretical project; may include training in appropriate biophysical techniques.

BPH 403 Molecular Biophysics
Credits: 3
Prerequisites: permission of instructor
Corequisites: None
Type: LEC
Introduces the major areas of molecular biophysics and their foundations in chemistry and physics. Includes molecular interactions, structural analysis through diffraction techniques, macromolecular physical chemistry, the effects of physical forces, and thermodynamic systems.

BPH 405 Biophysical Basics: Processes
Credits: 4
Prerequisites: permission of instructor
Corequisites: None
Type: LEC/REC
The first third covers basic physicochemical concepts of various properties related to cell membrane transport: osmotic pressure, permeability, membrane potential, excitability of nervous tissues and various ion channels. The remaining two-thirds are spent by instructors from various laboratories giving introductory sessions on respective up-dated topics in their research fields: endo- and exocytosis in cells, exocytosis in synapses, membrane fusion, ion channel kinetics, ligand-gated ion channels, membrane mechanics, axonal properties, protein folding, and protein-nucleic acid interaction with optical trapping method. This course is dual listed with BPH 505.

BPH 410 Introductory Quantitative Biology
Credits: 3
Prerequisites: BIO 201, MTH 142, PHY 108
Corequisites: None
Type: LEC
This course will focus on data analysis, mathematical modeling and computational analysis of problems in cellular and molecular biology. Topics are selected from a variety of areas and cover most commonly used analysis and modeling approaches. These include, for example, chemical kinetics, diffusion, electrotonic interactions, single molecule kinetics, DNA/protein sequence analysis, macromolecular simulation, etc. In addition to basic theory, students will also gain hands-on experience on the use of computers and various computer programs. Abundant opportunity will be provided for students who have specific interests in these topics. This course is dual listed with BPH 510.

BPH 458 Experimental Biophysics
Credits: 3
Prerequisites: Majors only
Corequisites: None
Type: LAB
Senior research project: students work in the laboratories of faculty carrying out research in various areas of experimental (or theoretical) biophysics. Exposes students to techniques including: ion-channel and membrane protein-structure analysis, electrophysiological procedures applicable to the investigation of the action of drugs on the nervous system, macromolecular characterization, molecular structure determination, and biophysical techniques for the analysis and characterization of proteins. Opportunities are usually available to receive training in some clinical biophysical procedures and techniques in various hospital settings. A lab report describing student research accomplishments is required.

BPH 498 Research
Credits: 1
Prerequisites: Permission of Instructor
Corequisites: None
Type: LAB
Under the direction of faculty, experimental and theoretical research in the areas of biophysics, physiology and neurosciences.

BPH 499 Independent Study
Credits: 1
Prerequisites: permission of instructor
Corequisites: None
Type: TUT
For students having specific academic interests or objectives; requires department faculty sponsor before registration.

Biostatistics

STA 111 Introduction to Probability and Statistics I
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC/REC
Designed especially for students in the humanities or the social sciences. Focuses primarily on the fundamental ideas of probability, and introduces statistics.

STA 112 Introduction to Probability and Statistics II
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Recommended for undergraduate students in the health sciences. Covers basic statistical concepts and techniques such as descriptive statistics, regression and correlation, analysis-of-variance, survival analysis and categorical data analysis as it pertains to clinical experiments and epidemiological investigations.

STA 119 Statistical Methods
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC/REC
Covers topics in descriptive statistics, probability, inference, and experimental design, all of which are put together to draw conclusions from uncertainty through analysis of experimental data. Although a general statistical methods course, the material (through examples) is geared towards sciences majors, especially those in the health sciences. Looks into the underlying reasoning behind the techniques rather than just pure application.

STA 403 Statistical Comparisons and Associations
Credits: 3
Prerequisites: MTH 142; an introduction to statistics course is a recommended prerequisite
Corequisites: None
Type: LEC
Advanced presentation of statistical methods for comparing populations and estimating and testing associations between variables. Topics include point estimation; confidence intervals; hypothesis testing; ANOVA models for 1, 2, and k way classifications; multiple comparisons; chi-square test of homogeneity; Fisher's exact test; McNemar's test; measures of association, including odds ratio, relative risks, Mantel-Haenszel tests of association, and standardized rates; repeated measures ANOVA; simple regression; and correlation.

STA 404 Regression Analysis
Credits: 3
Prerequisites: STA 403
Corequisites: None
Type: LEC/LAB
Covers regression analysis and introduction to linear models. Topics include multiple regression, analysis of covariance, least square means, logistic regression, and non-linear regression. The course includes a one-hour computer lab and emphasizes hands-on applications to data sets from the health sciences.

STA 406 Introduction to Statistical Computing
Credits: 3
Prerequisites: STA 112 or permission of instructor
Corequisites: None
Type: LEC
Familiarizes students with PC-based statistical computing applications for public health, and is a companion course for STA 112 Introduction to Probability and Statistics II. Develops basic skills in the use of a statistical package through classroom demonstrations and independent lab assignments that complement the material covered in STA 112. Emphasizes data definition, verification, descriptive and inferential statistics, and graphical presentation. In addition, the course gives students the skills needed for effective data management, data manipulation, and data analysis at a basic level.

STA 421 Introduction to Theoretical Statistics I
Credits: 3
Prerequisites: MTH 142
Corequisites: None
Type: LEC/REC
Provides students with probability and distribution theory necessary for the study of statistics. Topics include axioms of probability theory, independence, conditional probability, random variables, discrete and continuous probability distributions, functions of random variables, moment generating functions, the Law of Large Numbers, and the Central Limit Theorem.

STA 422 Introduction to Theoretical Statistics II
Credits: 3
Prerequisites: STA 421
Corequisites: None
Type: LEC/REC
Introduces principles of statistical inference. Introduces and develops classical methods of estimation, tests of significance, the Neyman-Pearson Theory of testing hypotheses, maximum likelihood methods, and Bayesian statistics.
### Business Administration

#### MGG 150 Business and Society
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC/REC  
Topics include descriptive statistics, probability concepts (such as independence and conditional probability), probability distributions of random variables, sampling distributions, estimation, confidence intervals, hypothesis testing, analysis of variance procedures, linear regression, and nonparametric methods. Computers and statistical packages are used throughout the course. Requires no extensive computer experience.

#### MGA 201 Introduction to Accounting I
Credits: 3  
Prerequisites: sophomore standing; open to any student in the University  
Corequisites: None  
Type: LEC  
Introduces a two-course sequence in financial and managerial accounting. Emphasizes the user, not the preparer, of accounting information. Analysis of corporate financial statements by external parties motivates study of the concepts and standards that shape the form and content of corporate financial statements. Similarly, the uses of accounting information by managers lead to the study of cost behavior, product costing, budgeting profitability analysis, and performance evaluation. Briefly considers auditing, internal control systems, and federal income tax.

#### MGQ 301 Statistical Decisions in Management
Credits: 3  
Prerequisites: MTH 121 or MTH 131; MGQ 201, junior standing in the School of Management  
Corequisites: None  
Type: LEC  
Strengthens skills in the use of statistical methods for decision making and in the interpretation of computer output. Topics covered include estimation, hypothesis testing, regression, and analysis of variance.  

#### MGB 301 Organizational Behavior and Administration
Credits: 3  
Prerequisites: PSY 101, junior standing in the School of Management  
Corequisites: None  
Type: LEC  
Explores the systematic interrelation of economic, technological, psychosocial, and sociological variables useful in observing, predicting, and influencing organizational behavior. Students develop ways of thinking about organizational problems to increase their effectiveness as administrators.

#### MGI 301 Human Resources Management and Labor Relations for Managers
Credits: 3  
Prerequisites: junior standing in the School of Management  
Corequisites: None  
Type: LEC  
Introduces the management of human resources (HR) at the level of the firm. Focuses on the systems and practices required to implement such HR functions as selection, development, compensation, and performance appraisal. Evaluates these HR decisions with a framework that considers the influence of legal and market environments, as well as union and nonunion settings. Course assignments emphasize managerial applications.

#### MGF 301 Corporation Finance
Credits: 3  
Prerequisites: MGA 201-MGA 202, MTH 131, completion of or concurrent registration in MGQ 301, junior standing in the School of Management  
Corequisites: None  
Type: LEC  
Introduces the scope and objectives of financial management, along with the concept of the risk-return trade-off. Also considers financial planning with special emphasis on evaluating capital projects and managing working capital. Discusses the methods employed to obtain funds, along with the costs associated with each alternative.

#### MGA 202 Introduction to Accounting II
Credits: 3  
Prerequisites: MGA 201, sophomore standing; open to any student in the University  
Corequisites: None  
Type: LEC/REC  
Introduces the two-course sequence financial and managerial accounting. Emphasizes the user, not the preparer, of accounting information. Analysis of corporate financial statements by external parties motivates study of the concepts and standards that shape the form and content of corporate financial statements. Similarly, the uses of accounting information by managers lead to the study of cost behavior, product costing, budgeting profitability analysis, and performance evaluation. Briefly considers auditing, internal control systems, and federal income tax.
MGE 302 Applied Economics
Credits: 3
Prerequisites: ECO 181-ECO 182, MGQ 201, MGQ 301, mathematics requirement, junior standing in the School of Management
Corequisites: None
Type: LEC
Introduces the process, tools, and techniques of production and operations management. Develops sufficient skills in the use of financial, quantitative, statistical, and computer-based tools and techniques as they apply to operations management and control problems in business, industrial, service, and governmental settings.

MGA 302 Production and Operations Management
Credits: 3
Prerequisites: MGQ 301, junior standing in the School of Management
Corequisites: None
Type: LEC
Introduces the process, tools, and techniques of production and operations management. Develops sufficient skills in the use of financial, quantitative, statistical, and computer-based tools and techniques as they apply to operations management and control problems in business, industrial, service, and governmental settings.

MGA 302 Intermediate Financial Accounting II: Equities
Credits: 3
Prerequisites: MGA 301 and MGA 311 with a minimum grade of C in each and junior standing in accounting
Corequisites: None
Type: LEC
Examines further the theory of financial accounting, emphasizing the valuation and reporting of equities; also considers preparation, analysis, and interpretation of financial statements.

MGA 303 Communication for Accountants
Credits: 1
Prerequisites: Acceptance to accounting major
Corequisites: None
Type: LEC
Focuses on developing the practical skills necessary to prepare and deliver effective oral and written communications. Improve writing and speaking in a business context. Emphasizes expectations for speaking and writing within the accounting profession.

MGA 305 Management Accounting
Credits: 3
Prerequisites: MGA 201 MGA 202, junior standing
Corequisites: None
Type: LEC
Involves management accounting for non-accounting majors that includes cost estimation, budgeting, performance evaluation, transfer pricing, product cost systems, and analysis of investment decision making.

MGA 306 Financial Reporting and Analysis
Credits: 3
Prerequisites: MGA 201 MGA 202, junior standing
Corequisites: None
Type: LEC
Intermediate course in financial accounting for non-accounting majors that includes the format and content of financial statements, currently accepted accounting principles, problems in disclosure and income measurement, and analysis of financial statements.

MGA 311 Accounting Systems
Credits: 3
Prerequisites: MGA 201-MGA 202 with minimum grades of B, junior standing in accounting, completion of or concurrent registration in MGS 351 recommended
Corequisites: None
Type: LEC
Examines the accounting systems—both manual and computer-based—for service, merchandising, and manufacturing firms. Emphasizes source documents, internal control, flowcharting, and information provided to management.

MGA 314 Cost Accounting
Credits: 3
Prerequisites: MGA 301 or MGA 311, junior standing in accounting
Corequisites: None
Type: LEC
Examines the principles of management accounting used in reporting to management concerning cost measurement, behavior, and classifications; product and service costing systems; and budgeting and performance evaluation.

MGO 330 Entrepreneurship and Small Business
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Entrepreneurial ventures are unique entities. They take on the character of their originator who seeks to make his/her mark in the business world. Founders provide the essence of what their venture becomes. Students develop their entrepreneurial instinct as well as entrepreneurial skills. This interaction of instinct and skills assists professional growth and sharpens entrepreneurial “sense.” Lecture, discussion, and activities occupy class time. Explores both text and lecture content to provide insight into the components and interactions of business elements. In large part, examines course content in pursuit of development of a business plan.

MGS 351 Introduction to Management Information Systems
Credits: 4
Prerequisites: MGQ 201, junior standing in the School of Management
Corequisites: None
Type: LEC/LAB
Introduces the basic concepts of management information systems from the managerial perspective. Topics include system theory, information theory, systems analysis, and database management. Also introduces computer software, such as Lotus 1-2-3 and Microsoft Access.

MGT 401 Public Policy, Law and Management
Credits: 3
Prerequisites: junior or senior standing in the School of Management
Corequisites: None
Type: LEC
Focuses on the regulatory and policy implications of the interaction between government and private business entities, including corporations, partnerships and other business forms. Designed to help students understand the legal environment in which business organizations operate. This course also examines the role of ethics in business decision-making and the distinction between ethical and legal constraints. Includes discussion of specific laws affecting business and management, including securities regulation, antitrust statutes, and the Sarbanes-Oxley legislation of 2002.

MGA 401 Internal Auditing
Credits: 3
Prerequisites: MGA 301 and MGA 302 with a minimum grade of C in each, MGE 302, MGF 301, senior standing in accounting
Corequisites: None
Type: LEC
Covers scope and limitation of audits, auditors’ qualifications and responsibilities, methods of verification and analysis applied to asset and equity accounts, examination of operating data and systems, expressions of opinion related to financial statements, and auditors’ legal liability.

MGF 402 Investment Management
Credits: 3
Prerequisites: MGF 301, junior standing in the School of Management
Corequisites: None
Type: LEC
Discusses techniques of analyzing various companies and industries, as well as recent research on security markets, portfolio theory, and the measurements of investment performance.

MGM 402 Selling and Sales Force Management
Credits: 3
Prerequisites: MGM 301, junior standing in the School of Management
Corequisites: None
Type: LEC
Explores roles of the sales force and sales management team in a firm’s marketing strategy. Studies selling techniques, territory management, sales force selection, sales training for improved performance, compensation schemes, and performance evaluation. Case analysis and discussion deal with problems from the perspectives of the sales representative, the sales manager, and top management.
MG 403 International Financial Management
Credits: 3
Prerequisites: MGF 301, junior standing in the School of Management
Corequisites: None
Type: LEC
Provides the conceptual framework necessary for financial decision making in an international context. Focuses on implementing analytical tools and theory through problems and analysis of real-world global decision making. From this global perspective, explores the following traditional areas of corporate finance: working capital management, capital budgeting, cost of capital and financial structure, and valuation and control of operations. Within these areas, we concentrate on those decision variables that purely domestic firms tend to overlook, such as fluctuating exchange rates, differing rates of inflation between countries, differing tax systems, multiple money markets, exchange controls, segmented capital markets, and such political risks as nationalization and expropriation.

MGT 403 Business Law I
Credits: 3
Prerequisites: junior or senior standing in the accounting program
Corequisites: None
Type: LEC
Analyzes major legal issues in business decision-making, including contracts, product liability, law of business organizations, and government regulation of business.

MG 403 Marketing Research
Credits: 3
Prerequisites: MGM 301, junior standing in the School of Management
Corequisites: None
Type: LEC
Introduces the technologies used to develop information systems. The course introduces techniques for modeling and prototyping, and the use of automated tools to support software development.

MG 404 Advanced Financial Accounting
Credits: 3
Prerequisites: MGA 311 and MGA 312 and MGA 311 with a minimum grade of C in each, senior standing in accounting
Corequisites: None
Type: LEC
Examines federal and New York State income tax laws as they apply to individuals. Also, provides an overview of corporate tax provisions and income tax treatment of partners and partnerships.

MGM 404 Consumer Behavior
Credits: 3
Prerequisites: MGM 301, junior standing in the School of Management
Corequisites: None
Type: LEC
Analyzes major legal issues in business decision-making, including contracts, product liability, law of business organizations, and government regulation of business.

MGT 404 Business Law II
Credits: 3
Prerequisites: MGT 403, junior or senior standing in the accounting program
Corequisites: None
Type: LEC
Studies the Uniform Commercial Code, bankruptcy, property law, and other commercial law topics.

MGS 404 Database Management Systems
Credits: 3
Prerequisites: MGS 351, senior standing in the School of Management
Corequisites: None
Type: LEC
Introduces the technologies used to develop and implement database systems. The course begins by introducing the relational model and the structure query language (SQL), and also examines post-relational models as found in object-oriented and semantic databases. Uses data modeling concepts and principles of good database design to illustrate the construction of integrated databases. Requires students to complete a project that incorporates good database design concepts.

MGA 403 Federal and State Taxes
Credits: 3
Prerequisites: MGA 301 and MGA 302 and MGA 311 with a minimum grade of C in each, senior standing in accounting
Corequisites: None
Type: LEC
Examines federal and New York State income tax laws as they apply to individuals. Also, provides an overview of corporate tax provisions and income tax treatment of partners and partnerships.

MGM 405 Seminar in Marketing
Credits: 3
Prerequisites: MGM 301, junior standing in the School of Management
Corequisites: None
Type: SEM
Provides an opportunity to study individual topics of special interest, as well as to examine market phenomena of a general nature.

MG 405 Systems Analysis and Design
Credits: 3
Prerequisites: CSE 113, MGS 351, senior standing in the School of Management
Corequisites: None
Type: LEC
Accompany students with the various concepts and technologies used in the analysis and design of computer-based systems. The course introduces techniques for studying business information flows, defining information requirements, and designing and implementing computer-based solutions. Also surveys modern software development practices and such methods as rapid applications development and prototyping, and the use of automated tools to support software development.

MG 405 Advanced Corporate Finance
Credits: 3
Prerequisites: MGF 301, MGF 302, junior standing in the School of Management
Corequisites: None
Type: LEC
Discusses the theory and practice of financial decision making under uncertainty. In particular, considers in depth the problems of working capital management, capital budgeting, cost of capital, dividend policy, and merger analysis.

MG 406 Product and Brand Management
Credits: 3
Prerequisites: MGM 301, junior standing in the School of Management
Corequisites: None
Type: LEC
Discusses new product development, brand and pricing strategies for existing products, and the design of promotional campaigns. Gives particular emphasis to the new product development process and the design of advertising strategy.

MG 407 Financial Derivatives and Their Markets
Credits: 3
Prerequisites: MGF 301, concurrent registration or prior completion (strongly recommended) of MGF 402, senior standing in the School of Management
Corequisites: None
Type: LEC
Gives students an understanding of the wide range of derivative financial securities developed over the past fifteen years and better prepares them for the types of careers available in today's complex global markets. Students learn how these securities are priced and used in risk-management and speculative strategies by individuals and companies. Financial securities and markets are changing rapidly, and this course helps students be better prepared to enter a career in finance.

MGM 408 Retail and Marketing Channel Management
Credits: 3
Prerequisites: MGM 301, junior standing in the School of Management
Corequisites: None
Type: LEC
Discusses retail administration and the effective management of channels of distribution. Some of the topics covered are retail locations, management of physical distribution, and cooperation and conflict among retailers and other channel members. Offered infrequently.

MGM 409 Advertising and Promotion
Credits: 3
Prerequisites: MGM 301, junior standing in the School of Management
Corequisites: None
Type: LEC
Examines major legal issues in business decision-making, including contracts, product liability, law of business organizations, and government regulation of business.

MGO 403 Fundamentals of Strategic Management
Credits: 3
Prerequisites: MGF 301, MGM 301, MGO 302, completion of or concurrent registration in MGE 302, senior standing in the School of Management
Corequisites: None
Type: LEC
Surveys general management processes for planning and controlling the operations of the firm. Gives special attention to the strategic and operations planning process, and the integration of marketing, production, and financial planning with it. Case studies and a computer-based management game are part of the course.

MGO 403 Federal and State Taxes
Credits: 3
Prerequisites: MGA 301 and MGA 302 and MGA 311 with a minimum grade of C in each, senior standing in accounting
Corequisites: None
Type: LEC
Examines federal and New York State income tax laws as they apply to individuals. Also, provides an overview of corporate tax provisions and income tax treatment of partners and partnerships.

MGM 405 Seminar in Marketing
Credits: 3
Prerequisites: MGM 301, junior standing in the School of Management
Corequisites: None
Type: SEM
Provides an opportunity to study individual topics of special interest, as well as to examine market phenomena of a general nature.

MG 405 Systems Analysis and Design
Credits: 3
Prerequisites: CSE 113, MGS 351, senior standing in the School of Management
Corequisites: None
Type: LEC
Accompany students with the various concepts and technologies used in the analysis and design of computer-based systems. The course introduces techniques for studying business information flows, defining information requirements, and designing and implementing computer-based solutions. Also surveys modern software development practices and such methods as rapid applications development and prototyping, and the use of automated tools to support software development.

MG 405 Advanced Corporate Finance
Credits: 3
Prerequisites: MGF 301, MGF 302, junior standing in the School of Management
Corequisites: None
Type: LEC
Discusses the theory and practice of financial decision making under uncertainty. In particular, considers in depth the problems of working capital management, capital budgeting, cost of capital, dividend policy, and merger analysis.

MG 406 Product and Brand Management
Credits: 3
Prerequisites: MGM 301, junior standing in the School of Management
Corequisites: None
Type: LEC
Discusses new product development, brand and pricing strategies for existing products, and the design of promotional campaigns. Gives particular emphasis to the new product development process and the design of advertising strategy.

MG 407 Financial Derivatives and Their Markets
Credits: 3
Prerequisites: MGF 301, concurrent registration or prior completion (strongly recommended) of MGF 402, senior standing in the School of Management
Corequisites: None
Type: LEC
Gives students an understanding of the wide range of derivative financial securities developed over the past fifteen years and better prepares them for the types of careers available in today's complex global markets. Students learn how these securities are priced and used in risk-management and speculative strategies by individuals and companies. Financial securities and markets are changing rapidly, and this course helps students be better prepared to enter a career in finance.

MGM 408 Retail and Marketing Channel Management
Credits: 3
Prerequisites: MGM 301, junior standing in the School of Management
Corequisites: None
Type: LEC
Discusses retail administration and the effective management of channels of distribution. Some of the topics covered are retail locations, management of physical distribution, and cooperation and conflict among retailers and other channel members. Offered infrequently.

MGM 409 Advertising and Promotion
Credits: 3
Prerequisites: MGM 301, junior standing in the School of Management
Corequisites: None
Type: LEC
Examines major legal issues in business decision-making, including contracts, product liability, law of business organizations, and government regulation of business.

MGO 403 Fundamentals of Strategic Management
Credits: 3
Prerequisites: MGF 301, MGM 301, MGO 302, completion of or concurrent registration in MGE 302, senior standing in the School of Management
Corequisites: None
Type: LEC
Surveys general management processes for planning and controlling the operations of the firm. Gives special attention to the strategic and operations planning process, and the integration of marketing, production, and financial planning with it. Case studies and a computer-based management game are part of the course.
MGB 421 Seminar in Organization and Administration
Credits: 3
Prerequisites: MGB 301, junior standing in the School of Management
Corequisites: None
Type: SEM
Focus varies from comparison of different approaches to organizational analysis to in-depth studies of specialized topics of field studies of organizations. Involves systematic development of knowledge about organizational behavior and implications for management practice. Offered infrequently.

MGT 422 Seminar in Organization and Administration
Credits: 3
Prerequisites: MGB 301, junior standing in the School of Management
Corequisites: None
Type: SEM
Focus varies from comparison of different approaches to organizational analysis to in-depth studies of specialized topics of field studies of organizations. Involves systematic development of knowledge about organizational behavior and implications for management practice. Offered infrequently.

MGT 422 Management, Society, and the Environment
Credits: 3
Prerequisites: junior standing in the School of Management
Corequisites: None
Type: LEC
Various topics of concern to management students are offered periodically by guest lecturers and faculty members. Not offered on a regular basis.

MGB 425 Power and Influence in Organizations
Credits: 3
Prerequisites: MGB 301, junior standing in the School of Management
Corequisites: None
Type: LEC
Examines the nature of power and influence, the acquisition of power, and its use in organizations, utilizing tools from organizational theory. Analyzes major frameworks from the social and behavioral sciences and delineates their utility for application. Discusses cases and other exercises for application in both the public and the private sectors. Students are encouraged to relate the material to their personal experiences and professional objectives.

MGI 441 Collective Bargaining
Credits: 3
Prerequisites: MGI 301, junior standing in the School of Management
Corequisites: None
Type: LEC
Surveys collective bargaining in the United States. Topics covered include the nature and significance of collective bargaining, procedures of collective bargaining, bargaining issues, and contract administration.

MGA 449 Internal Audit Practicum
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Provides students with an opportunity to apply classroom theories to real-life situations. Students choose their own placement from a listing available from the Internal Audit Practicum. The placement process is similar to that of a job search. Students have the opportunity to send their resumes to sites of their choosing and interview for placement. Each site assigns a specific project to the student to be completed within 150 hours during the course of the semester. General management students work under the supervision of a management professional and receive exposure to the day-to-day operations within a professional setting.

MGG 496 MIS Practicum
Credits: 3
Prerequisites: senior standing in MIS
Corequisites: None
Type: TUT
Provides students within the management science and systems option with an opportunity to apply classroom theories to real-life situations. Students choose their own placement from a listing available from the Internship Program Office. The placement process is similar to that of a job search. Students have the opportunity to send their resumes to sites of their choosing and interview for placement. Each site assigns a specific project to the student to be completed within 150 hours during the course of the semester. Management science and systems students work under the supervision of a management science and systems professional and receive exposure to the day-to-day operations within a professional setting.

MGG 496 Internship
Credits: 3
Prerequisites: senior standing in general management
Corequisites: None
Type: TUT
Provides students with an opportunity to apply classroom theories to real-life situations. Students choose their own placement from a listing available from the Internship Program Office. The placement process is similar to that of a job search. Students have the opportunity to send their resumes to sites of their choosing and interview for placement. Each site assigns a specific project to the student to be completed within 150 hours during the course of the semester. General management students work under the supervision of a general management professional and receive exposure to the day-to-day operations within a professional setting.
MGI 496 Human Resources Practicum
Credits: 3
Prerequisites: senior standing in human resources management or industrial relations
Corequisites: None
Type: TUT
Provides students with an opportunity to apply classroom theories to real-life situations. Students choose their own placements from a listing available from the Internship Program Office. The placement process is similar to that of a job search. Students have the opportunity to send their resumes to sites of their choosing and interview for placement. Each site assigns a specific project to the student to be completed within 150 hours during the course of the semester. Human resources management students work under the supervision of a human resources professional and receive exposure to the day-to-day operations within a professional setting.

MGF 496 Finance Practicum
Credits: 3
Prerequisites: senior standing in financial analysis
Corequisites: None
Type: TUT
Provides students within the finance option with an opportunity to apply classroom theories to real-life situations. Students choose their own placement from a listing available from the Internship Program Office. The placement process is similar to that of a job search. Thus, students have the opportunity to send their resumes to sites of their choosing and interview for placement. Each site assigns a specific project to the student to be completed within 150 hours during the course of the semester. Finance students work under the supervision of a finance professional and receive exposure to the day-to-day operations within a professional setting.

MGA 496 Accounting Practicum
Credits: 3
Prerequisites: senior standing in accounting
Corequisites: None
Type: SEM
Provides students with an opportunity to apply classroom theories to real-life situations. Students choose their own placement from a listing available from the Internship Program Office. The placement process is similar to that of a job search. Thus, students have the opportunity to send their resumes to sites of their choosing and interview for placement. Each site assigns a specific project to the student to be completed within 150 hours during the course of the semester. Accounting students work under the supervision of an accounting professional and receive exposure to the day-to-day operations within a professional setting.

MGM 497 Marketing Honors Thesis
Credits: 3
Prerequisites: Acceptance into the Marketing Honors Program
Corequisites: None
Type: TUT
Honors thesis for marketing students.

MGA 499 Independent Study
Credits: 1
Prerequisites: Permission of instructor and department chair, senior standing in accounting
Corequisites: None
Type: TUT
Instructional and practical experience in the skills and techniques of research through association with a faculty member actively engaged in research. Credit up to 6 hours, depending on the type and amount of research activity. May be taken for credit more than once.

MGF 499 Independent Study
Credits: 1
Prerequisites: Permission of instructor and department chairman, senior standing in accounting
Corequisites: None
Type: TUT
Instructional and practical experience in the skills and techniques of research through association with a faculty member actively engaged in research. Credit up to 6 hours, depending on the type and amount of research activity. May be taken for credit more than once.

MGT 499 Independent Study
Credits: 1
Prerequisites: senior standing in accounting, permission of instructor and department chair
Corequisites: None
Type: TUT
Instructional and practical experience in the skills and techniques of research through association with a faculty member actively engaged in research. Credit up to 6 hours, depending on the type and amount of research activity. May be taken for credit more than once.

MGO 499 Independent Study
Credits: 1
Prerequisites: senior standing in accounting, permission of instructor and department chair
Corequisites: None
Type: TUT
Instructional and practical experience in the skills and techniques of research through association with a faculty member actively engaged in research. Credit up to 6 hours, depending on the type and amount of research activity. May be taken for credit more than once.

CE 100 Special Topics
Credits: 3
Prerequisites: Permission of director of undergraduate studies
Corequisites: None
Type: LEC
Topics in the field of specialization selected with the permission of the instructor.

CE 200 Special Topics
Credits: 3
Prerequisites: Permission of director of undergraduate studies
Corequisites: None
Type: LEC
Topics in the field of specialization selected with the permission of the instructor.

CE 212 Fundamental Principles of Chemical Engineering
Credits: 3
Prerequisites: CHE 108, MTH 142, PHY 107
Corequisites: None
Type: LEC
Integrates fundamentals of mathematics, physics, and chemistry into chemical engineering concepts; laws of conservation of mass and energy.

CE 300 Special Topics
Credits: 3
Prerequisites: Permission of director of undergraduate studies
Corequisites: None
Type: LEC
Topics in the field of specialization selected with the permission of the instructor.

CE 304 Chemical Engineering Thermodynamics
Credits: 4
Prerequisites: CE 212, MTH 241
Corequisites: None
Type: LAB/REC
Introduces process analysis and design, application of thermodynamics to chemical engineering problems, including calculation of thermodynamic properties of pure fluids and mixtures, computation of energy requirements for changing the state of a system, analysis of phase equilibria (emphasizing vapor-liquid equilibrium) and treatment of chemical reaction equilibria.
CE 311 Unit Operations I
Credits: 3
Prerequisites: CE 317
Corequisites: CE 318
Type: LEC
First semester of a two-semester course. Important unit operations normally encountered in industrial processes treated in detail: fluid flow, heat exchange, evaporation, gas absorption, humidification, drying, and crystallization.

CE 317 Transport Processes I
Credits: 4
Prerequisites: MTH 241, MTH 306
Corequisites: CE 212, CE 327
Type: LEC/REC
Introduces fluid statics and dynamics with examples from chemical engineering operations. Applies macroscopic mass, energy, and momentum balances to fluid flow problems. Dimensional analysis and correlation of turbulent flow data. Theories of turbulence. The Navier-Stokes equations, momentum transport and velocity profiles in one-dimensional laminar flow, boundary layers, and potential flow.

CE 318 Transport Processes II
Credits: 4
Prerequisites: CE 317
Corequisites: CE 328
Type: LEC/REC
The equations of change of heat and mass transport. Steady- and unsteady-state heat conduction in one and two dimensions. Free and forced convection; prediction and correlation of heat transfer. Mass transfer by diffusion and convection; analogies with heat transfer. Simultaneous mass transfer and chemical reaction.

CE 327 Chemical Engineering Laboratory I
Credits: 2
Prerequisites: None
Corequisites: CE 317
Type: LAB/LEC
A continuation of CE 317. Fundamentals of design, execution, analysis, and documentation of engineering experiments. One three-hour laboratory per week or equivalent.

CE 328 Chemical Engineering Laboratory II
Credits: 2
Prerequisites: CE 327
Corequisites: CE 318
Type: LAB/LEC
A continuation of CE 327. Fundamentals of design, execution, analysis, and documentation of engineering experiments. One three-hour laboratory per week or equivalent.

CE 400 Special Topics
Credits: 3
Prerequisites: Permission of director of undergraduate studies
Corequisites: None
Type: LEC
Topics in the field of specialization selected with the permission of the instructor.

CE 404 Chemical Engineering Product Design
Credits: 3
Prerequisites: CE 318, CE 433
Corequisites: None
Type: LEC
Integrates the general framework for product design and development with molecular structure-property relations, enables students to evaluate the design of existing products and participate in the design of improved and new products.

CE 405 Special Topics
Credits: 3
Prerequisites: Permission of director of undergraduate studies
Corequisites: None
Type: LEC
Topics in the field of specialization selected with the permission of the instructor.

CE 406 Chemical Engineering Projects
Credits: 3
Prerequisites: Permission of director of undergraduate studies
Corequisites: None
Type: TUT
Problems vary year to year, but may include chemical process studies, studies of engineering materials, computer analysis of specific chemical engineering problems. Problems announced in previous semester. Assignments, where possible, follow student preferences and require consent of faculty members who guide the work.

CE 407 Unit Operations II
Credits: 3
Prerequisites: None
Corequisites: CE 304, CE 318
Type: LEC
Stage operations of distillation, absorption, leaching, and extraction. Phase equilibria and application of equilibrium data to calculational methods provide knowledge of solution methods and limitations for binary and multicomponent systems.

CE 408 Chemical Engineering Plant Design
Credits: 3
Prerequisites: CE 429, CE 407
Corequisites: None
Type: LEC/REC
Applies chemical engineering principles to the design of chemical plants and process equipment. Preliminary economic evaluations of plants. Process flow sheet development; material and energy balances; equipment specification, fundamentals of engineering economics and profitability analysis; strategies in process design and synthesis.

CE 410 Molecular Modeling
Credits: 3
Prerequisites: CE 304, CHE 334, or equivalent
Corequisites: None
Type: LEC
Examines chemical and transport phenomena from a microscopic perspective. Topics include molecular simulation, advanced thermodynamics, and statistical mechanics.

CE 420 Rheology of Fluids
Credits: 3
Prerequisites: introductory course in fluid mechanics
Corequisites: None
Type: LEC
Introduces the technological and economic aspects of rheology. Complex fluids; interpretation of rheological equations of state. Rheological parameters; laminar flow; rheologically complex fluids; stirred tanks, and porous media. Turbulent flow and drag reduction. Rheology of power-law fluids.

CE 423 Green Engineering for Chemical Engineers
Credits: 3
Prerequisites: senior standing
Corequisites: None
Type: LEC
Introduces the technological processes of Green Engineering. Discusses pollution problems of manufacturing of ammonia, sulfuric and nitric acids, and fertilizers. Presents an analysis of energy producing units as nuclear and coal-fired power plants. Describes elimination of exhaust gases in Otto and Diesel engines. New ways of design of chemical, Petrochemical and energy producing systems are evaluated based on green chemistry, new solvents and new synthetic pathways. Unit operations are discussed in relation to possible environmental impact. Presents an evaluation of the environmental performance of a flow-sheet.

CE 427 Chemical Engineering Laboratory III
Credits: 2
Prerequisites: CE 318
Corequisites: None
Type: LAB/LEC
Continuation of CE 328.

CE 428 Chemical Engineering Laboratory IV
Credits: 2
Prerequisites: CE 427, CE 429
Corequisites: None
Type: LAB/LEC
A continuation of CE 427.

CE 429 Chemical Engineering Reaction Kinetics
Credits: 3
Prerequisites: MTH 306
Corequisites: CE 212
Type: LEC
Introduces the theory of reaction rates in homogeneous and heterogeneous systems; experimental methods; analysis of rate data; reactor types and design; selectivity in complex reaction systems.

CE 433 Materials Science and Engineering
Credits: 4
Prerequisites: CHE 320 or CHE 334
Corequisites: None
Type: LEC/LAB
Properties of solids, which chemical engineers need to understand and exploit in regard to chemical processing and industrial equipment; how chemical and physical structures determine the uses of the products of the chemical industry. Crystal structure, crystal defects, and how they dominate mechanical properties. Thermal and electrical properties of solids. Polymer structures and properties. Corrosion: mechanisms and prevention.

CE 434 Chemical Systems and Control
Credits: 3
Prerequisites: CE 212, MTH 306
Corequisites: None
Type: LEC
Equips engineering students with the fundamental concepts of process control design. An introduction to the benefits of having a good control process is followed by the definitions of the control objectives, feedback and feedforward control, and the various types of variables found in process control problems. Includes the development of dynamic mathematical models for simple processes, using mass and energy balances. Introduces mathematical tools (Laplace Transformations) that help solve such mathematical models as well as define the transfer functions of typical process systems (first and second order systems). Introduces the controller concept, together with the basic principles behind the feedback control loop and its stability characteristics.

CE 435 Introduction to Polymers
Credits: 3
Prerequisites: senior standing or permission of instructor
Corequisites: None
Type: LEC
Introduces polymers with respect to structure and formation reaction; relations between chemical structure and physical properties; some characteristics of polymer solutions; mechanical behavior; and engineering properties.

CE 442 Engineering and Process Economics
Credits: 3
Prerequisites: senior standing or permission of instructor
Corequisites: None
Type: LEC
Introduces the economic aspects of chemical engineering: time value of money, including interest and investments; alternative methods of analysis, such as annual costs, percent, and rate of return; process costs and concepts, including cost estimation, and chemical equipment and plant costs; a small cost-related process design project.
CE 443 Chemical Process Analysis and Synthesis
Credits: 3
Prerequisites: CE 407
Corequisites: CE 408
Type: LEC
Introduces fundamentals of process design utilizing computing techniques and methods.

CE 444 Chemical Process Control
Credits: 3
Prerequisites: senior standing in chemical engineering or permission of instructor
Corequisites: None
Type: LEC/LAB
Introduces principles of process control. Feedback, feedforward, and open-loop control. Effects of major controller actions on typical processes: on-off, proportional, integral, and derivative. Predicts the dynamic response of a process through mathematical models. Frequency response analysis; introduces tuning of a system.

CE 446 Biochemical Engineering
Credits: 3
Prerequisites: senior standing or permission of instructor
Corequisites: None
Type: LEC
Significant microbial products, organisms, and substrates; directing microbial activity by random mutation and recombinant DNA; kinetics of growth and production formation; types of fermenters; aeration and agitation; scale-up; sterilization; product separation.

CE 447 Biological Transport and Kinetics
Credits: 3
Prerequisites: BIO 201, CE 318, CE 329
Corequisites: None
Type: LEC
Discusses the application of biological transport and kinetics principles in normal human physiology, disease states and during treatment. Focuses on selected aspects of the nature of receptor-ligand interactions, cell adhesion mechanisms, drug delivery, and biological transport in organs. Topics include experimental methods for measuring receptor-ligand interactions, models for receptor-ligand binding and analysis of real data, methods for measuring and analyzing cell adhesion both in suspension and substrate based assays, cardiovascular fluid mechanics, blood components and blood viscosity measurements, flow in arteries and micro-circulation, fabricare effect, engineering principles for drug delivery including diffusion and convective transport of drugs to organs, pharmacokinetic modeling, drug delivery system design and controlled drug release, transport between blood and tissues, and between kidneys and tumors.

CE 448 Cellular and Molecular Bioengineering
Credits: 3
Prerequisites: senior standing
Corequisites: None
Type: LEC
Introduces biomedical engineering with emphasis on vascular engineering. Gives students an understanding of how quantitative approaches can be combined with biological information to advance knowledge in the areas of thrombosis, inflammation biology and cancer metastasis. Emphasizes cellular and molecular bioengineering methods.

CE 449 Biological Systems Engineering
Credits: 3
Prerequisites: BIO 201, BIO 205, MTH 306, CE 446
Corequisites: None
Type: LEC
Topics include mathematical techniques for optimization, genomics-genome sequencing, genome sequence annotation, metabolic networks, linear and quadratic optimization for metabolic network optimization, experimental approaches to metabolic network optimization, e-labeling for metabolic flux determination, examples of using such approaches for high value chemical production optimization, background on cell signaling, biochemical/biophysical description of major signaling pathways including techniques for collecting experimental data, strategies for modeling signaling networks, examples of utilizing a mathematical framework to predict (and manipulate) cellular behavior in response to specific stimuli, examples of cell signaling in disease states, background and description of genetic networks, experimental approaches to genetic networks, strategies for modeling genetic networks, examples of describing/predicting genetic network behavior using mathematical tools, and an overview of genomic and proteomic methodologies.

CE 456 Introduction to Aerosol Science
Credits: 3
Prerequisites: senior standing in chemical engineering or instructor permission
Corequisites: None
Type: LEC
Introduces aerosol science and technology at a senior undergraduate/beginning graduate level. Provides the knowledge and skills needed to understand and predict the production, transport, and other behavior of aerosols and introduces technologies for producing, measuring, and collecting them.

CE 457 Colloid and Surface Phenomena
Credits: 3
Prerequisites: senior standing or permission of instructor
Corequisites: None
Type: LEC
Dispersed systems (e.g., suspensions, emulsions, foams, and other systems) in which surface effects dominate behavior. Surface tension. Gas adsorption and adsorption from solution. Effects of surface charge. Wetting, detergency, adhesion. Transport processes dominated by surface tension.

CE 459 Special Topics
Credits: 1
Prerequisites: permission of director of undergraduate studies
Corequisites: None
Type: LEC
Topics in the field of specialization selected with the permission of the instructor.

CE 460 Special Topics
Credits: 1
Prerequisites: permission of director of undergraduate studies
Corequisites: None
Type: LEC
Topics in the field of specialization selected with the permission of the instructor.

CE 471 Frontiers of Chemical Technology
Credits: 3
Prerequisites: senior standing or permission of instructor
Corequisites: None
Type: LEC
Exposes students to a broad range of industrial problems and the techniques to solve them using a project-oriented approach.

CE 477 Internship/Practicum
Credits: 3
Prerequisites: Permission of Instructor
Corequisites: None
Type: TUT
Hands-on experience in the field. Problems vary from year to year, and may include chemical process studies, engineering materials studies, or computer-based analysis of specific chemical engineering problems. Internship assignments follow student preferences where possible and require consent of a faculty member who guides the work. Typically, students are required to spend approximately ten unpaid hours per week at an industrial site. Grading is based on part in written and oral reports that are required upon completion of the internship.

CE 497 Departmental Honors Thesis/Project
Credits: 1
Prerequisites: Acceptance into the departmental honors program, permission of instructor
Corequisites: None
Type: TUT
Accepted seniors pursue a specialized, independent study leading to an Honors thesis or project.
CHE 100 Introduction to Chemistry

Credits: 4
Prerequisites: intermediate high school algebra or its equivalent
Corequisites: None
Type: LEC/REC
A one-semester introduction to basic chemistry for high school graduates who are reentering college after a long absence, and for transfer students who are concerned about their readiness for science courses at UB. Also appropriate for students who have had no high school chemistry or who have a weak background in chemistry. Helps prepare students to complete General Chemistry (CHE 101-CHE 102, CHE 105-CHE 106 or CHE 107-CHE 108), emphasizing problem solving. Topics include chemical measurements, properties of atoms and molecules, chemical reactions, chemical calculations, properties of gases, and thermochemistry. Three hours of lecture and two hours of recitation weekly.

CHE 101 General Chemistry

Credits: 5
Prerequisites: high school chemistry and satisfactory performance on the mathematics portion of the SAT or ACT or permission of department
Corequisites: None
Type: LAB/LEC/REC
Introduces fundamental concepts of chemistry, and surveys important chemical elements and their compounds. Three hours of lecture plus one four-hour recitation/laboratory period weekly.

CHE 102 General Chemistry

Credits: 5
Prerequisites: CHE 101
Corequisites: None
Type: LAB/LEC/REC
Introduces fundamental concepts of chemistry, and surveys important chemical elements and their compounds. Three hours of lecture plus one four-hour recitation/laboratory period weekly.

CHE 105 Chemistry: Principles and Applications

Credits: 5
Prerequisites: CHE 105
Corequisites: None
Type: LAB/LEC/REC
Introduces the principles of chemistry and their applications. For students who are interested in majoring in a chemistry-related science. Three hours of lecture plus one four-hour recitation/laboratory period weekly.

CHE 106 Chemistry: Principles and Applications

Credits: 5
Prerequisites: CHE 105
Corequisites: None
Type: LAB/LEC/REC
Introduces the principles of chemistry and their applications. For students who are interested in majoring in a chemistry-related science. Three hours of lecture plus one four-hour recitation/laboratory period weekly.

CHE 107 General Chemistry for Engineers

Credits: 4
Prerequisites: high school chemistry, satisfactory performance on the mathematics portion of the SAT or ACT or permission of the School of Engineering and Applied Sciences
Corequisites: None
Type: LEC/LAB/REC
Meets the general chemistry requirement for students wishing to receive an engineering degree.

CHE 108 General Chemistry for Engineers

Credits: 4
Prerequisites: CHE 107
Corequisites: None
Type: LEC/LAB/REC
Meets the general chemistry requirement for students wishing to receive an engineering degree in four years. Cannot be used for science distribution credit.

CHE 111 General Chemistry

Credits: 4
Prerequisites: high school chemistry and satisfactory performance on the mathematics portion of the SAT or ACT or permission of department
Corequisites: None
Type: LEC/REC
Consists of the lecture and recitation components of CHE 101 without laboratory.

CHE 112 General Chemistry

Credits: 4
Prerequisites: None
Corequisites: None
Type: LEC/REC
Consists of the lecture and recitation components of CHE 102 without laboratory.

CHE 113 General Chemistry

Credits: 1
Prerequisites: high school chemistry and satisfactory performance on the mathematics portion of the SAT or ACT or permission of department
Corequisites: None
Type: LEC/REC
Consists of the recitation and lab components of CHE 101 without lecture.

CHE 114 General Chemistry

Credits: 1
Prerequisites: CHE 111 or CHE 101
Corequisites: None
Type: REC/LAB
Consists of the recitation and lab components of CHE 102 without lecture.

CHE 201 Organic Chemistry

Credits: 5
Prerequisites: CHE 101-CHE 102 or CHE 105-CHE 106 or CHE 107-CHE 108
Corequisites: None
Type: LAB/LEC/REC
Comprehensive survey of major classes of aliphatic and aromatic compounds, emphasizing bonding, reaction mechanisms, stereochemistry, and synthesis. Three hours of lecture and one hour of recitation weekly plus a minimum of three hours of laboratory weekly.

CHE 202 Organic Chemistry

Credits: 5
Prerequisites: CHE 201
Corequisites: None
Type: LAB/LEC/REC
Comprehensive survey of major classes of aliphatic and aromatic compounds, emphasizing bonding, reaction mechanisms, stereochemistry, and synthesis. Three hours of lecture and one hour of recitation weekly plus a minimum of three hours of laboratory weekly.

CHE 203 Organic Chemistry

Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Consists of the lecture component of CHE 201-CHE 202 without laboratory.

CHE 204 Organic Chemistry

Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Consists of the lecture component of CHE 201-CHE 202 without laboratory.

CHE 214 Introduction to Analytical Chemistry

Credits: 3
Prerequisites: CHE 101-CHE 102 or CHE 105-CHE 106 or CHE 107-CHE 108
Corequisites: None
Type: LEC
Surveys classical methods of chemical analysis and underlying concepts. Introduces instrumental analysis theory, particularly spectroscopy and separations.

CHE 215 Introduction to Analytical Chemistry Laboratory

Credits: 2
Prerequisites: None
Corequisites: CHE 214
Type: LAB
Surveys laboratory methods and techniques in analytical chemistry. Introduces instrumental analysis.

CHE 251 Contemporary Organic Chemistry

Credits: 5
Prerequisites: CHE 101-CHE 102 or CHE 105-CHE 106 or CHE 107-CHE 108
Corequisites: None
Type: LAB/LEC/REC
For chemistry majors and interested students who are majoring in related sciences. Serves as a small class-setting alternative to CHE 201-CHE 202. Both CHE 251 and CHE 252 provide three hours of lecture and one hour of recitation plus a minimum of three hours of laboratory weekly.

CHE 252 Contemporary Organic Chemistry

Credits: 5
Prerequisites: CHE 251
Corequisites: None
Type: LAB/LEC/REC
For chemistry majors and interested students who are majoring in related sciences. Serves as a small class-setting alternative to CHE 201-CHE 202. Both CHE 251 and CHE 252 provide three hours of lecture and one hour of recitation plus a minimum of three hours of laboratory weekly.

CHE 290 Undergraduate Research

Credits: 1
Prerequisites: CHE 101-CHE 102 or CHE 105-CHE 106 or CHE 107-CHE 108; and permission of instructor
Corequisites: None
Type: LAB
Introduces research methods in chemistry under the direction of a chemistry faculty member.

CHE 301 Intermediate Organic Chemistry Lab

Credits: 2
Prerequisites: CHE 201-CHE 202 or CHE 251-CHE 252; or permission of instructor
Corequisites: None
Type: LEC/LAB
This laboratory-based course is designed to prepare the student for independent laboratory research. The experiments will build on knowledge obtained from sophomore organic chemistry. The curriculum integrates techniques, organic synthesis, purification and spectroscopic analysis. Observational skills and record keeping are also emphasized. The course has one weekly lecture and two 3 hour labs held on alternating weeks. For example, if enrolled in section A1, you will meet weeks 1, 3, 5, 7, 9, 11, 13, and no lab will be held on even weeks (2, 4, 6, 8, 10, 12). Section A2 will meet even weeks and be ‘off’ during odd weeks. During the ‘off’ week, you will complete your lab report and complete the prelab assignment for the upcoming week. On the ‘off’ week, students must still attend lecture. The lab curriculum will include six experiments, emphasizing the importance of metal-catalyzed reactions in organic synthesis.
CHE 312 Chemistry of Biological Systems
Credits: 3
Prerequisites: CHE 202 or CHE 252; CHE 319 or CHE 349; or Permission of instructor
Corequisites: None
Type: LEC
Develops and integrates chemical principles from sophomore- and junior-level courses into lectures on the structure and function of biological molecules. Emphasizes concepts and methods from the core disciplines of chemistry.

CHE 319 Physical Chemistry
Credits: 3
Prerequisites: CHE 101-CHE 102 or CHE 105-CHE 106 or CHE 107; CHE 108; PHY 107-CHE 108; MTH 141-MTH 142; or permission of instructor
Corequisites: None
Type: LEC
Examines elementary physical chemistry, including chemical thermodynamics, phase equilibria, chemical equilibrium, electrochemistry, and chemical kinetics. Introduces chemical bonding, molecular structure, and spectroscopy.

CHE 320 Physical Chemistry
Credits: 3
Prerequisites: CHE 319
Corequisites: None
Type: LEC
Examines elementary physical chemistry, including chemical thermodynamics, phase equilibria, chemical equilibrium, electrochemistry, and chemical kinetics. Introduces chemical bonding, molecular structure, and spectroscopy.

CHE 321 Inorganic Chemistry I
Credits: 3
Prerequisites: None
Corequisites: CHE 319 or CHE 349 or permission of instructor
Type: LEC
Surveys the chemistry of the elements. Emphasizes atomic and molecular structure, bonding theories, and relevant application. Three hours of lecture weekly.

CHE 322 Inorganic Chemistry II
Credits: 3
Prerequisites: CHE 321 or permission of instructor
Corequisites: None
Type: LEC/LAB
Consists of a laboratory in the solution of chemical problems, dealing with inorganic and organometallic compounds, by experimental methods.

CHE 329 Physical Chemistry Laboratory I
Credits: 2
Prerequisites: None
Corequisites: CHE 319
Type: LAB
Consists of both laboratory and lecture. Involves techniques of making physical measurements on chemical systems and the statistical treatment of experimental data. Illustrates the theoretical development of physical chemistry given in CHE 320. Alternates one five-hour laboratory or one two-hour lecture/discussion weekly.

CHE 330 Physical Chemistry Laboratory II
Credits: 2
Prerequisites: CHE 319 or permission of instructor
Corequisites: None
Type: LAB
Explores applications of computers in chemistry: numeric and symbolic computation, statistical analysis of experimental data, molecular modeling, quantum chemistry.

CHE 332 Physical Chemistry Laboratory for Chemical Engineers
Credits: 1
Prerequisites: None
Corequisites: CHE 320 or CHE 334
Type: LAB
Consists of both laboratory and lecture. Includes techniques for making physical measurements on chemical systems and the statistical treatment of experimental data. Illustrates the theoretical development of physical chemistry given in CHE 304 and CHE 334. Alternates one five-hour laboratory or one two-hour lecture/discussion per week.

CHE 334 Physical Chemistry for Chemical Engineers
Credits: 3
Prerequisites: CE 304; MTH 141-MTH 142; or permission of instructor
Corequisites: None
Type: LEC
Complements CE 304. For chemical engineering majors. Topics include kinetic molecular theory, statistical thermodynamics, reaction rate theory, quantum chemistry, spectroscopy and surface chemistry.

CHE 349 Physical Chemistry for Life Sciences
Credits: 3
Prerequisites: CHE 202 or CHE 252; MTH 122 or MTH 142; or permission of instructor
Corequisites: None
Type: LEC
A one-semester course in physical chemistry covering the same general topics as CHE 319-CHE 320, but in less depth, focusing on applications to biological systems. Three hours of lecture per week.

CHE 350 Physical Chemistry for Life Sciences Laboratory
Credits: 1
Prerequisites: None
Corequisites: CHE 349
Type: LAB
Consists of the laboratory portion of CHE 349.

CHE 376 Introduction to Chemical Literature
Credits: 3
Prerequisites: chemistry major; CHE 202 or CHE 252; CHE 214; CHE 319 or CHE 349; or permission of instructor
Corequisites: None
Type: LEC
Explores sources and techniques of chemical literature use. Technical report writing. Three hours weekly of discussion plus assignments.

CHE 413 Instrumental Analysis
Credits: 3
Prerequisites: CHE 202 or CHE 252; CHE 215; CHE 319 or CHE 349; or permission of instructor
Corequisites: None
Type: LEC
Explores instrumental techniques for chemical analysis, including electrochemistry, theory, and methods of separation, spectoscopic methods.

CHE 414 Instrumental Analysis Laboratory
Credits: 1
Prerequisites: CHE 413
Corequisites: None
Type: LAB
Consists of the laboratory portion of CHE 413.

CHE 416 Chemical Spectroscopy
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
A one-semester introduction to concepts and methods of molecular spectroscopy. Emphasizes the physical principles rather than applications. Subjects include: rotational, vibrational, electronic and nuclear magnetic resonance transitions as measured by microwave, infrared, visible, ultraviolet, Raman (including resonance Raman) and NMR spectroscopies, normal mode analysis; and the principles of Fourier transform methods as applied to NMR and to FTIR (including traditional FTIR based on the Michelson interferometer and to more recently developed time-resolved FTIR for observing very fast chemical processes). Appropriate for upper-level undergraduate chemistry majors and others with a similar chemistry background. Three hours of lecture/recitation weekly.

CHE 423 Advanced Inorganic Chemistry
Credits: 3
Prerequisites: CHE 321; CHE 319 or CHE 349 or permission of instructor
Corequisites: None
Type: LEC
Consists of advanced topics in inorganic chemistry, usually including chemical applications of group theory. Three hours of lecture weekly. Not offered every year.

CHE 455 Advanced Organic Chemistry
Credits: 3
Prerequisites: CHE 202 or CHE 252, CHE 319 or CHE 349 or permission of instructor
Corequisites: None
Type: LEC
Consists of selected advanced topics in organic chemistry. Three hours of lecture weekly.

CHE 457 Advanced Physical Chemistry
Credits: 3
Prerequisites: CHE 202 or CHE 252; CHE 319; or permission of instructor
Corequisites: None
Type: LEC
Selected topics, including quantum theory, molecular structure, statistical mechanics, thermodynamics, and chemical kinetics.

CHE 458 Advanced Physical Chemistry
Credits: 3
Prerequisites: CHE 202 or CHE 252; CHE 319; or permission of instructor
Corequisites: None
Type: LEC
Selected topics: quantum theory, molecular structure, statistical mechanics, thermodynamics, chemical kinetics.

CHE 470 Analytical Chemistry of Pollutants
Credits: 2
Prerequisites: CHE 202 or CHE 252; CHE 214, CHE 319 or CHE 349; or permission of instructor
Corequisites: None
Type: LEC/LAB
Involves techniques of sampling, interpretation of data, and instrumentation dealing primarily with trace contaminants in air, water, and soils. Laboratory project required.

CHE 498 Senior Research
Credits: 1
Prerequisites: Senior or junior status in department and permission of instructor
Corequisites: None
Type: TUT
Supervised research under the direction of a chemistry faculty member. May be taken more than one semester.
Chinese

**CHI 100 Business Chinese: Conversation**

Credits: 4  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Develops necessary language skills for both business and travel. Little or no knowledge of the Chinese language required. Basics about Chinese culture and business etiquettes are also integrated in the course.

**CHI 101 First-Year Chinese**

Credits: 5  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Basic language skills in speaking, reading, and writing of modern vernacular Chinese. Strongly emphasizes fluency in speaking and reading. Not open to native speakers of Mandarin or those who can read and/or write Chinese characters.

**CHI 102 First-Year Chinese**

Credits: 5  
Prerequisites: CHI 101  
Corequisites: None  
Type: LEC  
Basic language skills in speaking, reading, and writing of modern vernacular Chinese. Strongly emphasizes fluency in speaking and reading. Not open to native speakers of Mandarin or those who can read and/or write Chinese characters.

**CHI 104 Transitional First-Year Chinese**

Credits: 5  
Prerequisites: None  
Corequisites: None  
Type: LEC  
For students who can speak Mandarin or any local dialect of Chinese but have only a little knowledge of reading and writing in Chinese. Students taking this course are not permitted to enroll in CHI 101-CHI 102 and vice versa.

**CHI 105 Intensive 1st Year Chinese**

Credits: 10  
Prerequisites: None  
Corequisites: None  
Type: LEC  
An intensive course covering both Chinese 101 and 102 in one semester. Students taking this course are not permitted to enroll in CHI 104 or CHI 101-CHI 102, and vice versa.

**CHI 110 Beginning Business Chinese**

Credits: 4  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Designed to help students develop basic language skills for both business and travel. No prior knowledge of the Chinese language required. Basics about Chinese culture and business etiquettes are also integrated in the course.

**CHI 201 Second-Year Chinese**

Credits: 3  
Prerequisites: CHI 102 or permission of instructor  
Corequisites: None  
Type: LEC  
Continuation CHI 102. Reading speed is substantially accelerated, and there is oral practice based on the reading materials.

**CHI 202 Second-Year Chinese**

Credits: 3  
Prerequisites: CHI 201 or equivalent  
Corequisites: None  
Type: LEC  
Continuation of CHI 201. Reading speed is substantially accelerated, and there is oral practice based on the reading materials.

**CHI 280 Survey of Chinese Culture**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Surveys major cultural and traditional elements that have influenced various aspects of Chinese life. Topics include classical Chinese philosophical ideals, religion, women, family, education, Chinese language and symbolic reference, and literature and art. Taught in English; requires no knowledge of Chinese language.

**CHI 301 Third-Year Chinese**

Credits: 3  
Prerequisites: CHI 202 or permission of instructor  
Corequisites: None  
Type: LEC  
Involves readings and discussions, both written and oral, of works on contemporary cultural and social life in the vernacular.

**CHI 302 Third-Year Chinese**

Credits: 3  
Prerequisites: CHI 301 or permission of instructor  
Corequisites: None  
Type: LEC  
Continuation of CHI 301. Involves readings and discussions, both written and oral, of works on contemporary cultural and social life in the vernacular.

**CHI 311 Masterpieces of Classical Chinese Literature in Translation**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Studies representative works of classical Chinese literature. Taught in English; requires no knowledge of Chinese language.

**CHI 322 Modern Chinese Literature in Translation**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The study of modern Chinese literature as a continuous process of political, social, cultural, and intellectual metamorphoses, and modern Chinese literature is a part of and a reflection of these changes. With readings of representative literary works in English translation, the course discusses the birth and development of modern Chinese literature, emphasizing this literature as a mirror of and a moving force for modern China's social, political, cultural, and intellectual changes. Taught in English; requires no knowledge of Chinese language.

**CHI 341 Literary Chinese I**

Credits: 3  
Prerequisites: CHI 202 or equivalent  
Corequisites: None  
Type: LEC  
A reading course on historical, philosophical, and literary works in the literary language of Wényān by leading men of letters in classical China.

**CHI 342 Literary Chinese II**

Credits: 3  
Prerequisites: CHI 341 or equivalent  
Corequisites: None  
Type: LEC  
Continuation of CHI 341. A reading course on historical, philosophical, and literary works in the literary language of Wényān by leading men of letters in classical China.

**CHI 371 Business Chinese**

Credits: 4  
Prerequisites: CHI 202 or equivalent  
Corequisites: None  
Type: LEC  
Emphasizes speaking and listening skills in a business context. Uses reading and writing assignments extensively to enhance students' conversational skills, presentations and classroom discussions. Topics covered include the influence of traditional Chinese culture, such as Confucianism, Taoism, and military strategies, on the Chinese style of business negotiation and etiquette. Students also study current materials concerning China's business and trade organizations, regulations, and practices.

**CHI 380 Chinese Tradition & Guanxi**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Surveys major cultural and traditional elements that have influenced various aspects of contemporary Chinese life. Topics include Chinese philosophical ideals, religion, women, family, education, Chinese language and symbolic reference, literature and art in both traditional and modern China. Taught in English; requires no knowledge of Chinese language.

**CHI 401 Readings on Chinese Culture and Customs**

Credits: 3  
Prerequisites: CHI 302 or equivalent  
Corequisites: None  
Type: LEC  
An advanced vernacular Chinese (Bāihuà) language course with readings on daily life and customs in China today. In learning the language, students learn how a Chinese person would behave, think, and talk in various situations. Students also study and discuss the differences between Chinese and American social customs and behaviors (all in Chinese, of course). An informative course for a student whose future career may require close contact and association with China.

**CHI 402 Readings on Chinese Culture and Customs**

Credits: 3  
Prerequisites: CHI 401 or equivalent  
Corequisites: None  
Type: LEC  
Continuation of CHI 401. An advanced vernacular Chinese (Bāihuà) language course with readings on daily life and customs in China today. In learning the language, students learn how a Chinese person would behave, think, and talk in various situations. Students also study and discuss the differences between Chinese and American social customs and behaviors (all in Chinese, of course). An informative course for a student whose future career may require close contact and association with China.

**CHI 430 Special Topics**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
May be offered in Chinese, English, or both.

**CHI 431 Special Topics**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
May be offered in Chinese, English, or both.
CIE 101 Great Creations of Civil Engineering
Credits: 1
Prerequisites: None
Corequisites: None
Type: LEC
Introduces students to spatial concepts that are important in the planning, construction, and operation of civil engineering projects and activities. It provides an introduction to the stiffness method, an alternative to the method of moments and work. Historical and modern examples of large-scale earth structures are included. One lecture per week.

CIE 303 Geodesy, GPS, and GIS
Credits: 3
Prerequisites: MAE 177
Corequisites: None
Type: LEC
Introduces students to spatial concepts that are important in the planning, construction, and operation of civil engineering projects and activities. It introduces an alternative to the method of moments and work. Historical and modern examples of large-scale earth structures are included. One lecture per week.

CIE 308 Engineering Statistics
Credits: 3
Prerequisites: MTH 241
Corequisites: None
Type: LEC/REC
Introduces statistical inference, methods of data analysis, point and interval estimation, tests of hypotheses, correlation and regression, and experiment design. Students may not receive credit for this course and EAS 305.

CIE 323 Structural Engineering I
Credits: 3
Prerequisites: EAS 209, MTH 306
Corequisites: None
Type: LEC/REC
First of a two-course sequence required of all civil engineering students. Basic aspects of structural analysis and design. Introduces structural engineering by an approach that unifies structural behavior, analysis, and design. Emphasizes analysis and design of determinant structures. Topics include analysis of determinate structures, determination of loadings, design criteria, and design of steel members in tension, bending, and compression.

CIE 324 Structural Engineering II
Credits: 3
Prerequisites: CIE 323
Corequisites: None
Type: LEC/REC
Continuation of CIE 323, dealing primarily with analyzing and designing statically indeterminate structures. Topics include deflection calculations using the compatibility and moment distribution methods, an introduction to the stiffness method, and the design of steel beam columns. Introduces students to the use of general purpose structural analysis programs. Major part of the course is devoted to the term design project, which typically involves the modeling, loadings determination, analysis, assessment of safety and preparation of a technical report for an actual structure. Often involves the engineer's record for this structure in the project.

CIE 327 Civil Engineering Materials
Credits: 3
Prerequisites: EAS 209
Corequisites: None
Type: LEC
Mechanical properties of materials. Crystal structure, phase equilibria, deformation behavior under various states of stress. Failure theories, composite materials, prediction of composite material properties based on properties of constituent materials, and concrete mix design. Applications of materials technology to building products and design of structural components.

CIE 334 Mechanics of Soils
Credits: 3
Prerequisites: CIE 354, EAS 209
Corequisites: None
Type: LEC/REC
Soil formation and identification. Studies the physical and mechanical properties of granular and cohesive soils. Analyzes the effects of soil properties on structure, phase equilibria, deformation behavior under various states of stress. Failure theories, composite materials, prediction of composite material properties based on properties of constituent materials, and concrete mix design. Applications of materials technology to building products and design of structural components.

CIE 340 Environmental Engineering
Credits: 3
Prerequisites: MTH 306
Corequisites: None
Type: LEC/REC
Introduces environmental engineer- ing systems and infrastructure. Covers fundamentals including the application of mass and energy balances and equilibrium chemistry to environmental systems. Applies these concepts to a number of important environmental topics including risk assessment, modeling of water quality systems, water and wastewater treatment facilities, air quality modeling, and municipal and hazardous solid waste management.

CIE 343 Hydraulic Engineering
Credits: 3
Prerequisites: CIE 340
Corequisites: None
Type: LEC/REC
Application of fundamentals of fluid mechanics to design systems, including pipe/pump systems, analysis of flow in rivers, and lift forces, energy and momentum principle in open channel, resistance in open channels, uniform flow, nonuniform flow, surface profile computa- tion, and design of channel controls and transitions.

CIE 345 Fluid Mechanics
Credits: 3
Prerequisites: EAS 207, MTH 306
Corequisites: None
Type: LEC/REC
Provides an introductory treatment of the dynamics of fluids, emphasizing incompressible fluids. Develops and applies hydrostatics, thermodynamics, fluid characteristics, kinematics, and dynamics; methods of analysis including the infinitesimal and finite control volume; stress rate-of-strain relations; and basic equations for continuity, energy, motion, and force. Momentum. Measurement methods.

CIE 360 Environmental Engineering Laboratory
Credits: 2
Prerequisites: CIE 340
Corequisites: CIE 334 or permission of instructor
Type: LAB
Laboratory testing to enhance and extend the student's understanding of the fundamental principles of fluid mechanics and environmental engineering, including modern methods of pollutant analysis. Data are collected and analyzed using statistical and numerical tools. Individual and group reports describe vehicles for the development of technical communica- tion skills. One 3-hour lab per week or equivalent.

CIE 361 Civil Engineering Laboratory I
Credits: 2
Prerequisites: None
Corequisites: CIE 327, CIE 323, and CIE 354, or permission of instructor
Type: LAB/LEC
Laboratory testing to enhance and extend the student's understanding of the fundamental principles of structural analysis, civil engineering materials, and fluid mechanics. One 3-hour lab per week or equivalent.
CIE 362 Civil Engineering Laboratory II
Credits: 2
Prerequisites: None
Corequisites: CIE 334, CIE 340, and CIE 343, or permission of instructor
Type: LAB/LEC
Laboratory testing to enhance and extend the student's understanding of the fundamental principles of soil mechanics, hydraulic engineering, and environmental engineering. Continuation of CIE 361. One 3-hour lab per week or equivalent.

CIE 415 Professional Practice Issues
Credits: 3
Prerequisites: junior/senior standing in environmental/civil engineering
Corequisites: None
Type: LEC
Ethical issues in civil engineering practice, the professional licensure process, the project life cycle, engineering economics fundamentals, construction contracts and delivery methods, cost estimating fundamentals, project scheduling fundamentals, project control fundamentals.

CIE 423 Structural Engineering III
Credits: 3
Prerequisites: CIE 324
Corequisites: None
Type: LEC
Builds upon the knowledge gained in the previous courses (Structures I and II). In this course, advanced structural analysis techniques are taught with direct application to bridges and tall buildings. Topics include fundamentals of the flexibility and stiffness methods; bridge and tall buildings structural systems and design considerations; dynamics of single and multi-degree-of-freedom systems; earthquake response spectra; plastic analysis of beams, frames, and plates; stability of structures. Requires a design project that entails either a bridge structural system or a tall building. The project involves developing the structural system, analysis, design, and a final presentation.

CIE 424 Computer-Aided Design in Civil Engineering
Credits: 3
Prerequisites: MAE 177, senior standing
Corequisites: None
Type: LEC/REC
Basic principles of interactive computer graphics, computer-aided drafting, 3-D modeling, and visualization in modern CAD systems. The use of modern CAD software as a design tool in civil engineering applications. Overview of trends and futures in computer-aided design. Lecture and hands-on laboratory.

CIE 426 Finite Element Structural Analysis
Credits: 3
Prerequisites: senior standing
Corequisites: None
Type: LEC
Comprehensively introduces the finite element method as applied primarily to structural analysis. Presents the foundations of finite elements by addressing the theory of elasticity, calculus of variations, and variational principles of solid mechanics. Subsequently, applies the finite element methodology to trusses, beams, membrane elements, plates, torsion, and axisymmetry. Introduces students to computer programming aspects of the finite element method. Additional topics (time permitting) are dynamics, stability, fluid flow, heat transfer, Galerkin and Ritz methods.

CIE 428 Steel Design
Credits: 3
Prerequisites: CIE 324
Corequisites: None
Type: LEC
Emphasizes a theoretical understanding of fundamental concepts in analysis and design of steel structures. Focuses on building structures; topics addressed in the class include materials, probabilistic underpinning of structural steel design, tension members, compression members, beams and beam-columns, welded and bolted connections and analysis and design of steel structures for gravity, wind, and seismic loads.

CIE 429 Reinforced Concrete Design
Credits: 3
Prerequisites: CIE 324
Corequisites: None
Type: LEC
The design of reinforced concrete members for flexure, shear and combined flexure, and axial load; anchorage and development of reinforcement; design of connections for monolithic construction; 2-D reinforced concrete elements in shear and bending. Considers the calculation of long- and short-term deformations, as well as the problem of shrinkage; introduces the design of prestressed concrete members.

CIE 430 Design of Wood Structures
Credits: 3
Prerequisites: CIE 324
Corequisites: None
Type: LEC
Introduces the properties of wood and its grading process. Presents design principles for members under axial tension, column members, beams under flexure, mechanical connections, and shear walls under lateral loads.

CIE 435 Foundation Engineering
Credits: 3
Prerequisites: CIE 334
Corequisites: None
Type: LEC
Applies soil mechanics to engineering problems. Soil exploration and sampling. Statics of plastic equilibrium, bearing capacity, and settlement of foundations. Foundation design, spread footing, mat, raft, piles, and caissons. Lateral earth pressures, retaining walls, braced excavations, and slope stability.

CIE 437 Pavement Design and Materials
Credits: 3
Prerequisites: CIE 334
Corequisites: None
Type: LEC
Design principles of flexible and rigid pavements. Includes a study of soils and paving materials, their interaction, their behavior under various loading conditions, and their ability to perform under all ambient loading conditions. Topics include surface, base, subbase and subcourse: bituminous materials, quality control, and flexible and rigid pavement design methods. Laboratory sessions on asphaltic concrete mix design.

CIE 438 Structural Design and Construction of Foundations
Credits: 3
Prerequisites: CIE 435
Corequisites: None
Type: LEC
Structural design and construction of foundation systems. Topics include: structural design of shallow foundations, such as single footings, strip footings, and mat foundations; deep foundations, such as piles and caissons; retaining walls; sheet piles; excavation bracings, tie backs; and anchors. An application-oriented design course that requires students to do a real-life project in groups of three from preliminary design stage to final construction phase.

CIE 439 Transportation System Analysis
Credits: 3
Prerequisites: senior standing
Corequisites: None
Type: LEC
Introduces engineering and planning principles applicable to all types of transportation systems; concept and methods of transportation network analysis; operation and management of transportation systems; traffic engineering elements; traffic flow theory; highway capacity analysis; design and application of traffic control devices.

CIE 441 Ecological Engineering
Credits: 3
Prerequisites: MTH 306
Corequisites: None
Type: LEC
Focuses on the physical, chemical, and hydrodynamic processes governing pollutant fate in natural systems. Topics include mass and energy balances, mixing processes, partitioning processes (exchange with solids and air), and particle removal. Examples from natural systems address lake, river, and atmospheric pollution.

CIE 442 Treatment Process Engineering
Credits: 3
Prerequisites: MTH 306
Corequisites: None
Type: LEC/LAB/REC
Overview of environmental engineering treatment systems: analysis and design. Topics include water distribution, water treatment, wastewater collection, wastewater treatment, sludge processing, and industrial waste management.

CIE 444 Hydrologic Engineering
Credits: 3
Prerequisites: CIE 343, EAS 308
Corequisites: None
Type: LEC
Studies the physical processes associated with the components of the hydrologic cycle. Discusses measurement and collection of data. Explores model conceptualization and data analysis for quantification of water flow for design purposes. Emphasizes analysis procedures for surface and ground water hydrology useful for design of urban facilities. Discusses and applies hydrologic design methods to engineering projects. Emphasizes watershed management concepts.

CIE 445 Groundwater Engineering
Credits: 3
Prerequisites: senior standing
Corequisites: None
Type: LEC
Fundamentals of fluid flow and mass transport in porous media. Derives the governing mass and energy balance equations and develops several commonly applied solutions. Particular topics include groundwater flow under saturated and unsaturated conditions, well hydraulics, introduction to multiphase flow, fundamentals of solute transport, geostatistics, and remediation of contaminated aquifers.

CIE 446 Water Resources Engineering
Credits: 3
Prerequisites: senior standing
Corequisites: None
Type: LEC
Studies and applies modeling, computational analysis, and design procedures for the design of water resources projects. Design projects include stream quality and stream flow, including bridge openings and floodway determination, wastewater collection, and wastewater treatment. Relates the treatment design projects to wastewater stabilization ponds and wastewater treatment plants. Emphasizes watershed management concepts.

CIE 447 Environmental Engineering Practicum
Credits: 3
Prerequisites: senior standing
Corequisites: None
Type: LAB
Student teams conduct studies at the field, pilot, and/or bench scale for the purposes of understanding environmental processes and collection of data needed for design and management decisions. Strongly emphasizes oral and written communication of the study results.
CIE 448 Chemical Principles in Environmental Engineering
Credits: 3
Prerequisites: CIE 340 and senior standing
Corequisites: None
Type: LEC
Provides fundamentals in aquatic chemistry as applied to natural waters, water treatment, and wastewater treatment. Topics include equilibrium concepts, chemical thermodynamics, acid-base reactions, precipitation and dissolution, oxidation and reduction, carbonate system chemistry, and complexation.

CIE 449 Environmental Engineering Design
Credits: 3
Prerequisites: senior standing
Corequisites: None
Type: LEC
Design of environmental engineering systems, such as water-distribution networks, storm and wastewater collection systems; treatment systems for air, water, and wastewater; and hazardous waste site remediation. This is a professional practice-oriented course and includes process engineering principles, system analysis and design, regulations, economics, guest lectures, and field trips. Students work on design teams and produce written and oral reports for a major design project.

CIE 458 Introduction to Geoenvironmental Engineering
Credits: 3
Prerequisites: CIE 334
Corequisites: None
Type: LEC
Soil-water-contaminant interaction processes, conduction phenomena, hydraulic conductivity and contaminant transport phenomena, effects of contaminants on soil properties, design aspects of landfills, waste-disposal systems, barriers and cutoff walls, site characterization, and soil remediation.

CIE 460 Special Topics
Credits: 1
Prerequisites: permission of instructor
Corequisites: None
Type: LEC
Offered irregularly. The subject matter of the course is announced when offered.

CIE 461 Air Pollution
Credits: 3
Prerequisites: permission of instructor
Corequisites: None
Type: LEC/LAB
Introduces the fundamental aspects of the science and technologies associated with air pollution. Topics include: atmospheric chemistry and basic chemical kinetics; photochemical reactions in the atmosphere; aerosol physics and chemistry; sources of outdoor and indoor air pollution; climatic effects; pollution reduction technologies; gas phase and aerosol measurement and analytical techniques; health effects; atmospheric meteorology; and plume dispersion and transport models.

CIE 462 Special Topics in Structural Engineering
Credits: 3
Prerequisites: CIE 324
Corequisites: None
Type: LEC
Develops experience and expertise in the application of structural engineering fundamentals to design of civil engineering projects. Specific technique/problem areas are announced when offered. Requires students to complete homework assignments and hour tests, and they are graded on both. May require an in-depth design exercise.

CIE 463 Special Topics in Water Resources Engineering
Credits: 3
Prerequisites: CIE 343
Corequisites: None
Type: LEC
Develops experience and expertise in the application of fundamentals of water resources engineering to design civil engineering projects. Specific technique/problem areas are announced when offered. Requires students to complete homework assignments and hour tests, and they are graded on both. May require an in-depth design exercise.

CIE 464 Special Topics in Environmental Engineering
Credits: 3
Prerequisites: CIE 340, CIE 343
Corequisites: None
Type: LEC
Develops experience and expertise in the application of fundamentals of environmental engineering to design of civil engineering projects. Specific technique/problem areas are announced when offered. Requires students to complete homework assignments and hour tests, and they are graded on both. May require an in-depth design exercise.

CIE 465 Special Topics in Geotechnical Engineering
Credits: 3
Prerequisites: CIE 435
Corequisites: None
Type: LEC
Develops experience and expertise in the application of fundamentals of geotechnical engineering to design of civil engineering projects. Specific technique/problem areas are announced when offered. Requires students to complete homework assignments and hour tests, and they are graded on both. May require an in-depth design exercise.

CIE 469 Hazardous Waste Management
Credits: 3
Prerequisites: junior/senior standing in engineering or permission of instructor
Corequisites: None
Type: LEC
Focuses primarily on tools for managing industrial hazardous wastes and assessing the impacts of contamination from inactive waste sites. Major topics include site investigation, risk assessment, and exposure modeling. Students also develop a working knowledge of current US hazardous waste regulations and the history and impact of the Love Canal events. Also presents an overview of current site remediation technologies.

CIE 476 Design and Construction of Earth Structures
Credits: 3
Prerequisites: CIE 334
Corequisites: None
Type: LEC
Selection, engineering design, construction, monitoring, and performance evaluation of earth structures. Densification: soft ground consolidation, deep dynamic compaction; reinforcement: earth-retaining systems, soil nailing, reinforced earth, micropiles; ground improvement by admixtures: grouting, soil mixing techniques.

CIE 491 Construction Estimating
Credits: 3
Prerequisites: senior standing
Corequisites: None
Type: LEC
Estimation of construction costs. Topics include project life cycle, financial considerations, order-of-magnitude estimates, the project acquisition decision, material/labor and equipment costs, overhead and profit consideration, building systems estimates, uncertainty, the bidding process, value engineering, and cost control.

CIE 493 Project Management
Credits: 3
Prerequisites: senior standing
Corequisites: None
Type: LEC
Life cycle planning of construction projects; contract types, project delivery strategies; bid packaging, bid evaluation, and selection of contractors; preconstruction planning; contract administration procedures; project quality control; value engineering and management; project site layout; and materials management.

CIE 498 Undergraduate Research and Creative Activity
Credits: 1
Prerequisites: Permission of Instructor
Corequisites: None
Type: TUT
Students collaborate with faculty research mentors on an ongoing project in a faculty member's laboratory or conduct independent research under the guidance of a faculty member. This experience provides students with an inquiry based learning opportunity and engages them as active learners in a research setting.


**Classics**

**CL 105 Introduction to Ancient Archaeology**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: LEC
- A broad introduction to the archaeology of ancient Greece and Rome from the Bronze Age to the collapse of the Roman Empire. Gives particular emphasis to examining how archaeologists go about posing and answering questions.

**CL 113 Myth and Religion in the Ancient World**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: LEC
- Provides an introduction to the mythology of the Greeks and Romans. In addition to considering the myths themselves, we study how they have been employed by ancient through contemporary cultures as reflected in areas ranging from religious and social practice to works of art and architecture.

**CL 151 Medical Terminology**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: LEC
- History and structure of scientific terminology; the use of Latin and Greek roots in formation of technical terms in zoology, botany, and medicine.

**CL 180 Ancient Sport**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: LEC
- Based on material in translation, the culture of competition in the ancient world: funeral games, celebrating the winners, tragedies, the Olympics and other Greek games, reaction against Roman sport.

**CL 202 Archaeology and Rediscovery of the Ancient World**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: LEC
- Introduces the material world of Greece and Rome through the study of great archaeological discoveries and archaeologists from the renaissance to the present. Relates the archaeologists and their discoveries to the general development of classical archaeology and the cultural history of the era in which they took place.

**CL 205 Heroes**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: LEC
- The archetype of the hero as it occurs in the psychology of the life cycle, in ancient heroic literature, and in modern popular culture. Readings from Gilgamesh, the Odyssey, the Mahabharata, Beowulf, the Arthurian cycle, and the Bible. Examples from cinema, comic books, etc.

**CL 210 Women in the Ancient World**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: LEC
- Explores status of women; roles in literature; their social and economic context; and the origins of contemporary stereotypes and prejudices.

**CL 211 Ancient Near East and Egypt**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: LEC
- Topical survey of ancient Near Eastern and Egyptian cultures' contribution to Western history and thought, from the invention of writing to the fall of the Assyrian Empire. Same as HIS 211.

**CL 212 Survey of Greek History**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: LEC
- Introduces the political, military, intellectual, and social history of ancient Greece, from the neolithic beginnings to the eastern conquests of Alexander in the fourth century B.C.E.

**CL 222 Greek Civilization**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: LEC
- Elements of Greek civilization analyzed from synchronistic and developmental views to produce a coherent image of that culture as a living and expanding entity.

**CL 223 Roman Civilization**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: LEC
- Survey of Rome's mythical beginnings to the time of the emperors that covers the full spectrum of Roman cultural expression. Topics covered are not only literature, painting, sculpture, and architecture but also details of everyday life in the Roman world, as well as the roles played by marginal figures (women, slaves, foreigners).

**CL 228 Warfare in the Ancient World**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: LEC
- Warfare has been a constant feature of societies and civilizations. Provides a historically anchored survey of warfare in the ancient Mediterranean civilizations, particularly those of Greece and Rome. Not simply a history of strategies and battles, our intent is to look at the wide range of issues influencing and impacted by armed conflict.

**CL 235 Early and Medieval Christianity**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: LEC
- Surveys the development of Christianity as a historical and cultural process from its birth until the height of the Middle Ages. Emphasizes the interrelationship among religion, culture, and history; includes monasticism, the role of women, and the place of heresy.

**CL 302 Archaeology of Assyria**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: LEC
- Traces the history and development of ancient Assyrians' culture; helps students see how individual strains of different cultures - the variegated peoples that make up the ancestry and contemporaries of the historical Assyrians - can be reworked by these ancient peoples to create (or force the creation of) a sense of common heritage; introduces the specific character of the Assyrian Palace and its bureaucracy; improves student skills in analyzing both written text and the visual record of an ancient culture for the purpose of writing history.

**CL 303 Greece, Egypt, and the Holy Land**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: LEC
- Introduces the primary cultures of the Eastern Mediterranean in the second millennium B.C.E. The course concentrates on the culture of the Egyptian Empire, its external relations with the Levant and the Aegean and the development of the Canaanite and Minoan-Mycenaean civilizations. The instructors are archaeologists whose experience includes Greece, Cyprus, and Syria-Palestine.

**CL 305 Greek Intellectual History**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: LEC
- Introduces the development of Greek intellectual life in myth, literature, philosophy, and political thought.

**CL 313 Classical Mythology**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: LEC
- Dynamics of mythological thought, especially among the Greeks in relation to Greek religion and philosophy; deployment in literature and art.

**CL 315 Epic in Translation**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: LEC
- Readings in translation designed to provide an understanding of the forms and particular visions of the epic genre, especially its Greek and Roman exemplars.

**CL 316 Greek Drama in Translation**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: LEC
- Surveys the development of Christianity as a historical and cultural process from its birth until the height of the Middle Ages. Emphasizes the interrelationship among religion, culture, and history; includes monasticism, the role of women, and the place of heresy.

**CL 319 Classical Topic or Author**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: LEC
- Explores, analyzes, and evaluates chosen subjects, which may be literary, historical, philosophical, etc., or have several interfaces. Subject varies from year to year.

**CL 331 Roman Imperialism**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: LEC
- Growth and nature of Roman imperialism; Rome's involvement in the Greek East; career of Pompey the Great; foreign policy of Augustus; reign of Trajan.

**CL 332 The Athenian Empire**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: LEC
- Athenian Empire of the sixth century B.C.E.; consequences of its policies toward Sparta and Persia.

**CL 336 Introduction to Greek Archaeology I**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: LEC
- Remains of the Aegean littoral and their relation to the more advanced civilizations of the Near East, from earliest beginnings to ca. 700 B.C.E.; emphasizes advanced Bronze Age civilizations of Crete and Mycenae.
CL 337 Introduction to Greek Archaeology II
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Focuses on the Roman Empire from Augustus (d. A.D. 14) to Constantine (d. A.D. 337), considering art, architecture, and archaeology both at home and in the far-flung provinces.

CL 371 The Greek Theatre
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines Greek theatre from many perspectives: the surviving plays, both tragedies and comedies; the evidence of the theaters themselves and associated inscriptions; and what ancient authors wrote about theatre. Also considers questions of performance in religious festivals, actors, costumes, and audience. Same as ENG 386, TH 371.

CL 381 Alexander the Great
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the life and world of Alexander the Great, beginning with his father, Philip, and concluding with the division of his kingdom among his lieutenants. Analyzes the sources, both literary and archaeological, for Alexander's life. Same as HIS 386.

CL 410 Honors Project in Classics
Credits: 3
Prerequisites: None
Corequisites: None
Type: TUT
Seniors only. Consult with chair or director of undergraduate studies during junior year.

CL 422 The Greek City
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
History of the Greek city as a political and social institution with attention to physical environment, economic and agricultural resources, use of urban space, public architecture, and representations of civic ideology.

CL 423 Religion and Society in Ancient Greece
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Analyzes the role of religion in the ancient Greek polis with attention to the archaeological evidence for cult practice, the representation of ritual acts in Greek literature, gender difference and religious ideology, and the ritual of life cycle.

CL 426 Archaeology Practicum: Turkey
Credits: 3
Prerequisites: None
Corequisites: None
Type: LAB
Practical experience in field archaeology at the Alakır Regional Project's excavation at Cadir Höyük, Sorgun, Turkey. The major periods studied at Cadir Höyük are the Chalcolithic and its transition to the Early Bronze Period, the end of the Early Bronze and Middle Bronze periods (Assyrian Merchant Colony and Old Hittite Periods), the end of the Hittite Empire, Early Iron age (“Dark Ages”), and the late Byzantine. Field methods will be explained in Turkey and will be practiced on site.

CL 430 Ancient Economy
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines in depth the nature of economic activity in the Greek-Roman world. Places particular emphasis on the employment of general models to understand the ancient economy, and how textual and archaeological evidence has been used to develop and evaluate these models.

CL 440 Pompeii
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Systematic survey of the archaeological remains of the buried city of Pompeii. Uses the unique evidence offered by Pompeii to examine the nature of municipal life in Roman Italy, including society, economy, politics, and private life.

CL 445 Christians in the Roman Empire
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the development of early Christianity in the context of the changing Roman Empire. Begins with the life of Jesus, considering him as a subject of Rome and continuing through the development of Christian communities in the first - third century A.D. Roman Empire.

GR 302 Herodotus and Selections from Greek Poetry
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Selections from Herodotus’ Histories, and representative Greek poets, such as Sappho, Alcman, and Pindar. Emphasizes improving reading ability.

GR 401 Thucydides
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
For advanced undergraduates. Selections from Thucydides’ Peloponnesian War.

GR 402 Plato
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
For advanced undergraduates. Selections from Plato’s dialogues, such as Apology, Crito, Republic, Phaedrus.

GR 403 Greek Oratory
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
For advanced undergraduates. Readings from the great Athenian dramatists, including Aeschylus, Sophocles, Euripides, and Aristophanes.

GR 404 Greek Prose
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
For advanced undergraduates. Slander, murder, and immorality—great political speeches and courtroom dramas from the ancient world. Selections from Lysias, Isocrates, Demosthenes, etc.

GR 407 Greek Prose
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
For advanced undergraduates. Selections could include Plato, Herodotus, Thucydides, oratory, the Greek novel, the New Testament.

GR 426 Lyric Poetry
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
For advanced undergraduates. Greek’s great lyric poets, including Sappho, Bacchylides, Alcman, Pindar, selections from Greek Anthology.

GR 444 Reading Greek Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
For advanced undergraduates. Topic varies from semester to semester.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Corequisites</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAT 101</td>
<td>Latin Language and Culture I</td>
<td>5</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Introduces Latin; the reading of simple texts by various Roman authors. Also deals with Roman culture and civilization, and with the influence of Latin in English vocabulary.</td>
</tr>
<tr>
<td>LAT 102</td>
<td>Latin Language and Culture II</td>
<td>5</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Introduces Latin; the reading of simple texts by various Roman authors. Also deals with Roman culture and civilization, and with the influence of Latin in English vocabulary.</td>
</tr>
<tr>
<td>LAT 201</td>
<td>Latin Language and Culture III</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Includes selections from a wide range of authors in order to demonstrate the richness, diversity, and appeal of Latin literature. Emphasizes developing reading ability.</td>
</tr>
<tr>
<td>LAT 202</td>
<td>Latin Language and Culture IV</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Includes selections from a wide range of authors in order to demonstrate the richness, diversity, and appeal of Latin literature. Emphasizes developing reading ability.</td>
</tr>
<tr>
<td>LAT 301</td>
<td>Ovid</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Includes selections from the work of Ovid, which includes Metamorphoses, Ars Amatoria, Heroides, Fasti, and other poems. Emphasizes improving reading ability.</td>
</tr>
<tr>
<td>LAT 302</td>
<td>Latin Lyric Poetry</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Includes selections from the Latin lyric poets, from Horace and Catullus to poetry of the early Middle Ages. Emphasizes improving reading ability.</td>
</tr>
<tr>
<td>LAT 401</td>
<td>Roman Satire</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Includes selections from the Roman satirical writers Horace, Juvenal, and Persius.</td>
</tr>
<tr>
<td>LAT 402</td>
<td>Roman Elegy</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>For advanced undergraduates. Love poetry by Ovid, Propertius, Tibullus.</td>
</tr>
<tr>
<td>LAT 404</td>
<td>Ciceronian Oratory</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>For advanced undergraduates. Selection from Eclogues, Georgies, Aeneid.</td>
</tr>
<tr>
<td>LAT 407</td>
<td>Lucretius and Epicurus</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>For advanced undergraduates. Selections from Lucretius' philosophical epic poem De Rerum Natura, with a discussion of the Greek philosopher Epicurus's influence.</td>
</tr>
<tr>
<td>LAT 408</td>
<td>Roman Historians</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>For advanced undergraduates. Selections from Sallust, Livy, Tacitus, Caesar, Cicero, Apuleius, and Petronius.</td>
</tr>
<tr>
<td>LAT 409</td>
<td>Classical Latin: Prose Writers</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>For advanced undergraduates. Selections from such writers as Livy, Tacitus, Caesar, Cicero, Apuleius, and Petronius.</td>
</tr>
<tr>
<td>LAT 410</td>
<td>Roman Comedy</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>For advanced undergraduates. The origins of the stenam. Selections from the Roman comic writers Plautus and Terence.</td>
</tr>
<tr>
<td>LAT 413</td>
<td>Virgil</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>For advanced undergraduates. Readings from Rome's greatest poet, Virgil, including selections from Eclogues, Georgies, and Aeneid.</td>
</tr>
<tr>
<td>LAT 414</td>
<td>Silver Latin</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>For advanced undergraduates. Selections from authors from the first century A.D., including Lucan, Petronius, Silius, Ialgeus, Martial, Sannius, and others.</td>
</tr>
<tr>
<td>LAT 415</td>
<td>Virgil</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>For advanced undergraduates. The origins of the stenam. Selections from the Roman comic writers Plautus and Terence.</td>
</tr>
</tbody>
</table>

**Communication**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<th>Corequisites</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>COM 101</td>
<td>Principles of Communication</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Introduces the study of communication in interpersonal, small-group, organizational, mass, and intercultural contexts; covers basic communication models, theory, and research methods used in communication.</td>
</tr>
<tr>
<td>COM 125</td>
<td>Introduction to the Internet</td>
<td>3</td>
<td>COM 101</td>
<td>None</td>
<td>LEC</td>
<td>Provides a comprehensive, non-technical, hands-on overview of computer mediated communication on the information superhighway, focusing on the Internet.</td>
</tr>
<tr>
<td>COM 205</td>
<td>Research Methods</td>
<td>3</td>
<td>COM 101</td>
<td>None</td>
<td>LEC</td>
<td>Teaches the origins, growth, and evolution of the Internet, and provides a thorough introduction to the constituent services of the Internet.</td>
</tr>
<tr>
<td>COM 217</td>
<td>Communication in Organizations</td>
<td>3</td>
<td>COM 101</td>
<td>None</td>
<td>LEC</td>
<td>Provides a practical introduction to principles of organizational communication, including basic theories, methods, and applications of organizational communication.</td>
</tr>
</tbody>
</table>
COM 223 Principles and Methods of Interviewing
Credits: 3
Prerequisites: COM 101
Corequisites: None
Type: DIS
Applies communication theory to principles and methods of interviewing; covers the employment interview, the information-gathering interview, and survey research methods.

COM 225 Interpersonal Communication
Credits: 3
Prerequisites: COM 101
Corequisites: None
Type: LEC
Conducts an in-depth analysis of psychological and sociological processes involved in interpersonal communication.

COM 231 Principles of Persuasion
Credits: 3
Prerequisites: COM 101
Corequisites: None
Type: DIS
Examines persuasive communication as a means of achieving goals and objectives. Also considers the theory and practice of influencing attitudes and opinions, particularly within persuasive campaigns.

COM 236 Small-Group Communication
Credits: 3
Prerequisites: COM 101
Corequisites: None
Type: DIS
Explores effective group interaction in task-oriented situations, and considers small-group structures and communication styles that influence the problem-solving process. Involves small-group participation and analysis of group communication.

COM 240 Survey of Mass Communication
Credits: 3
Prerequisites: COM 101
Corequisites: None
Type: LEC
Introduces the process of communication, including factors affecting communication and its results, and their relationship to the communicative process.

COM 244 History of the Media
Credits: 3
Prerequisites: COM 101, COM 240
Corequisites: None
Type: LEC
Social, economic, and historical forces that shape the development of communication media; media as cultural products that affect and are affected by other social institutions.

COM 249 Mass Communication Theory
Credits: 3
Prerequisites: COM 101, COM 240
Corequisites: None
Type: DIS
Models and approaches to the study of the mass media of communication; how the system works, how the audience member interacts with the media.

COM 300 Written Communication
Credits: 3
Prerequisites: writing skills; communication major, COM 101
Corequisites: None
Type: DIS
Covers the theory and practice of written communication; and emphasizes basic writing skills, the relationship between clear writing and clear thinking, and the process of effective writing. Fulfills the writing requirement for the Communication department.

COM 317 Business/Professional Communication
Credits: 3
Prerequisites: communication major, COM 101
Corequisites: None
Type: DIS
Covers the theory and practice of public speaking, emphasizing effective communication in public meetings and conferences. Provides practice in using parliamentary procedures and presenting speeches.

COM 326 Public Speaking
Credits: 3
Prerequisites: communication major, COM 101
Corequisites: None
Type: REC
Explains major findings of the effects of information distributed via mass media channels on individuals’ attitudes and behaviors. Reviews major research perspectives and develops proposals for further inquiry.

COM 328 Technical Writing
Credits: 3
Prerequisites: writing skills; communication major, COM 101
Corequisites: None
Type: SEM
Describes the major writing skills necessary for career development. Fulfills the writing requirement for the Communication department.

COM 337 Communication Theory
Credits: 3
Prerequisites: COM 101
Corequisites: None
Type: LEC
Introduces the process of communication, including factors affecting communication and its results, and their relationship to the communicative process.

COM 350 Introduction to the Age of Information
Credits: 3
Prerequisites: COM 101, COM 125
Corequisites: None
Type: LEC
Introduces communication systems made possible by developments in computerization, ranging from satellite systems to computer databases. Examines effects of these communication systems on daily life, and on society in general. Also covers applications of these technologies in business, government, education and science. Topics covered should provide individuals with a foundation for understanding modern communication systems in a variety of professional contexts, or prepare students for further academic study in this area.

COM 353 Communication Ethics
Credits: 3
Prerequisites: COM 101
Corequisites: None
Type: LEC
Addresses issues and information related to the ethical implementation of human communication, especially with regard to the media. The course examines the practice of ethics in different communication contexts, such as advertising, television, business and interpersonal relationships, and health care.

COM 357 Business Writing
Credits: 3
Prerequisites: writing skills; communication major, COM 101
Corequisites: None
Type: DIS
Developing communication expertise is increasingly important in a wide range of professions. This course is intended to prepare aspiring professionals by improving their writing, presentation and critical thought. The main objective of the course is for students to understand the following: the connection between critical thinking and writing; the writing process; using prototyping, an industry standard for document production; and the nature of evidence-based, informative and proposal writing.

COM 380 Health Communication
Credits: 3
Prerequisites: COM 101, COM 217, COM 225, COM 240
Corequisites: None
Type: LEC
Reviews the constructs and practice of social interaction research. Topics include coding schemes, reliability, data collection and analysis, and interpretation of research results.

COM 398 Journalism
Credits: 3
Prerequisites: COM 101, COM 240
Corequisites: None
Type: LEC
Development of an understanding of the fundamentals of journalism, with stress on news reporting, copy editing, and basic principles of writing and news preparation for modern print and electronic communication media.

COM 401 Communication in Asia and Pacific Rim Countries
Credits: 3
Prerequisites: COM 101
Corequisites: None
Type: LEC
Provides students with knowledge of communication and its related issues in East Asian and Pacific Rim countries, which are going to be the world’s focal point for economy and politics in the next century.

COM 417 Special Topics in Mass Communication
Credits: 3
Prerequisites: Permission of Instructor, COM 101
Corequisites: None
Type: SEM
Content varies each semester. Topics include television newscasting, mass communication and cultural studies, contemporary media issues, daytime TV/soaps, information systems, and communication technology.

COM 420 Conflict Theory
Credits: 3
Prerequisites: COM 101
Corequisites: None
Type: LEC
Introduces the research literature on conflict and conflict resolution. Focuses primarily on two of the most popular research paradigms - matrix games and bargaining games - although a few other topics are also touched upon.

COM 425 Analysis of Face-to-Face Communication
Credits: 3
Prerequisites: COM 101
Corequisites: None
Type: SEM
Examines health communication and cultural studies, contemporary media issues, daytime TV/soaps, information systems, and communication technology.

COM 437 Organizational Communication
Credits: 3
Prerequisites: COM 101, COM 217
Corequisites: None
Type: LEC
Reviews the conduct and practice of social interaction research. Topics include coding schemes, reliability, data collection and analysis, and interpretation of research results.

COM 447 Advanced Study of the Communication Process in Organizations and Systems
Credits: 3
Prerequisites: COM 101, COM 217
Corequisites: None
Type: LEC
Advanced study of the communication process in organizations and systems; theory, open systems; input-output analysis; structural functionalism, cybernetics.
COM 441 Public Relations
Credits: 3
Prerequisites: COM 101, COM 317; communication major
Corequisites: None
Type: LEC
Studies the role of the public relations practitioner as a specialist in communication, an analyst of public opinion, and a counselor to administrators. Also examines the function of public relations, and internal and external communication.

COM 443 Principles and Techniques of Advertising
Credits: 3
Prerequisites: COM 101, COM 317; communication major
Corequisites: None
Type: LEC
Examines advertising techniques, methods, and evaluation as well as sales promotion.

COM 447 Communication Graphics
Credits: 3
Prerequisites: Communication major, COM 101
Corequisites: None
Type: DIS
Examines graphic communication and graphic design skills.

COM 449 Promotional Writing
Credits: 3
Prerequisites: Communication major, COM 101
Corequisites: None
Type: DIS

COM 450 Political Communication
Credits: 3
Prerequisites: COM 101
Corequisites: None
Type: LEC
Studies the role of media and polling in a political campaign. Students combine the theory of political communication and the methodology of polling with practical experience of interacting with political professionals, conducting a poll, and viewing tapes of campaign commercials and speeches/debates.

COM 451 Communication and Marketing
Credits: 3
Prerequisites: Communication major, COM 101
Corequisites: None
Type: LEC
Covers all aspects of the role of communication in the process of marketing goods and services. Specifically, the course covers the design and implementation of marketing information systems, organizational communication within market-driven companies, market research (focus groups, survey, and experimental methods), product design and testing, and the development of communication campaigns, including message design and placement.

COM 452 Analysis of the Media
Credits: 3
Prerequisites: COM 101, COM 240
Corequisites: None
Type: SEM
Analysis of various aspects of electronic and print media.

COM 453 Advanced Public Relations
Credits: 3
Prerequisites: COM 101, COM 441
Corequisites: None
Type: SEM
Provides an opportunity for students to work in-depth on specific projects. Participants design and execute public relations plans which include writing, media placement, speech writing, and evaluation. A good basic understanding of public relations functions and terminology as well as excellent writing skills are musts.

COM 454 Media in the Information Age
Credits: 3
Prerequisites: COM 101, COM 125; COM 398 recommended
Corequisites: None
Type: LEC
Investigates the relationship of new media technologies to the mediated environment at large. Examines the ways in which media institutions, media policy, and media use are changing in an era of increased information exchange.

COM 455 Advanced Advertising
Credits: 3
Prerequisites: COM 101, COM 443
Corequisites: None
Type: SEM
Studies planning, preparation and presentation of comprehensive advertising campaigns. Student teams produce all aspects of the campaign from conception to presentation. A good foundation of knowledge of the advertising industry is a must.

COM 460 World Media Systems
Credits: 3
Prerequisites: COM 101, COM 240
Corequisites: None
Type: LEC
Studies world media systems with a comparative analysis approach and from a global perspective. Especially, the course relates many aspects of the world media systems to the current trend of globalization.

COM 462 Media Law
Credits: 3
Prerequisites: COM 101, COM 240
Corequisites: None
Type: LEC
Provides an understanding of the legal system and laws affecting mass communication in the U.S. Students will investigate the history of media law, the reasons for regulatory differences among media, policy issues, and a number of issues including First Amendment rights, defamation, intellectual property rights, and the Fair Use doctrine.

COM 465 PR in the Info Age
Credits: 3
Prerequisites: COM 101, COM 441
Corequisites: None
Type: LEC
This class will introduce students to the ways in which public relations practitioners use the Internet and other new technologies, including e-mail, electronic newsletters, electronic magazines, World Wide Web sites, digital pressrooms, discussion groups, online events, and video conferences. Students will design public relations plans for clients utilizing these or other new technologies.

COM 466 Special Topics in Mass Communication
Credits: 3
Prerequisites: COM 101
Corequisites: None
Type: SEM
Assists students in developing and implementing job-hunting strategies. Emphasizes resume writing, interviewing, researching employment opportunities in various industries and finding the right job in today's competitive market. Supplements classroom lectures with guest speakers.

COM 468 Special Topics in Mass Communication
Credits: 3
Prerequisites: Permission of Instructor, COM 101
Corequisites: None
Type: SEM
Content varies each semester. Topics include television newscasting, mass communication and cultural studies, contemporary media issues, daytime TV/soaps, information systems, and communication technology.

COM 469 Advanced Research Methods in Communication
Credits: 3
Prerequisites: COM 205, COM 337
Corequisites: None
Type: LEC
Applications oriented course designed to apply various techniques of scientific inquiry towards testing of communication theories. Students apply research methodology ranging from content analysis, social surveys, and experiments to test communication theory driven hypotheses and research questions. Students will learn to critique existing research, perform literature reviews, create survey instruments, design and conduct experiments, perform content analysis, and present research findings. Course is ideal for students who are interested in a career in research and graduate study in communication.

COM 470 Special Topics in Communication Theory and Research
Credits: 3
Prerequisites: COM 101 or permission of instructor
Corequisites: None
Type: SEM
Content varies each semester. Topics include communication research and theory, communication technologies, intercultural communication, and organizational communication research.

COM 471 Special Topics in Communication Theory and Research
Credits: 3
Prerequisites: COM 101 or permission of instructor
Corequisites: None
Type: SEM
Content varies each semester. Topics include communication research and theory, communication technologies, intercultural communication, and organizational communication research.

COM 472 Special Topics in Communication Theory and Research
Credits: 3
Prerequisites: COM 101 or permission of instructor
Corequisites: None
Type: SEM
Content varies each semester. Topics include communication research and theory, communication technologies, intercultural communication, and organizational communication research.

COM 473 Special Topics in Communication Theory and Research
Credits: 3
Prerequisites: COM 101 or permission of instructor
Corequisites: None
Type: SEM
Content varies each semester. Topics include communication research and theory, communication technologies, intercultural communication, and organizational communication research.

COM 474 Special Topics in Communication Theory and Research
Credits: 3
Prerequisites: COM 101 or permission of instructor
Corequisites: None
Type: SEM
Content varies each semester. Topics include communication research and theory, communication technologies, intercultural communication, and organizational communication research.

COM 475 Special Topics in Communication Theory and Research
Credits: 3
Prerequisites: COM 101 or permission of instructor
Corequisites: None
Type: SEM
Content varies each semester. Topics include communication research and theory, communication technologies, intercultural communication, and organizational communication research.
COM 476 Special Topics in Communication Theory and Research
Credits: 3
Prerequisites: COM 101 or permission of instructor
Corequisites: None
Type: SEM
Content varies each semester. Topics include communication research and theory, communication technologies, intercultural communication, and organizational communication research.

COM 477 Special Topics in Communication Theory and Research
Credits: 3
Prerequisites: COM 101 or permission of instructor
Corequisites: None
Type: SEM
Content varies each semester. Topics include communication research and theory, communication technologies, intercultural communication, and organizational communication research.

COM 478 Special Topics in Communication Theory and Research
Credits: 3
Prerequisites: COM 101 or permission of instructor
Corequisites: None
Type: SEM
Content varies each semester. Topics include communication research and theory, communication technologies, intercultural communication, and organizational communication research.

COM 479 Special Topics in Communication Theory and Research: Advanced Research Methods in Communication
Credits: 3
Prerequisites: COM 101 or permission of instructor
Corequisites: None
Type: SEM
This course is an application oriented course, designed to apply various techniques of scientific inquiry towards the testing of communication theories. In this course, students will apply research methodology ranging from content analysis, social surveys, and experiments to test communication theory driven hypotheses and research questions. Students will be taught to critique existing research, perform literature reviews about a topic, create surveys instruments, design and conduct experiments, perform content analysis, and write-up and present the findings of a research. This is an ideal course for students who are serious about a career in research and who plan to apply to the graduate program in communication.

COM 480 Senior Colloquium in Communication
Credits: 3
Prerequisites: senior standing in communication and permission of instructor, COM 101
Corequisites: None
Type: SEM
A special seminar for seniors. Topics vary each semester.

COM 481 Special Topics in Interpersonal Communication
Credits: 3
Prerequisites: COM 101 or permission of instructor
Corequisites: None
Type: SEM
Content varies each semester. Topics include analyzing face-to-face communication, nonverbal communication, and communication in health settings.

COM 482 Special Topics in Interpersonal Communication
Credits: 3
Prerequisites: COM 101 or permission of instructor
Corequisites: None
Type: SEM
Content varies each semester. Topics include analyzing face-to-face communication, nonverbal communication, and communication in health settings.

COM 483 Special Topics in Interpersonal Communication
Credits: 3
Prerequisites: COM 101 or permission of instructor
Corequisites: None
Type: SEM
Content varies each semester. Topics include analyzing face-to-face communication, nonverbal communication, and communication in health settings.

COM 484 Special Topics in Interpersonal Communication
Credits: 3
Prerequisites: COM 101 or permission of instructor
Corequisites: None
Type: SEM
Content varies each semester. Topics include analyzing face-to-face communication, nonverbal communication, and communication in health settings.

COM 485 Special Topics in Interpersonal Communication
Credits: 3
Prerequisites: COM 101 or permission of instructor
Corequisites: None
Type: SEM
Content varies each semester. Topics include analyzing face-to-face communication, nonverbal communication, and communication in health settings.

COM 486 Special Topics in Organizational Communication
Credits: 3
Prerequisites: COM 101 or permission of instructor
Corequisites: None
Type: SEM
Content varies each semester. Topics include communication and decision making, conflict resolution, communication training and development, and the law, and communication on the worldwide web.

COM 487 Special Topics in Organizational Communication
Credits: 3
Prerequisites: COM 101 or permission of instructor
Corequisites: None
Type: SEM
Content varies each semester. Topics include communication and decision making, conflict resolution, communication training and development, and the law, and communication on the worldwide web.

COM 488 Special Topics in Organizational Communication
Credits: 3
Prerequisites: COM 101 or permission of instructor
Corequisites: None
Type: SEM
Content varies each semester. Topics include communication and decision making, conflict resolution, communication training and development, and the law, and communication on the worldwide web.

COM 489 Special Topics in Organizational Communication
Credits: 3
Prerequisites: COM 101 or permission of instructor
Corequisites: None
Type: SEM
Content varies each semester. Topics include communication and decision making, conflict resolution, communication training and development, and the law, and communication on the worldwide web.

COM 490 Special Topics in Mass Communication
Credits: 3
Prerequisites: COM 101 or permission of instructor
Corequisites: None
Type: SEM
A special seminar for seniors. Topics vary each semester.

COM 491 Special Topics in Mass Communication
Credits: 3
Prerequisites: COM 101 or permission of instructor
Corequisites: None
Type: SEM
Content varies each semester. Topics include television newscasting, mass communication and cultural studies, contemporary media issues, daytime TV/soaps, information systems, and communication technology.

COM 492 Special Topics in Mass Communication
Credits: 3
Prerequisites: COM 101 or permission of instructor
Corequisites: None
Type: SEM
Content varies each semester. Topics include television newscasting, mass communication and cultural studies, contemporary media issues, daytime TV/soaps, information systems, and communication technology.

COM 493 Special Topics in Mass Communication
Credits: 1
Prerequisites: Senior standing & Communication major; Permission of Instructor, COM 101
Corequisites: None
Type: TUT
Involves internships generally conducted in Buffalo area organizations, such as public relations firms, the local media, businesses and industries, and government agencies. Graded pass/fail.

COM 497 Honors in Communication
Credits: 3
Prerequisites: senior standing in communication, permission of instructor, COM 101
Corequisites: None
Type: TUT
A special seminar for seniors. Topics vary each semester.

COM 499 Independent Study
Credits: 1
Prerequisites: COM 101; permission of advisor and instructor
Corequisites: None
Type: TUT
Involves development of an individual project of inquiry into an area of particular relevance to student interest within the field of communication. Graded pass/fail.
Comparative Literature

COL 130 Introduction to the Twentieth Century
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Offers the student who is beginning to read modernist texts an overview of the various movements that shaped and influenced the cultural scene in the early part of the century. Attempts to distinguish between modernism and the avant-garde with reference to such movements as futurism, dadaism, surrealism, expressionism, and socialist realism.

COL 150 World Literature: The Fantastic
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
An international survey of the literature of the fantastic. Pays particular attention to modernism's fascination with the eerie and the uncanny. Asks why the fantastic seems to serve as such a suitable emblem for our age through a reading of international texts in a comparative context. Also considers the way in which the fantastic serves as a social commentary on the society that produces it.

COL 226 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Course content varies according to the interests of the instructor. Topics may explore a specific philosophical, literary, and/or cultural issue or problem.

COL 251 Masterpieces of World Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Invites students in all fields to explore the study of literature. Introduces a wide variety of texts, both in terms of historical breadth and genre. The courses are not a survey with a program of systematic, obligatory coverage. Rather, in readings that run from Homer to contemporary cinema and that investigate the epic, poetry, political documents, fiction, and film, we consider the ways in which such texts function and why the place of such works is crucial to understanding ourselves.

COL 255 Crime and Punishment
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Considers a range of major literary and philosophical texts dealing with crime, guilt, retribution, and punishment. Students discuss these texts in their social and literary contexts.

COL 275 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Course content varies according to the interests of the instructor. Topics may explore a specific philosophical, literary, and/or cultural issue or problem.

COL 280 City in Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
The city has undergone revolutionary changes in recent times, yet has itself always been a witness to progress and a site of history and storytelling. Studies the city in a modern or postmodern manner by examining the way in which it serves as a model for design, government, and policing. Examines the commonality and differences linking the modern city to its predecessors. While drawing mainly on literary works, we also work in the fields of history, sociology, anthropology, and philosophy.

COL 301 Literary Theory – Twentieth Century
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Examines the most recent, and often controversial, developments in literary theory. As well as covering theoretical strains, such as formalism, New Criticism, structuralism, poststructuralism, Marxism, and the Frankfurt School, the course interlaces literary texts as examples of interpretive possibilities. Part of a two course module with COL 302.

COL 302 Literary Theory – History
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Charts the development of the theories of culture and literature, which both reflect and, in turn, shape the great works of our literary tradition. Students read aesthetic theory from the ancient Greeks through to the nineteenth century, covering such diverse periods as the Middle Ages, the Enlightenment, and Romanticism. Also studies literary texts for the way in which they help elucidate some of the issues being covered in the course. Students should expect to develop an awareness of the historical import of such notions as genre, the beautiful, and so forth. See COL 301.

COL 311 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Course content varies according to the interests of the instructor. Topics may explore a specific philosophical, literary, and/or cultural issue or problem.

COL 315 Signs and Representation
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Introduces theories of the sign and representation, and the development of these accounts in the twentieth century. The course is divided into three parts. Part one introduces basic concepts and pioneering theories: the work of Saussure and Peirce, formalism and structuralism (Levi-Strauss, Piaget, Jackobson, Benveniste), their similarities and differences, and the debates their works have engendered. Part two considers developments and refinements of their work, particularly in various analyses of social power; among the figures analyzed here are Roland Barthes and his examination of bourgeois cultural life, and Michel Foucault and his understanding of social power and its investment in the production and control of discourse. Part three discusses poststructuralist critiques of structuralism, concentrating particularly on the work of the Derrideans, including a session on Kristeva, Cixous, and the writing of otherwise.

COL 320 Literature and Desire
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Invites students in all fields to explore the study of literature. Introduces a wide variety of texts, both in terms of historical breadth and genre. The courses are not a survey with a program of systematic, obligatory coverage. Rather, in readings that run from Homer to contemporary cinema and that investigate the epic, poetry, political documents, fiction, and film, we consider the ways in which such texts function and why the place of such works is crucial to understanding ourselves.

COL 340 Berlin, Paris, and Vienna at the Turn of the Century
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Involves a general introduction to twentieth-century culture and art. Focuses on three centers of modernism: Vienna, Paris, and Berlin, and reaches toward that moment when innovations in linguistics, psychoanalysis, logical analysis, and radical literary works were at the peak of ferment. Literary texts, clinical texts, and visual texts form the material for the course, which aims to develop a notion of modernity equally applicable to all.

COL 345 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Course content varies according to the interests of the instructor. Topics may explore a specific philosophical, literary, and/or cultural issue or problem.

COL 387 Freud and Feminism
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Introduces some of the central concepts in the writings of Sigmund Freud, focusing mainly on his understanding of the development of the ego or sense of self, the operations of the unconscious, and the genesis of sexual drives in the constitution of male and female subjects. The course explains these basic Freudian concepts through the central feminist question of sexual difference.

COL 443 Literature and War
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Analyzes some of the most important war novels, both European and American, from the perspective of the major theories of war. Theoretical texts include Sun Tzu, Huisinga, Clausewitz, and Freud. Literary texts include Swift, Crane, Flaubert, Tolstoy, and Junger.

COL 451 Modernism
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Pursues the great experiments of modernism in Europe and the United States over the period 1890 - 1945. Emphasizes the culture of combination, expansion, and distortion that characterized not only literature, but art, music, drama, and architecture. Readings by Rilke, Kafka, Proust, Joyce, Freud, Stein, Woolf, Barnes, and Borges.
### Computer Science

#### CSE 101 Computers: A General Introduction
- **Credits:** 4
- **Prerequisites:** Basic knowledge of arithmetic. No experience with computers needed.
- **Corequisites:** None
- **Type:** LEC/LAB
- **Description:** Introduces computers and applications software. Topics may include computer architecture, instruction set, assembly language programming, problem-solving techniques, and digital logic design. Students study algorithmic approaches to problem-solving and gain an appreciation for some of the most interesting and significant results of computer science, as well as its intellectual and social significance. The course has both a mathematical and a laboratory component. Topics may include algorithm design, introduction to programming, structured programming, software tools, software engineering, text manipulation, numerical computation, transistors, very large-scale integrated circuits, machine architecture, language translation, computability, and artificial intelligence. Emphasizes object-oriented programming through the language of CSE 115 and CSE 116; the use of modern object-oriented design using a formal modeling language; fundamental object-oriented principles such as classes, objects, interfaces, inheritance and polymorphism; simple event-driven programming; data types; variables; expressions; basic imperative programming techniques, including assignment, input/output, subprograms, parameters, sequencing, selection and iteration; the use of aggregate data structures, such as arrays or more general collections; simple design patterns. Admitted computer science and computer engineering majors should not enroll in this course.

#### CSE 114 Introduction to Computer Programming I
- **Credits:** 4
- **Prerequisites:** None
- **Corequisites:** None
- **Type:** LEC/LAB
- **Description:** Introduces computers and computer programming intended for nonmajors. Currently required for some School of Management majors and appropriate for others seeking a practical introduction to computer programming. Topics include the use of data types and variables, programming control constructs supported by modern languages, input/output, basic concepts of object-oriented programming (such as classes, objects, encapsulation, information hiding, and code reuse), as well as graphical user interfaces. No previous computer experience assumed. Not suitable for intended computer science or computer engineering majors except those who have absolutely no experience using a computer. Admitted computer science and computer engineering students should not take this course.

### Additional Courses

#### CSE 115 Introduction to Computer Science for Majors I
- **Credits:** 4
- **Prerequisites:** None
- **Corequisites:** None
- **Type:** LEC/LAB
- **Description:** Continuation of CSE 114 for nonmajors. Currently required for some School of Management majors and appropriate for others seeking additional programming skills. Emphasizes the use of modern object-oriented programming methodologies, such as class inheritance, polymorphism, and exceptions. Neither CSE 113 nor CSE 114 can count towards a CSE degree. Admitted computer science and computer engineering majors should not take this course.

#### CSE 116 Introduction to Computer Science for Majors II
- **Credits:** 4
- **Prerequisites:** None
- **Corequisites:** None
- **Type:** LEC/REC
- **Description:** Continuation of CSE 115. Heavily emphasizes abstract data types (ADTs) and object-oriented methodology, and expects students not only to understand ADTs but also to design and implement robust ADTs using a modern object-oriented programming language. Further emphasizes object-oriented techniques, which support sound software engineering, such as encapsulation, polymorphism and inheritance as well as the use of more complex design patterns. Essential topics integrated in this framework include the use of recursion; linked data structures, including lists, stacks, queues, binary trees, and other advanced data structures; and algorithms for searching and sorting; exceptions and exception handling, event-driven programming. Introduces the analysis of algorithm complexity (O-notation).
CSE 305 Introduction to Programming Languages
Credits: 4
Prerequisites: CSE 250
Corequisites: None
Type: LEC/REC
Examines the various components of programming languages so students will understand the choices that have been made by programming language designers, and how those choices affect how procedures may be expressed and how data are conceptualized. Topics generally include the nature of variables, types, expressions, control structures, subprograms, concurrency, and exceptions; syntax and semantics. Discusses different programming paradigms, such as imperative, functional, logic, procedural and object-oriented.

CSE 321 Real -Time and Embedded Operating Systems
Credits: 4
Prerequisites: CSE 341 or permission of instructor
Corequisites: None
Type: LEC/REC
Addresses some of the fundamental challenges in the design, implementation, and validation of these real-time and embedded systems. Topics include resource management, concurrency, secure coding practices, memory management, timeline design and analysis using metrics and schedulability tests, hardware interfacing, device driver programming, memory maps and boot kernels, firmware and ROM-resident system code, communications and networking, and debugging live systems. These concepts will be reinforced through C programming assignments using the RTLinux operating system.

CSE 331 Introduction to Algorithm Analysis and Design
Credits: 4
Prerequisites: CSE 250, MTH 141 with a grade of C or higher
Corequisites: None
Type: LEC/REC
Introduces methods for algorithm design, paradigms such as divide and conquer, greedy, and dynamic programming, and techniques for algorithm analysis, such as asymptotic notations and estimates, as well as time/space trade-offs. Topics include sorting, searching, scheduling, string matching, graph algorithms, computational geometry, and more.

CSE 337 Introduction to Scientific Computing
Credits: 4
Prerequisites: MTH 141 with a grade of C or higher required
Corequisites: None
Type: LEC/LAB
Experience with the power of computing in exploring and solving problems in science, applied mathematics, and abstract mathematics, including such topics as the spread of diseases and forest fires, the motion of planets, and the sequencing of genes. Introduces a number of the basic tools of scientific computing and computational mathematics; programming in a high-level language such as Matlab or Maple; and the formulation, exploration and evaluation of mathematical models using simulation and visualization. Students will pursue in-depth projects involving some work in teams. Foundation for more advanced courses in mathematical modeling, numerical analysis, and computational mathematics, and for the use of computer simulations in other courses and student research projects. Offered irregularly. Cross-listed with MTH 337.

CSE 341 Computer Organization
Credits: 4
Prerequisites: CSE 241 or EE 378
Corequisites: None
Type: LEC/REC
Basic hardware and software issues of computer organization. Topics include computer abstractions and technology, performance evaluation, instruction set architecture, arithmetic logic unit design, advanced computer arithmetic, datapath and control unit design, pipelining, memory hierarchy, input-output.

CSE 379 Introduction to Microprocessors and Microcomputers
Credits: 3
Prerequisites: CSE 241 or EE 378
Corequisites: CSE 380
Type: LEC
Microprocessor architecture, machine language programming, microprocessor assemblers, assembly language programming, software development, memory and I/O interface, interrupts, microprocessor system design and microprocessor applications.

CSE 380 Introduction to Microprocessors and Microcomputers Lab
Credits: 3
Prerequisites: CSE 241 or EE 378
Corequisites: CSE 379
Type: LEC/LAB/REC
A microprocessor system and its application in embedded devices. This course is the laboratory component to CSE 379. Topics include: microprocessor architecture; memory organization; assembly language programming; microprocessor assemblers; software development; use of microprocessor boards; memory and I/O interfaces; programming peripherals; interrupt system programming; microprocessor system design and applications.

CSE 396 Introduction to the Theory of Computation
Credits: 4
Prerequisites: CSE 250
Corequisites: None
Type: LEC/REC
Covers machines, models and formal specifications of the classes of computational problems they can solve. The central concepts are the Turing machine and the classes of decidable and computably enumerable languages. The Halting Problem and other natural problems are shown to be undecidable by Turing machines, implying that they are undecidable by high-level programming languages or any other known computational model. Finite automata, which are Turing machines without external memory, are shown to correspond to the class of regular languages. The course also covers regular expressions, time and space complexity of Turing machines, reducibility between problems, and NP-completeness.

CSE 410 Special Topics
Credits: 4
Prerequisites: permission of instructor
Corequisites: None
Type: LEC
Contents, format and required background vary from offering to offering. Intended for rapid introduction of timely material in computer science and engineering, which will not be repeated under this course number. Offered occasionally.

CSE 411 Introduction to Computer Systems Administration
Credits: 4
Prerequisites: CSE 241 or CSE 379
Corequisites: None
Type: LEC/REC
Teaches how to administer a network of computer workstations using an Operating System such as UNIX. Topics include managing user accounts, system backups, installing and configuring the operating system, setting up a computer network, shell programming, and computer security.

CSE 421 Introduction to Operating Systems
Credits: 4
Prerequisites: CSE 241, CSE 305
Corequisites: None
Type: LEC/REC
Covers the principles and techniques in the design of operating systems. Describes concepts of operating systems in terms of functions, structure, and implementation, particularly emphasizing multiprogramming. Topics include process coordination, deadlock, memory management, device management, file systems, scheduling policies for CPU, and network and distributed operating systems. Illustrates concepts with examples from existing operating systems.

CSE 422 Operating Systems Internals
Credits: 4
Prerequisites: CSE 421 or permission of instructor
Corequisites: None
Type: LEC/REC
Uses an operating system (such as UNIX) as an example to teach the internal workings of operating systems. The material presented is more practical than the other operating systems related classes. The laboratory component of this course provides programming projects involving modifications to an operating system kernel (such as UNIX) on computers dedicated to use for this course. Topics covered include building the operating system kernel, the system call interface, process management, kernel services provided for processes, the I/O system, the internal workings of the file system, device drivers, and the kernel support of Interprocess Communications.

CSE 431 Algorithms Analysis and Design
Credits: 4
Prerequisites: CSE 250
Corequisites: None
Type: LEC/REC
Introduces basic elements of the design and analysis of algorithms. Topics include asymptotic notations and analysis, divide and conquer, greedy algorithms, dynamic programming, fundamental graph algorithms, NP-completeness, approximation algorithms, and network flows. For each topic, beside in-depth coverage, we discuss one or more representative problems and their algorithms. In addition to the design and analysis of algorithms, students are expected to gain substantial discrete mathematics problem solving skills essential for computer scientists and engineers.

CSE 437 Introduction to Numerical Analysis I
Credits: 4
Prerequisites: CSE 113 or CSE 115; MTH 241, MTH 306, MTH 309 or permission of instructor
Corequisites: None
Type: LEC/REC
First part of a 2-semester sequence, which explores the design and implementation of numerical methods to solve the most common types of problems arising in science and engineering. Most such problems cannot be solved in terms of a closed analytical formula, but many can be handled with numerical methods learned in this course. Topics for the two semesters include: how a computer does arithmetic, solving systems of simultaneous linear equations, finding eigenvalues and eigenvectors of (large) matrices, minimizing a function of many variables, fitting smooth functions to data points (interpolation and regression), computing integrals, solving ordinary differential equations (initial and boundary value problems), and solving partial differential equations of elliptic, parabolic, and hyperbolic types. We study how and why numerical methods work, and also their errors and limitations. Practical experience is gained through course projects that entail writing computer programs. Cross-listed with MTH 437.
CSE 438 Introduction to Numerical Analysis II
Credits: 4
Prerequisites: CSE 437 or MTH 437
Corequisites: None
Type: LEC/REC
Second part of the 2-semester sequence described under CSE 437. Cross-listed with MTH 438.

CSE 442 Software Engineering
Credits: 4
Prerequisites: CSE 305
Corequisites: None
Type: LEC/REC
Examines in detail the software development process. Topics include software life-cycle models; architectural and design approaches; various techniques for systematic software testing; coding and documentation strategies; project management; customer relations; the social, ethical, and legal aspects of computing; and the impact of economic, environmental, safety, manufacturability, and sustainability factors on design. Students in this course participate in a real-world project from conception to implementation.

CSE 443 Introduction to Language Processors
Credits: 4
Prerequisites: CSE 305, CSE 396
Corequisites: None
Type: LEC/REC
Considers problems encountered in the design and implementation of a translator for high-level programming languages: lexical analysis, context-free grammars, parsing, storage allocation, code generation and optimization, and error recovery. Uses compiler construction tools for the programming projects. Offered occasionally.

CSE 451 Program Development
Credits: 4
Prerequisites: CSE 305
Corequisites: None
Type: LEC/REC
A course in theoretical software engineering, covering the practical development of correct programs based on a mathematical notion of program correctness. Topics include: prepositional and first-order logic; the specification of programs using Hoare triple and Dijkstra’s weakest preconditions; the definition of a small imperative language; assignment, sequencing, a conditional statement, and a loop; and programming as a goal-oriented developmental activity, based on the formal definition of a small language. Offered irregularly.

CSE 452 VLSI Testing
Credits: 4
Prerequisites: CSE 497 or permission of instructor
Corequisites: None
Type: LEC
Includes topics: VLSI design fundamentals; various aspects of testing; fault model; design for testability; built-in self-test; simulation at various levels; software tools and equipment, built-in self-testing PLAs; built-in self-testing RAMs. The major design project is on testable design of VLSI. Expects students to use the testable design concepts learned in the class and incorporate them into the circuits during the chip design. The project is an open-ended problem, and students are free to exercise a combination of ideas.

CSE 453 Hardware/Software Integrated Systems Design
Credits: 4
Prerequisites: CSE 380 and CSE 442, or permission of instructor
Corequisites: None
Type: LEC/REC
Software designs produced in the prerequisite CSE 442 Software Engineering course are carried here to a complete hardware realization. Bringing skills learned from previous hardware and software-oriented courses, students form multidisciplinary workgroups and are given tools, parts, goals, and constraints, all of which define the integrated design setting. These workgroups identify, formulate, and solve the hardware and software problems posed by their project, and defend their realization concepts at key intervals during the project build-out. Projects are tested, and a report analyzing the level of satisfaction of design and performance specifications submitted. Each group prepares a ‘rollout’ presentation, which includes a demonstration of their project in operation. This is a required course for CEN majors.

CSE 462 Database Concepts
Credits: 4
Prerequisites: CSE 305
Corequisites: None
Type: LEC/REC
Discusses basic concepts of modern database management systems. Topics include: data models, query languages, integrity constraints, indexing, query optimization, and transaction management. Students implement an example database application. Offered irregularly.

CSE 463 Knowledge Representation
Credits: 4
Prerequisites: CSE 305 or permission of instructor
Corequisites: None
Type: LEC/REC
Introduces the field of knowledge representation and reasoning, the branch of artificial intelligence concerned with the techniques for representing and reasoning about the information to be used by an AI program. Topics include some of the following, as well as others (e.g., non-representational AI, connectionist representations), as time permits: the knowledge-representation hypothesis; propositional and first-order logic; non-classical logics (e.g., modal logics); non-monotonic, defeasible, and default logics; logs of knowledge and belief; truth maintenance and belief revision; semantic networks; frames; description logics (e.g., the KL-ONE family); and commonsense reasoning.

CSE 467 Computational Linguistics
Credits: 4
Prerequisites: CSE 305 or permission of instructor
Corequisites: None
Type: LEC/REC
Introduces computational models for understanding natural languages. Covers syntactic and semantic parsing, generation, and knowledge representation techniques. Cross-listed with LIN 467.

CSE 473 Introduction to Computer Vision and Image Processing
Credits: 4
Prerequisites: CSE 305 or permission of instructor
Corequisites: None
Type: LEC/REC
Introduces those areas of artificial intelligence that relate to fundamental issues and techniques of computer vision and image processing. Emphasizes physical, mathematical, and image-processing aspects of vision. Topics include image formation, edge detection, segmentation, convolution, image-enhancement techniques, extraction of features (such as color, texture, and shape), object detection, 3-D vision, and computer system architectures and applications.

CSE 474 Introduction to Machine Learning
Credits: 4
Prerequisites: EAS 305 or MTH 309 or permission of instructor
Corequisites: None
Type: LEC/REC
Involves teaching computer programs to improve their performance through guided training and unguided experience. Takes both symbolic and numerical approaches. Topics include concept learning, decision trees, neural nets, latent variable models, probabilistic inference, time series models, Bayesian learning, sampling methods, computational learning theory, support vector machines, and reinforcement learning.

CSE 484 Philosophy of Computer Science
Credits: 4
Prerequisites: Junior or senior standing, or permission of instructor
Corequisites: None
Type: LEC/REC
Introduces philosophical issues in computer science. Examines the nature of computer science (e.g., whether it is a science or a branch of engineering, whether it is the study of physical computers or abstract computing); the nature of computation, algorithms, and software, and their implementation in computer programs; the nature of computer programs (e.g., whether they are theories, models, or simulations; whether they can or should be patented or copyrighted; whether they can be verified). Also briefly explores the philosophy of artificial intelligence and issues in computer ethics. Offered irregularly.

CSE 486 Distributed Systems
Credits: 4
Prerequisites: CSE 305
Corequisites: None
Type: LEC/REC
Addresses some of the fundamental challenges in the design, implementation and deployment of large-scale distributed systems. Concepts covered include concurrency, synchronization, connection establishment, event handling, inter process communication, storage management, and service registration, discovery, and lookup. Also covers issues related to distributed objects such as life cycle management, mobility, security, naming, location, evolution, and autonomy. Analyses and implements possible solutions using objects, processes, services, components and frameworks. Offered irregularly.

CSE 487 Information Structures
Credits: 4
Prerequisites: CSE 305 programming languages or equivalent, object-oriented design and programming in Java
Corequisites: None
Type: LEC
Overview of information technology in large-scale commercial and scientific systems, emphasizing state of the art computing in realizing various services and the frameworks supporting these services. Concepts covered include: enterprise modeling, process modeling, process automation and streamlining, workflow management, messaging, persistent message queues, transaction monitoring, document exchange, application servers, service definition (web services, web services definition language: WSDL), connection and resource reservation protocols (TCP, grid computing), integration technologies and architectures (Java 2 Enterprise Edition: J2EE, extensible Markup Language: XML, and Globus toolkit).
CSE 489 Modern Networking Concepts
Credits: 4
Prerequisites: C and C++ language programing experience, and either EAS 305 or MTH 411
Corequisites: None
Type: LEC/REC
Introduces basic elements of modern computer and telecommunications networks. Discusses a hybrid five-layer reference model resembling the popular TCP/IP model. In each layer, the course introduces the state-of-the-art hardware and software technologies. These include, for example, fiber-optic and wireless/mobile cellular communications at the physical layer, to network security in the application layer. Offered once a year.

CSE 490 Computer Architecture
Credits: 4
Prerequisites: CSE 379 or CSE 341
Corequisites: None
Type: LEC/REC
Examines system architecture with 32- and 64-bit microprocessors. Topics include the design of high-performance computer systems, such as workstations and multiprocessor systems using recent advanced microprocessors. Considers the internal architecture of recent microprocessors, followed by vector processing, memory-hierarchy design, and communication subsystems for I/O and interprocessor communication.

CSE 493 Introduction to VLSI Electronics
Credits: 4
Prerequisites: EE 310 and CSE 379 or CSE 341
Corequisites: None
Type: LEC/LAB
Introduces VLSI electronics. VLSI is the integration of a large number of logic gates on a single semiconductor chip. Applications of VLSI include memory, microprocessors, and signal processing. Topics include digital system design; VLSI systems; CMOS circuits; use of CAD tools in the layout of full-custom and semi-custom integrated circuits. Project required. Emphasizes designing a working chip and understanding various steps in design. Typical projects: ALU, games, controllers.

CSE 494 Senior Capstone/Seminar
Credits: 3
Prerequisites: Completion of year 1-3 major requirements
Corequisites: None
Type: SEM
Course for senior-level majors intended to provide a learning experience that integrates knowledge from lower-level courses. Topics may vary.

CSE 495 Supervised Teaching
Credits: 1
Prerequisites: Junior status, 3.0 GPA, A- or better in course teaching, permission of instructor
Corequisites: None
Type: TUT
Students participating in this course serve as undergraduate teaching assistants. Responsibilities include leading lab and recitation sections, and holding study sessions.

CSE 496 Internship
Credits: 1
Prerequisites: Accepted CSE major and personal interview with an advisor in computer science and engineering
Corequisites: None
Type: TUT
Field experience working on a computer science project in a real-world setting under the joint direction of a supervisor from industry and a faculty advisor from the Department of Computer Science and Engineering. Projects selected should integrate the material learned in academic courses. Upon completing the internship the student is expected to have fulfilled an internship contract. Only S/U grades are given (therefore, internships may not be used to satisfy requirements for the BA or BS). No more than 5 credit hours of CSE 496 may be taken. Offered every semester.

CSE 497 Departmental Honors Thesis or Project
Credits: 3
Prerequisites: Acceptance into departmental honors program and permission of instructor
Corequisites: None
Type: TUT
Accepted juniors pursue a specialized independent study leading to an honors thesis or project.

CSE 498 Undergraduate Research and Creative Activity
Credits: 1
Prerequisites: Permission of instructor
Corequisites: None
Type: TUT
Students collaborate with faculty research mentors on an ongoing project in a faculty member’s laboratory or conduct independent research under the guidance of a faculty member. This experience provides students with an inquiry based learning opportunity and engages them as active learners in a research setting.

CSE 499 Independent Study
Credits: 1
Prerequisites: permission of instructor, preferably during the previous semester
Corequisites: None
Type: TUT
Independent study in an area of computer science in which the student is particularly interested. May not be used to satisfy the requirements for the B.A. or B.S.

Cora Maloney College

CPM 101 Freshman Experience Seminar
Credits: 2
Prerequisites: First semester freshmen only
Corequisites: None
Type: SEM
Assists first year students with adjustment to the university and helps them develop a better understanding of themselves, UB, and each other. By the end of the course, students should come to appreciate the goals, methods and values of higher education; strive to become independent, motivated learners; establish a mentor relationship with a faculty or staff member on campus; endeavor to become part of a community of fellow learners; become familiar with campus resources and the services available; enhance their reading, writing, speaking, critical thinking, library, and study skills; evaluate their talents and interests in relation to career planning; and recognize and appreciate the rich cultural diversity of the university.

CPM 125 Social Photography I
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC/REC
(Required of students in the CPM 125 Social Photography major only - offered once a year.) Emphasizes resume writing, interview, researching employment opportunities, building a portfolio, networking, and job-hunting strategies. Emphasizes creative writing, verbal and written communication, and interview techniques. Integrates knowledge from lower-level courses to provide a learning experience that integrates knowledge from lower-level courses. Offered once a year.

CSE 250 USA & the Muslim World
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Analyzes media content and the constructions of images and perceptions with a sample inventory from news and film media. Explores students to investigate the role of the United States in world politics. Treats students as policy experts who form their own policies, and encourages open discussions. Students who are interested in current affairs and U.S. media, social and political conflicts of the world, international relations, and media study will find this course engaging and informative.

CPM 264 The Black Child in America
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Overview of important topics in understanding the development of African-American children in America. Examines current issues in child development regarding educational and psychological issues in Black child development, the social and economic status of African-American youth in America, and the strengths of Black families. Students also become familiar with cultural variations, and relate such variations within the Black community.

CPM 288 Selected Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Course topics vary by semester.

CPM 292 Work/Employment
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Assists students in developing and implementing job hunting strategies. Emphasizes resume writing, interviewing, researching employment opportunities in various industries and finding the right job in today’s competitive market. Supplements classroom lectures with guest speakers.

CPM 295 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Course topics vary by semester.

CPM 296 Welfare Impact on Inner-City Residents
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Addresses two main issues: the way in which the normal functioning of the American economic system and its value structure generate an impoverished class, and how governmental response to this class often serves as an instrument of social control.
Dance

THD 103 Performance Appreciation
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies theatre and dance performances and performers. Requires students to respond to both videotaped and live performances.

THD 111 Introduction to Body Movement I
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Develops movement awareness through body-mind exercises and basic technique. Emphasizes space, energy, and time in movement.

THD 112 Introduction to Body Movement II
Credits: 3
Prerequisites: THD 111 or permission of instructor
Corequisites: None
Type: SEM
Continuation of THD 111 with further development of basic techniques within the various disciplines.

THD 201 Modern Dance I
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Foundations course in basic movement concepts of time, space, and energy, emphasizing technical development and creative exploration.

THD 202 Modern Dance II
Credits: 3
Prerequisites: THD 201
Corequisites: None
Type: LEC
Foundations course in basic movement concepts of time, space, and energy, emphasizing technical development and creative exploration.

THD 210 Tap Dance 1
Credits: 2
Prerequisites: None
Corequisites: None
Type: LEC
Teaches the fundamentals of tap dance, including basic rhythmic structure and combinations at the elementary level.

THD 211 Tap Dance 2
Credits: 2
Prerequisites: THD 210
Corequisites: None
Type: LEC
Teaches the fundamentals of tap dance, including correct body alignment, basic barre and center work, and combinations at the elementary level.

THD 229 Tutorials in Dance
Credits: 1
Prerequisites: None
Corequisites: None
Type: LAB
For students who require additional study in a particular area.

THD 230 Beginning Pointe
Credits: 1
Prerequisites: permission of instructor
Corequisites: None
Type: LEC
An extension of ballet study using a blocked shoe. Introduces correct placement and use of the foot on pointe.

THD 231 Beginning Pointe
Credits: 1
Prerequisites: permission of instructor
Corequisites: None
Type: LEC
An extension of ballet study using a blocked shoe. Introduces correct placement and use of the foot on pointe.

THD 232 Introduction to Body Movement III
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Continuation of THD 211 with further development of basic techniques within the various disciplines.

THD 233 Jazz Dance I
Credits: 2
Prerequisites: THD 263 and permission of instructor
Corequisites: None
Type: LEC
Presents jazz forms, including barre and center work emphasizing these forms’ relationships to lineage-based societies, as well as to classical, contemporary, rock, and popular dance.

THD 234 Jazz Dance II
Credits: 2
Prerequisites: THD 263
Corequisites: None
Type: LEC
Presents jazz forms, including barre and center work emphasizing these forms’ relationships to lineage-based societies, as well as to classical, contemporary, rock, and popular dance.

THD 263 Jazz Dance I
Credits: 2
Prerequisites: None
Corequisites: None
Type: LEC
Presents jazz forms, including barre and center work emphasizing these forms’ relationships to lineage-based societies, as well as to classical, contemporary, rock, and popular dance.

THD 264 Jazz Dance II
Credits: 2
Prerequisites: THD 263
Corequisites: None
Type: LEC
Presents jazz forms, including barre and center work emphasizing these forms’ relationships to lineage-based societies, as well as to classical, contemporary, rock, and popular dance.

THD 279 Tutorials in Dance
Credits: 1
Prerequisites: permission of instructor
Corequisites: None
Type: LAB
For students who require additional study in a particular area.

THD 370 Tutorials in Dance
Credits: 1
Prerequisites: THD 264 or permission of instructor
Corequisites: None
Type: LAB
For students who require additional study in a particular area.

THD 371 Jazz Dance 3
Credits: 3
Prerequisites: THD 264 or permission of instructor
Corequisites: None
Type: LEC
A continuation of THD 263-THD 264. Expands the jazz dancer’s movement and performance vocabulary. Emphasizes classic jazz style and technique and its relationships to established musical jazz styles. Focuses heavily on classic Matt Mattos technique, combining neuromuscular coordination with warm-ups, locomotor skills, and combination work.

THD 372 Jazz Dance 4
Credits: 3
Prerequisites: THD 264 or permission of instructor
Corequisites: None
Type: LEC
A continuation of THD 263-THD 264. Expands the jazz dancer’s movement and performance vocabulary. Emphasizes classic jazz style and technique and its relationships to established musical jazz styles. Focuses heavily on classic Matt Mattos technique, combining neuromuscular coordination with warm-ups, locomotor skills, and combination work.

THD 373 Dance Studio—Zodiaque
Credits: 4
Prerequisites: audition only
Corequisites: None
Type: SEM
Provides performance experience in Zodiaque, the university’s resident dance company.

THD 374 Dance Studio—Zodiaque
Credits: 4
Prerequisites: audition only
Corequisites: None
Type: SEM
Provides performance experience in Zodiaque, the university’s resident dance company.

THD 375 Dance Studio
Credits: 1
Prerequisites: THD 264 or permission of instructor
Corequisites: None
Type: LAB
For students who require additional study in a particular area.

THD 376 Dance Studio
Credits: 1
Prerequisites: THD 264 or permission of instructor
Corequisites: None
Type: LAB
For students who require additional study in a particular area.

THD 377 Dance Studio
Credits: 1
Prerequisites: THD 264 or permission of instructor
Corequisites: None
Type: LAB
For students who require additional study in a particular area.

THD 378 Dance Studio
Credits: 1
Prerequisites: THD 264 or permission of instructor
Corequisites: None
Type: LAB
For students who require additional study in a particular area.

THD 379 Dance Studio
Credits: 1
Prerequisites: THD 264 or permission of instructor
Corequisites: None
Type: LAB
For students who require additional study in a particular area.

THD 380 Dance Studio
Credits: 1
Prerequisites: THD 264 or permission of instructor
Corequisites: None
Type: LAB
For students who require additional study in a particular area.

THD 381 Dance Studio
Credits: 1
Prerequisites: THD 264 or permission of instructor
Corequisites: None
Type: LAB
For students who require additional study in a particular area.

THD 382 Dance Studio
Credits: 1
Prerequisites: THD 264 or permission of instructor
Corequisites: None
Type: LAB
For students who require additional study in a particular area.

THD 383 Dance Studio
Credits: 1
Prerequisites: THD 264 or permission of instructor
Corequisites: None
Type: LAB
For students who require additional study in a particular area.

THD 384 Dance Studio
Credits: 1
Prerequisites: THD 264 or permission of instructor
Corequisites: None
Type: LAB
For students who require additional study in a particular area.

THD 385 Dance Studio
Credits: 1
Prerequisites: THD 264 or permission of instructor
Corequisites: None
Type: LAB
For students who require additional study in a particular area.

THD 386 Dance Studio
Credits: 1
Prerequisites: THD 264 or permission of instructor
Corequisites: None
Type: LAB
For students who require additional study in a particular area.

THD 387 Dance Studio
Credits: 1
Prerequisites: THD 264 or permission of instructor
Corequisites: None
Type: LAB
For students who require additional study in a particular area.

THD 388 Dance Studio
Credits: 1
Prerequisites: THD 264 or permission of instructor
Corequisites: None
Type: LAB
For students who require additional study in a particular area.

THD 389 Dance Studio
Credits: 1
Prerequisites: THD 264 or permission of instructor
Corequisites: None
Type: LAB
For students who require additional study in a particular area.

THD 390 Dance Studio
Credits: 1
Prerequisites: THD 264 or permission of instructor
Corequisites: None
Type: LAB
For students who require additional study in a particular area.

THD 391 Dance Studio
Credits: 1
Prerequisites: THD 264 or permission of instructor
Corequisites: None
Type: LAB
For students who require additional study in a particular area.

THD 392 Dance Studio
Credits: 1
Prerequisites: THD 264 or permission of instructor
Corequisites: None
Type: LAB
For students who require additional study in a particular area.

THD 393 Dance Studio
Credits: 1
Prerequisites: THD 264 or permission of instructor
Corequisites: None
Type: LAB
For students who require additional study in a particular area.

THD 394 Dance Studio
Credits: 1
Prerequisites: THD 264 or permission of instructor
Corequisites: None
Type: LAB
For students who require additional study in a particular area.

THD 395 Dance Studio
Credits: 1
Prerequisites: THD 264 or permission of instructor
Corequisites: None
Type: LAB
For students who require additional study in a particular area.

THD 396 Dance Studio
Credits: 1
Prerequisites: THD 264 or permission of instructor
Corequisites: None
Type: LAB
For students who require additional study in a particular area.

THD 397 Dance Studio
Credits: 1
Prerequisites: THD 264 or permission of instructor
Corequisites: None
Type: LAB
For students who require additional study in a particular area.

THD 398 Dance Studio
Credits: 1
Prerequisites: THD 264 or permission of instructor
Corequisites: None
Type: LAB
For students who require additional study in a particular area.

THD 399 Dance Studio
Credits: 1
Prerequisites: THD 264 or permission of instructor
Corequisites: None
Type: LAB
For students who require additional study in a particular area.
THD 372 Jazz Dance 4
Credits: 3
Prerequisites: THD 341; permission of instructor
Corequisites: None
Type: LEC
A continuation of THD 263 - THD 264. Expands the jazz dancer's movement and performance vocabulary. Emphasizes the jazz dancer's style of increased difficulty, variety, and complexity, and pays attention to technical precision, performance, and stylistic execution.

THD 373 Ballet 5
Credits: 3
Prerequisites: THD 41; permission of instructor
Corequisites: None
Type: LEC
A continuation of THD 34. Studies technique and style of increased difficulty, variety, and complexity, and pays attention to technical precision, performance, and stylistic execution.

THD 374 Tap 5
Credits: 3
Prerequisites: THD 417 or permission of instructor
Corequisites: None
Type: LEC
A continuation of THD 345 - THD 346. Studies technique and style of increased difficulty, variety, and complexity, and pays attention to technical precision, performance, and stylistic execution.

THD 375 Marimba 5
Credits: 3
Prerequisites: THD 419 or permission of instructor
Corequisites: None
Type: LEC
A continuation of THD 347 - THD 348. Studies technique and style of increased difficulty, variety, and complexity, and pays attention to technical precision, performance, and stylistic execution.

THD 376 Modern Dance 5
Credits: 3
Prerequisites: THD 418; permission of instructor
Corequisites: None
Type: LEC
A continuation of THD 346. Studies technique and style of increased difficulty, variety, and complexity, and pays attention to technical precision, performance, and stylistic execution.

THD 377 Contemporary Dance 5
Credits: 3
Prerequisites: THD 419; permission of instructor
Corequisites: None
Type: LEC
A continuation of THD 348. Studies technique and style of increased difficulty, variety, and complexity, and pays attention to technical precision, performance, and stylistic execution.

THD 380 Dance Studies 5
Credits: 3
Prerequisites: THD 41-THD 42, THD 341 or permission of instructor
Corequisites: None
Type: LEC
A continuation of THD 345 - THD 346. Studies technique and style of increased difficulty, variety, and complexity, and pays attention to technical precision, performance, and stylistic execution.

THD 381 Social Dance Forms 1
Credits: 3
Prerequisites: THD 201; THD 213 or THD 263; MTR 220 or permission of instructor
Corequisites: None
Type: LEC
Covers the history and performance of approximately fourteen early and contemporary social dances, including the pas de deux, mazurka, waltz, foxtrot, swing, tango, and Latin Caribbean dances.

THD 382 Social Dance Forms 2
Credits: 3
Prerequisites: THD 381 or permission of instructor
Corequisites: None
Type: LEC
Covers the history and performance of approximately fourteen early and contemporary social dances, including the pas de deux, mazurka, waltz, foxtrot, swing, tango, and Latin Caribbean dances.

THD 383 The Male Dancer
Credits: 1
Prerequisites: THD 214, dance majors, permission of instructor
Corequisites: None
Type: LEC
Studies the role of the male in dance. Includes character interpretation, upper body strength, elevation, pirouettes, and variations from the male dance repertory.

THD 384 Creative Movement
Credits: 3
Prerequisites: THD 341, THD 345, THD 371 or permission of instructor
Corequisites: None
Type: LEC
Explores the creative process in movement using simple through increasingly complex individual and group exercises. Prerequisite for THD 441.

THD 385 Tap 5
Credits: 3
Prerequisites: THD 407 or permission of instructor
Corequisites: None
Type: LEC
Explores the creative problem solving, mind-body integration, and the creative process in movement using simple through increasingly complex individual and group exercises. Prerequisite for THD 441.

THD 386 Mind-Body Integration
Credits: 3
Prerequisites: Theatre and dance majors, junior/senior standing
Corequisites: None
Type: LEC
Surveys systems of alignment, placement, movement efficiency, and tension reduction. Gives developing artists a strong movement foundation from which to build in their particular disciplines. Gives preference to theatre, dance, and music majors. Welcomes nonmajors on a space-available basis.

THD 387 Jazz Dance 5
Credits: 3
Prerequisites: THD 372 or permission of instructor
Corequisites: None
Type: LEC
Explores the art and craft of making dances. Studies the elements of dance composition, including the development of solo and group studies for class presentation.

THD 388 Choreography 2
Credits: 1
Prerequisites: THD 441, permission of instructor
Corequisites: None
Type: LEC
Explores the art and craft of making dances. Studies the elements of dance composition, including the development of solo and group studies for class presentation.

THD 415 Mind-Body Integration
Credits: 3
Prerequisites: THD 341, THD 345, THD 371, theatre and dance major or permission of instructor
Corequisites: None
Type: LEC
Examines the science of motion applied to dance and movement. Studies, in depth, the structure and function of the skeletal and muscular systems.

THD 432 Applied Kinesiology and Anatomy for Dancers
Credits: 3
Prerequisites: THD 341, THD 345, THD 371, theatre and dance major or permission of instructor
Corequisites: None
Type: LEC
Provides substantial study and scholarship in dance and related fields.

THD 479 Tutorials in Dance
Credits: 1
Prerequisites: permission of instructor
Corequisites: None
Type: TUT
For students who require additional study in a particular area.

THD 481 Research in Dance
Credits: 3
Prerequisites: permission of instructor by prior arrangement
Corequisites: None
Type: TUT
Provides substantial study and scholarship in dance and related fields.

THD 482 Research in Dance
Credits: 3
Prerequisites: permission of instructor by prior arrangement
Corequisites: None
Type: TUT
Provides substantial study and scholarship in dance and related fields.
THD 491 Variations
Credits: 1
Prerequisites: THD 341 or THD 342
Corequisites: None
Type: SEM
Studies and analyzes classical and contemporary solo dance variations from the works of major choreographers.

THD 492 Variations
Credits: 1
Prerequisites: THD 491
Corequisites: None
Type: SEM
Studies and analyzes classical and contemporary solo dance variations from the works of major choreographers.

THD 496 Internship - Dance Teaching
Credits: 1
Prerequisites: None
Corequisites: None
Type: TUT
Gives qualified students experience as teaching assistants or teaching interns.

THD 499 Independent Study
Credits: 1
Prerequisites: permission of instructor by prior arrangement
Corequisites: None
Type: LAB
Involves independent study at the undergraduate level.

Economics

ECO 181 Introduction to Macroeconomics
Credits: 4
Prerequisites: None
Corequisites: None
Type: LEC/DIS
Examines economic and social determinants of employment, inflation, business cycles, and growth; also considers policies for economic stabilization and full employment. May be taken independently of ECO 182.

ECO 182 Introduction to Microeconomics
Credits: 4
Prerequisites: None
Corequisites: None
Type: LEC/DIS
Examines economic analysis of the American labor movement from its beginnings in the early nineteenth century through the present day, and studies economic and social determinants of its development.

ECO 205 Money and Banking
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the theory of socialism, and its relation to socialism and historical trends, including capitalism, socialism, and mixed economies. Topics covered include market efficiency, rent-seeking, and regulation, and discussion of economic consequences of anarchy, democracy, and dictatorship.

ECO 211 Introduction to Health Economics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the relationship between the legal concept of equity and the economic concept of efficiency. Discusses efficiency with some reference to optimality and contrasts it with the goal of equity. Draws applications from criminal and accident law.

ECO 276 Law and Economics: Equity and Efficiency
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines regulatory controls in the U.S. economy and their effects on entry by firms into an industry. Considers prices, profits, and quantity produced; product quality; and competitive structure of an industry.

ECO 284 The Economics of Poverty
Credits: 3
Prerequisites: ECO 181, ECO 182 and MTH 121-MTH 122 or MTH 141-MTH 142
Corequisites: None
Type: LEC
Examines the relationship between the legal concept of equity and the economic concept of efficiency. Discusses efficiency with some reference to optimality and contrasts it with the goal of equity. Draws applications from criminal and accident law.

ECO 284 The Economics of Poverty
Credits: 3
Prerequisites: ECO 181, ECO 182 and MTH 121-MTH 122 or MTH 141-MTH 142
Corequisites: None
Type: LEC
Examines the relationship between the legal concept of equity and the economic concept of efficiency. Discusses efficiency with some reference to optimality and contrasts it with the goal of equity. Draws applications from criminal and accident law.

ECO 251 Government in the U.S. Economy
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the relationship between the legal concept of equity and the economic concept of efficiency. Discusses efficiency with some reference to optimality and contrasts it with the goal of equity. Draws applications from criminal and accident law.

ECO 251 Government in the U.S. Economy
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the theory of social security, and the economic and social structures of socialist economies within the context of social relations, including social conflict, state planning, workers' control, and economic development.

ECO 405 Microeconomic Theory
Credits: 3
Prerequisites: MTH 121-MTH 122 or MTH 141-MTH 142
Corequisites: None
Type: LEC
Intermediate level. Examines economic theory dealing with the economics of price determination, value, distribution, and competition.
ECO 406 Topics in Microeconomics
Credits: 3
Prerequisites: ECO 405
Corequisites: None
Type: LEC
Introduces new theories and applied topics in microeconomics beyond the basic subjects studied in ECO 405. Covers a broad range of imperfect markets, including monopoly, oligopoly, and monopolistic competition. Also covers topics in game theory, uncertainty, investment and capital markets, general equilibrium analysis, externalities and public goods, and markets with asymmetric information.

ECO 407 Macroeconomic Theory
Credits: 3
Prerequisites: MTH 121-MTH 122 or MTH 141-MTH 142
Corequisites: None
Type: SEM
Intermediate level. Uses economic theory to explain the causes of inflation, business fluctuations, unemployment, and economic growth.

ECO 408 Special Topics
Credits: 3
Prerequisites: ECO 405
Corequisites: None
Type: LEC
Topics vary according to instructor. Requires individual research.

ECO 411 Health Economics
Credits: 3
Prerequisites: ECO 405
Corequisites: None
Type: LEC
Investigates economic behavior of the health-care industry, including hospital services, physicians, and health insurance; and considers rationales for government intervention in planning and insuring.

ECO 412 Environmental Economics
Credits: 3
Prerequisites: ECO 405, ECO 407
Corequisites: None
Type: LEC
Examines uses of the natural environment; their respective costs and benefits (and distributions thereof), and the problem of policy design to optimize environmental use and quality.

ECO 416 Economic Development
Credits: 3
Prerequisites: ECO 405, ECO 407
Corequisites: None
Type: LEC
Studies the issues of poverty, economic development, and economic growth in low-income countries. Introduces diverse aspects of empirical findings in development and offers theories of development and policy implications.

ECO 418 Economics of East Asia
Credits: 3
Prerequisites: ECO 181, ECO 182 and MTH 121-MTH 122 or MTH 141-MTH 142
Corequisites: None
Type: SEM
Introduces new theories and applied topics in microeconomics beyond the basic subjects studied in ECO 405. Covers a broad range of imperfect markets, including monopoly, oligopoly, and monopolistic competition. Also covers topics in game theory, uncertainty, investment and capital markets, general equilibrium analysis, externalities and public goods, and markets with asymmetric information.

ECO 434 International Finance
Credits: 3
Prerequisites: ECO 407
Corequisites: None
Type: LEC
Introduces the international financial system, including the spot and forward foreign exchange markets; triangular arbitrage, currency futures, interest arbitrage, the balance of payments, fixed vs. flexible exchange rates, devaluation and the balance of trade, measuring and managing foreign exchange exposure, and import and export financing.

ECO 435 International Economics
Credits: 3
Prerequisites: ECO 405
Corequisites: None
Type: LEC
Covers the classical law of comparative advantage; modern theories of trade (including the Heckscher-Ohlin and specific-factor models of trade); growth and trade; international factor movements; multinational corporations; trade-related international organizations; the effects of trade policies with tariffs, quotas, and other instruments; preferential trading arrangements; and topics in economic integration. Also covers briefly the balance of payments, foreign exchange markets, and the international monetary system.

ECO 436 Marxian Economic Theory
Credits: 3
Prerequisites: ECO 181 and MTH 121-MTH 122 or MTH 141-MTH 142
Corequisites: None
Type: LEC
In-depth investigation of the Marxist theory of capitalism, centering on value and surplus value, accumulation of capital, and class struggle; also, this course considers the theory of pre-capitalist societies.
ECO 467 Economics and Game Theory
Credits: 3
Prerequisites: ECO 405, MTH 141-MTH 142
Corequisites: None
Type: LEC
Examines two- and N-person game theory, cooperative and noncooperative games, normal and extensive-form games, and complete and incomplete information games.

ECO 468 Economics of Sports
Credits: 3
Prerequisites: ECO 405, ECO 407
Corequisites: None
Type: LEC
Investigates economics of the sports industry; including league rules and formation, salaries of players, and TV and gate receipts as a general equilibrium model.

ECO 469 Industrial Organization
Credits: 3
Prerequisites: ECO 405
Corequisites: None
Type: SEM
Studies structure of industries and firms in American and other advanced economies; price and production policies; relationships among structure, competition, efficiency.

ECO 470 Economics of Regulation
Credits: 3
Prerequisites: ECO 405
Corequisites: None
Type: SEM
Analyzes the economic criteria for regulatory policies and the effects of regulation in various sectors of the economy.

ECO 476 Economics of Legal Relationships: Property Rights
Credits: 3
Prerequisites: ECO 405
Corequisites: None
Type: SEM
Analyzes the emergence of ownership and property relationships and the effects of these on the production and distribution of products; also compares different property rights systems.

ECO 480 Econometrics I
Credits: 4
Prerequisites: MTH 121-MTH 122 or MTH 141-MTH 142
Corequisites: None
Type: SEM/DIS
Covers measures of central tendency and spread in economic data, probability, binomial and normal distributions, estimation, confidence intervals, testing of hypotheses, and analysis of variance. Also introduces and applies simple two-variable regression to real-world data using computer software.

ECO 481 Econometrics II
Credits: 3
Prerequisites: ECO 480 or permission of instructor
Corequisites: None
Type: LEC
Involves an in-depth analysis of basic general linear regression and several of its commonly used variants which allow for dummy variables, interaction terms, serial correlation, and heteroscedasticity, among other things. Additional topics include estimation and forecasting in the context of econometric time-series models, as well as simultaneous equation models. The course also covers index numbers and Chi-Square tests of independence in contingency models. Emphasizes empirically implementing most of the models on real-world data using standard computer software.

ECO 482 Computational Econometrics
Credits: 3
Prerequisites: ECO 480; ECO 481 recommended
Corequisites: None
Type: LEC
Uses SAS to demonstrate ways to analyze economic data utilizing various econometric techniques. Topics covered include basic linear regression models, binary choice models, and time series and simultaneous equation models. SAS programs are run, using real data. No prior knowledge of SAS is necessary.

ECO 490 Monetary Theory
Credits: 3
Prerequisites: ECO 407
Corequisites: None
Type: LEC
Presents an advanced theory of money and its effect upon interest rates, prices, employment, and output.

ECO 493 Topics in International Economics
Credits: 3
Prerequisites: ECO 405, ECO 407
Corequisites: None
Type: LEC
Presents special topics of current interest, such as an overview of recent developments in trade theory, optimal trade and industrial policies in models with imperfect competition, issues in current trade negotiations, issues in services trade, global e-commerce, economic globalization, GATT and the WTO, free trade areas, customs unions, regionalism vs. multilateralism, the European Union (EU), and the future world monetary system.

ECO 495 Undergraduate Supervised Teaching
Credits: 3
Prerequisites: Details available at the department office
Corequisites: None
Type: TUT
Students who have at least junior status and satisfy the department's prerequisites may apply to serve as undergraduate teaching assistants for ECO 181 and ECO 182. Under the supervision of the professor, undergraduate teaching assistants lead discussion sections for the principles courses, reviewing core concepts and theories, answering questions from the students, and participating in the preparation of final grades.

ECO 496 Internship in Economics
Credits: 3
Prerequisites: ECO 405, ECO 407, and a minimum B average in economics
Corequisites: None
Type: TUT
Students arrange an internship in the private or public sector. As long as this position has a strong economics content, the student can apply to the director of undergraduate studies in economics for internship credit. Application must be made in advance and must be approved by the director of undergraduate studies.

ECO 498 Undergraduate Research
Credits: 3
Prerequisites: A minimum GPA of 3.0 in Economics and permission of the instructor
Corequisites: None
Type: TUT
Students with excellent records in Economics have the opportunity to participate in faculty research projects or to conduct their own original research under the supervision of a faculty mentor, thereby gaining first-hand experience in economic research. Interested students should consult the Director of Undergraduate Studies or, if known, the faculty person with whom they wish to conduct research.

ECO 499 Independent Study
Credits: 1
Prerequisites: B average in all economics courses taken, a written project proposal, and a faculty member's prior approval and sponsorship of the project.
Corequisites: None
Type: TUT
Involves development of an individual project of inquiry into an economics area of particular relevance to the student's interest, and in a topic or depth not currently offered through regular coursework.

Education Minor

LAI 205 Introduction to Child Development and Learning
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Intended for students contemplating a career in education. Provides information and a forum for discussion of American education. Among the topics covered are a brief history of American education, the learning environment, teachers, diverse learners (ethnically, economically, and of differing abilities), classroom management, and issues facing all schools. In addition, students become generally familiar with the New York State Learning Standards. A group school visit is also a course component as are 20 supervised classroom contact hours.

CEP 400 Educational Psychology
Credits: 3
Prerequisites: LAI 350 (if using for education minor)
Corequisites: None
Type: LEC/REC
Covers psychological principles and research relevant to educational practice, human growth and development, the learning process, educational measurement, individual differences, and mental health in the schools.

CEP 401 Introduction to Counseling
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Provides an overview of the counseling professions. Covers history and origins, theoretical approaches to counseling and psychotherapy, techniques, group counseling, marriage and family counseling, grief counseling, and vocational counseling.
CEP 404 Introduction to the Rehabilitation of Substance Abuse and Addiction

Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces the field of rehabilitation counseling and its application to substance abuse and addiction. Examines the social, psychological, and biological bases of addiction; assessment, diagnosis, and treatment issues; and understanding of the functional limitations of substance addiction, especially as they relate to work and independent living.

ELP 405 Sociology of Education

Credits: 3
Prerequisites: LAI 350
Corequisites: None
Type: LEC
Students examine and clarify a number of the important concepts and principles in terms of which core educational issues can be understood; e.g., intelligence and rationality, perception and bias, authority, and socialization. Students also explore common assumptions about knowledge, values, and human nature that underlie educational theories and practices. In addition, students examine the influence of diverse cultural perspectives, personal beliefs, and values on several essential aspects of teaching, e.g., an appreciation of distinctive learning styles, and the hidden curriculum.

LAI 414 Language, Cognition, and Writing

Credits: 3
Prerequisites: CEP 400, LAI 350
Corequisites: None
Type: SEM
Begins with an overview of theory and research in cognitive strategies and sociocognitive views of reading, writing, speaking and listening processes. The course then describes an approach to the teaching of reading and writing called sociocognitive views of reading, writing, speaking and listening processes. The weekly one-hour seminar guided learning experience as teachers in the Early Childhood Research Center. Offers students classroom experience at the Early Childhood Research Center. Includes a midterm report and a final design and naturalistic assessment are major components.

LAI 490 Seminar and Practicum in Early Childhood Programs

Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Aids in understanding diversity by preparing teachers to offer direct and indirect services to students within the full range of disabilities and special health-care needs in inclusive environments. Students are provided with techniques designed to enhance academic performance, classroom behavior, and social acceptance for students with disabilities and special needs. Students learn skills enabling them to (1) differentiate and individualize instruction for students with disabilities and special needs, (2) become familiar with instructional and assistive technologies, (3) implement multiple research-validated instructional strategies, (4) formally and informally assess learning of diverse students, (5) manage classroom behavior of students with disabilities and special needs, and (6) collaborate with others and resolve conflicts to educate students with disabilities and special needs.

LAI 474 Teaching the Exceptional Learner

Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Aids in understanding diversity by preparing teachers to offer direct and indirect services to students within the full range of disabilities and special health-care needs in inclusive environments. Students are provided with techniques designed to enhance academic performance, classroom behavior, and social acceptance for students with disabilities and special needs. Students learn skills enabling them to (1) differentiate and individualize instruction for students with disabilities and special needs, (2) become familiar with instructional and assistive technologies, (3) implement multiple research-validated instructional strategies, (4) formally and informally assess learning of diverse students, (5) manage classroom behavior of students with disabilities and special needs, and (6) collaborate with others and resolve conflicts to educate students with disabilities and special needs.

EE 101 Basic Electronics

Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces aspects of electrical engineering useful to all the engineering disciplines. Course material includes basic circuit analysis and networks, frequency response, elementary solid-state electronics, digital circuits, and energy conversion and transmission. Not intended for electrical or engineering physics majors. Students may not receive credit for this and EE 202.

EE 202 Circuit Analysis I

Credits: 4
Prerequisites: None
Corequisites: MTH 306, PHY 108
Type: LEC/REC
Systematic development of network analysis methods. Topics include resistive circuits, Kirchoff’s laws, equivalent subcircuits; dependent sources and op amps; loop and nodal analysis and duality; energy-storage elements; transient analysis of first-order and second-order circuits.

EE 203 Circuit Analysis II

Credits: 4
Prerequisites: EE 202
Corequisites: MTH 306, PHY 108
Type: LEC/REC
A continuation of EE 202. Brief review of basic concepts of time-domain circuit analysis; phasor analysis of steady-state ac circuits; complex power and three-phase systems; Laplace transform techniques and ‘s-domain’ circuit analysis; transfer function; linear circuit design. Selected problem assignments and a final design project require use of circuit analysis software tools.

EE 240 Nanotechnology, Engineering, and Science

Credits: 3
Prerequisites: PHY 108
Corequisites: PHY 257, MTH 241
Type: LEC/REC
Targeted at undergraduate students in the early stages of their education. The major goals and objectives are to provide second year students with knowledge and understanding of nanoelectronics as an important interdisciplinary subject. Through examples, exercises, and educational Java applets the course covers electromagnetic waves and quantum mechanics, including the quantum-mechanical origin of the electrical and optical properties of materials and nanostructures, chemically-directed assembly of nanostructures, biomolecules, traditional and nontraditional methods of nanolithography, and interactions between electronic and optical properties, as well as forefront topics such as organic heterostructures, nanotubes, and quantum computing.

EE 303 Signal Analysis and Transform Methods

Credits: 4
Prerequisites: EE 203
Corequisites: None
Type: LEC/REC
Analyzes linear, discrete-, and continuous-time signals and systems. Topics include Laplace and z-transforms; Fourier analysis; sampling.

EE 310 Electronic Devices and Circuits I

Credits: 3
Prerequisites: EE 202
Corequisites: EE 312 or EE 352
Type: LEC/REC
Electronic devices, including operational amplifiers, diodes, bipolar junction transistors and field-effect transistors, the basic circuits in which these devices are used, and computer-aided circuit analysis for these devices and circuits.

EE 311 Electronic Devices and Circuits II

Credits: 3
Prerequisites: EE 310
Corequisites: None
Type: LEC/LAB
Differential and multistage amplifiers with bipolar junction transistors (BJT) and field-effect transistors (FET). Biasing in integrated circuits and active loads. Frequency response of common-emitter (common-source), common-base (common-gate), common-collector (common-drain) single BJT (FET) stages. Frequency response of differential-pair, cascode, and multistage circuits. Selection of coupling and bypass capacitors. Analog integrated circuits. Metal-Oxide-Semiconductor (MOS) digital circuits with emphasis on CMOS.
EE 312 Basic Electronic Instrumentation Laboratory
Credits: 2
Prerequisites: EE 202
Corequisites: EE 310
Type: LEC/LAB
Trains students how to design, build, diagnose, and characterize electronic circuits. Topics include instrumentation, semiconductor devices, and electronic circuits. Covers both analog and digital circuits. Laboratory projects include filters, operational amplifiers, power supply, MOSFET amplifier, BJT amplifier, logic gates, timing, and counters.

EE 324 Applied Electromagnetics
Credits: 4
Prerequisites: EE 202, MTH 241, PHY 108
Corequisites: None
Type: LEC/REC
Topics include vector calculus; electric fields; charge distributions; dielectrics; energy, forces in the presence of dielectrics; Laplace’s and Poisson’s equations; magnetostatics; Faraday’s induction law; time-dependent phenomena; waves.

EE 342 Nanotechnology Engineering and Science Lab
Credits: 1
Prerequisites: EE 240 and MTH 241
Corequisites: None
Type: LAB
The laboratory course consists of ten experiments, divided into two groups: five Scanning Probe Microscope experiments and five experiments devoted to phenomena that form the basis for modern Nanoelectronics and Nanotechnology. A complete set of laboratory experimental modules delivers to students a hands-on experience in this field.

EE 352 Introduction to Electronics Lab
Credits: 3
Prerequisites: EE 202 and EE 203
Corequisites: EE 310
Type: LEC/LAB
Trains students how to design, build, diagnose, and characterize electronic circuits. Topics include instrumentation, semiconductor devices, and electronic circuits. Covers both analog and digital circuits. Laboratory projects include filters, operational amplifiers, diodes, power supply, ac power control, MOSFET amplifier, BJT amplifier, logic gates, timing, and counters.

EE 353 Electronic Circuits Lab
Credits: 3
Prerequisites: EE 352
Corequisites: EE 311
Type: LEC/LAB
An engineering design lab. Fifty-minute lecture and 230-minute lab per week. Involves analyzing and designing single and multistage electronic circuits using FETs, BJTs, and op amps. Asks students to design a variety of amplifiers to meet certain specifications. They practice SPICE and use their knowledge of analog circuits to complete the projects.

EE 378 Digital Principles
Credits: 3
Prerequisites: EE 202
Corequisites: EE 310
Type: LEC
Topics include number systems; arithmetic; codes; Boolean algebra; minimization techniques; logic design; programmable logic devices; memory devices; registers; counters; synchronous sequential networks.

EE 401 RF and Microwave Circuits I
Credits: 3
Prerequisites: EE 203
Corequisites: None
Type: LEC
The first of a two-course sequence in the area of RF and microwave circuit design. Initial topics include transmission line equations, reflection coefficient, VSWR, return loss, and insertion loss. Examples include impedance matching networks using lumped elements, single-section and multi-section quarter wave transformers, single-stub and double-stub tuners, the design of directional couplers, and hybrids. There is a student design project for a planar transmission line circuit based upon the software package Microwave Office. The design is fabricated and tested.

EE 403 Introduction to Plasma Processing
Credits: 3
Prerequisites: MTH 242 or MTH 306; PHY 108
Corequisites: None
Type: LEC
Introduces plasma processing including plasma deposition, plasma etching, gaseous electronics, gas lasers and plasma materials processing. Topics include basic atomic theory, elementary kinetic theory of gases, motion of charges in electric and magnetic fields, plasma properties, plasma generation and devices, plasma-surface interactions, electrodes and discharge characteristics, plasma diagnostics and plasma simulation. Students prepare web-based presentations in current plasma technologies with focus on applications in electrical engineering field.

EE 408 Senior Seminar
Credits: 1
Prerequisites: None
Corequisites: None
Type: SEM
Covers the ethical, social, economic, and safety considerations in engineering practice essential for a successful engineering career.

EE 410 Electronic Instrument Design I
Credits: 4
Prerequisites: EE 310
Corequisites: None
Type: LEC/LAB
Design of electronic instruments, with emphasis on the use of analog and digital integrated circuits. Topics include techniques for precise measurements; sensors and their use for measurement of temperature, displacement, light, and other physical quantities; active and passive signal conditioning; and power supplies. Individuals or groups design and demonstrate an instrument, and provide a written report.

EE 413 Communication Electronics
Credits: 4
Prerequisites: EE 352 and EE 353
Corequisites: None
Type: LEC/LAB
Examines operation and signaling in communications systems with a strong emphasis on circuits. Covers radio frequency systems (AM, FM, TV), telephone switching systems, microwave/wireless systems, fiber optics, modulation schemes, coding, multiplexing/demultiplexing, protocols, and networking. Discusses both analog and digital/data communication systems. Requires students to complete a capstone design project.

EE 415 Microelectromechanical Systems
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Intended for first-year graduate students. Silicon-based integrated MEMS promise reliable performance, miniaturization and low-cost production of sensors and actuators with applications in data storage, biomechanical systems, inertial navigation, micromanipulation, optical display and microfluid jet systems. The course covers such subjects as materials properties, fabrication techniques, basic structure mechanics, sensing and actuation principles, circuit and system issues, packaging, calibration, and testing.

EE 416 Signal Processing Algorithms
Credits: 3
Prerequisites: EE 303 or permission of instructor
Corequisites: EAS 305
Type: LEC/REC
Signals and samples, the z-transform. The discrete Fourier transform. Frequency and time-domain response of filters. Digital filter design, FIR and IIR filters. Digital filter structures. Multi-rate filters and signals. Fast convolution and correlation algorithms. Interdisciplinary aspects: VLSI for DSP; SAW and CCD devices; computational aspects. Heavy design experience with signal processing software. Students are expected to complete several design studies and a final project in the areas of digital filter design and signal processing algorithms. Matlab or similar packages are to be used both in the design process as well as in verification of design objectives.

EE 418 Quantum Mechanics for Engineers
Credits: 3
Prerequisites: Senior Standing
Corequisites: None
Type: LEC
Relation to classical mechanics, wave properties, Schrödinger equation, finite barrier potentials, tunneling, perturbation theory, nano-scale devices.

EE 419 Industrial Control Systems
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC/REC
An application-oriented course to introduce students to the basic principles and concepts employed in analysis and synthesis of modern-day analog and microcomputer control systems. Topics include: review of vectors, matrices, and Laplace transforms, followed by introduction to block diagram, signal flow graph, and state-variable representation of physical systems, network and linear graph techniques of system modeling; time-domain, frequency domain, and state-space analysis of linear control systems, control concepts in multivariable systems, hierarchy of control structures, design of analog and digital controllers.

EE 421 Semiconductor Materials
Credits: 3
Prerequisites: EE 310
Corequisites: None
Type: LEC
Reviews semiconductor materials properties that are important for device operation. Also, discusses semiconductor devices along with important materials properties for each device. Reviews the device models employed in SPICE circuit simulations. Uses several SPICE simulation projects to learn about the SPICE device models and about the effect of materials properties on the device performance and circuit operation. Devices covered are: pn junction diode; SPICE pn junction diode models and model parameters; MOS field effect transistor, MOSFET models and model parameters; CMOS integrated circuits; bipolar transistor fundamentals; SPICE BJT models and model parameters; MS junction; mesfet; jfet; SPICE models; PSPICE or HSPICE simulations of semiconductor devices.
EE 422 Nanomaterials
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
The recent emergence of fabrication tools and techniques capable of constructing nanometer-sized structures has opened up numerous possibilities for the development of new devices with size domains ranging from 0.1 - 50 nm. The course introduces basic single-charged electronics, including quantum dots and wires, single-electron transistors (SETs), nanoscale tunnel junctions, and so forth. Giant magnetoresistance (GMR) in multilayered structures are presented with their applications in hard disk heads, random access memory (RAM) and sensors. Discusses optical devices including semiconductor lasers incorporating active regions of quantum wells and self-assembled formation of quantum-dot-structures for new generation of semiconductor layers. Finally, devices based on single- and multi-walled carbon nanotubes are presented with emphasis on their unique electronic and mechanical properties that are expected to lead to ground breaking industrial nanodevices. The course also includes discussions on such fabrication techniques as laser-ablation, magnetron and ion beam sputter deposition, epitaxy for layer structures, rubber stamping for nanoscale wire-like patterns, and electroplating into nanoscale porous membranes.

EE 424 Introduction to Nanoelectronics, Nanostructure Physics, and Applications
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Covers 2-D electron systems, quantum wires and dots, ballistic transport, quantum interference, and single-electron tunneling.

EE 425 Electrical Devices I
Credits: 4
Prerequisites: EE 203 or EE 324
Corequisites: None
Type: LEC/LAB
Principles of electromagnetic energy conversion with applications to motors and generators. Topics include magnetic circuits, transformers, hysteresis, field energy, dc and ac motors. Students learn the basic fundamentals of electro-mechanical energy conversion. Design project with laboratory validation accounts for 50% of grade.

EE 428 BioMEMS and Lab-on-a-Chip
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Covers various commonly used micro/nanofabrication techniques, microfluidics, various chemical and biochemical applications such as separation, implantable devices, drug delivery, and microsystems for cellular studies and tissue engineering. Discusses recent and future trends in BioMEMS and nanosensors. Students will gain a broad perspective in the area of micro/nano systems for biomedical and chemical applications.

EE 429 Introduction to Electromagnetic Compatibility
Credits: 3
Prerequisites: None
Corequisites: EE 324
Type: LEC
EMC deals with interference in electronic systems. For senior and first-year graduate students and industrial professionals who have an interest in designing electronic systems that comply with current commercial and military standards on EMC such as the FCC Part 15 and CISPR 22. Both specify limits on radiated and conducted emissions for digital devices which are defined as any electronic device that has digital circuitry and uses a clock signal in excess of 9 kHz. Student projects designed in electronic instrumentation classes without consideration of the limits imposed by these standards would fail to meet the current standards and as a result could not be marketed in the United States or Europe.

EE 430 Fundamentals of Solid State Devices
Credits: 3
Prerequisites: EE 421
Corequisites: None
Type: LEC
Develops an understanding of the operation of different semiconductor devices, starting from a quantitative knowledge of semiconductor properties.

EE 431 Photonic Devices
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Fabrication technology for microelectronic devices: crystal growth, wafer fabrication and characterization, mask fabrication, epitaxy, lithography, etching, diffusion, CVD, ion implantation, dc and RF plasma reactors (operating principles and fabrication applications), packaging, Operation of microelectronic devices (interconnects, passive devices, and MOS and BJT devices), optical, optical devices (CDR, etc.) and micro electro-mechanical devices (micro-motors, micro-mirror arrays, etc.). Students select a part of the fabrication process (lithography, diffusion, etc.) and use simulation code to design that step of the process to achieve specific device properties.

EE 432 BioMEMS and Lab-on-a-Chip
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Covers various commonly used micro/nanofabrication techniques, microfluidics, various chemical and biochemical applications such as separation, implantable devices, drug delivery, and microsystems for cellular studies and tissue engineering. Discusses recent and future trends in BioMEMS and nanosensors. Students will gain a broad perspective in the area of micro/nano systems for biomedical and chemical applications.

EE 435 Java Applet Modeling for Visual Engineering Simulation
Credits: 3
Prerequisites: Experience in programming with a high-level language (e.g., C)
Corequisites: None
Type: LEC
Object-oriented analysis, design and programming. Introduces Java syntax, application programmers interface (API), object-oriented programming concepts including encapsulation, inheritance, and polymorphism, and multi-threaded programming including thread synchronization and control. Also introduces graphical programming API and effective graphical programming techniques. Applies all these concepts and techniques to the student-chosen, engineering simulation projects. Emphasizes software engineering processes such as architectural design, unit refinement cycles and code reuse throughout the semester. For the project, requires students to develop a reusable class library consisting of at least three packages: a graphical drawing package, a problem simulation package, and a visual presentation package.

EE 441 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Topics and instructors vary by semester.

EE 448 Microelectronic Device Fabrication
Credits: 3
Prerequisites: EE 311
Corequisites: None
Type: LEC
Fabrication technology for microelectronic devices: crystal growth, wafer fabrication and characterization, mask fabrication, epitaxy, lithography, etching, diffusion, CVD, ion implantation, dc and RF plasma reactors (operating principles and fabrication applications), packaging, Operation of microelectronic devices (interconnects, passive devices, and MOS and BJT devices), optical, optical devices (CDR, etc.) and micro electro-mechanical devices (micro-motors, micro-mirror arrays, etc.). Students select a part of the fabrication process (lithography, diffusion, etc.) and use simulation code to design that step of the process to achieve specific device properties.

EE 449 Analog Integrated Circuit Layout
Credits: 3
Prerequisites: EE 311
Corequisites: None
Type: LEC
Introduces analog integrated circuit fabrication and layout design for analog VLSI. Covers: representative IC fabrication processes (standard bipolar, CMOS and analog BC MOS); layout principles and methods for MOS transistors and device matching; resistors and capacitors layout; matched layouts of R and C components; bipolar transistors and bipolar matching; and diodes. Also reviews several active-loaded analog amplifier circuits, focusing on CMOS and BiCMOS op amp configuration. Requires a term project on the layout design of simple op amp circuits involving CMOS or BiCMOS op amps plus several matched devices of resistors, capacitors and transistors. Students design circuits using SPICE simulations. The student term project is to be fabricated through MOSIS.

EE 450 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Topics and instructors vary by semester.

EE 453 Microelectronic Fabrication Lab
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC/LAB
Provides students with the experience of fabricating a semiconductor device. Students become versed in fabrication techniques used in the microelectronics industry. Required student activities include mask design, chemical processing, operation of clean room equipment, and testing of the final device. Also requires a report.

EE 455 Photonic Devices
Credits: 3
Prerequisites: EE 311
Corequisites: None
Type: LEC
First, discusses the basics of p-n junctions including current flow, and recombination. In addition, discusses solar cell fundamentals, heterojunctions, metal-insulator-semiconductor devices, design, and recent advances. The course ends with a discussion of photodetector principles, design, and applications.
EE 456 RF and Microwave Circuits II
Credits: 3
Prerequisites: EE 401 or permission of instructor
Corequisites: None
Type: LEC
The second course of a two-course sequence in the area of RF and microwave circuit design. Topics covered are filters, resonators, detectors, mixers, amplifiers, and microwave systems. Microwave Office is used for CAD analysis of circuits. Students design, construct, fabricate, and measure the performance of a microstrip resonator, a microstrip or stripline directional coupler, and a filter.

EE 458 RF/Microwave Laboratory
Credits: 3
Prerequisites: EE 401 or EE 429 or permission of instructor
Corequisites: None
Type: LAB/REC
Covers RF & microwave measurement techniques in the 1 MHz to 18 GHz frequency region. Topics include basic measurement systems, including attenuators, directional couplers, power dividers, terminations, power sensors, solid-state detectors, mixers, power meters, and signal generators; measuring the reflection and transmission coefficients at discrete frequencies; making similar measurements (magnitude only) over a band of frequencies using a swept power measurement system consisting of a spectrum analyzer with tracking generator; vector measurements (magnitude and phase) versus frequency using RF & microwave automatic network analyzers.

EE 459 Special Topics in Electrical Engineering
Credits: 3
Prerequisites: permission of instructor and student’s advisor
Corequisites: None
Type: LEC
Special topics of particular recent interest not covered in the standard curriculum. Requires dual registration in department office.

EE 460 Current Research Topics of Power Modulation Applications
Credits: 3
Prerequisites: permission of instructor and student’s advisor
Corequisites: None
Type: LEC
Involves a design project based on electric energy systems that specifically address power modulation applications and that are firmly based on the fundamentals needed to become a successful engineer. Students form Integrated Project Teams (IPTs) to work on the capstone project and answer all the questions that will be required of them when they leave the academic environment. Students are challenged to incorporate engineering standards and realistic constraints that include the economy, environment, sustainability, manufacturability, ethical considerations, health and safety issues, social issues, and politics as stated by ABET. Both technical reports and technical presentations are required of IPT participants.

EE 462 Principles of Medical and Radar Imaging
Credits: 3
Prerequisites: EE 303
Corequisites: None
Type: LEC
Applications of multidimensional signal theory and Fourier analysis. Topics include review of signal processing tools and systems used in array imaging, including coherent receivers, pulsed and continuous wave signaling, temporal Doppler phenomena, and monostatic, quasi-monostatic, bistatic transmitters/receivers, and 2-D signal processing; examining specific array imaging systems, including phased array imaging, synthetic aperture (SAR and ISAR) imaging, passive array imaging, and bistatic array imaging with emphasis on transmission imaging problems of diagnostic medicine and geophysical exploration.

EE 465 Current Research Topics of Pulsed Power Applications
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC/LAB
Involves a design project based on pulsed power that utilizes the fundamentals needed to become a successful engineer in the business world. Pulsed power focuses on achieving high peak powers by impulse and rep-rate methods. Topics in this area of research include switching, surface flashover of insulators, and other related areas. Students form Integrated Project Teams to work on their projects and address the relevant issues in a multidisciplinary (electrical engineering) team. Student grades are based on peer reviewed effort, technical reports, and oral presentations.

EE 467 High-Voltage Engineering
Credits: 3
Prerequisites: EE 203, EE 482
Corequisites: None
Type: LEC
Fourier transforms and spectra; linear filters; transmission of signals through linear systems; bandwidth signals; bandwidth systems; continuous wave modulation; amplitude modulation (AM); double sideband modulation (DSB); single sideband modulation (SSB), phase modulation (PM); frequency modulation (FM); quadrature amplitude modulation (QAM); frequency division multiplexing (FDM); demodulation of analog modulated signals; random variables; statistical averages; random processes; autocorrelation and power spectral density; stationarity; transmission of random processes through linear systems; white noise; colored noise; Gaussian noise; noise in continuous wave modulation systems; signal-to-noise ratio (SNR); sampling; pulse amplitude modulation (PAM).

EE 480 Biomedical Electronics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Covers the principles and designs of various important biomedical instruments including pacemaker, EEG, ECG, EMG, and ICU equipment and diagnostic imaging devices (such as blood bank monitor), CT, MRI, mammography, ultrasound, endoscope, confocal microscope, and multi- photon non-linear microscope (2-photon fluorescent, SHG and THG). Imaging devices (e.g., CCDs) and medical image processing are also covered. Includes a general introduction to biological systems; emphasizes the structural and functional relationship between various biological compartments.

EE 482 Power Systems Engineering I
Credits: 4
Prerequisites: EE 203 or EE 324
Corequisites: None
Type: LEC/LAB
Surveys the field of modern energy systems, with the foundation being classical electrical power and related power electronics. Topics include complex power, per unit analysis, transmission line parameters, and compensation. Students also study alternative energy systems in this course. Course also includes use of a Power Simulation Program in which modeling can be done. This program is also used for the final system design project paper which accounts for 50% of the course grade.

EE 483 Communications Systems I
Credits: 3
Prerequisites: EE 303
Corequisites: EAS 305
Type: LEC/LAB
Fourier transforms and spectra; linear filters; transmission of signals through linear systems; bandwidth signals; bandwidth systems; continuous wave modulation; amplitude modulation (AM); double sideband modulation (DSB); single sideband modulation (SSB), phase modulation (PM); frequency modulation (FM); quadrature amplitude modulation (QAM); frequency division multiplexing (FDM); demodulation of analog modulated signals; random variables; statistical averages; random processes; autocorrelation and power spectral density; stationarity; transmission of random processes through linear systems; white noise; colored noise; Gaussian noise; noise in continuous wave modulation systems; signal-to-noise ratio (SNR); sampling; pulse amplitude modulation (PAM).

EE 484 Communications Systems II
Credits: 3
Prerequisites: EE 483
Corequisites: None
Type: LEC
Topics include review of PAM, PWM, PPM-pulsed modulation techniques; principles of digital communications; pulse code modulation; signal quantization; binary communications systems; M-ary communications systems; detection and parameter estimation for pulses in noise; the likelihood ratio receiver; and applications to radar signal processing.

EE 488 VLSI Devices
Credits: 3
Prerequisites: EE 311
Corequisites: None
Type: LEC
Device fundamentals of CMOS field effect transistors and BiCMOS bipolar transistors. Device parameters and performance factors important for VLSI devices of deep-submicron dimensions. Reviews silicon materials properties, basic physics of p-n junctions and MOS capacitors, and fundamental principles of MOSFET and bipolar transistors. Design and optimization of MOSFET and bipolar devices for VLSI applications. Discusses interdependence and trade-offs of device parameters pertaining to circuit performance and manufacturability. Also discusses effects in small-dimension devices: quantization in surface inversion layer in a MOSFET device, heavy-doping effect in the bipolar transistor, etc.

EE 489 Lasers and Photonics
Credits: 4
Prerequisites: EE 311
Corequisites: None
Type: LEC/LAB
Topics include an introduction to lasers and photonics; a short review of electromagnetic theory; ray tracing and lens systems; polarization of light and polarization modulators; Gaussian beams and wave propagation; optical resonators and cavity stability; spontaneous emission, stimulated emission and absorption; rate equations for gain medium; population inversion; characteristics and applications of specific lasers; waveguides and fiber optics; fiber optic communications systems; electro-optic modulators; and acoustic-optic modulators. Requires students to complete a project focusing on the design of a laser system including choice of gain medium, cavity optics, pumping mechanism, power and efficiency estimates, and cost analysis. Requires reports and presentations.
this phenomenon through the centuries. Documentation of the development of a dozen cultures, especially Arabic and Examination of the medieval literary ori

Corequisites: None

Prerequisites: None

Credits: 3

EE 497 Departmental Honors Thesis or Project

Credit: 3

Prerequisites: None

Corequisites: None

Type: TUT

Literature of Britain and Ireland, from the beginnings to the late eighteenth century.

EE 497 Departmental Honors Thesis or Project

Credit: 3

Prerequisites: None

Corequisites: None

Type: TUT

Literature of Britain and Ireland, from the late eighteenth century to the present.

EE 498 Undergraduate Research and Creative Activity

Credit: 3

Prerequisites: None

Corequisites: None

Type: TUT

Literature of the United States, from its beginnings to the Civil War.

EE 499 Independent Study

Credit: 1

Prerequisites: permission of instructor and student's advisor

Corequisites: None

Type: TUT

Independent study allows individualized guidance of a faculty member; allows students to study a particular topic that is not offered in the curriculum but is of interest to both the student and faculty member. Requires dual registration in department office.

EE 490 Consumer Optoelectronics

Credits: 4

Prerequisites: None

Corequisites: None

Type: LEC/LAB

Introduces optoelectronic systems. This design course emphasizes the interaction of optics, lasers, mechanics, electronics, and programming. It requires students design an optoelectronic system with a strong emphasis on team learning and teaching. Some topics of interest include: design methodology; team dynamics; light sources and detectors; light propagation; lenses and mirrors; electro optics; interaction of light with materials; nonlinear optics for harmonic generation; optical detection and modulation; and discussion of selected optoelectronic devices and applications such as CD players, DVD, display systems, semiconductor lasers and light emitting diodes, laser printers, barcode scanners, digital cameras, optical coherence tomography, flow cytometry, interferometric systems and optical communications. Requires project proposal, progress reports and presentations and final written reports and presentations.

EE 491 Analog Circuits

Credits: 3

Prerequisites: EE 311

Corequisites: None

Type: LEC

Focuses on the analysis, design, simulation and mask-level chip layout of integrated analog circuits and systems. Begins with a brief review of MOSFET operation and large and small signal models. Much of the course involves designing and analyzing analog building blocks such as current mirrors, transconductance amplifiers, capacitors, multipliers, current mirrors and D/A and A/D circuits. Simultaneously, the course covers IC design and layout techniques and system analysis. It concludes by looking at sensor applications. Requires a final project consisting of a complete IC layout. Students may have the opportunity to fabricate their final project through MOSIS.

EE 494 Senior Capstone Design Project

Credits: 3

Prerequisites: senior standing or permission of instructor

Corequisites: None

Type: SEM

Students design a useful device or product based on knowledge acquired in previous electrical engineering courses. Students have the option of creating their own projects or selecting projects from a list suggested by industrial and faculty sources.

EE 495 Undergraduate Supervised Teaching

Credits: 3

Prerequisites: None

Corequisites: None

Type: TUT

Examination of the medieval literary origins of modern conceptions of romantic love. Primarily lyric and epic texts from a dozen cultures, especially Arabic and Persian, Provençal, Italian, and German. Documentation of the development of this phenomenon through the centuries.

Engineering (SEAS)

EAS 140 Engineering Solutions

Credits: 3

Prerequisites: None

Corequisites: None

Type: LEC/LAB

A first course in engineering. Introduces students to engineering design used to solve technologically based problems in the various fields of engineering, and develops computer skills for problem solving using MAPLE, spreadsheets, network file transfer, remote login, e-mail, UNIX, and algorithmic problem-solving approaches.

EAS 207 Statics

Credits: 3

Prerequisites: PHY 107, MTH 142

Corequisites: MTH 241

Type: LEC/REC

Applies mechanics to studying static equilibrium of rigid and elastic bodies. Topics include composition and resolution of forces, moments and couple, equivalent force systems, free-body diagrams, equilibrium of particles and rigid bodies, forces in trusses and beams, friction forces, first and second moments of area, moments and product of inertia, and methods of virtual work and total potential energy.

EAS 208 Dynamics

Credits: 3

Prerequisites: EAS 207, MTH 241

Corequisites: MTH 306

Type: LEC/REC

Applies mechanics to studying the motion of particles and rigid bodies. Topics include kinematics and kinetics of particles, relative motion, work-energy methods, impulse-momentum methods, kinematics and kinetics of rigid bodies, and simple vibration.

EAS 209 Mechanics of Solids

Credits: 3

Prerequisites: EAS 207, MTH 241

Corequisites: MTH 306

Type: LEC/REC

Studies the mechanical behavior of solid bodies under various types of loading. Topics include stresses and strain, stress-strain relationships, plane stress and plane strain; shear and bending moments in beams, stresses in beams; deflection of beams, torsion of shafts, buckling of columns, energy methods, and failure criteria.

EAS 230 Higher-Level Language

Credits: 3

Prerequisites: EAS 140 or permission of instructor

Corequisites: MTH 142 or equivalent

Type: LEC/LAB

A second course in computer technology. Develops detailed knowledge of a higher-level programming language for solution of engineering problems. Extends the knowledge developed initially in EAS 140.

EAS 305 Applied Probability

Credits: 4

Prerequisites: MTH 241

Corequisites: None

Type: LEC/REC

Introduces probability and its application to engineering problems. Examines sample space, random variables, expected values, limiting theorems, error analysis, and provides introduction to random processes. Students may not receive credit for this course and EAS 308.

EAS 396 Engineering Career Institute

Credits: 1

Prerequisites: junior standing in engineering

Corequisites: None

Type: LEC

Provides one academic credit for pre-employment classes with instruction on how to conduct a successful student employment job search. The semester culminates with one week [30 hours] of presentations from industrial managers on essential career-success subjects such as leadership, communication, teamwork, total quality management, and value engineering. This course enables students to obtain engineering credit-worthy employment along with the business success skills needed to be effective on the job. Subsequent to this course, students with jobs will enroll in EAS 496, Engineering Co-op.

EAS 451 Modern Methods of Engineering Computations

Credits: 3

Prerequisites: MTH 306

Corequisites: None

Type: LEC

Introduces engineering analysis, emphasizing computer use to solve linear and nonlinear problems arising in all branches of engineering. Assignments require familiarity with a high-level programming language or mathematical software such as MATLAB. Topics include matrix operations, eigenvalues, initial-value and boundary-value problems, optimization, and introduction to numerical solution of partial differential equations.

EAS 480 Technical Communications for Engineers

Credits: 3

Prerequisites: upper-division standing in engineering

Corequisites: None

Type: LEC

Presents skills for producing clear, concise engineering communications, both written and oral. Focuses on the most frequently required communications—reports, memos, letters, and proposals. As a semester-long project, students write a proposal and then present it orally. Covers selecting and organizing information; writing efficiently; using easy-to-read language and formats; and adapting communications to peers, employers, clients, and other audiences.

EAS 496 Internship

Credits: 3

Prerequisites: None

Corequisites: None

Type: TUT

Literature of Britain and Ireland, from the beginnings to the late eighteenth century.
EAS 483 Engineering Procedure Writing
Credits: 3
Prerequisites: upper-division standing in engineering
Corequisites: None
Type: LEC
With the quality movement of the 1980s and 1990s, customers are requiring proof of a quality system. Companies provide this proof with procedures. In addition to proof of a quality system, procedures are used for training, standardizing a job, record keeping, and continuously improving a process. Teaches students how to write and manage effective procedures. Focuses on developing the technical and workplace tools an engineer uses to write procedures. As a semester-long project, the course requires students to write a procedure for a real-life company. Covers the following phases of developing a procedure: performing a needs analysis, investigating a process, organizing information, writing efficiently, editing, and validating a procedure. Also teaches students about the latest procedure compliance standards widely in industry (e.g., ISO9000). Highlights include a field trip and guest speakers from industry.

EAS 496 Engineering Co-op
Credits: 2
Prerequisites: senior standing in engineering
Corequisites: None
Type: TUT
Up to three work periods of engineering-related employment. Co-op students are employed full-time on paid, credit-worthy technical assignments in industry, with emphasis on practical application of engineering coursework. While each student is registered for two credit hours, full-time status at the University is afforded the student. This protects the student's insurance, loan and possible INS status. The course goal is to provide valuable experience for students, while making positive contributions to employers. This win/win combination is designed to enhance participating students' employment opportunities upon commencement.

EAS 498 Undergraduate Research and Creative Activity
Credits: 1
Prerequisites: permission of Instructor
Corequisites: None
Type: TUT
Students collaborate with faculty research mentors on an ongoing faculty research project or conduct independent research under the guidance of a faculty member. This experience provides students with an inquiry-based learning opportunity and engages them as active learners in a research setting.

ENG 101 Writing 1
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
First semester of the General Education Writing Skills Requirement for students required to take both ENG 101 and ENG 201. Practice in developing essays with variable emphases on purpose, subject, audience, persuasion, in constructing mature sentences and paragraphs, and in revising. Introduces documenting and writing from sources. Twenty-five pages of graded, revised writing, excluding first drafts, exercises, and quizzes. Students may not receive credit for both ENG 101 and ESL 407.

ENG 102 Writing 2
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Fulfills the General Education Writing Skills Requirement for students exempted from ENG 101. Reviews essay, paragraph, and sentence development during the first half of the semester. Conceptualizing and conducting original research, culminating in a major research essay using both library and online materials during the second half of the semester. Twenty-five pages of graded, revised writing, excluding first drafts, exercises, and quizzes.

ENG 201 Advanced Writing 1
Credits: 3
Prerequisites: ENG 101
Corequisites: None
Type: LEC
Second semester of the General Education Writing Skills Requirement for students required to take both ENG 101 and ENG 201. ENG 201 also fulfills the Humanities requirement of General Education. Practice in developing complex interpretations of human experience and values as represented in various media. Conceptualizing and conducting original research, culminating in a major research essay using both library and online materials. Twenty-five pages of graded, revised writing, excluding first drafts, exercises, and quizzes. Students may not receive credit for both ENG 201 and ESL 408.

ENG 202 Advanced Writing: Technical
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Specialized styles of writing including technical, academic, journalistic, and scientific writing. Description of individual sections available each semester prior to registration.

ENG 205 Writing Prose Fiction 1
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Basic techniques of fiction writing, emphasizing the short story.

ENG 206 Writing Prose Fiction 2
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Basic techniques of fiction writing, emphasizing the short story.

ENG 211 Books of the Environmental Movement
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Careful reading and discussion of key writings, past and present, of the American environmental movement. Authors studied include Henry David Thoreau, John Muir, Aldo Leopold, Rachel Carson, Barry Commoner, and others.

ENG 214 Books: The Top Ten
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
The top ten books recommended in an annual survey of the University at Buffalo faculty as reading without which no undergraduate should have finished his or her education. This course serves as a short, basic introduction to general education.

ENG 215 World Literature I
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Literature of Britain and Ireland, from the beginnings to the late eighteenth century. Includes love poetry, letters, dramas, theological treatises, biographies, mystical visions, travelogues, romantic fables, and scientific treatises. Redirects critical attention away from the almost exclusively male canon of medieval texts and toward texts written by women so that some insight may be gained into problems of literary reception and production on the part of women, of the role of women in society, and their informing activities in religious movements.

ENG 216 World Literature II
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Literature of Britain and Ireland, from the late eighteenth century to the present.

ENG 221 World Literature I
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examination of the medieval literary origins of modern conceptions of romantic love. Primarily lyric and epic texts from a dozen cultures, especially Arabic and Persian, Provencal, Italian, and German.

ENG 222 World Literature II
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Literature of Britain and Ireland, from the late eighteenth century to the present.

ENG 223 Medieval European Epic
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Medieval European conceptions of heroism, heroic texts from the European Middle Ages, heroes and their cultural functions in various societies of origin, heroes and the dreams and aspirations of their economic, social, political, and national groups of origin.

ENG 224 Medieval Islamic Epic
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Epic literature of medieval Islamic cultures. Issues of ethics and mortality, the use of force, social values, and cultural difference are considered in the context of heroism within a given culture.

ENG 225 Love in the Western World
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC

ENG 226 Medieval European

ENG 231 British Writers I
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Literature of Britain and Ireland, from the beginnings to the late eighteenth century.

ENG 232 British Writers II
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Literature of Britain and Ireland, from the late eighteenth century to the present.

ENG 241 American Writers I
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Literature of the United States, from its beginnings to the Civil War.

ENG 242 American Writers II
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Literature of the United States, from Reconstruction to the present.

ENG 251 Literary Types: Short Fiction
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces the special qualities of the short story from Boccaccio to such modern masters as Joyce, Kafka, Carver, and O’Connor.
ENG 252 Literary Types: Poetry
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces the study of poetry.

ENG 253 Literary Types: Novel
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces the study of the novel.

ENG 254 Literary Types: Science Fiction
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Surveys some of the major moments in the evolution of science fiction: Clarke, Delany, Le Guin, and Verne, plus such movies as 2001: A Space Odyssey and Blade Runner.

ENG 256 Literary Types: Film
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces the study of film.

ENG 257 Literary Types: Mysteries
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces the study of mysteries.

ENG 259 Literary Types: Drama
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces the study of drama.

ENG 261 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
A study in a current topic of interest.

ENG 262 Literary Types: Authors
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Concentrated and detailed study of the works, biography, and milieu of a single author, chosen by the instructor.

ENG 263 Literary Types: Authors
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Concentrated and detailed study of the works, biography, and milieu of a single author, chosen by the instructor.

ENG 264 Children's Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces the study of children's literature.

ENG 268 Literary Authors: Irish Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Concentrated study of the work and milieu of a group of Irish writers.

ENG 270 Asian American Authors
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Concentrated study of the work and milieu of a group of Asian American authors.

ENG 271 Literary Approaches: Literature and Psychology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces some basic texts of modern psychology, with applications to works of literature.

ENG 272 Literary Approaches: Women Writers
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces the study of writings by women, chosen by the individual instructor.

ENG 273 Best Sellers
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies the phenomenon of the 'best seller' in both past cultures and the contemporary scene.

ENG 274 Feminist Approaches to Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces feminist theory and its applications to literary texts.

ENG 275 African American Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Surveys African American Literature, including Douglass, DuBois, Hughes, Morrison, Hurston, etc.

ENG 276 Literature and the Law
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces the intersections between the law and great works of fiction by Kafka, Dickens, Shakespeare, and others.

ENG 277 Introduction to U.S. Latino Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces the study of Latino literature.

ENG 278 Modern African-American Writers
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores the variety of cultural works produced by U.S. Latino/a writers and artists, from poetry and plays to novels and films.

ENG 279 African American Writers
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces the study of African American writers.

ENG 280 American Women Writers
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces the study of American women's poetry and fiction.

ENG 281 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies the phenomenon of the 'best seller' in both past cultures and the contemporary scene.

ENG 291 Legal and Literary Interpretation
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
A study in a current topic of interest.

ENG 301 Criticism
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces the craft of literary criticism, including techniques of close reading, two or more sorts of literary theory, and strategies for writing and revising critical papers.

ENG 302 Old English
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces Old English literature, focusing on Beowulf, with suggested outside reading from other early medieval Germanic literatures (Edda, the Nibelungenlied).

ENG 303 Chaucer
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Focuses on Chaucer's works other than the Canterbury Tales, and/or on other Middle English texts.

ENG 304 Middle English Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces Middle English Literature.

ENG 305 Medieval Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Various topics from Old English, Middle English, and Continental medieval literatures in translation.

ENG 306 Medieval and Early English Drama
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Mystery play cycles, morality plays, secular drama before Shakespeare.

ENG 307 Elizabethan and Jacobean Drama
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Selected plays from 1560 to 1630, excluding Shakespeare.

ENG 308 Elizabethan and Jacobean Drama
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Selected plays from 1560 to 1630, excluding Shakespeare.
ENG 309 Shakespeare: Earlier Plays
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Primarily histories and comedies.

ENG 310 Shakespeare: Later Plays
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Primarily tragedies and romances.

ENG 311 Renaissance Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Mostly nondramatic literature from More to Spenser, Sidney, Marlowe, Donne, and Jonson.

ENG 312 Renaissance Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Mostly nondramatic literature from More to Spenser, Sidney, Marlowe, Donne, and Jonson.

ENG 313 The Seventeenth Century
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Primarily histories and comedies.

ENG 314 The Seventeenth Century
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Primarily nondramatic literature from Donne, Wroth, Jonson, and Bacon to Marvell, Milton, Bunyan, Dryden, and the radical prophets and prophetesses of the English Revolution.

ENG 315 Milton
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Paradise Lost and other works in social and literary context.

ENG 316 Eighteenth-Century Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Poetry and prose in Britain from 1688 to the age of the French Revolution.

ENG 319 Eighteenth Century English Novel
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
The novel's emergence as a literary form, focusing on works by Behn, Defoe, Richardson, Fielding, Burney, Sterne, and others.

ENG 320 Romantic Movement
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Poetry and poetry from 1780 to 1830, emphasizing Wordsworth, Coleridge, Keats, Shelley, and Byron.

ENG 322 Victorian Age
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
British literature and culture from 1832 to 1901; authors include Carlyle, Ruskin, Gaskell, Dickens, Eliot, Barrett Browning, Browning, Rossetti, Tennyson, and others.

ENG 323 Victorian Age
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
British literature and culture from 1832 to 1901; authors include Carlyle, Ruskin, Gaskell, Dickens, Eliot, Barrett Browning, Browning, Rossetti, Tennyson, and others.

ENG 324 19th Century English Novel
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Fiction by selected writers of the period, such as Jane Austen, Charles Dickens, the Brontes, George Eliot, and Thomas Hardy.

ENG 325 Nineteenth-Century English Novel
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Fiction by selected writers of the period, such as Jane Austen, Charles Dickens, the Brontes, George Eliot, and Thomas Hardy.

ENG 326 Modern English Novel
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Fiction of Britain and Ireland since 1870.

ENG 327 Modern British Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Literature of the twentieth century and its aesthetic and ideological antecedents.

ENG 328 Rethinking Bodies
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Though the human body has often been thought of as the unproblematic (if perhaps inferior) partner of the mind, recent studies in psychoanalysis, gender, and cultural history have made it evident that at different times and places, societies have inscribed different ideas, attitudes and cultural assumptions on the body. This course investigates these problematic aspects of body and mind through both fiction and non-fiction and from within our own culture and via cross-cultural comparisons.

ENG 329 Studies in British Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Selected topics in the literature of Britain and Ireland, chosen by the instructor: pre-Raphaelism and decadence, the Oxford movement, English travelers and explorers, the Irish literary revival, the criminal in eighteenth-century literature.

ENG 330 Studies in British Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Selected topics in the literature of Britain and Ireland, chosen by the instructor: pre-Raphaelism and decadence, the Oxford movement, English travelers and explorers, the Irish literary revival, the criminal in eighteenth-century literature.

ENG 331 Eighteenth Century English Novel
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
The novel's emergence as a literary form, focusing on works by Behn, Defoe, Richardson, Fielding, Burney, Sterne, and others.

ENG 332 Early American Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Writing from 1630 to 1750, with special attention to the Puritan tradition.

ENG 333 American Literature, 1828-1865
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Writings of Emerson, Thoreau, Poe, Hawthorne, Melville, Sedgwick, Douglass, Jacobs, Stowe, Dickinson, and Whitman.

ENG 334 American Literature, 1865-1914
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Realism and naturalism; Twain, James, DuBois, Wharton, Chopin, Stein, London, and Dreiser.

ENG 335 Nineteenth-Century American Novel
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Selected novels by Cooper, Melville, Hawthorne, Alcott, Douglass, Stowe, Jacobs, Twain, and James.

ENG 336 Modern American Novel
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Selected novels by James, Wharton, and Stein; through Dreiser, Gilman, Cather, Faulkner, Larsen, Wright, Hurston, Dos Passos, Ellison, Ford, Morrison, and Kingston.

ENG 337 Modern American Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
First semester: 1914-1945.

ENG 338 Modern American Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Second semester: 1945-present.

ENG 339 American Poetry
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Selected American poets, primarily from the nineteenth and twentieth centuries; emphasizing American cultural contexts, national identity, vernacular language, and formal innovations.

ENG 340 American Drama
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Special attention to the twentieth century.

ENG 341 Multicultural Autobiography
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines autobiographies as complex examples of culture, of lived experience within culture, and as textual representations of cultural reciprocity and transvaluation.

ENG 342 Studies in American Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Selected texts and topics in the literature of the United States and Canada chosen by the instructor: the Harlem Renaissance, the Black Mountain School, Latino/a literature, domestic literature, etc.
ENG 343 Native American Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies the oral and written literature of Native Americans.

ENG 344 Visions of America
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Texts in which American writers attempt to create, define, or revise our sense of a national culture are read in detail and within their larger cultural contexts.

ENG 345 Studies in English and American Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Selected topics emphasizing the transatlantic connections of literature written in English; transatlantic Puritanism, literature of the 'new woman,' Freud and modern fiction, literature of World War I, family history.

ENG 346 Studies in English and American Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
A representative sampling of modern American fiction that focuses on issues and problems of family history.

ENG 349 Modern Poetry
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
A careful reading and analysis of the major modern British and American poets, in relation to movements of modern thought and action.

ENG 350 Modern Poetry
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
A careful reading and analysis of the major modern British and American poets, in relation to movements of modern thought and action.

ENG 351 Modern Drama
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Selections from English and Continental dramatists since World War I.

ENG 352 Modern Novel
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Significant novelists, English, American, and Continental, since the rise of naturalism.

ENG 353 European Fiction
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Continental fiction writers since the eighteenth century, emphasizing Balzac, Stendhal, Flaubert, Proust, Dostoevski, Tolstoy, Zola, Kafka, Mann, Camus, Beckett.

ENG 354 European Fiction
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Continental fiction writers since the eighteenth century, emphasizing Balzac, Stendhal, Flaubert, Proust, Dostoevski, Tolstoy, Zola, Kafka, Mann, Camus, Beckett.

ENG 355 European Drama
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Plays illustrating major developments in Continental dramatic literature.

ENG 356 New Novel
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
A careful reading and analysis of the major modern British and American poets, in relation to movements of modern thought and action.

ENG 357 Contemporary Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Texts in English and other languages illustrating significant currents in the literature of our day.

ENG 358 Experimental Fiction
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Novels and short stories of the modernist and postmodernist movements, with special attention to experimental techniques and the rationales that underlie them.

ENG 359 The Bible as Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Extensive reading in the Bible, with some consideration of modern biblical scholarship; explores the more important uses of religious and biblical ideas in various periods of English and American literature.

ENG 360 The Bible as Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Extensive reading in the Bible, with some consideration of modern biblical scholarship; explores the more important uses of religious and biblical ideas in various periods of English and American literature.

ENG 361 Folklore
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Content, structure, and function of traditional folklore genres (tale, myth, ballad, riddle, proverb), theoretical and practical survey of oral forms and oral history using major folklore collections, both printed and recorded.

ENG 362 Folklore
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Content, structure, and function of traditional folklore genres (tale, myth, ballad, riddle, proverb), theoretical and practical survey of oral forms and oral history using major folklore collections, both printed and recorded.

ENG 363 Children's Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Literary works primarily written for or read by children.

ENG 364 African American Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
A representative sampling of modern American fiction that focuses on issues and problems of family history.

ENG 365 African American Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
A historical survey of African-American writers from the eighteenth century to the present.

ENG 366 African American Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
A careful reading and analysis of the major modern British and American poets, in relation to movements of modern thought and action.

ENG 367 Literature and Psychology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Methods and basic texts of modern psychology (psychoanalysis, theory of archetypes, Lacanian theory), and their application to works of literature.

ENG 368 Literature and Psychology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Methods and basic texts of modern psychology (psychoanalysis, theory of archetypes, Lacanian theory), and their application to works of literature.

ENG 369 Literature and the History of Ideas
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Major literary and philosophical texts of Western culture in their historical contexts, read as imaginative strategies or modes of consciousness responding to perennial human problems.

ENG 370 Multimedia Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
A historical survey of African-American writers from the eighteenth century to the present.

ENG 371 Biography and Autobiography
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Reading and analyzing major biographies and autobiographies from antiquity to the present.

ENG 372 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
A study in a current topic of interest.

ENG 373 Biography and Autobiography
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Reading and analyzing major biographies and autobiographies from antiquity to the present.

ENG 374 Best Sellers
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Selected titles in fiction and nonfiction from current best-seller lists: their artistic, cultural, ideological, and social significance; relationships among commercial, pop, and high art standards.

ENG 375 Heaven, Hell, and Judgment: Myth and Image
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the iconography and literature of the sacred tradition in art.

ENG 376 Approaches to Literature: Popular Culture
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies the effects of mass culture on the popular arts, with relevant theory.
ENG 377 Modern Poetry, Painting, and Music  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Addresses the interdisciplinary topic of the relationship of modern poetry to developments in music and the visual arts.

ENG 378 Approaches to Literature: Science Fiction  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Advanced study of science fiction works by such authors as Clarke, Lem, Delany, and LeGuin, with related films.

ENG 379 Film Genres  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC/LAB  
Studies various film genres (melodrama, horror, film noir, comedy, science fiction, westerns) and sub-genres (maternal melodrama, splatter films, police procedurals, cyberpunk) as artistic texts and as Hollywood marketing strategies.

ENG 380 Postcolonial Literature  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Focuses on literary works produced by people living in countries formerly colonized by other nations or by people living in diasporic communities whose connections can be traced back to locations such as Africa, Australia, South Asia, the Caribbean, China, India, Ireland, New Zealand, or Pakistan.

ENG 381 Mythology  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Considers mythology both as a kind of knowing and as 'sacred stories' in religion, literature, anthropology, psychoanalysis, and science.

ENG 382 Books of the Ancient Mayas  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Close study of Mayan texts, alphabetic and hieroglyphic, in English translation.

ENG 383 Literature and Society  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Problems in the relations of literature to history, society, and culture, as chosen by the instructor.

ENG 384 Short Fiction  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
An advanced course in short fiction from the middle ages to the present, selected by the individual instructor.

ENG 385 Literature and Gender  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Studies the ways literature contributes to and challenges the gender divisions in culture and society.

ENG 389 Creative Writing: Poetry  
Credits: 3  
Prerequisites: permission of instructor  
Corequisites: None  
Type: SEM  
Workshop in techniques of writing poetry, demanding regular verse productions by the student.

ENG 390 Creative Writing: Poetry  
Credits: 3  
Prerequisites: permission of instructor  
Corequisites: None  
Type: SEM  
Workshop in techniques of writing poetry, demanding regular verse productions by the student.

ENG 391 Creative Writing: Fiction  
Credits: 3  
Prerequisites: permission of instructor  
Corequisites: None  
Type: SEM  
Workshop in forms of the novel and short story: techniques of narration, exposition, structural experimentation, thematic invention.

ENG 392 Creative Writing: Fiction  
Credits: 3  
Prerequisites: permission of instructor  
Corequisites: None  
Type: SEM  
Workshop in forms of the novel and short story: techniques of narration, exposition, structural experimentation, thematic invention.

ENG 393 Ethics in Journalism  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Examines the ethical considerations that confront journalists in print and electronic media.

ENG 394 Journalism: Words and Pictures  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces documentary and journalistic issues in the media age.

ENG 395 Writing Workshop  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: TUT  
Intensive practice in writing; specific approach chosen by instructor.

ENG 396 Writing Workshop  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: TUT  
Intensive practice in writing; specific approach chosen by instructor.

ENG 397 Literary Journalism  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Workshop in forms of writing about books and intellectual issues, not specifically limited to the academic or scholarly community: book reviews, magazine editorials, non-fictional articles.

ENG 398 Journalism  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Specific problems of journalistic writing chosen by instructor.

ENG 399 Journalism  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Specific problems of journalistic writing chosen by instructor.

ENG 400 Honors Seminar  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: SEM  
See description of departmental honors program.

ENG 401 Honors Seminar  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: SEM  
See description of departmental honors program.

ENG 407 Authors: James Joyce  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: SEM  
Concentrated and detailed study of the works, biography, and milieu of James Joyce.

ENG 409 Mark Twain  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: SEM  
Concentrated and detailed study of the works, biography, and milieu of Mark Twain.

ENG 410 Authors  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: SEM  
Concentrated and detailed study of the works, biography, and milieu of a single author, chosen by the instructor.

ENG 411 William Faulkner  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: SEM  
Concentrated and detailed study of the works, biography, and milieu of William Faulkner.

ENG 412 Authors  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: SEM  
Concentrated and detailed study of the works, biography, and milieu of a single author, chosen by the instructor.

ENG 413 Film Directors  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Examines the films of individual directors, both Hollywood and European.

ENG 414 Authors  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: SEM  
Concentrated and detailed study of the works, biography, and milieu of a single author, chosen by the instructor.

ENG 417 Epic Literature  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: SEM  
Two or more of the major epics of English or world literature (Homer, Virgil, Beowulf, Tasso, Milton) viewed in the context of epic theory, from Aristotle to the present; works of prose fiction that have arguably epic dimensions (Tolstoy's War and Peace, Mann's Buddenbrooks), chosen by instructor.

ENG 418 Epic Literature  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: SEM  
Two or more of the major epics of English or world literature (Homer, Virgil, Beowulf, Tasso, Milton) viewed in the context of epic theory, from Aristotle to the present; works of prose fiction that have arguably epic dimensions (Tolstoy's War and Peace, Mann's Buddenbrooks), chosen by instructor.
ENG 420 Film Theory
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
What is cinema? Is it about movement or time? What is the role of off-screen space? Why is it taboo for a character to look at the camera? Do close-ups bring us closer to objects on screen, increase their scale, or open up a new dimension of space? We pursue these and other questions in studies of the ontological nature of film.

ENG 421 Comedy
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Reading and analyzing major figures of comedy from Aristophanes to the present; theories of comedy tested against specific literary works.

ENG 422 Satire
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Reading and analyzing major satirists, from classical literature to the present; theories of satire tested against specific literary works.

ENG 423 Lyric Poetry
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Focuses on the lyric poetry tradition from the medieval period to the postmodern, with attention to formal traditions and innovations.

ENG 424 Studies in Genre
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM/REC
Similar to ENG 251-ENG 260 but utilizing texts, methodologies, and theories of greater sophistication and scope; requires mastery of advanced analytical skills.

ENG 425 Studies in the Novel
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Similar to ENG 253 but utilizing texts, methodologies, and theories of greater sophistication and scope; requires mastery of advanced analytical skills.

ENG 426 Studies in Genre: Drama
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Similar to ENG 259 but utilizing texts, methodologies, and theories of greater sophistication and scope; requires mastery of advanced analytical skills.

ENG 427 Studies in Genre: Poetry
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Similar to ENG 251-ENG 260 but utilizing texts, methodologies, and theories of greater sophistication and scope; requires mastery of advanced analytical skills.

ENG 428 Studies in Genre: Fiction
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Similar to ENG 253 but utilizing texts, methodologies, and theories of greater sophistication and scope; requires mastery of advanced analytical skills.

ENG 429 Studies in Genre: Drama
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Similar to ENG 259 but utilizing texts, methodologies, and theories of greater sophistication and scope; requires mastery of advanced analytical skills.

ENG 430 Topics in African American History
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Reading and analyzing selected theories of criticism and of literary texts that illustrate them.

ENG 431 Critical Theory
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Reading and analyzing selected theories of criticism and of literary texts that illustrate them.

ENG 432 Critical Theory
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Reading and analyzing selected theories of criticism and of literary texts that illustrate them.

ENG 433 Advanced Creative Writing: Poetry
Credits: 3
Prerequisites: permission of instructor
Corequisites: None
Type: SEM
For advanced students.

ENG 434 Advanced Creative Writing: Fiction
Credits: 3
Prerequisites: permission of instructor
Corequisites: None
Type: SEM
For advanced students.

ENG 435 Advanced Creative Writing: Fiction
Credits: 3
Prerequisites: permission of instructor
Corequisites: None
Type: SEM
For advanced students.

ENG 436 Advanced Creative Writing: Fiction
Credits: 3
Prerequisites: permission of instructor
Corequisites: None
Type: SEM
For advanced students.

ENG 437 Advanced Writing Workshop
Credits: 3
Prerequisites: permission of instructor
Corequisites: None
Type: SEM
For advanced students working in forms other than poetry or fiction.

ENG 439 Social Documentary
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Work of important documentary artists in various genres (literary, cinematic, photographic), field research and production of a work of social documentation (film, videotape, series of photographs, transcribed interviews, articles).

ENG 440 Social Documentary
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Work of important documentary artists in various genres (literary, cinematic, photographic), field research and production of a work of social documentation (film, videotape, series of photographs, transcribed interviews, articles).

ENG 441 Cinema
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC/LAB
Viewing and analyzing selected films.

ENG 442 Cinema
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC/LAB
Viewing and analyzing selected films.

ENG 443 Literature in Translation
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Major texts in English translation, viewed in light of cultural and aesthetic cross-currents, chosen by the instructor.

ENG 444 Literature in Translation
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Major texts in English translation, viewed in light of cultural and aesthetic cross-currents, chosen by the instructor.

ENG 445 Mythology of the Americas
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Close reading of selected myths from the Americas as expressed by storytellers, speechmakers, and singers, and in Native American writing systems.

ENG 446 Literature in Translation
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Major texts in English translation, viewed in light of cultural and aesthetic cross-currents, chosen by the instructor.

ENG 447 Problems in Literature: Critical Theory
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
A study in a current topic of interest.

ENG 448 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
A study in a current topic of interest.

ENG 449 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
A study in a current topic of interest.

ENG 450 Advanced Creative Writing: Poetry
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
For advanced students.

ENG 451 Playwriting Workshop
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM/REC
A workshop class that gives attention to dialogue, characterization, thematic development, and the dramatic structure of plays, with classes centering on students work in progress, and assigned plays by contemporary authors.

ENG 452 Playwriting Workshop
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM/REC
A workshop class that gives attention to dialogue, characterization, thematic development, and the dramatic structure of plays, with classes centering on students work in progress, and assigned plays by contemporary authors.

ENG 453 American History
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Close reading of selected myths from the Americas as expressed by storytellers, speechmakers, and singers, and in Native American writing systems.

ENG 454 Advanced Creative Writing: Fiction
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
For advanced students working in forms other than poetry or fiction.

ENG 455 Problems in Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Reading and analysis of selected themes chosen by the instructor.

ENG 456 Problems in Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Reading and analysis of selected themes chosen by the instructor.

ENG 457 Problems in Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Reading and analysis of selected themes chosen by the instructor.

ENG 458 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
A study in a current topic of interest.

ENG 459 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
A study in a current topic of interest.
ENG 496 Writing Internship
Credits: 3
Prerequisites: None
Corequisites: None
Type: TUT
Supervised writing in a work setting, by arrangement between the English department, the student, and the employer.
ENG 497 Honors Thesis
Credits: 3
Prerequisites: None
Corequisites: None
Type: TUT
See description of departmental honors program.
ENG 499 Independent Study
Credits: 1
Prerequisites: permission of instructor
Corequisites: None
Type: TUT
Guided reading and directed research under individual faculty advisors. See special instructions.

English as a Second Language

ESL 407 Written English I
Credits: 3
Prerequisites: ESL 407 or ENG 101
Corequisites: None
Type: LEC
Introduction to academic writing. Covers various methods of organizing paragraphs and essays, effective use of grammatical structures, editing and revising, and strategies for efficient reading. For those undergraduates whose first or dominant language is other than English, successful completion of ESL 407 and ESL 408 meets the university's writing requirement. Students may not receive credit for both ESL 407 and ENG 101.

ESL 408 Written English II
Credits: 3
Prerequisites: ESL 407 or ENG 101
Corequisites: None
Type: LEC
Continues the development of academic writing. Covers rhetorical patterns in formal writing, critical reading, paraphrasing and citation, and the completion of a library research paper. For those undergraduates whose first or dominant language is other than English, successful completion of ESL 407 and ESL 408 meets the university's writing requirement. Students may not receive credit for both ESL 408 and either ENG 102 or ENG 201.

ESL 411 Spoken English
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Speaking and listening for the university context. Topics include preparation and delivery of individual and group presentations, understanding and practice of American idiomatic speech, and improvement of pronunciation. Reviews of students' videotaped presentations provide feedback.

ESL 412 Spoken English
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Speaking and listening for the university context. Topics include preparation and delivery of individual and group presentations, understanding and practice of American idiomatic speech, and improvement of pronunciation. Reviews of students' videotaped presentations provide feedback.

Environmental Design/Planning

PD 111 American Diversity and Design
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
An American Pluralism cognate. Cross-listed with ARC 211 American Diversity and Design, an approved American Pluralism course. Involves lectures, discussions, and fieldwork. Open to non-majors.

PD 120 Introduction to Urban Studies
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
An introductory course and approved social science general education course. Examines concepts and content related to cities, suburbs, and metropolitan regions within and outside the U.S. From multidisciplinary perspectives, covers media images of cities and suburbs, patterns and trends in urban settlements over time and place, urban observation, demographics, culture, and design, and contemporary urban issues, including race relations, environmental issues, and crime. Involves lectures, discussions, and fieldwork. Open to non-majors.

PD 212 Urban and Environmental Planning
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
An introductory course and approved social science general education course. Examines concepts and content in urban and environmental planning. Covers the who, what, why, and how of planning as a profession and process. Topics include the legal basis for urban and environmental planning, planning tools and techniques, the development process, community design issues, and major planning foci, such as sprawl and growth management, neighborhood development, transportation systems, historic preservation, and environmental affairs. Involves lectures, discussions, and fieldwork. Open to non-majors.

PD 230 Urban Development Law and Policy
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
An introductory course and cross-listed with JLS 145 Urban Development Law and Policy. May be offered on an intermittent basis. Open to non-majors.
PD 308 Problem Solving in Urban Environments
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
A major or minor elective. Explores current issues found in urban and built environments, examines associated problems and processes, and reviews possible community solutions. Topics vary annually. In the past, the course has covered U.S. Canadian border issues. May be offered on an intermittent basis.

PD 312 Design of Cities
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
A major or minor elective. Traces evolution of urban form and character from Greek city-states to the present. Emphasizes how technological, social, economic, and political changes affect urban layout and functioning.

PD 313 Local Government Policy and Politics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
A major or minor elective. Provides insights to the process and outcomes of local government decision-making. Topics include the types and powers of various local government entities, including the influence of politics, how governments determine agendas, and implement projects/policies.

PD 328 Historic Preservation
Credits: 3
Prerequisites: PD 212
Corequisites: None
Type: LEC
A major or minor elective. Historic preservation theory related to urban and environmental planning, emphasizing preservation practice, including tools of effective preservation, legislation, community roles, economics, adaptive use, and management. Involves lectures, discussions, and fieldwork. May be offered on an intermittent basis.

PD 350 Environmental Design Workshop I: Information Analysis
Credits: 6
Prerequisites: junior standing and environmental design major
Corequisites: None
Type: SEM
A required workshop; first in a three-course sequence. Provides students with research methodologies in gathering, analyzing, interpreting, and communicating research methodologies in gathering, analysis, and assessing urban information systems, such as signage, environmental data, and neighborhood demographics. Involves lectures, discussions, and fieldwork. May be offered on an intermittent basis.

PD 355 Urban and Environmental Information
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
A major or minor elective. Examines, uses, and assesses urban information systems, such as signage, environmental data, and neighborhood demographics. Involves lectures, discussions, and fieldwork. May be offered on an intermittent basis.

PD 356 Computing for Environmental Analysis
Credits: 3
Prerequisites: None
Corequisites: None
Type: LAB/SEM
A major elective. Covers basics of geographic information systems (GIS) and other computing tools for understanding, mapping, and analyzing natural and built environments. Includes weekly computer lab.

PD 360 Environmental Design Workshop II: Graphic Communications
Credits: 3
Prerequisites: junior standing and environmental design major
Corequisites: None
Type: SEM
A major or minor elective. Offers students with visual literacy and information systems literacy with urban planning and design concepts through readings and hands-on exercises. Class activities include drawing, drafting, design fundamentals, generating computer graphics, and urban observation.

PD 362 Property Management
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
A major or minor elective. Examines management of residential, commercial, and industrial properties within various community settings. Reviews property site selection processes and community land use planning. Investigates activities within property management including market surveys, planning, design, aesthetics, renovations, and forecasting demand within urban and regional environments. May be offered on an intermittent basis.

PD 379 The City Through Film
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
A major or minor elective. Through weekly film screenings, discussions, readings, and critiques, explores themes of urban imagery, inner city, city-suburb relations, community planning and politics, and urban futures in cinema.

PD 395 Special Topics
Credits: 6
Prerequisites: junior standing and environmental design major/minor
Corequisites: None
Type: SEM
A major or minor elective. Topics vary annually. In the past this course addressed research methods, data analysis, information dissemination, geographic computing technologies, and communication techniques on urban and environmental issues. May be offered on an intermittent basis.

PD 402 Real Estate Development Business
Credits: 3
Prerequisites: PD 212 or permission of instructor
Corequisites: None
Type: LEC
A major or minor elective. Introduces students to all aspects of real estate development, including planning, site acquisition, project feasibility, finance, and development. Uses case studies, small group activities, fieldwork, readings, and discussions.

PD 404 Introduction to Urban Management
Credits: 3
Prerequisites: PD 350 and senior standing and permission of instructor
Corequisites: None
Type: SEM
A major or minor elective. Introduces concepts of urban management, including roles of community planners as advocates, advisors, and information resources. Examines complex inner-city problems and reforms. May be offered on an intermittent basis.

PD 405 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
A major or minor elective. Topics vary annually. Consider significant themes and trends in technology, global culture, and social relations shaping our urban and community futures. Involves lectures, discussions, and fieldwork. May be offered on an intermittent basis.

PD 407 Site Planning and Design
Credits: 3
Prerequisites: PD 350 or permission of instructor
Corequisites: None
Type: SEM
A major or minor elective. Examines environmental impacts and capacity of physical infrastructure systems in relation to the site requirements of various urban and community settings. Presents and analyzes planning and design ideas through investigation and review of site conditions. May be offered on an intermittent basis.

PD 408 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
A major or minor elective. Topics vary annually. In the past this course addressed the planning and design of suburban communities. May be offered on an intermittent basis.

PD 409 Technology and Urban Social Change
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
A major or minor elective. Topics vary annually. Considers significant themes and trends in technology, global culture, and social relations shaping our urban and community futures. Involves lectures, discussions, and fieldwork. May be offered on an intermittent basis.

PD 410 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
A major or minor elective. Topics vary annually. In the past this course addressed the policies and politics of local government. May be offered on an intermittent basis.

PD 412 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
A major or minor elective. Topics vary annually. In the past this course addressed issues in environmental design and development planning in practice. May be offered on an intermittent basis.

PD 413 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
A major or minor elective. Topics vary annually. In the past this course addressed legal issues in planning, design, and development. May be offered on an intermittent basis.
PD 422 Economic Development Planning and Industrial Change
Credits: 3
Prerequisites: PD 350 and senior standing or permission of instructor
Corequisites: None
Type: LEC
A major or minor elective. Covers theory, concepts, and practices in contemporary economic development planning. Considers alternative approaches to job growth, including industrial development, workforce training, and quality of life strategies.

PD 439 Local Government Finance and Budgeting
Credits: 3
Prerequisites: PD 315 and senior standing or permission of instructor
Corequisites: None
Type: LEC
A major or minor elective. Introduces students to the theory, practice, and real world applications local government finances. Concentrates on public budgeting issues and revenue analysis. Examines concerns in community planning, including fiscal impact of development, school finance, and tax increment financing models. May be offered on an intermittent basis.

PD 442 Central City Revitalization
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines theory and practice of urban revitalization with a focus on downtown and commercial revitalization in metropolitan central cities. Place-based and people-based strategies for urban revitalization will be investigated and explored. Best Practices in urban planning and design, including current research and scholarship, will be analyzed.

PD 443 Negotiation and Conflict Resolution
Credits: 3
Prerequisites: PD 350 and senior standing or permission of the instructor
Corequisites: None
Type: SEM
A major or minor elective. Introduces students to the theory, practice, and real world applications of negotiation and bargaining, particularly as applied to community planning and environmental conflict. May be offered on an intermittent basis.

PD 450 Environmental Design Workshop III: Projects and Processes
Credits: 6
Prerequisites: PD 350, PD 360, and senior standing in environmental design
Corequisites: None
Type: LAB
A majors-only required workshop; third in a three-course sequence. Engages students in community planning and environmental design fieldwork in Western New York. Under the instructor’s supervision, students work with clients and community groups to understand complex community and environmental issues, research best practices, and develop final plans, designs, and presentations.

PD 459 Tourism and Recreation Planning
Credits: 3
Prerequisites: PD 350
Corequisites: None
Type: SEM
Examines a variety of specific tourism and recreation ventures and explores how they can be used to enhance development. Considered from several perspectives; including the role of tourism in economic development and the community level relationship between hosts and guests. May be offered on an intermittent basis.

PD 463 Cities and Globalization
Credits: 3
Prerequisites: PD 350 and senior standing and permission of the instructor
Corequisites: None
Type: SEM
A major or minor elective. Considers “world cities” and how global trends and forces shape the community design, politics, social life, environment, and economies of urban places. Involves lectures, discussions, and fieldwork. May be offered on an intermittent basis.

PD 467 Legal Issues in Planning and Development
Credits: 3
Prerequisites: PD 212 and Junior or Senior class standing
Corequisites: None
Type: LEC
Explores historical and legal foundations of planning and development. Provides a legal perspective on land use, zoning policies, environmental regulations, housing, and other areas of interest. Reviews political, legal, and administrative institutions related to the planning and development process.

PD 469 GIS Applications
Credits: 3
Prerequisites: PD 356 and senior standing or permission of the instructor
Corequisites: None
Type: SEM
A major or minor elective. Covers theory, techniques, and applications in geographic information systems, particularly as applied to planning problems and issues. Includes weekly computer lab. May be offered on an intermittent basis.

PD 472 Designing Livable Communities
Credits: 3
Prerequisites: PD 350 or permission of the instructor
Corequisites: None
Type: SEM
A major or minor elective. Introduces concepts and techniques in community design, land use, site planning, property development, and redevelopment. Involves lectures, discussions, and fieldwork. May be offered on an intermittent basis.

PD 473 Physical and Spatial Planning
Credits: 3
Prerequisites: PD 350 and senior standing or permission of the instructor
Corequisites: None
Type: SEM
A major or minor elective. Introduces concepts and techniques in land use planning, site plan assessment, property development, and redevelopment planning. Involves fieldwork. May be offered on an intermittent basis.

PD 479 Global Issues Futures
Credits: 3
Prerequisites: PD 350 and senior standing and permission of the instructor
Corequisites: None
Type: SEM
A major or minor elective. Covers concepts and methods in futures planning, including scenario development, planning projections, and global trend analysis. May be offered on an intermittent basis.

PD 480 Environmental Design Study Abroad
Credits: 3
Prerequisites: Environmental design major or permission
Corequisites: None
Type: LAB/LEC
A majors-only study abroad course; locations vary annually. In the past, undergraduate students have participated in environmental design study abroad programs taught in Australia, Cuba, Costa Rica, the Dutch Antilles, and other international locations as organized by the Department of Urban and Regional Planning. Other in-house study abroad programs will be offered on an ad-hoc basis by the Department of Urban and Regional Planning, based upon faculty and student interest. May be offered on an intermittent basis.

PD 488 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
A major or minor elective. Topics vary annually. In the past this course addressed hidden systems of cities and urban environments- utilities, water, sewer, telecommunications, and transport. May be offered on an intermittent basis.

PD 489 Global Issues Futures
Credits: 3
Prerequisites: PD 350 and senior standing and permission of the instructor
Corequisites: None
Type: SEM
A major or minor elective. Introduces concepts and techniques in community design, land use, site planning, property development, and redevelopment planning. May be offered on an intermittent basis.

PD 490 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
A major or minor elective. Topics vary annually. In the past this course addressed urban hazards and disasters and community revitalization planning. May be offered on an intermittent basis.

PD 491 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
A major or minor elective. Topics vary annually. In the past this course addressed community planning, tourism planning, and environmental design. May be offered on an intermittent basis.

PD 492 Colloquium I
Credits: 1
Prerequisites: Majors-only or permission of instructor
Corequisites: None
Type: TUT
Topics vary annually. In the past, an examination of issues pertaining to environmental design, community planning, and regional development. Included historical, theoretical, formal, technical, and ethical concerns in planning, design, and development. Content defined by instructor; with group discussions focused on assigned readings and field trips. May be offered on an intermittent basis.

PD 493 Colloquium II
Credits: 1
Prerequisites: Majors-only or permission of instructor
Corequisites: None
Type: TUT
Topics vary annually. In the past, an examination of issues pertaining to environmental design, community planning, and regional development. Included historical, theoretical, formal, technical, and ethical concerns in planning, design, and development. Content defined by instructor; with group discussions focused on assigned readings and field trips. May be offered on an intermittent basis.

PD 494 Visions of the City
Credits: 3
Prerequisites: PD 350, PD 360, and senior standing in environmental design
Corequisites: PD 498
Type: SEM
A required senior capstone course. Student-led, faculty-guided reading course covers classic and contemporary books on the natural, built, and urban environments.

PD 496 Environmental Design Internship
Credits: 1
Prerequisites: None
Corequisites: None
Type: TUT
A major or minor elective. Offers opportunity to work in urban or regional agencies in areas such as housing development, local government, strategic planning, transportation, community development, environmental affairs, land use, and urban design.

PD 498 Research Projects in Environmental Design
Credits: 3
Prerequisites: PD 350, PD 360, and senior standing in environmental design
Corequisites: PD 494
Type: SEM
A required senior capstone and undergraduate research and creative activity course. Engages students in environmental design methodologies and individual research on a topic of contemporary interest. Topics vary annually. In the past, this course addressed community design, urban/suburban relations, urban subcultures, urban hazards and disasters, environmental planning, and urban development.
Exercise Science

ES 101 Taping and Wrapping Techniques
Credits: 1
Prerequisites: ES 331
Corequisites: None
Type: LEC
Provides a hands-on learning experience for all taping and joint support wrappings in the profession of athletic training. Majors only. Last time course will be offered: Fall 2007.

ES 102 Fundamentals of Wellness
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Provides information, theories, and practices, which support individual wellness and health promotion on college campuses. Students are participants in an interactive learning environment that addresses key campus health and wellness issues, including: building healthy relationships and healthy communities, alcohol and other drug use, sexual health, nutrition and physical activity, violence and sexual assault prevention, and stress management.

ES 200 Science of Human Movement
Credits: 3
Prerequisites: ES Major
Corequisites: None
Type: LEC
Introduces the biological and physical bases of exercise responses and adaptations to chronic physical activity in humans. Emphasizes the integrated exercise responses of the body systems. Examination of appropriate exercise principles and concepts is accompanied by critical examination of misconceptions, facts, and myths that pervade exercise and fitness activities. Not recommended for students in their freshman year.

ES 201 Padding and Bracing Techniques
Credits: 1
Prerequisites: ES 331
Corequisites: None
Type: LEC
Provides a hands-on learning experience for selecting, designing and/or constructing custom pads, splints and braces used in the profession of athletic training. Also provides the skills and knowledge necessary for wound care and introductory modalities such as ice, heat and whirlpool use. LAB—majors only. Last time course will be offered: Fall 2007.

ES 300 Theory of Athletic Injury I
Credits: 3
Prerequisites: ANA 407
Corequisites: None
Type: LEC
Studies the theory and principles of athletic injury as associated with human performance. Emphasizes the application of scientific principles of human growth and development, physical conditioning, injury prevention, and emergency care, and the understanding of rehabilitative procedures.

ES 301 Exercise Assessment, Prescription, and Programming I
Credits: 2
Prerequisites: ES 200, ANA 407
Corequisites: ES 380
Type: LEC/LAB/REC
Two-semester course that examines theoretical and practical aspects of exercise testing, body composition, fitness evaluation, client interviews and education, exercise prescription, emergency procedures, program administration, and management.

ES 330 Lifespan Physiology
Credits: 3
Prerequisites: ES 200, ES 342, ES 380
Corequisites: None
Type: LEC
Focuses on motor development, neural control of movement, learning, and memory throughout the life span, with special reference to pediatrics and geriatrics.

ES 331 Introduction to Emergency Athletic Care
Credits: 1
Prerequisites: None
Corequisites: None
Type: LEC
Athletic Training students only. Introduces emergency procedures for on-field injury care of athletes in competitive settings. Includes critical analysis of CPR for the Professional Rescuer and Responding to Emergencies first aid techniques emphasizing athletic care; medical terminology relevant to athletic training; preparation of formal injury reports and associated documentation. Last time course will be offered: Summer 2007.

ES 340 Physical Activity for Special Cases
Credits: 3
Prerequisites: ES 310, ES 380, ANA 407
Corequisites: None
Type: LEC
Analyzes exercise responses, testing and prescription, and adaptation to chronic physical activity in special populations, including cardiac and pulmonary rehabilitation, work hardening, chronic obstructive pulmonary disease, diabetes, pregnancy, and others.

ES 341 Critical Analysis of Scientific Literature
Credits: 2
Prerequisites: STA 119, ES or OT major
Corequisites: OT 346
Type: LEC/DIS
Introduces the principles of critical analysis of scientific literature. Students will learn to access, interpret, and analyze research and review articles and information in oral presentations pertinent to their respective fields.

ES 342 Neuroscience I
Credits: 3
Prerequisites: ANA 407
Corequisites: None
Type: LEC
Covers fundamental neurophysiology and clinical neuroanatomy of sensory systems.

ES 343 Neuroscience II
Credits: 3
Prerequisites: ANA 407, ES 342
Corequisites: None
Type: LEC
A continuation of Neuroscience I, focusing on clinical neuroanatomy of motor systems and integration of sensory, motor, and cognitive functions.

ES 344 Neuroanatomy I
Credits: 1
Prerequisites: ANA 407
Corequisites: None
Type: LEC
Exposes the student to the anatomical structures associated with neurophysiological concepts discussed in ES 342 and ES 343.

ES 345 Neuroanatomy II
Credits: 1
Prerequisites: ANA 407
Corequisites: None
Type: LEC
Exposes the student to the anatomical structures associated with neurophysiological concepts discussed in ES 342 and ES 345.

ES 370 Biomechanics I
Credits: 4
Prerequisites: ANA 407, ES 380, MTH 121, PHY 107/PHY 151 or PHY 107
Corequisites: None
Type: LEC/LAB
Introduces the mechanical, neuromuscular, and anatomical bases of human movement. Analyzes quantitative and qualitative biomechanical analyses of multisegment motion from the perspective of joint and muscle mechanics, kinematics, and kineties.

ES 380 Exercise Physiology
Credits: 3
Prerequisites: ANA 407, CHE 102, NTR 108
Corequisites: None
Type: LEC
Analyzes physiologic responses and adaptations of the various body systems and structures to acute and chronic physical activity and to environmental stress. Emphasizes cellular mechanisms that underlie these responses.
ES 400 Theory of Athletic Injury II
Credits: 3
Prerequisites: ES 101, ES 201, ES 300
Corequisites: None
Type: LEC/LAB
Advanced aspects and clinical applications specific to athletic injury. Topics include organizational and administrative responsibilities, pharmacology, anatomical evaluations, integumentary disorders, athletic training room procedures, and National Athletic Training Association requirements. Last time course will be offered: Spring 2009.

ES 402 Exercise Nutrition
Credits: 2
Prerequisites: ANA 407, CHE 102, ES 380
Corequisites: None
Type: LEC
Examines nutrition for athletes, energy systems for different activities, weight control, ergogenic aids, osteoporosis, and selected health problems among athletes related to nutritional deficiencies.

ES 410 Exercise Assessment, Prescription, and Programming II
Credits: 3
Prerequisites: ANA 407, ES 200, ES 380, grade above C in ES 310
Corequisites: None
Type: LEC/LAB
Two-semester course that examines theoretical and practical aspects of exercise testing, body composition, fitness evaluation, client interviews and education, exercise prescription, emergency procedures, program administration, and management.

ES 428 Health Promotion, Prevention & Wellness
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines health promotion from a public health perspective, a community and corporate perspective, and in terms of individual behavior change.

ES 429 Internship
Credits: 1
Prerequisites: completion of all other course and program requirements
Corequisites: None
Type: LAB
Conducted in settings conducive to the development/refinement of skills and abilities related to a professional role, under the guidance of an approved field supervisor and/or university personnel.

ES 442 Applications in Exercise Science
Credits: 1
Prerequisites: ANA 407, ES 310
Corequisites: None
Type: LEC/LAB
Develops basic competencies necessary for the evaluation and assessment of needs, interests, and performance in comprehensive health-related fitness programming in compliance with American College of Sports Medicine guidelines. Provides skills training in the administration and interpretation of standard testing/assessment protocols in both on and off-campus laboratory settings.

ES 443 Critical Inquiry
Credits: 1
Prerequisites: ANA 407; ES 441
Corequisites: None
Type: LEC
Competency-based course; emphasizes basic skills in critical analysis and assessment of professional literature pertinent to the exercise sciences. Last time course will be offered: Fall 2007.

ES 450 Professional Development
Credits: 1
Prerequisites: ANA 407, ES 310
Corequisites: None
Type: LAB
Facilitates transition from student to intern to entry level professional. Addresses securing an internship, professional development, and searching for employment.

ES 496 Practicum
Credits: 1
Prerequisites: ANA 407, ES 200, ES 310, ES 380
Corequisites: None
Type: LEC
Provides an opportunity for the student to gain some practical experience in a field setting. Sites are selected based on the student’s career expectations. Arrangements must be made in conjunction with the clinical advisors on faculty.

ES 497 Honors Research
Credits: 1
Prerequisites: ANA 407, ES 200, ES 310, ES 380
Corequisites: None
Type: TUT
Honors research for undergraduates.

ES 499 Independent Study
Credits: 1
Prerequisites: None
Corequisites: None
Type: TUT
Applies formal principles of graphic design with skills of computer and manual cartographic production. Introduces principles and skills of computer-assisted cartographic production, and of photographic and digital-enhancement techniques that may be incorporated in the map production process.

French
FR 101 Elementary French 1st Semester
Credits: 5
Prerequisites: None
Corequisites: None
Type: LEC
Language as heard and spoken; development of listening, speaking, reading, and writing; five class hours weekly plus regular drill with language recordings.

FR 102 Elementary French 2nd Semester
Credits: 5
Prerequisites: FR 101
Corequisites: None
Type: LEC
Language as heard and spoken; development of listening, speaking, reading, and writing; five class hours weekly plus regular drill with language recordings.

FR 104 Transitional Elementary French
Credits: 5
Prerequisites: None
Corequisites: None
Type: LEC
One-semester review course designed for students who have taken the Regents exams, but who are not yet able to go into the second year of language study. Involves development of all four language skills (listening, speaking, reading, and, to some extent, writing), emphasizing the grammatical structures and vocabulary fundamental to simple, everyday conversation.

FR 151 Intermediate French 1st Semester
Credits: 3
Prerequisites: FR 102 or FR 104
Corequisites: None
Type: LEC
Continuing study of the language, includes a brief review of basic elements and the introduction and practice of more precise linguistic features. Students further their listening and speaking skills through in-class activities, as well as independent work with sound files. Also develops students’ reading and writing skills through the use of literary and cultural texts.

FR 152 Intermediate French 2nd Semester
Credits: 3
Prerequisites: FR 151 or permission of the language director
Corequisites: None
Type: LEC
Continuing study of the language, including briefly reviewing basic elements and the introduction and practice of more precise linguistic features. Students further their listening and speaking skills through in-class activities, as well as independent work with sound files. Also develops students’ reading and writing skills through the use of literary and cultural texts.

ES 211 Honors Research
Credits: 3
Prerequisites: FR 152 or permission of instructor
Corequisites: None
Type: LEC
Perfecting writing skills in preparation for advanced courses or study abroad: selections from prose, poetry, drama, or writings on contemporary issues and problems.

FR 212 Studies in French Language and Culture II
Credits: 3
Prerequisites: FR 211 or permission of instructor
Corequisites: None
Type: LEC
Perfectioning writing skills in preparation for advanced courses or study abroad: selections from prose, poetry, drama, or writings on contemporary issues and problems.

FR 270 Intermediate Conversation
Credits: 3
Prerequisites: FR 152
Corequisites: None
Type: LEC
For majors and nonmajors who wish to enhance their spoken French by intensive listening and speaking activities. No credit toward French major. Develops understanding and speaking ability, and knowledge of contemporary France.

FR 271 Business French
Credits: 3
Prerequisites: FR 152
Corequisites: None
Type: LEC
Builds on the language proficiency acquired in 100-level French courses by introducing students to the vocabulary, idiom, and social conventions they must master to function in a business setting in the French-speaking world. Expects students to demonstrate proficiency both in the language skills taught in the course and in knowledge of the European and non-European business context. Among the anticipated assignments are oral comprehension exercises based on French news broadcasts, drafting of several business letters in French, and short business-related papers. No credit toward French major.
FR 301 Survey of French Literature I
Credits: 3
Prerequisites: FR 211-FR 212, or permission of instructor
Corequisites: None
Type: LEC
Introduces students to major currents of French literature and thought in selected readings from the Middle Ages, Renaissance, Classical period, and Enlightenment. The study of epic (La Chanson de Roland), romance (Yvain ou le chevalier au lion), autobiographical writing (Montaigne’s Essais), classical tragedy and comedy (Racine and Molière), the novel (La Princesse de Cléves and Candide), philosophical writing (selections from Descartes, Pascal, and Rousseau), and poetry (selections from Charles d’Orléans, Villon, Du Bellay, and Ronsard) emphasizes both literary and philosophical traditions, as well as textual interpretation.

FR 302 Survey of French Literature II
Credits: 3
Prerequisites: FR 211-FR 212, or permission of instructor
Corequisites: None
Type: LEC
Acquaints students with the major literary movements from the French revolution through contemporary times. Examines a selection of works — including Romantic poetry of Hugo, Lamartine, and Vigny; theatre; Flaubert’s Madame Bovary; and contemporary and avant-garde works — particularly emphasizing the relationship between text and context.

FR 331 Pre-Romanticism and Romanticism
Credits: 3
Prerequisites: FR 211-FR 212, or permission of instructor
Corequisites: None
Type: LEC
Begins with the study of Madame de Staël’s De l’Allemagne and Châteaubriand’s René and Atala for a sense of the origins of French Romanticism. The study of texts by Stendhal, Balzac, and Hugo focuses on the Romantic search for inspiration in the subject’s emotional life, as well as textual interpretation.

FR 338 Women Writers of Francophone Africa
Credits: 3
Prerequisites: FR 211-FR 212, or permission of instructor
Corequisites: None
Type: LEC
Examines a selection of works by Francophone African women writers and those raised by their male counterparts. Issues include religion, marriage, polygamy, education, the workplace, urban and rural life, love, and family life.

FR 341 The French Film
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the works of some of the major directors of French cinema since World War II. First panel, Ophuls, Cocteau, then the directors of the “Nouvelle Vague”: Truffaut, Resnais, Duras, Godard. The last part of the course is devoted to a selection of more recent works, such as Au Revoir les Enfants, Ridicule, and Touss Les Matins du Monde.

FR 343 Advanced Grammar and Composition
Credits: 3
Prerequisites: FR 211-FR 212, or permission of instructor
Corequisites: None
Type: LEC
Examines the works of some of the major movie directors of France since WWII. First panel, Ophuls, Cocteau, then the directors of the “Nouvelle Vague”: Truffaut, Resnais, Duras, Godard. The last part of the course is devoted to a selection of more recent works, such as Au Revoir les Enfants, Ridicule, and Touss Les Matins du Monde.

FR 349 Stylistics and Translation
Credits: 3
Prerequisites: FR 211-FR 212, or permission of instructor
Corequisites: None
Type: LEC
Examines the evolution of the narrative genre (centered on the novel with reference to a few short stories) from La Princesse de Cléves to the ‘New Novel.’ Offers a close reading of some of the major works of Mme de Lafayette, Prévost, Balzac, Stendhal, Auroville, Camus, and Claude Simon.

FR 393 Study in Absentia
Credits: 1
Prerequisites: None
Type: SEM
Variable content.

FR 395 Intro to Business French
Credits: 3
Prerequisites: FR 11 and FR 1
Type: TUT
Introduces the development of national standards. Consists of two lectures and one discussion period per week involving linguistic problem sets and brief translations of early French texts.

FR 429 Advanced Business French
Credits: 3
Prerequisites: FR 211 - FR 212, or permission of instructor
Corequisites: None
Type: SEM
Seeks to familiarize students with the cultural and professional aspects of doing business in France. Topics include tariffs and quotas, the role of the EU and the euro, genetically modified foods, the environment, and globalization. Also covers French domestic issues, including the 35-hour work week, the strained retirement system, domestic political wrangling, the French press, and activist trade unions. This course also stresses practical skills such as business correspondence, how to read reports and other documents, how to follow the news (both written and televised) with full knowledge of its bias (national and political), and how to interview or give a business presentation.

FR 480 Seminar for Majors
Credits: 3
Prerequisites: FR 211-FR 212, or permission of instructor
Corequisites: None
Type: SEM
Variable content.

FR 496 Internship/Practicum
Credits: 1
Prerequisites: Permission of Instructor Corequisites: None
Type: TUT
Hands-on experience in language and cultural studies at institutions and community organizations in the Western New York area.

FR 498 Undergraduate Research and Creative Activity
Credits: 1
Prerequisites: Permission of Instructor Corequisites: None
Type: TUT
Students collaborate with faculty research mentors on an ongoing faculty research project or conduct independent research under the guidance of a faculty member.
FR 499 Independent Study
Credits: 1
Prerequisites: FR 211-FR 212, or permission of instructor
Corequisites: None
Type: TUT
Students who have demonstrated the ability to perform upper-level coursework may, on occasion, wish to research a topic not available through regular course offerings. Such students may, with permission of a supervising faculty member and the director of undergraduate studies, enroll in FR 499.

General Education

UGC 111 World Civilizations I
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC/REC
UGC 111 is usually completed before UGC 112. Introduces students to the development of world civilizations from prehistory to about 1500, and concerns the peoples, forces, and ideas that have shaped the way individuals have experienced (and still do experience) the world. Global perspectives, focuses on the origins and development, geographical context, and interactions of world cultures. All sections of the course share common goals. Different sections emphasize different themes and perspectives.

UGC 112 World Civilizations II
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC/REC
UGC 112 is usually completed after UGC 111. Introduces students to the development of world civilizations from about 1500 to the present, and concerns the peoples, forces, and ideas that have shaped the way individuals have experienced (and still do experience) the world. Global perspectives, focuses on the origins and development, geographical context, and interactions of world cultures. All sections of the course share common goals. Different sections emphasize different themes and perspectives.

UGC 211 American Pluralism and the Search for Equality
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
UGC 211 is usually completed after UGC 111. UGC 112. Focuses on the changing nature of American society, examining the rich diversity of cultural experiences in America and issues associated with diversity. Introduces students to five important areas of American experience and culture: race, gender, ethnicity, class, and religious sectarianism. Examines writings by and about Americans of color; women; and people from diverse ethnic, class, and religious groups. Approaches their experiences through a number of traditional academic disciplines.

UGC 302 Great Discoveries in Science: The Macroworld
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Course for senior-level majors intended to provide a learning experience that integrates knowledge from lower-level courses. Topics may vary.

UGC 303 Great Discoveries in Science: The Microworld
Credits: 3
Prerequisites: one-year sequence of introductory-level science and general education mathematics, computer sciences, or statistics
Corequisites: None
Type: LEC
UGC 302 and UGC 303 focus upon selected great discoveries of science, presenting a particular body of scientific facts and concepts and connecting them with the process of science, related history and philosophy, and the interdependence of science and technology. The courses emphasize the central ideas that set the framework for a discipline and its great discoveries. Selected examples from diverse fields provide a breadth that complements the depth offered in the prerequisite introductory-level science course. Either UGC 302 or UGC 303 meets the general education Depth requirement. The course focus varies by section.

Geography

GEO 100 Geographic Perspectives and World Issues
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the geography of the emerging global village, especially the stress between the increasing globalization of human societies and natural habitats, and their idiosyncratic traits. Deeply rooted in today’s changing world, the course surveys regions of the world and the contemporary issues facing them.

GEO 101 Earth Systems Science I
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the local to global interactions of Earth systems including solar energy, air, water, weather, climate, landforms, soils, plants, and ecosystems. Presents the linkages between Earth systems operation and current environmental problems.

GEO 102 Introduction to Human Geography
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines contemporary issues from a spatial perspective, including population and demography, cities and urban development, global economic relations, political trends, social problems, and the environment.

GEO 103 Geography of Economic Systems
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Economic geographers examine the many local, regional, and national problems and policy issues that characterize a world economy in rapid transition. Gives emphasis to the behavioral and complex processes and institutional structures that are associated with economic landscapes and organizations, patterns of growth and development, and spatial transformations.

GEO 106 Earth Systems Science II
Credits: 4
Prerequisites: GEO 101
Corequisites: None
Type: LEC/LAB
Examines past, present and future global warming by considering causes of warming, methods of modeling the future, predicted environmental and social impacts, and possible solutions.

GEO 120 Maps and Mapping
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies map reading and interpretation, including uses of air photos for geographic research and everyday life.
GEO 200 The Ocean World
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces oceanography and its relationship to environmental, economic, and strategic aspects. Considers the impact of humans on the ecological balance among the oceans, continents, atmosphere, and living things, as well as ports, ships and maritime law.

GEO 201 Disasters: A Study of Hazards
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies natural and human-induced disasters; such as storms, earthquakes, floods, fires, chemical pollution, and impact of war on the physical and social environment. Investigates risk taking, human reaction to disasters, and health-related studies of hazards. Utilizes case studies, slides, and films.

GEO 231 U.S. Contemporary Problems
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores dynamics of the international environment of trade and direct investment, including problems and decision-making strategies associated with international corporations.

GEO 300 Dynamics of International Business
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces use of statistical techniques in geography, including binomial and normal distributions, and hypothesis testing.

GEO 305 Water Resources
Credits: 3
Prerequisites: GEO 101 or GLY 101 or permission of instructor
Corequisites: None
Type: LEC
Examines the occurrence, use, management, and conservation of water and water resources in the U.S. and around the world. The course further discusses the environmental, economic, and social implications of floods, droughts, dams, water usage, and waste water, as well as current issues in water quality, water pollution, and water resource regulation.

GEO 347 Climatic Geomorphology
Credits: 3
Prerequisites: GEO 101 or GLY 103
Corequisites: None
Type: LEC
Studies geographic processes and landform development in humid, arid, periglacial, and glacial landscapes; also considers the impact of climate change on landform development.

GEO 348 Landform Development
Credits: 3
Prerequisites: GEO 101 or GLY 103
Corequisites: None
Type: LEC
Studies plate tectonics, structure, volcanism, minerals, rocks, weathering, slope development, and fluvial and coastal geomorphology.

GEO 350 Landform Field and Laboratory Techniques
Credits: 4
Prerequisites: GEO 101 or GLY 101
Corequisites: None
Type: LEC/LAB
Examines the theory and application of field and laboratory equipment used to measure landforms and the processes that shape them. This hands-on course introduces students to (1) field-based techniques used in topographic surveying, global positioning systems, measurements of precipitation, runoff, and stream flow; stream corridor stability; and soils; and (2) laboratory-based techniques used in experimental geomorphology.

GEO 352 Introduction to Soils
Credits: 3
Prerequisites: GEO 101
Corequisites: None
Type: LEC
Introduces the concepts of soil science, composition and classification of soils, and the spatial distribution of major soil categories. Analyzes soil properties, soil/plant relationships, nutrients, land management practices, and ecological and engineering problems.

GEO 356 Forest Ecology
Credits: 3
Prerequisites: GEO 101 or BIO 200 or SSC 118 or permission of instructor
Corequisites: None
Type: LEC
Explores forests in terms of their diverse structure, composition, and function. Examines factors that control growth of individual trees, development of forest stands, and dynamics of forest landscapes. Field trips and lab work develop the ability to recognize and reconstruct forest history, using a combination of forest structure and tree-ring analysis.

GEO 366 Urban Systems Geography
Credits: 3
Prerequisites: GEO 103 or permission of instructor
Corequisites: None
Type: LEC
Studies the growth dynamics of cities and urban systems using modeling approaches. Investigates the interaction among cities, formation of urban hierarchies, and internal spatial structure of cities in general; including industrial, commercial, and residential patterns.

GEO 367 Urban Social Geography
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines spatial structures and growth processes involving contemporary spatial dynamics of the American socioeconomic systems.

GEO 389 Business Geographics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC/LAB
Studies evolution of the U.S. transportation system. Examines contemporary transportation problems; including provision of transportation, transport networks, transport flows, urban transportation, logistics, and information technologies. Also considers transport and urban forms.

GEO 390 Univariate Statistics in Geography
Credits: 3
Prerequisites: GEO 410 or equivalent
Corequisites: None
Type: LEC
Studies analysis of variance, simple and multiple regression, and factor and cluster analysis; introduces SPSS computing.

GEO 412 Geography of Health
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines recent trends in population redistribution in the United States. Considers methods for producing population estimates and forecasts, and explores application of population analysis to the planning problems of government and business.

GEO 414 Univariate Statistics in Geography
Credits: 3
Prerequisites: GEO 410 or equivalent
Corequisites: None
Type: LEC
Studies analysis of variance, simple and multiple regression, and factor and cluster analysis; introduces SPSS computing.

GEO 415 Multivariate Statistics in Geography
Credits: 3
Prerequisites: GEO 410 or equivalent
Corequisites: None
Type: LEC
Studies analysis of variance, simple and multiple regression, and factor and cluster analysis; introduces SPSS computing.

GEO 416 Geographic Information Systems
Credits: 3
Prerequisites: GEO 410 or equivalent
Corequisites: None
Type: LEC
Introduces a variety of geographic dimensions of health. Topics range from geographic variations in disease to geographic and socioeconomic differences in access to health care. Students gain an appreciation for the sizable geographic differences in disease rates, in surgical procedures and outcomes, and in health care access. Readings are taken from the current literature so that students are up-to-date with respect to the latest findings in this rapidly changing field.

GEO 417 Univariate Statistics in Geography
Credits: 3
Prerequisites: GEO 410 or equivalent
Corequisites: None
Type: LEC
Studies analysis of variance, simple and multiple regression, and factor and cluster analysis; introduces SPSS computing.

GEO 418 Population Geography
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines recent trends in population redistribution in the United States. Considers methods for producing population estimates and forecasts, and explores application of population analysis to the planning problems of government and business.
GEO 425 Industrial/Business Geography
Credits: 3
Prerequisites: GEO 102 or GEO 103 or permission of instructor
Corequisites: None
Type: LEC
Examines theoretical and empirical interpretations of manufacturing location, global patterns of production and decision making of the firm, and locational change and interdependence of world regions.

GEO 426 Senior Geography Seminar
Credits: 3
Prerequisites: senior standing in geography; for majors only
Corequisites: None
Type: SEM
Topics vary each semester.

GEO 430 Applied Urban Geography
Credits: 3
Prerequisites: GEO 410 and introduction to ArcView
Corequisites: None
Type: LEC/LAB
Explores spatial structure of urban and metropolitan areas. Topics include (1) the changing form of urban areas over time, (2) the behavior of people that gives rise to particular urban forms, (3) the ways in which the internal structure of cities affects individual and group behavior and welfare, and (4) the various ways in which people perceive and interact with their environment. The lab provides students the opportunity to analyze basic data, using cartographic and statistical modes of analysis and the resources of the Geographical Information and Analysis Lab (GIAL). Students in the lab must take the lecture portion concurrently; however, students in the lecture may elect not to take the lab for additional credit.

GEO 435 Conservation Biogeography
Credits: 3
Prerequisites: GEO 356, BIO 309 or SSC 315 or permission of instructor
Corequisites: None
Type: LEC
Examines components of biodiversity: what it is, why we like it, where it is, and what threatens it. Focuses on the application of spatial solutions to biodiversity maintenance in wildlands, and to biodiversity management in working landscapes. Case studies and a field trip are employed to explore the usefulness of the methods.

GEO 444 Advanced Earth System Science
Credits: 3
Prerequisites: GEO 101 or permission of instructor
Corequisites: None
Type: LEC
Examines the complexity of biophysical, social, and economic issues affecting natural resources such as water, soil, air, plant and animal communities and their use through agriculture, forestry, and fisheries. The interdisciplinary approach equips the participants with the necessary tools and techniques to develop sound management policy and practice at the watershed scale from small watersheds to large basins. Outlines methods for problem definition and goal setting to elect appropriate and effective management strategies and procedures for monitoring and implementation.

GEO 445 Restoration Ecology
Credits: 3
Prerequisites: GEO 356 or BIO 309 or SSC 315 or permission of instructor
Corequisites: None
Type: LEC
Restoration ecology is the art and science of repairing lands that have become damaged by natural or human disturbance. Examines ecological and social reasons for restoration. Focuses on how to identify and repair the key physical, chemical, and biotic components of damaged ecosystems. Field and laboratory techniques are used to develop the theories and methods.

GEO 449 Fluvial Geomorphology
Credits: 3
Prerequisites: GEO 347 or GEO 348 or GLY 312 or permission of instructor
Corequisites: None
Type: LEC/REC
Examines the origin, geometry, water flow, and sediment transport associated with streams and rivers, and how these processes and forms vary in time and space. Places particular emphasis on the analytic description of physical processes, the adjustment of rivers to natural and human-induced disturbances, the interactions between fluvial processes, water quality and aquatic habitat, and emerging areas of research.

GEO 451 Special Topics in Cartography
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Advanced seminar. Topics vary each semester. Requires independent projects in the field being covered.
GEO 485 Cartography and Geographic Visualization
Credits: 3
Prerequisites: GEO 120 or GEO 381 or permission of instructor
Corequisites: None
Type: LEC/LAB
Examines current issues in cartography and geographic visualization (GVIS), focusing on the use of maps and other visual representations to facilitate thinking, problem solving, and decision making in geography. Lectures focus on the conceptual background and applications of cartography and geovisualization; including visual functions and forms, map and web interface design, animation, multimedia, color, sound, multivariate displays, and 3D visual modeling. Lab sessions provide hands-on experience in constructing basic cartographic visualization tools with various hardware and software packages.

GEO 486 Spatial Decision-Support Systems
Credits: 3
Prerequisites: GEO 481
Corequisites: None
Type: LEC
Adds the spatial element to decision-support systems by integrating analytic modeling and GIS. Also considers issues in system design and implementation.

GEO 487 Thematic Cartography
Credits: 4
Prerequisites: None
Corequisites: None
Type: LEC
Applies formal principles of graphic design with skills of computer and manual cartographic production. Introduces principles and skills of computer-assisted cartographic production, and of photographic and digital-enhancement techniques that may be incorporated in the map production process.

GEO 488 GIS Design
Credits: 3
Prerequisites: GEO 481
Corequisites: None
Type: SEM/LAB
Emphasizes problems and methods for defining GIS user needs and the development cycle. Adapts methods and software engineering to the GIS planning process. Topics include product identification, data sources, system selection, and implementation scheduling.

GEO 489 GIS Algorithms and Data Structures
Credits: 4
Prerequisites: GEO 481
Corequisites: None
Type: LEC/LAB
Examines the data models for geographic information systems. Student programming projects emphasize alternative methods of implementing common GIS operations.

GEO 496 Geographic Internship
Credits: 3
Prerequisites: Permission of instructor
Corequisites: None
Type: TUT
For advanced students. Involves a work opportunity in a local governmental agency or firm. See the director of undergraduate studies for more information.

GEO 497 Geography Honors Program
Credits: 3
Prerequisites: Permission of instructor
Corequisites: None
Type: TUT
Students who have completed at least 96 credit hours and who have a minimum GPA of 3.5 in geography and overall are eligible to participate in the honors program. See the director of undergraduate studies for more information.

GEO 499 Independent Study
Credits: 1
Prerequisites: permission of instructor
Corequisites: None
Type: TUT
Provides students with a familiarity of the elements that support the concepts inherent in plate tectonics. Demonstrates the application of tectonics to the geological history of eastern North America, primarily the Appalachians. Illustrates the multidisciplinary nature of geological synthesis through in-depth studies of classic areas in the Appalachians. Involves an optional spring field trip to the central and southern Appalachians.

Geological Sciences

GLY 101 Global Environmental Science
Credits: 3.5
Prerequisites: None
Corequisites: None
Type: LEC/LAB
Introduces important geological processes that have environmental impacts, ranging from earthquakes and volcanic hazards to landslides and flooding. The framework for learning these processes includes the water and rock cycle. Covers discussions of environmental philosophy and the significance for society of the environmental findings of science. The laboratory involves field measurements of streams, map analysis, an examination of fossils as they relate to the environment, meteorite impacts, and common rock-forming minerals. The GLY 101/GLY 102 sequence fulfills the university’s general education natural science requirement.

GLY 102 Global Environmental Science
Credits: 3.5
Prerequisites: GLY 101
Corequisites: None
Type: LEC/LAB
Offers an interdisciplinary discussion of both natural and human-induced global environmental change at various scales (space and time). Provides a comprehensive description of how advances in the physical, biological, and geological sciences are being integrated to understand the interplay between the Earth’s components (atmosphere, hydrosphere, lithosphere, and biosphere). Topics include the Earth’s building blocks, the Earth through time, natural hazards, natural resources, and Earth system cycles (such as weather, climate change, and atmospheric pollution). The GLY 101/GLY 102 sequence fulfills the university’s general education natural science requirement.

GLY 103 Evolution of the Earth and Solar System
Credits: 3.5
Prerequisites: None
Corequisites: None
Type: LEC/LAB
Overview of Earth’s major physical phenomena, including mountain-building, volcanoes, plate tectonics and hydrologic processes. Emphasizes the interaction of Earth’s processes and features as a global system and how these compare to those on other planets in the Solar System. Requires one field trip. Lab emphasizes major geologic processes, such as river development, impact cratering, and rock formation. The GLY 103/GLY 104 sequence fulfills the university’s general education natural science requirement.

GLY 104 Evolution of the Earth and Solar System
Credits: 3.5
Prerequisites: GLY 103
Corequisites: None
Type: LEC/LAB
Examines the history of geology, the character of organic evolution, and the interaction of geological and biological processes that produce the history of the Earth. Emphasizes the geologic and biological events that created and shaped Western New York. Lab focuses on the development of geologic regions in Western New York, the Moon and Mars. The GLY 103/GLY 104 sequence fulfills the university’s general education natural science requirement.

GLY 106 Geological Mapping Techniques
Credits: 3
Prerequisites: GLY 101 or GLY 103
Corequisites: None
Type: LEC/LAB
Introduces geological maps, cross sections and stratigraphic columns, the primary tools for conveying information in the earth sciences. Covers basic map-reading skills, mapmaking and cross-section construction, and interpretation. Introduces stereoscopic aerial photography and satellite imagery.

GLY 108 Geology of the National Parks
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores the beauty of some of our nation’s most spectacular national parks, including the Grand Canyon, Yellowstone, Hawaiian Volcanoes National Park, Bryce Canyon, and Acadia. Examines the fundamental geologic principles that allow understanding of how these unique landscapes were formed and how they change through time. Also examines how people affect the parks and how science enters into national policy decisions about their future.

GLY 137 The Dinosaurs
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores dinosaurs as a biological group: their origin, anatomy, life habits, evolution, and extinction. Evaluates evolutionary new ideas on their physiology, behavior, and significance in the history of life. Uses dinosaurs to exemplify important evolutionary phenomena. There may be visits to the Buffalo Museum of Science and the Royal Ontario Museum, Toronto.
GLY 161 Introduction to Environmental Geochemistry
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC/LAB
Introduces the basic chemical principles relating to current environmental geology and science problems, such as global warming, the carbon cycle, and groundwater and surface water pollution. The course does not require any university chemistry as prerequisite and is not appropriate for students who have completed chemistry courses above the introductory (100) level. A one credit hour recitation is offered but not required.

GLY 215 Soft Rock I: Sedimentology
Credits: 4
Prerequisites: GLY 101-GLY 102 or GLY 103-GLY 104
Corequisites: None
Type: LEC/LAB
Conveys introductory material concerning the origin of sedimentary rocks, including analysis of sediments and transport mechanisms, depositional environments, and recognition of common sedimentary rock types. Requires labs and field trip.

GLY 216 Soft Rock II: Paleontology and Stratigraphy
Credits: 4
Prerequisites: GLY 215
Corequisites: None
Type: LEC/LAB
Examines the character of the fossil record, its role in illuminating the nature of the evolutionary process, life's history, and use in interpretation of the age and environment of deposition of sedimentary rocks. Requires labs and field trip.

GLY 305 Mineralogy
Credits: 4
Prerequisites: GLY 102 or GLY 104 and CHE 101 or GLY 161
Corequisites: None
Type: LEC/LAB
Examines the fundamental principles of mineralogy, including mineral chemistry, mineral identification, phase diagrams, mineral structures, and elementary crystallography. Emphasizes environmentally important minerals. Requires lab.

GLY 306 Petrology
Credits: 4
Prerequisites: GLY 305
Corequisites: None
Type: LEC/LAB
Introduces the fundamental principles of petrology, including origin, occurrence, and evolution of igneous and metamorphic rocks. Integrates geochemical principles based on phase equilibria with interpretation of mineral assemblages present in common rocks. Plate tectonics and regional distribution of rock types form the broad framework for the course materials. Requires a field trip.

GLY 308 Comparative Paleobiology
Credits: 3
Prerequisites: GLY 35 or GLY 315
Corequisites: None
Type: LEC
Introduces the study of fossil organisms and the use of fossils in inferring the evolution of life on Earth. Techniques and methods of application for several important geological periods are covered. Requires a laboratory component.

GLY 309 Ecology Lecture
Credits: 3
Prerequisites: BIO 200
Corequisites: None
Type: LEC
Processes that control the abundance and distribution of organisms in their natural environments; emphasizing population, community and evolutionary ecology.

GLY 310 Ecological Methods
Credits: 2
Prerequisites: BIO 309
Corequisites: BIO 309
Type: LAB/LEC
Field exercises to illustrate major concepts of modern ecology, and the techniques and procedures used in ecological research.

GLY 312 Surface Processes and Hydrology I
Credits: 4
Prerequisites: GLY 101-GLY 102 or GLY 103-GLY 104; GLY 106; MTH 121 or higher; and PHY 101 or higher
Corequisites: None
Type: LEC/LAB
For advanced undergraduates. Slander, murder, and innuendo - great political speeches and courtroom dramas from the ancient world. Selections from Lyssas, Isocrates, Demosthenes, etc.

GLY 313 Surface Processes and Hydrology II
Credits: 4
Prerequisites: GLY 312
Corequisites: None
Type: LEC/LAB
Second semester of two-semester sequence. Secondary and secondary functions. See GLY 312 for course description. Requires labs and field trip.

GLY 325 Structure-Geophysics-Tectonics I
Credits: 4
Prerequisites: MTH 121; PHY 101
Corequisites: GLY 106
Type: LEC/LAB
Introduces the fundamental concepts required to understand the seismic basis for plate tectonics, including deep Earth structure and theories of mantle convection. Describes major hole-Earth geophysical techniques (active-source seismology, earthquake seismology, gravimetry, magnetics, and heat flow). Uses general examples as well as specific case studies to support current tectonic theories. Practical application and hands-on use of seismic, gravity, and magnetic instrumentation take place in labs. Requires labs and one weekend field trip.

GLY 326 Structure-Geophysics-Tectonics II
Credits: 4
Prerequisites: GLY 325
Corequisites: None
Type: LEC/LAB
Introduces students to the description, classification and interpretation of geological structures, including faults, folds and joints. Describes these structures in terms of their tectonic setting (extensional, strike-slip, contractional). In labs, introduces practical techniques for structural analysis.

GLY 400 Comparative Paleobiology
Credits: 3
Prerequisites: knowledge of basic univariate statistics
Corequisites: None
Type: LEC
Presents major tools and concepts employed in the collection and analysis of morphological data (via geometric morphometrics and cladistics) in studies of the systematics, taxonomy, and evolutionary history of organisms, principally animals. Emphasizes practice rather than theory. Requires substantial written work.

GLY 407 Geological Field Training
Credits: 3
Prerequisites: GLY 326 and permission of instructor
Corequisites: None
Type: LEC
Applied field methods in geology. Geologic field trips and mapping from a mobile base in the western United States. Mapping projects include surficial deposits in Colorado and areas of increasingly complex sedimentary structure in Utah and Wyoming.

GLY 409 Advanced Ecology
Credits: 3
Prerequisites: BIO 309 or GLY 309 or BIO 411 or GLY 411
Corequisites: None
Type: LEC
Advanced course in the foundations of ecology emphasizing population and community ecology. Supplements lectures on basic ecological principles and models with discussions of both current and historically important issues.

GLY 411 Marine Ecology
Credits: 3
Prerequisites: BIO 309
Corequisites: None
Type: LEC
Surveys tropical marine ecosystems, with an emphasis on coral reef communities. Examines processes controlling abundance and distribution of marine taxa using primary literature. LEC

GLY 412 Field Course in Tropical Marine Ecology
Credits: 3
Prerequisites: BIO 411
Corequisites: None
Type: LAB/LEC
An intensive two week field course in the Bahamas focusing on coral reef communities. Combining lectures, fieldwork, and laboratory analyses, students conduct in-depth studies of Caribbean marine habitats.

GLY 413 Marine Geology
Credits: 3
Prerequisites: GLY 35 or permission of instructor
Corequisites: None
Type: LEC/LAB
Clay minerals are the most abundant minerals in the surface of the Earth. As such, they are of extreme importance in understanding environmental problems. In addition, clay minerals have interesting and useful properties that give them important technological value. This course examines the structure and chemistry of clay minerals and attempts to relate these to their properties, both geological and technological. Clay minerals are difficult to study because they typically occur as fine-grained materials and exhibit a wide range of defects.

GLY 414 Hydrogeology
Credits: 3
Prerequisites: CIE 354 or GLY 313, or permission of instructor
Corequisites: None
Type: LEC/LAB
Examines the occurrence and movement of water in the shallow subsurface, and its importance to water resource development and environmental pollution. Uses basic quantitative techniques for the prediction of water flow through porous and fractured geologic media. Laboratory includes hands-on experience with aquifer testing methods using wells located on campus. Primarily for students interested in the fields of hydrogeology, hydrology, environmental geology, and environmental and geotechnical engineering.

GLY 415 Clay Mineralogy
Credits: 4
Prerequisites: GLY 305
Corequisites: None
Type: LEC/LAB
Clay minerals are the most abundant minerals in the surface of the Earth. As such, they are of extreme importance in understanding environmental problems. In addition, clay minerals have interesting and useful properties that give them important technological value. This course examines the structure and chemistry of clay minerals and attempts to relate these to their properties, both geological and technological. Clay minerals are difficult to study because they typically occur as fine-grained materials and exhibit a wide range of defects.

GLY 419 Environmental Geophysics
Credits: 3
Prerequisites: GLY 325 or permission of instructor
Corequisites: None
Type: LEC
Introduces the theoretical background and methods of application for several noninvasive near-surface geophysical imaging techniques, including seismic reflection/refraction, microgravity, magnetics, electromagnetics, resistivity, and ground-penetrating radar.

GLY 420 Environmental Geophysics Lab
Credits: 1
Prerequisites: None
Corequisites: None
Type: LAB
Provides hands-on experience with several environmental geophysics techniques; includes discussions of experiment design, acquisition, processing and interpretation.

GLY 423 The Hidden Planet: Volcanic Plumbing
Credits: 3
Prerequisites: GLY 306 or GLY 431
Corequisites: None
Type: LEC
Examines the generation, rise, storage, and eventual eruption of magma on Earth and other solid bodies in the solar system. Presents different magmatic compositions and their behaviors, as well as effects of environmental conditions on magma dynamics.
GLY 424 Extraterrestrial Volcanism
Credits: 3
Prerequisites: GLY 326, GLY 431 or permission of instructor
Corequisites: None
Type: LEC
Examines volcanic deposits on solid bodies throughout the solar system, including the Moon, Mars, Venus, Io and Europa. Emphasizes understanding how different environments affect the mechanics and subsequent deposits of volcanic eruptions.

GLY 427 Modeling of Geologic Data
Credits: 3
Prerequisites: GLY 429
Corequisites: None
Type: LEC
Computer modeling of complex processes is becoming more important in a number of geological areas, such as risk assessment, movement of toxic contaminants in an aquifer, crystallization of magmas, and impact cratering. Students develop knowledge of the processes whereby a geological problem is reduced to a mathematical model, the model is translated into a computer program, and the program is utilized to produce numerical and graphical results. The course assumes that students have a good familiarity with digital computers. Any mathematical complexities are explained as the course progresses.

GLY 428 Geological Disaster Prevention
Credits: 3
Prerequisites: GLY 101-GLY 102 or GLY 103-GLY 104
Corequisites: None
Type: LEC
Discusses disasters that may include those related to volcanoes, earthquakes, landslides, windstorms, tsunamis, river floods, and hazardous waste storage. Topics include models of geological phenomena, consequences of hazards, and risk assessment. Case studies analyzed for each phenomenon. A simulated crisis or debate on a controversial topic takes place during the last week of the course.

GLY 429 Analysis of Geologic Data
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Problems encountered in working with large data sets, formulating statistical hypotheses, and interpreting the analysis in terms of the geologic problem. Includes data from petrology, sedimentation, mineralogy, geophysics, and paleontology.

GLY 431 Volcanology
Credits: 3
Prerequisites: GLY 305 and GLY 306
Corequisites: None
Type: LEC
Examines the distribution, tectonic setting, and morphology of volcanoes. Includes investigations into effusive and explosive eruptions, emplacement of eruptive products, and eruption mechanisms.

GLY 432 Colonial Paleobiology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC/LAB
Examines the biological phenomena (their morphology, morphogenesis and adaptability, their evolutionary role and history) associated with coloniality in graptolites, pterobrachids, ectoproct, edenarians and others. Discusses the numerous theoretical issues that have been raised in the study of these groups.

GLY 433 Pyroclastic Rocks
Credits: 3
Prerequisites: GLY 431
Corequisites: None
Type: LEC
Examines the empirical phenomena (their morphology, morphogenesis and adaptability, their evolutionary role and history) associated with coloniality in graptolites, pterobrachids, ectoproct, edenarians and others. Discusses the numerous theoretical issues that have been raised in the study of these groups.

GLY 434 Methods in Volcanology
Credits: 3
Prerequisites: GLY 431
Corequisites: None
Type: LEC
This course will introduce the methods most commonly used by volcanologists in monitoring and studying active volcanoes (including geophysical methods: field observations of eruptions; remote sensing and geological mapping). Through a series of case studies, it will illustrate how such data are used to build a picture of how volcanoes work.

GLY 440 Vertebrate Paleontology and Osteology
Credits: 4
Prerequisites: None
Corequisites: None
Type: LEC/LAB
Surveys the fossil record of vertebrate animals in order to understand their evolutionary history and the evidences used to reconstruct that history. Explores the various aspects of vertebrate paleontology and evolutionary biology.

GLY 441 Geophysics
Credits: 3
Prerequisites: GLY 101-GLY 102 or GLY 103-GLY 104; GLY 325
Corequisites: None
Type: LEC/LAB
Examines principles of gravity, magnetism, seismology, and terrestrial heat flow. Also involves interpretation of the Earth's interior structure, sea floor spreading, and the evolution of the Earth. Requires labs.

GLY 443 Marine Geology
Credits: 4
Prerequisites: GLY 215, GLY 326
Corequisites: None
Type: LEC/LAB
Explores igneous, sedimentary, and metamorphic geology and geophysics of ocean basins in light of modern plate tectonic theories. Uses real data to allow understanding of the assumptions and the "knowns" in marine geology.

GLY 444 Surfaces of Geomaterials
Credits: 3
Prerequisites: GLY 305 or equivalent
Corequisites: None
Type: LEC/LAB
Describes the theory of surface and interfacial thermodynamic properties, how these properties are experimentally determined, the basis for computations of surface and interfacial free energies, and how the surface properties of minerals can be related to their chemical composition and crystal structures. Gives particular emphasis to those minerals that naturally occur in a colloidal form (the clay minerals), as well as to other geological materials, such as volcanic ash, that can occur in colloidal sizes.

GLY 445 Glacial Geology
Credits: 4
Prerequisites: GLY 313
Corequisites: None
Type: LEC/LAB
Explores the spectacular landscapes created by glaciers and ice sheets. The course provides students with knowledge to understand present and past glacier and ice sheet processes, based on the most up-to-date findings and state-of-the-art techniques. Students get hands-on experience by studying the rich ice sheet history of the Buffalo area. This lecture and lab combination provides students with a comprehensive knowledge base with which they can interpret glacier processes and history from a variety of field observations and aerial photographs. Students are introduced to field and laboratory techniques used to date and place them into a geological time frame.

GLY 446 Advanced Environmental Hydrogeology 1
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC/LAB
Addresses the movement and behavior of contaminants in ground water. Emphasizes the underlying physics of water, solute, and particle transport in lecture, hands-on numerical simulation and field experiments. Prior completion of an introductory hydrogeology course is highly recommended.

GLY 447 Advanced Environmental Hydrogeology II
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC/LAB
Studies multi-phase flow in contaminant hydrogeology. Topics include physics and chemistry of multiple phases, modeling of multi-phase flow and transport, and remediation of nonaqueous phase liquids.

GLY 458 Macroevolution
Credits: 2
Prerequisites: None
Corequisites: None
Type: LEC
Examines advanced undergraduate students with the principal issues of macroevolutionary theory (i.e., issues at the species level and above, which are manifest on the scale of geological time) and homs analytical skills as preparation for undertaking graduate research.

GLY 462 Advanced Geochemistry
Credits: 3
Prerequisites: CHE 102 or equivalent
Corequisites: None
Type: LEC/LAB
Presents the chemical principles governing natural water chemistry and the behavior of anthropogenic pollutants. Emphasizes topics such as the evolution of groundwater chemistry, thermodynamics of water-rock interactions at low temperatures, and prediction of pollutant fate in aquatic systems.

GLY 463 Advanced Environmental Hydrogeology I
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC/LAB
Addresses the movement and behavior of contaminants in ground water. Emphasizes the underlying physics of water, solute, and particle transport in lecture, hands-on numerical simulation and field experiments. Prior completion of an introductory hydrogeology course is highly recommended.

GLY 464 Advanced Environmental Hydrogeology II
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC/LAB
Studies multi-phase flow in contaminant hydrogeology. Topics include physics and chemistry of multiple phases, modeling of multi-phase flow and transport, and remediation of nonaqueous phase liquids.

GLY 465 Environmental and Geological Remote Sensing
Credits: 3
Prerequisites: PHY 101, MTH 121
Corequisites: None
Type: LEC/LAB
Covers the fundamentals of remote sensing, extraction of geological, biophysical, or land use/land cover information from remote sensing data, and provides guidance as to how remote sensing data can be used to solve real world environmental and geological problems. Throughout the course the participants will be engaged in rigorous hands-on exercises that will introduce them to digital image processing techniques as well. The participants will learn how to extract and integrate lithologic and environmental information from a wide range of archival remote sensing data, real time remote sensing data, digital elevation models, and maps.
GLY 470 Advanced Structural Geology and Geomechanics

Credits: 3
Prerequisites: GLY 325; MTH 121 or higher; PHY 100 or higher
Corequisites: None
Type: LEC

Bridges the gap between more traditional descriptive techniques introduced in introductory structural geology and more advanced quantitative methods used in modern day geomechanical research. Primarily, the course introduces the students to quantitative tools and techniques for the analysis of geological structures and processes.

GLY 471 Environmental Fluid Transport

Credits: 3
Prerequisites: MTH 121; PHY 101
Corequisites: None
Type: LEC

Calculus-based course that provides students with the capability to analyze natural fluid dynamical processes. Topics include rheology of surficial materials, hydrostatics and aerostatics, equations of motion for fluid dynamics including Navier-Stokes equation, open-channel flow, kinematic waves, hydraulic jumps, advection-diffusion, dynamical and geometric similarity. Extensive use of computational tools to analyze flows and to organize fluid dynamical data.

GLY 472 Advanced Field Methods

Credits: 1
Prerequisites: None
Corequisites: None
Type: LEC

Teaches students to map, analyze, evaluate and interpret field data related to complex geological stratigraphy and structures, natural hazards, and Quaternary deposits. Students study the relationship of their geological work to cultural activities, particularly the exploitation of solid-earth resources and risk assessment. The course consists of in-depth mapping exercises in the field coupled with lectures.

GLY 473 Geological Evolution of North America: Western Cordillera

Credits: 3
Prerequisites: GLY 216, GLY 306, GLY 326
Corequisites: None
Type: LEC

Provides students with a basic familiarity of geology of the western cordillera of North America. Illustrates the multidisciplinary nature of geologic syntheses through in-depth studies of this complex mountain range that extends from Mexico to Alaska. Emphasizes the genesis and emplacement of igneous rocks, major deformational episodes, the cause of earthquakes, mechanics of faults, origin of volcanoes, source of mineral deposits, and major sedimentation stages.

GLY 474 Petroleum Colloquium

Credits: 1
Prerequisites: None
Corequisites: None
Type: SEM

Concentrates on the development of standardized oil and gas terminology, with a broad range of topics that are of current interest to professional geologists. The course also acquaints students with professional presentations. The course consists of a weekly colloquium presented by a researcher active in a field of present importance. Preceding the colloquium, readings from scientific journals introduce students to the topic to be discussed.

GLY 475 Departmental Honors Senior Thesis

Credits: 3
Prerequisites: MTH 141 and MTH 142, PHY 107 and PHY 108, CHE 101 and CHE 102, 3 geology courses
Corequisites: None
Type: TUT

Concentrates on the development of ‘decoding’ of German texts from several disciplines (such as the humanities, social sciences, and natural sciences). Includes basic grammar instruction and extensive vocabulary memorization, but no practice in speaking or listening.

GER 101 Elementary German 1st Semester

Credits: 5
Prerequisites: None
Corequisites: None
Type: LEC

Develops listening, speaking, reading, and writing skills in a communicative context; for beginners.

GER 102 Elementary German 2nd Semester

Credits: 5
Prerequisites: GER 101
Corequisites: None
Type: LEC

Develops listening, speaking, reading, and writing skills in a communicative context; for beginners.

GER 104 Transitional Elementary German

Credits: 5
Prerequisites: None
Corequisites: None
Type: LEC

Review course for students with the Regents diploma or with prior elementary-level instruction.

GER 111 Reading German for Beginners I

Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC

Provides further practice in the language and content skills in business situations.

GER 112 Reading German for Beginners II

Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC

Provides further practice in the language and content skills in business situations.

GER 271 German for Business

Credits: 3
Prerequisites: intermediate proficiency
Corequisites: None
Type: LEC

Permits intensive practice in learning specialized vocabulary and concepts of German business, along with reading business texts and developing conversational skills in business situations.

GER 301 Survey of German Cultural History I

Credits: 3
Prerequisites: intermediate proficiency
Corequisites: None
Type: LEC

Reviews the development of modern German thought and society, literature, and the arts within the context of German history. The first semester covers the period from earliest Germanic times to 1750, the second from 1750 to the present. Courses are usually conducted in German.

GER 302 Survey of German Cultural History II

Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC

Reviews the development of modern German thought and society, literature, and the arts within the context of German history. The first semester covers the period from earliest Germanic times to 1750, the second from 1750 to the present. Courses are usually conducted in German.

GER 314 German Literature Survey

Credits: 3
Prerequisites: Intermediate Proficiency
Corequisites: None
Type: LEC

Survey of German literature from Germanic times to present. Taught in German.
GER 337 Advanced Conversation and Composition
Credits: 3
Prerequisites: intermediate proficiency
Corequisites: None
Type: LEC
Enhances the speaking and writing skills of students who have attained intermediate-level proficiency. Activities include intensive small-group discussions on topics of current interest, and frequent writing exercises to refine compositional skills. Instruction exclusively in German.

GER 338 Stylistics and Translation
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Allows analysis of and practice in various styles of expression in German, as well as the study of idiomatic usages in the language. Instruction is exclusively in German.

GER 340 20th Century Fiction
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Prose of early 20th century, Weimar, DDR, exile literature and post-war.

GER 351 German Literature in Translation
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Survey of masterpieces of German literature in English translation.

GER 404 Readings in Old Norse Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Involves readings in Norse mythology and the Icelandic sagas, as well as the cultural history of the Vikings.

GER 408 The Structure of Modern German Grammar
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Incorporates linguistic analysis of the phonetic, phonological, morphological, and syntactic structure of German. Includes a survey of the more important theories of German syntax, as well as preliminary investigation into semantics, if time allows.

GER 410 Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Intensive research on a selected topic in German studies.

GER 414 History of the English Language
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces the linguistic and cultural development of the English language from its beginnings to the present.

GER 415 History of the German Language
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces the linguistic and cultural development of the German language from its beginnings to the present. Instruction is usually in German.

GER 420 Grimm's Fairy Tales
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Allows in-depth study of traditional Märchen and Sagen, and Kunst-Märchen, as well as a survey of Germanic mythologies and legends. Instruction is usually in German.

GER 439 German Prose: The Novelle
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies the masterworks of the novelle genre in German literature from the romantic period to the early twentieth century. Readings and discussion are in German.

GER 444 Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines a selected topic in German linguistics, literature, or cultural history.

GER 445 Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores a selected topic in German linguistics, literature, or cultural history.

GER 446 Contemporary Drama and Film
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
German theater and cinema from the 1960s to present.

GER 496 Internship/Practicum
Credits: 3
Prerequisites: None
Corequisites: None
Type: TUT
Hands-on experience in language and cultural studies at institutions and organizations in Western New York and nationwide.

GER 498 Undergraduate Research
Credits: 1
Prerequisites: None
Corequisites: None
Type: TUT
Students collaborate with faculty research mentors on an ongoing project or conduct independent research under the guidance of a faculty member. This experience provides students with an inquiry-based learning opportunity and engages them as active learners in a research setting.

GER 499 Independent Study
Credits: 3
Prerequisites: None
Corequisites: None
Type: TUT
Allows independent and intensive research on a selected topic in German studies.

History

HIS 100 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Subject matter determined by instructor.

HIS 102 Survey of Greek History
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
An introduction to the history of ancient Greece from Mycenaean Period to Alexander the Great, with emphasis on social organization, political and judicial institutions, religious organizations, and civic identity. Readings will include selections from the Greek historians, (Herodotus, Thucydides, Xenophon, and Plutarch), Greek drama, the Greek orators, and philosophers, and inscriptions recording decrees, laws and treaties. Major archeological evidence will be presented and students will write 2 exams (midterm and final) and one short paper.

HIS 111 Latin America: Culture and History
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
History of Latin America from social, cultural, and political perspectives.

HIS 113 Myth & Religion in the Ancient World
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
An investigation of the mythic and religious traditions of the ancient Greeks and Romans. The Greco-Roman traditions are examined in comparison with those of other ancient Indo-European peoples, especially the Hittites, Indians, Persians, Celts and Vikings. Cross-listed with CL 113 & RSP 113.

HIS 142 British History
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
The political, economic, and social development of Britain.

HIS 151 Western Civilization I
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Western civilization from its beginnings to 1715.

HIS 152 Western Civilization II
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Western civilization from 1715 through the twentieth century.
**HIS 161 United States History I**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
U.S. history from Native American settlement to the end of the Civil War.

**HIS 162 United States History II**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
U.S. history from Reconstruction to the present.

**HIS 166 Agrarian America**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The development of American agriculture from settlement to the modern era.

**HIS 168 Women & Gender in America**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The history and role of women in America, from the colonial period to the present.

**HIS 191 History of Globalization**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The global economy and its impact on modern society.

**HIS 194 Sociology of Sport**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The sociology of sport and its impact on society.

**HIS 201 Israel & the Ancient Near East**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The history and culture of ancient Israel and the Near East.

**HIS 202 Roman Civilization**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The civilization of the Roman Empire and its impact on Western culture.

**HIS 203 Greek Civilization**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The culture and society of ancient Greece and its influence on Western civilization.

**HIS 206 Social History of Sport**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The history of sport and its role in society.

**HIS 207 Religion and Theology**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The study of religious and theological concepts and their impact on society.

**HIS 208 The Nature of History**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The nature and methods of historical inquiry.

**HIS 210 Women of the Ancient World**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The role of women in ancient societies.

**HIS 211 Research in History**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Methods and techniques of historical research.

**HIS 212 Victorian Britain**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The history and culture of Victorian Britain.

**HIS 213 Early Modern European History**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The development of European states and societies.

**HIS 214 Colonial History**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The history of colonial empires.

**HIS 215 Death in America**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The study of death and its cultural significance.

**HIS 216 Crime and Punishment in America**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The history of crime and punishment in the United States.

**HIS 219 U.S. War & Culture**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The influence of warfare on American culture.

**HIS 220 Spain & Latin America**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The history of Spain and its role in Latin America.

**HIS 221 United States History I**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The history of the United States from its settlement to the Civil War.

**HIS 222 United States History II**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The history of the United States from Reconstruction to the present.

**HIS 224 The History of International Relations**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The study of international relations from ancient to modern times.

**HIS 225 History of Religion**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The history of religious thought and practice.

**HIS 226 History of Economic Life**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The history of economic systems and their impact on society.

**HIS 227 Twentieth-Century Europe and the World**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The history of Europe and its impact on the world.

**HIS 228 Colonialism**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The history of colonialism and its impact on world history.

**HIS 229 Judaism in Medieval Times**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The history of Judaism in medieval times.

**HIS 230 World History**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The history of the world from ancient to modern times.

**HIS 231 Ancient Rome**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The history of Ancient Rome.

**HIS 232 Crisis in Jewish History**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The history of Jewish crises and their impact.

**HIS 233 International Relations**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The study of international relations.

**HIS 234 The Modern World**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The history of the modern world.

**HIS 235 Globalization: The Making of the World Economy**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The history of globalization and its impact on the world economy.

**HIS 236 Globalization: The Making of the World Society**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The history of globalization and its impact on society.

**HIS 237 History of Israel & Zionism**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The history of Israel and Zionism.

**HIS 238 Mass Media and Foreign Policy**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The role of mass media in foreign policy.

**HIS 240 United States since 1945**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The history of the United States since World War II.

**HIS 241 History of Immigration**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The history of immigration to the United States.

**HIS 242 Latin Colonial History**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The history of Latin colonial empires.

**HIS 243 Comparative World History**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The comparison of world history.

**HIS 244 Women's History**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The history of women in the world.

**HIS 245 African History**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The history of African nations.

**HIS 246 Women's History I**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The history of women in the United States.

**HIS 247 History of Islam**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The history of Islam.

**HIS 248 War in the Ancient Mediterranean World**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The history of ancient Mediterranean warfare.

**HIS 249 Social History of Sport and Recreation**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
The history of sport and recreation in the modern world.
HIS 250 History of Ireland
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Irish history from the 1600s to the present.

HIS 255 Nationalism and Democracy
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Cultural, political, and social transformation of Europe from the French Revolution to the first World War.

HIS 289 Pearl Harbor: Japan Goes to War
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
The circumstances in the 1920s and 1930s that eventuated in Japan's violent confrontation with the U.S. and other nations, the Pacific War, and Japan's postwar adjustment to defeat.

HIS 295 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Warfare has been a constant feature of societies and civilizations. It both destabilizes and stabilizes the order of things. All the dualities of human nature are intimately bound up with and played out in warfare. However we feel about them, wars past and present, perhaps more than any other single factor, have shaped the world we live in. This course is designed to provide a historically anchored survey of warfare in the ancient Mediterranean civilizations, particularly those of Greece and Rome.

HIS 299 The Holocaust and History
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
The Holocaust in the broad context of European history.

HIS 300 The Age of Exploration
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Bridges the Atlantic by examining European exploration and the founding of European colonies in North and South America, 1400-1800.

HIS 301 History of Roman Empire
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Serves the span of Roman history from the formation of the imperial system of government, the Principate, in 27 B.C.E. under Octavian (aka Augustus, the August One), to the death of Constantine in 337 C.E. We will explore several aspects of the Roman world—political, familial, cultural, social, economic, artistic, architectural, military, etc.—and we will draw on the writings of the Romans themselves and modern scholars, as well as on archaeological sources. Some attention will be given as well to subsequent “afterlives” of the Roman Empire, from Byzantium to Caesar's Palace in Las Vegas.

HIS 302 U.S. Constitution: Its Origins and Early Development
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
American constitutional development before the Civil War.

HIS 304 Race & the Law
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Our purpose in this course will be to explore that part of U.S. law that has dealt with the human and civil rights of African Americans (and by implication other racial/ethnic groups in U.S. society. Asian Americans, Hispanic Americans, Native Americans, etc.) We will do this by examining the relevant parts of U.S. constitutional law as they have evolved through the dialectical interplay of Congressional legislation and U.S. Supreme Court decisions. However, where appropriate, decisions of the Executive branch made under various “Executive Orders” will also be considered. The principal theme of this course will be that any understanding and appreciation of U.S. constitutional democracy requires us to acknowledge the powerful role of race in the evolution of this democracy. Consequently, regardless of what time period - from the past to the present - is under consideration, the lives of all in the U.S. (of whatever color and sex) have been touched by the interaction between law and race. Two main parts: in PART ONE we will concentrate on an area of legal studies called “Critical Race Theory”, where our concern will be to explore the interaction of law and race from the perspective of issues such as culture, history, gender, identity politics, class, the media, etc. In PART TWO we will examine the interaction between race and law from the perspective of the historical evolution of democracy in the U.S.

HIS 305 Modern Spain, Italy, and Portugal
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examination of the dynamics of nationalism, imperialism, revolutionary ideology, and three variants of right-wing dictatorship in Southern Europe in the 19th and 20th centuries.

HIS 306 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Subject matter determined by instructor.

HIS 307 History of Paris
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Moments in the history of France as experienced through the lens of its capital city.

HIS 308 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Subject matter determined by instructor.

HIS 309 Great Decisions I
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
U.S. foreign policy in historical perspective.

HIS 311 The Age of Jefferson
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
U.S. history during the era of the Jeffersonian administrations, 1801-1829.

HIS 312 The United States in the Age of Jackson, 1815-1837
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Political, social, and economic developments in America between 1815 and 1837.

HIS 313 20th Century Europe
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
An advanced survey of major political, cultural, and social developments in Europe during the 20th century.

HIS 314 African Culture and Society, 1789-1989
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
German history from Bismarck to the unified Germany of today.

HIS 316 Early Modern Europe
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Seventeenth and eighteenth century Europe: absolutism, the Enlightenment, the ancien régime.

HIS 317 Tudor England
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
England’s significant political, social, economic, religious, and cultural change under the ruling Tudor family.

HIS 318 Stuart England
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
England’s century of revolution as seen through the eyes of the principal combatants.

HIS 319 Europe Between the World Wars, 1919-39
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Advanced level survey of European history between World War I and World War II.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Corequisites</th>
<th>Type</th>
<th>Corequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIS 320 British History, 1668-1848</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td></td>
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<tr>
<td>HIS 322 Victorian History, 1832-1901</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>History of Britain during the period that it achieved a position of economic primacy and prevailed on the world stage.</td>
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<tr>
<td>HIS 322 Latin America: Culture and History</td>
<td>3</td>
<td>None</td>
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<td>LEC</td>
<td>Latin American-United States relations from the colonial period through the twentieth century.</td>
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<tr>
<td>HIS 325 Twentieth-Century Britain, 1901-1974</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Political, economic, social, and cultural change in twentieth-century Britain.</td>
<td></td>
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<tr>
<td>HIS 326 Ancien Regime</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Social, political, economic, and diplomatic history of the Old Regime in Europe and France, 1715-1789.</td>
<td></td>
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<tr>
<td>HIS 327 Modern Cities</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Cities were central to the experience of modernity; hence the history of urban life provides an incisive angle for the comparative study of modern European and American history. Focuses on the example of specific cities such as Berlin, Paris, Budapest, Chicago, New York, Barcelona, London, and Vienna to investigate the question what characterizes a modern city. Studies the reordering of urban space as well as the everyday lives of people who lived there. As we investigate the everyday practice of urban living, we will pay particular attention to notions of class and gender.</td>
<td></td>
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<tr>
<td>HIS 328 History of Brazil</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Examines major topics in Brazilian History, including the conquest of Amerindians, the consolidation of Portuguese colonial society, the role of slavery and abolition, the interplay of political independence and economic independence, and the contest between authoritarian rule and democracy. Considers Brazilian women’s lives, race and ethnic relations, environmental controversies, and the cultural expressions of religion, music, and sport - all in historical perspective. Covers five centuries of social change, from the arrival of European colonists to the recent past.</td>
<td></td>
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<tr>
<td>HIS 329 US History Since WWII</td>
<td>3</td>
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<td>None</td>
<td>LEC</td>
<td>A survey of modern United States history from WWII to the millennium that examines popular culture, social movements, foreign and domestic politics, and economic developments.</td>
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<tr>
<td>HIS 330 Special Topics</td>
<td>3</td>
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<td>LEC</td>
<td>Subject matter determined by instructor.</td>
<td></td>
</tr>
<tr>
<td>HIS 334 Islam/Muslim in Modern Southeast Asia</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>An introduction to the history of Muslim communities in modern South Asia.</td>
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</tr>
<tr>
<td>HIS 337 Intellectual History of Europe</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>An introduction to the intellectual history of Europe since the Enlightenment.</td>
<td></td>
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<tr>
<td>HIS 338 Special Topics</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Subject matter determined by instructor.</td>
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<tr>
<td>HIS 340 Topics in German History</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Varying topics in German history, as chosen by the professor.</td>
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<tr>
<td>HIS 341 Social History of Women in the United States</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Examine the history of women in colonial America and the U.S. through the 19th century. We will concentrate on social history, looking at how women of different races, ethnicities, classes, regions and ages experienced and shaped their daily lives under the constraints of a given era. Themes will include work, family relations, slavery, childbirth and motherhood, sexuality, and popular culture. We will also look at political issues, including changing notions of patriarchy, women’s legal status, the meaning of the American revolution for women, and women’s political activism in the abolition, temperance, and women’s rights movements. The central questions will be: How can we understand these issues historically, and what relevance do they hold for more recent history and our own time.</td>
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<tr>
<td>HIS 342 History of Modern South Asia</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td></td>
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<tr>
<td>HIS 343 19th Century Europe</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>An advanced survey of major political, cultural, and social developments in Europe during the 19th century.</td>
<td></td>
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<tr>
<td>HIS 344 American Dissenters</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>The lives of political and cultural dissenters in the nineteenth and twentieth centuries through biography.</td>
<td></td>
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<tr>
<td>HIS 352 The American Revolution</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>The American Revolution from the initial tensions between Great Britain and its North American colonies through the ratification of the Constitution and the adoption of the Bill of Rights.</td>
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<tr>
<td>HIS 354 American Transition, 1877-1901</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Social, economic, and political transformation of the U.S. during the last decades of the nineteenth century.</td>
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<tr>
<td>HIS 355 U.S. Foreign Relations, 1914-Present</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>An advanced survey of American diplomatic relations in the 20th century.</td>
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<tr>
<td>HIS 356 Social History of Women in the U.S., 1875-Present</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Lives and expectations of U.S. women from 1875 to the present; the major historical processes underlying women’s lives in contemporary society.</td>
<td></td>
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<tr>
<td>HIS 357 History of Medicine</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Social, cultural, and institutional history of medicine in the West from the late Middle Ages to the twentieth century.</td>
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<tr>
<td>HIS 358 Renaissance</td>
<td>3</td>
<td>None</td>
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<td>LEC</td>
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<tr>
<td>HIS 361 American Cultural History I</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
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<tr>
<td>HIS 362 American Cultural History II</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
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<tr>
<td>HIS 365 Buffalo During the Nash Years, 1892-1961</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
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</tbody>
</table>
HIS 366 History of Sexual Subcultures in America
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
The changing social organization and cultural meaning of same-sex relations in the United States, primarily in the nineteenth and twentieth centuries.

HIS 368 Modern Japan Since 1600
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Japan's emergence as a modern state.

HIS 371 Social History of Europe
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores the social history of Europe, including gender, culture, family structure, class and race.

HIS 373 Mexico Diaz to Cardenas
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
The Mexican Revolution from 1878-present.

HIS 375 U.S. and the Far East, 1918 to the Present
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
The influence of Buddhism and the religious meaning of same-sex relations in the United States, primarily in the nineteenth and twentieth centuries.

HIS 376 African-American History to 1877
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
History of African-Americans from 1877 to the present.

HIS 377 Weimar Germany, 1918-1933
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
The story of Germany's first attempt at democracy between World War I and the rise of Nazism.

HIS 378 Nazi Germany, 1933-1945
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
The creation of the Nazi dictatorship in 1933 to the Third Reich's destruction in World War II.

HIS 379 African-American History, 1877 to Present
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
History of African-Americans from 1877 to the present.

HIS 380 England in the Late Middle Ages
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Monarchical decline and revival during the era of the Black Death, Hundred Years' War, and disintegration of the medieval ideal.

HIS 382 American Religious History
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
An introduction to religion in America from the Puritans in the early 17th century to Protestant evangelicals in the late 20th century.

HIS 384 War and Peace since 1800
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
The effects of war and revolution with particular attention to Europe during the last two centuries.

HIS 386 New Deal America
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Exploration of the ferment of experimentation in politics and culture that marked the New Deal era.

HIS 388 European Women's History
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
European women and ideas about gender in European culture, politics, and society from 1789 to the present.

HIS 390 The Pattern of Chinese History
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
China's development in its early millennia, and the influence of Buddhism and the Mongol conquest from the third to the seventeenth centuries.

HIS 391 China and The World
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
The evolution of Chinese culture, politics, society, and economy in interaction with the rest of the world from the seventeenth through the twentieth centuries.

HIS 392 Medieval Civilization I
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
History of Europe ca. 500-1100, emphasizing the role of Christianity and the emergence of feudalism.

HIS 394 Medieval Civilization II
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Society and culture of Europe ca. 1100-1450, emphasizing changing spiritual and intellectual outlooks.

HIS 395 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Subject matter determined by instructor.

HIS 396 Popular Culture to 1945
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the origins and development of fascism ideology and practice, comparing and contrasting the various fascist movements to emerge throughout Europe in the 1920s and 1930s.

HIS 397 20th Century American Popular Culture to 1945
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
History of American popular culture to 1945.

HIS 398 African-American Popular Culture since 1945
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
History of African-American popular culture since 1945.

HIS 400 Comparative Fascism
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the origins and development of fascist ideology and practice, comparing and contrasting the various fascist movements to emerge throughout Europe in the 1920s and 1930s.

HIS 401 Alcohol and Other Drugs in American History
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores the worlds of drug users and traffickers; the cultural politics of anti-drug campaigning and enforcement; the central and changing role of organized medicine; and the impact of globalization on drug trade and control in the US.

HIS 403 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Subject matter determined by instructor.

HIS 405 What is History?
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Student research on topics that students choose, combined with exploring how historians study the past.

HIS 407 Church and State Relations
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
History of the legal and constitutional issues arising from the religion clauses of the first amendment to the constitution.

HIS 409 Voyages of Discovery
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Intensive experience in writing the biography of King Henry VIII from primary sources, such as letters and papers of Henry VIII.

HIS 411 Tudor-Stuart Biography
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Examines the changing aims and justifications of Europeans explorations through the discovery of the New World to the 19th century.

HIS 412 Topics in Women's History
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Varying topics in women's history, as chosen by the professor.

HIS 413 Topics in American Political History
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Varying topics in American political history, as chosen by the professor.

HIS 414 Cuban Revolution
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
The Cuban and Nicaraguan revolutions, emphasizing the role of the United States in the revolutionary process.

HIS 415 Topics in Renaissance History
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Varying topics in Renaissance history, as chosen by the professor.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Corequisites</th>
<th>Type</th>
<th>Subject matter determined by instructor</th>
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<tbody>
<tr>
<td>HIS 416</td>
<td>European Immigrant Lives</td>
<td>3</td>
<td>None</td>
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<td>SEM</td>
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<td>HIS 419</td>
<td>Special Topics</td>
<td>3</td>
<td>None</td>
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<td>HIS 420</td>
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<tr>
<td>HIS 421</td>
<td>Topics in British History</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>SEM</td>
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<tr>
<td>HIS 422</td>
<td>Topics in American Intellectual/Cultural History</td>
<td>3</td>
<td>None</td>
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<td>SEM</td>
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<td>HIS 423</td>
<td>Problems in Modern European History</td>
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<td>SEM</td>
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<td>HIS 424</td>
<td>Topics in American Social History</td>
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<td>HIS 425</td>
<td>Intellectual History</td>
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<td>None</td>
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<td>HIS 426</td>
<td>Special Topics</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>SEM</td>
<td>Subject matter determined by instructor</td>
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<tr>
<td>HIS 427</td>
<td>Religion &amp; Society—Ancient Greek Cities</td>
<td>3</td>
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<tr>
<td>HIS 428</td>
<td>Topics in Diplomatic History</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>SEM</td>
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<tr>
<td>HIS 434</td>
<td>Topics in Early Modern Europe</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>SEM</td>
<td>Varying topics in early modern European history, as chosen by the professor.</td>
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<tr>
<td>HIS 435</td>
<td>History of Working Women</td>
<td>3</td>
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<td>None</td>
<td>SEM</td>
<td>Changes in women's work in the home, in the family, and in the labor force in the 19th and 20th centuries. Major themes include the impact of urbanization and industrialization on working women in different ethnic and racial communities, their experience with and in unions and their conflicts with them, and their contributions to labor struggles. Covers the period from the 1830s; examines the growth of new sectors of the female labor force and the beginnings of unionization in the clerical and service industries. Involves extensive reading in primary and secondary sources, class participation, and a paper or research project.</td>
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<tr>
<td>HIS 438</td>
<td>European Intellectual History</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>SEM</td>
<td>Varying topics in colonial American history, as chosen by the professor.</td>
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<tr>
<td>HIS 444</td>
<td>American Cold War History</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>SEM</td>
<td>Varying topics in American Cold War history, as chosen by the professor.</td>
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<tr>
<td>HIS 449</td>
<td>Topics in Colonial America</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>SEM</td>
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<tr>
<td>HIS 450</td>
<td>Problems in 20th Century U.S. History</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>SEM</td>
<td>Varying topics in 20th century U.S. history, as chosen by the professor.</td>
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<tr>
<td>HIS 451</td>
<td>Topics in the American Revolution</td>
<td>3</td>
<td>None</td>
<td>None</td>
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<td>HIS 452</td>
<td>Topics in Colonial America</td>
<td>3</td>
<td>None</td>
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<td>HIS 453</td>
<td>Problems in French Revolution</td>
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<td>None</td>
<td>None</td>
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<tr>
<td>HIS 454</td>
<td>Special Topics</td>
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<td>None</td>
<td>SEM</td>
<td>Subject matter determined by instructor.</td>
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<tr>
<td>HIS 455</td>
<td>Sex and Empire</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>SEM</td>
<td>A comparative history of European imperialism in the Americas, Africa, and Asia through the prism of gender and sexuality.</td>
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<tr>
<td>HIS 456</td>
<td>European Underground Movements</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>SEM</td>
<td>The causes and effects of European underground movements from 1796 to 1945.</td>
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<tr>
<td>HIS 457</td>
<td>Twentieth-Century China Politics</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>SEM</td>
<td>The history of childhood.</td>
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<tr>
<td>HIS 458</td>
<td>JFK's Assassination and U.S. Foreign Policy</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>SEM</td>
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<tr>
<td>HIS 459</td>
<td>Topics in the History of Science</td>
<td>3</td>
<td>None</td>
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<tr>
<td>HIS 460</td>
<td>Problems in American Legal and Constitutional History</td>
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<td>HIS 461</td>
<td>Problems in Japanese History</td>
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<tr>
<td>HIS 462</td>
<td>Problems in Chinese History</td>
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<tr>
<td>HIS 463</td>
<td>Twentieth-Century China Politics</td>
<td>3</td>
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<td>None</td>
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</tbody>
</table>

### Notes
- **Type**: Indicates the type of course (LEC, SEM, etc.).
- **Prerequisites**: Indicates any prerequisites required for the course.
- **Corequisites**: Indicates any corequisites required for the course.
- **Subject matter determined by instructor**: Indicates if the subject matter is determined by the instructor.
HIS 488 Topics in Slave Folklore
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Investigation of what slave folklore tells us about the nature of slavery and the lives of slaves.

HIS 489 Historiography
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
A history of various ways of thinking and writing about the past.

HIS 490 Rebellion & Revolution in History
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Students choose a good topic and teach research in the honors program in history.

HIS 498 Senior Research
Credits: 3
Prerequisites: permission of instructor
Corequisites: None
Type: TUT
Involves a research project arranged with and carried out under the guidance of a faculty member. Required of all students in the honors program in history.

HIS 499 Independent Study
Credits: 1
Prerequisites: None
Corequisites: None
Type: TUT
Involves a research project arranged with and carried out under the guidance of a faculty member. Required of all students in the honors program in history.

HIS 498 Senior Research
Credits: 3
Prerequisites: permission of instructor
Corequisites: None
Type: TUT
Involves a research project arranged with and carried out under the guidance of a faculty member. Required of all students in the honors program in history.

HIS 499 Independent Study
Credits: 3
Prerequisites: None
Corequisites: None
Type: TUT
Course topic and requirements arranged in consultation with instructor. Except in special circumstances, this course cannot be used to satisfy the department's seminar requirement.

Humanities

HMN 120 Language Awareness
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Examines the main biological and social aspects of human language to create an awareness of the central role that language has in our being human and in our life as members of society.

HMN 196 Introduction to Puerto Rican Studies
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines people and events in the news as reported by newspapers, newsreels, documentaries, and films. Also considers cross-cultural perspectives on Puerto Rican history and consciousness.

HMN 200 Black Roots in Spanish-American Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC

HMN 215 Women's Language
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Examines characteristics of language used by women and by men as uncovered by research in sociolinguistics and communication. Relevant psychosocial factors that shape typical conversational behaviors, family and classroom interactions, and the media.

HMN 224 Young Puerto Rican Poets
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines poetry from the days of Hugo Margenat to present island and U.S. Puerto Rican poets, and considers their language, political ideologies, poetic vision of the world, and impact on Puerto Rican culture.

HMN 242 Herman Hesse's World
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Allows intensive reading and discussion of some nine novels and other works of Herman Hesse and examines the West's historical humane values as expressed in Hesse's life and works.

HMN 318 Black Presence in Latin American Culture
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Examines black presence and black heritage within Latin American culture, viewed through literature, films, art, and the theatre. Also explores stereotypes in arts and the mass media.

HMN 321 Youth Culture in Latin America
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Studies contemporary youth culture in Latin America.

HMN 429 Italian Cinema
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC/LAB
Considers importance of Italian movies and their connections with literature and social myths in contemporary culture. Also explores artistic and social contributions of film to a changing society.

HMN 453 Mexican American Anthology
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Presents selected readings that review the development of Mexican American literature and culture.

HMN 491 Directed Readings
Credits: 3
Prerequisites: None
Corequisites: None
Type: TUT
Examines the development of individual and group research techniques and reading interpretation. Requires a paper and bibliography on a subject relating to Puerto Rican and Latin American matters.

HMN 499 Independent Study
Credits: 3
Prerequisites: None
Corequisites: None
Type: TUT
Students design a course of study they want to undertake in one semester. They choose a professor whose area of expertise most closely approximates their topic and must consult with the professor prior to registering for the course. The topic must not duplicate the content of a regular course.
Industrial Engineering

IE 101 Discover Industrial Engineering
Credits: 1  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces students to the field of industrial engineering, and the IE department at UB through a series of real life IE case studies and examples.

IE 306 Statistical Methods for Engineering
Credits: 4  
Prerequisites: EAS 305  
Corequisites: None  
Type: LEC/REC  
Principles and methodologies of statistical inference; methods of data analysis; point and interval estimation; tests of hypotheses; correlation and regression. Introduces analysis of variance methods.

IE 320 Engineering Economy
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Focuses on the use of computers for the integration of production and material-handling equipment. Approaches to analyzing manufacturing and material-handling systems. Applications of computers in modern facilities design and material handling, emphasizing material-flow control and storage. Economic justification models for manufacturing and material-handling systems.

IE 327 Facilities Design
Credits: 3  
Prerequisites: IE 326  
Corequisites: None  
Type: LEC  
Design of basic of design, analysis, and selection of manufacturing facilities and material-handling equipment. Approaches to analyzing manufacturing and material-handling systems. Applications of computers in modern facilities design and material handling, emphasizing material-flow control and storage. Economic justification models for manufacturing and material-handling systems.

IE 373 Introduction to Operations Research: Deterministic Models
Credits: 4  
Prerequisites: MTH 309  
Corequisites: None  
Type: LEC/REC  
Concepts of operations research methodology including objective functions, theories of value, and optimization. Elementary mathematical models of reliability, Markov decision processes, waiting line models with Poisson arrival and exponential service, game theory, and decision analysis.

IE 374 Introduction to Operations Research: Probabilistic Models
Credits: 4  
Prerequisites: EAS 305  
Corequisites: IE 373  
Type: LEC/REC  
Continuation of IE 373, including uncertainty, risk, and the probabilistic approach in operations research. Topics include elementary mathematical models of game theory, decision analysis, stochastic dynamic programming, stochastic processes (including Markov chains and Markov decision processes) and queues (waiting lines).

IE 406 Computer-Integrated Manufacturing
Credits: 3  
Prerequisites: senior standing in IE or permission of instructor  
Corequisites: None  
Type: LEC  
Basic and important principles in computer-integrated manufacturing (CIM). Based on an understanding of modern production and manufacturing systems, the course further introduces to students the use of computers for the integration of all functional areas in a manufacturing enterprise. Topics include computer-aided design (CAD), geometric models and data structures, computer-aided process planning (CAPP), group technology (GT), computer-aided manufacturing (CAM), and database applications in manufacturing.

IE 408 Quality Assurance
Credits: 3  
Prerequisites: IE 306 or equivalent  
Corequisites: None  
Type: LEC  
Topics in statistical quality-control systems. Principles involved in designing statistical quality-control systems and sampling acceptance plans. Design and analysis of a wide variety of statistical control systems. Considers the utility of these techniques in the attainment of working control objectives.

IE 409 Six Sigma Quality
Credits: 3  
Prerequisites: senior standing in IE or permission of instructor  
Corequisites: None  
Type: LEC  
A set of management principles and methods for improving the quality of the product(s) produced and ultimately the productivity of the organization. The course focuses on team building and encouraging employee involvement in problem solving. Students are taught how to involve all employees in reducing product variation and eliminating rework and scrap.

IE 412 Decision Analysis
Credits: 3  
Prerequisites: EAS 305  
Corequisites: None  
Type: LEC  
Decision analysis that extends the domain of decision-making problems from those considered in traditional statistical hypothesis testing scenarios: modeling decisions, which emphasize structuring decision problems using techniques such as influence diagrams and decision trees; modeling uncertainty, which covers subjective probability assessment, use of classical probability models, Bayesian analysis, and value of information; and modeling preferences, which introduces concepts of risk preference, expected utility, and multiattribute value and utility models.

IE 420 Industrial and Systems Laboratory
Credits: 3  
Prerequisites: All required 300 level ISE courses  
Corequisites: IE 477  
Type: LEC/LAB  
Integrates and applies knowledge from multiple aspects of industrial engineering to analyze and solve real-world ID problems. Combines knowledge of production planning, facilities design, operations research, and human factors.

IE 435 Human-Computer Interaction
Credits: 3  
Prerequisites: IE 323 or permission of instructor  
Corequisites: None  
Type: LEC  
Introduces students to the principles and practice of user- and user-centered design of human-computer interfaces. By the end of the course, students are able to identify, describe, and implement a subset of methods appropriate for requirements gathering, user and task modeling, prototype development, and user test plan development, implementation, and analysis. Additionally, students are able to apply principles in user-centered design to interface design.

IE 436 Work Physiology
Credits: 3  
Prerequisites: IE 323 or permission of instructor  
Corequisites: None  
Type: LEC  
Introduces structure and functioning of the human body. Examines environmental factors such as temperature, humidity, and biological rhythms; and applications and implications of physiological measures, such as energy expenditures, heart rate, and E.M.G.

IE 441 Human Factors in Safety
Credits: 3  
Prerequisites: IE 323 or permission of instructor  
Corequisites: None  
Type: LEC  
Overall view of the professional field, particularly emphasizing the role of the human, and human factors, in safe working systems. Provides information relevant to understanding basic concepts associated with systems safety, such as legislative environment, management culture, and sources of workplace hazards; understanding the need to consider the human when designing safe, complex systems; and analyzing a work system to predict its hazards and select possible interventions.

IE 459 Special Topics
Credits: 3  
Prerequisites: senior standing in engineering  
Corequisites: None  
Type: LEC  
Studies special areas of interest to students and instructor. Content varies from section to section and semester to semester.

IE 460 Special Topics
Credits: 3  
Prerequisites: senior standing in engineering  
Corequisites: None  
Type: LEC  
Studies special areas of interest to students and instructor. Content varies from section to section and semester to semester.
IE 477 Digital Simulation
Credits: 4
Prerequisites: IE 306, IE 374, and computer programming skills
Corequisites: None
Type: LEC/REC
Topics include the development of digital simulation models of complex systems using up-to-date software tools and methods.

IE 482 Robotics
Credits: 3
Prerequisites: senior standing in engineering
Corequisites: None
Type: LEC
Analyzes robots and robotic systems: kinematics, coordinate transform, numerical control, off-line programming, robot vision, and simulation of robotic systems.

IE 496 Industrial Internship
Credits: 1
Prerequisites: Senior standing in Industrial engineering (all required 300 level IE courses are prerequisites)
Corequisites: None
Type: LEC/TUT
A field experience working on an industrial engineering project in a manufacturing plant, hospital, library, police department, or similar location under the joint direction of a preceptor from industry and a faculty advisor. Projects are selected that integrate the material learned in academic courses. Requires a written report and an oral presentation.

IE 498 Undergraduate Research
Credits: 1
Prerequisites: Permission of Instructor
Corequisites: None
Type: TUT
Students collaborate with faculty research mentors on ongoing research of the faculty member or conduct independent research under the guidance of a faculty member.

IE 499 Independent Study
Credits: 1
Prerequisites: Permission of Instructor
Corequisites: None
Type: TUT
Student directed independent learning activity guided & mentored by faculty. Students should discuss registration with the faculty member and have a plan in writing upon registering. Note that activities that are primarily research (vs. study or project based) should be conducted under the IE 498 number.

Informatics
INF 102 Introduction to Informatics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduction to informatics; emphasizes a broad overview of five aspects of informatics: information technology, human-computer interaction, new media, social implications of technology, and the transformation of data to information.

INF 125 Intro to the Internet as an Informatics Resource
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Provides a comprehensive review of the Internet and its components, web, email, ftp etc. Emphasizes its current use and future potential as an information resource. Introduces how information architects can use HTML, and CSS, as well as various types of audio/video media. Covers web searching and how XML can be used to classify semantic information on web pages.

INF 215 Programming for the Web I
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Uses HTML and cascading style sheets (CSS) to create web sites employing the principles of usability engineering and information architecture. Topics include the creation of web features, FTP, accessibility, usability, information design, and graphic design of web pages.

INF 216 Programming for the Web II
Credits: 3
Prerequisites: INF 125, INF 215
Corequisites: None
Type: LEC
Uses PHP language to construct CGI applications integrating mysql databases with the web. Topics include server side scripting using PHP, information exchange via web-based forms and display pages, variables, control statements, input/output functions, and database access via mysql PHP routines.

INF 223 Usability Research
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Provides students with an understanding of the application of ethnographic methods to interface usability. Emphasizes the importance of evaluation in the design and development of interfaces, through user interviews, focus groups, think-aloud protocols and other human-factor methods.

INF 311 Information Architecture
Credits: 3
Prerequisites: INF 216
Corequisites: None
Type: LEC
Presents an overview of information architecture; provides students with an understanding of the methods and techniques necessary to design and implement effective and cost efficient information technologies such as digital libraries, database systems, and a range of other web-accessible resources. Also covers the basic principles of information architecture, organization of information, user-centered design and usability, as well as tools and techniques for developing web-enabled applications.

INF 410 Information Visualization
Credits: 3
Prerequisites: PSY 101
Corequisites: None
Type: LEC
Discusses basic principles that impact the design of information and the design of interactive information visualization systems. Examines existing systems and designs, and provides an overview of practical applications.

INF 420 Psychology of Human Computer Interaction
Credits: 3
Prerequisites: PSY 101
Corequisites: None
Type: LEC
Surveys human-computer interaction and the psychology of human computer interaction as tools and techniques for developing user-centered design and usability, as well as these processes relate to and condition interaction between humans and interactive computer systems.

INF 470 Special Topics in Informatics
Credits: 3
Prerequisites: INF 3, Informatics research course
Corequisites: None
Type: SEM
Prepares students for INF 494, the Informatics and Databases course.

INF 471 Special Topics in Informatics & Networks
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Topic of current interest. Topics may include system analysis, advanced database design.

INF 472 Special Topics in Informatics Research
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Topic of current interest. Topics may include ethnographic methods. Iterative design, usability research.

INF 473 Special Topics in Informatics & the Web
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Topic of current interest. Topics may include web design, the semantic web, metadata.

INF 474 Special Topics in Informatics and Databases
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Topic of current interest. Topics may include system analysis, advanced database design.

INF 4794 Informatics Senior Capstone
Credits: 3
Prerequisites: INF 311, INF 420, INF 430
Corequisites: None
Type: TUT/LAB
Senior capstone project; students demonstrate the knowledge and skills they have acquired through the program. Provides students with the opportunity to create knowledge, not merely absorb it. Students will present or display their work to their peers and faculty.

INF 496 Internship
Credits: 1
Prerequisites: Permission of Instructor
Corequisites: None
Type: TUT
Hands on experience in the field; observe and participate under the supervision of an experienced professional; the student will be able to explore new ways of being that lie beyond his or her current state.
**Italian**

**ITA 101 Elementary Italian 1st semester**
- Credits: 3
- Prerequisites: ITA 02 or three or more years of high school Italian, or by placement
- Type: LEC
- Involves work on basic structure and vocabulary emphasizing the language as spoken and heard, and developing skills of reading and writing.

**ITA 102 Elementary Italian 2nd semester**
- Credits: 3
- Prerequisites: None
- Type: LEC
- Involves work on basic structure and vocabulary emphasizing the language as spoken and heard, and developing skills of reading and writing.

**ITA 106 Italian for Spanish Speakers**
- Credits: 3
- Prerequisites: None
- Type: LEC
- An innovative course that seeks to teach the Italian language to speakers of Spanish, a Romance language that shares with Italian similar grammatical and syntactical structures. Enables Spanish native speakers, or advanced students of Spanish, to acquire an intermediate-level mastery of the following four skills: listening, speaking, reading, and writing. Students who have completed ITA 101 and/or ITA 102 should not register for ITA 106 as no credit will be given for duplicate courses.

**ITA 151 Intermediate Italian 1st semester**
- Credits: 3
- Prerequisites: ITA 102, or three or more years of high school Italian, or by placement
- Type: LEC
- Involves work on basic structure and vocabulary emphasizing the language as spoken and heard, and developing skills of reading and writing.

**ITA 152 Intermediate Italian 2nd semester**
- Credits: 3
- Prerequisites: ITA 151 or permission of instructor
- Type: LEC
- For students who wish to enter the Italian major program. Involves advanced-level Italian; emphasizes grammatical and critical readings. Previously ITA 206.

**ITA 321 Advanced Italian Grammar, Composition and Conversation I**
- Credits: 3
- Prerequisites: ITA 152, or three or more years of high school Italian, or permission of instructor
- Corequisites: None
- Type: LEC
- Involves reading and discussion of excerpts from Italian writers, and introduces the main personalities and works representing Italian civilization.

**ITA 322 Advanced Italian Grammar, Composition, and Conversation II**
- Credits: 3
- Prerequisites: ITA 321 or permission of instructor
- Corequisites: None
- Type: LEC
- Involves reading and discussion of excerpts from modern Italian writers, and introduces the main personalities and works representing Italian civilization.

**ITA 382 Introduction to Second Language Acquisition Theory**
- Credits: 3
- Prerequisites: none; basic linguistics courses and/or language courses helpful
- Corequisites: None
- Type: LEC
- Explores the factors that affect learning a second language (e.g., age, native language, environment, goals, and learner strategies, and outlines the succession of theories about how people acquire a second language.

**ITA 401 Directed Reading**
- Credits: 3
- Prerequisites: permission of instructor
- Corequisites: None
- Type: TUT
- The student chooses several literary works he or she is interested in and studies them under the guidance of the professor.

**ITA 402 Directed Reading**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: TUT
- The student chooses several literary works he or she is interested in and studies them under the guidance of the professor.

**ITA 403 The Works of Dante**
- Credits: 3
- Prerequisites: ITA 206, or three or more years of high school Italian
- Corequisites: None
- Type: LEC
- Considers medieval literature in Provence and France, including the works of Dante, beginning with Vita Nuova through the Divine Comedy. Explores the main personalities and works representing Italian civilization.

**ITA 404 The Works of Dante**
- Credits: 3
- Prerequisites: ITA 403 or permission of instructor
- Corequisites: None
- Type: LEC
- Considers medieval literature in Provence and France, including the works of Dante, beginning with Vita Nuova through the Divine Comedy. Explores the main personalities and works representing Italian civilization.

**ITA 405 Twentieth-Century Italian Literature**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: LEC
- Examines modern literature of Italy starting with such nineteenth-century forerunners as Verga, Pascoli, D’Annunzio. Pays particular attention to the fascist regime, its rise and fall, World War II, and the neo-capitalist society of the last two decades.

**ITA 411 Petrarch and Boccaccio**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: SEM
- Presents selected readings of the masterworks of Giovanni Boccaccio and Francesco Petrarca, with attention to the authors who influenced their work and authors who were subsequently influenced by these two crowns of Italian literature.

**ITA 412 Literature of the Trecento and Renaissance**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: LEC
- Surveys poetry, prose fiction, and theatre from Leopardi and Manzoni to the present.

**ITA 413 Italian Theatre**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: LEC
- Studies the history of Italian theatre; including Machiavelli, Commedia dell’Arte, Goldoni, Alfieri, D’Annunzio, Pirandello, and others.

**ITA 417 Twentieth-Century Italian Poets**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: LEC
- Studies Italy’s poets from the turn of the century through two world wars.

**ITA 418 The Works of Pirandello**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: LEC
- Examines Pirandello’s short stories, two novels, and six plays, and analyzes their social, psychological, and metaphysical questions.

**ITA 422 Modern Italian Literature**
- Credits: 3
- Prerequisites: ITA 206 or permission of instructor
- Corequisites: None
- Type: LEC
- Surveys poetry, prose fiction, and theatre from Leopardi and Manzoni to the present.

**ITA 423 Dante and the Middle Ages**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: LEC
- Considers the works of Dante in terms of cultural, philosophical, and political upheavals of the thirteenth and early-fourteenth centuries. Taught in English.

**ITA 424 Twentieth-Century Italian Theatre**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: SEM
- Investigates twentieth-century Italian theatre, from Pirandello to the present, with special attention given to dramatic theories by Filippo Tommaso Marinetti, Antonin Artaud, Bertolt Brecht, Luigi Pirandello, and others.

**ITA 425 Italian Novella**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: LEC
- Considers the short story through seven centuries; presents representative examples from Boccaccio to the present.

**ITA 426 Masterpieces of Early Italian Literature**
- Credits: 3
- Prerequisites: None
- Corequisites: None
- Type: LEC
- Studies provincial and early Italian lyric poetry, including Guinizelli, Cavalcanti, Dante, Petrarch, and Boccaccio, as well as Italian prose selections of the same period.
ITA 477 Masterpieces of Modern Italian Literature

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: TUT  
Studies Italian literature from Ariosto to Calvin.

ITA 478 Italian Cinema I

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC/LAB  
Examines contemporary Italian society mirrored in the movies, especially Italian film from the 1930s, or fascist era, to the present.

ITA 479 Italian Renaissance Drama

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: SEM  
Explores the social, political, and aesthetic role played by the theatre of the Italian Renaissance with attention to the role of comedy, the influence of Humanism, the development of secular drama, the reawakening of classic texts, and the ways in which drama reflected and influenced Renaissance society. Studies the influence of Italian Renaissance drama on world theatre, with particular attention to the roots of Italian theatre within the evolution of William Shakespeare's works.

ITA 480 The Literatures of the Italian American Experience

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Examines history, folklore, sociology, politics, and artistic achievements as expressed by its most representative writers. Taught in English; no previous knowledge of Italian necessary.

ITA 481 Undergraduate Research and Creative Activity

Credits: 3  
Prerequisites: Permission of Instructor  
Corequisites: None  
Type: TUT  
Students collaborate with faculty research mentors on an ongoing faculty research project or conduct independent research under the guidance of a faculty member.

ITA 482 Italian Literature

Credits: 4  
Prerequisites: None  
Corequisites: None  
Type: SEM  
Studies Italian literature from Ariosto to Pasolini.

ITA 499 Independent Study

Credits: 1  
Prerequisites: permission of instructor  
Corequisites: None  
Type: TUT  
Students who have demonstrated the ability to perform upper-level coursework may wish to research a topic not available through regular course offerings. Requires permission of a supervising faculty member.

Japanese

JPN 101 First-Year Japanese

Credits: 5  
Prerequisites: None  
Corequisites: None  
Type: LEC/REC  
Develops basic language skills in speaking, reading, writing, and listening. The course is team-taught, and it is not open to native speakers.

JPN 102 First-Year Japanese

Credits: 5  
Prerequisites: JPN 101 or permission of program director  
Corequisites: None  
Type: LEC  
Develops basic language skills in speaking, reading, writing, and listening. The course is team-taught, and it is not open to native speakers.

JPN 201 Second-Year Japanese

Credits: 4  
Prerequisites: JPN 102 or permission of program director  
Corequisites: None  
Type: LEC/REC  
A sequel to JPN 102. Develops four-skills proficiency and expands knowledge of grammar. Not open to native speakers.

JPN 202 Second-Year Japanese

Credits: 4  
Prerequisites: JPN 201  
Corequisites: None  
Type: LEC/REC  
A sequel to JPN 102. Develops four-skills proficiency and expands knowledge of grammar. Not open to native speakers.

JPN 211 Introduction to Japan

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces Japanese culture and society, and is taught in English.

JPN 301 Third-Year Japanese

Credits: 4  
Prerequisites: JPN 202 or permission of program director  
Corequisites: None  
Type: LEC  
Further develops four-skills proficiency, and reinforces and expands grammar and communication skills. Not open to native speakers.

JPN 302 Third-Year Japanese

Credits: 4  
Prerequisites: JPN 301  
Corequisites: None  
Type: LEC  
Further develops four-skills proficiency, and reinforces and expands grammar and communication skills. Not open to native speakers.

JPN 371 Business Japanese

Credits: 4  
Prerequisites: JPN 202 or permission of program director  
Corequisites: None  
Type: LEC  

JPN 401 Fourth-Year Japanese

Credits: 3  
Prerequisites: JPN 302 or permission of program director  
Corequisites: None  
Type: SEM  
A sequel to JPN 301. Continues development of four-skills proficiency; further reinforces and expands communication skills through discussion and readings on Japanese culture and society.

JPN 402 Fourth-Year Japanese

Credits: 3  
Prerequisites: JPN 401 or permission of program director  
Corequisites: None  
Type: SEM  
A sequel to JPN 302. Continues development of four-skills proficiency; further reinforces and expands communication skills through discussion and readings on Japanese culture and society.

JPN 411 Introduction to Japanese Linguistics

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces major areas of linguistic description of Japanese and functions of the language in relation to social structures and interpersonal relationships. Taught in English.

JPN 451 Teaching Japanese as a Foreign Language

Credits: 3  
Prerequisites: four years of Japanese language study or permission of instructor  
Corequisites: None  
Type: SEM  
Introduces curricula, instructional materials, methods, classroom techniques, and evaluation strategies associated with the teaching of Japanese as a foreign language. Students acquire practical experience by participating in teaching demonstrations and class observation.
Judaic Studies

JDS 141 Introduction to Yiddish I
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Students acquire the fundamentals of the sound system of Yiddish structure and basic reading and writing skills.

JDS 142 Introduction to Yiddish II
Credits: 3
Prerequisites: JDS 141
Corequisites: None
Type: LEC
Second semester of introductory course.

JDS 210 Introduction to the Old Testament
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Critical, thematic, historic, and literary study of the roots of Judeo-Christian tradition as recorded in the Law, Prophets, and the Writings of ancient Israel; different methods of biblical criticism.

JDS 214 The American Jewish Woman
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Methods and results of excavation in Israel; development of material culture (pottery, architecture, and so forth) and its interpretation.

JDS 240 Seminar in Jewish Ethics
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Ethical principles of Judaism: love, justice, holiness, freedom of will, dignity of humans, purpose of life, immanence of God, family life, education, social welfare, race, and ecology.

JDS 250 Historical Geography and Archaeology of Israel
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Unity of God; purpose of life; love and fear of God; significance of Jewish ritual holidays according to the various Chassidic groups.

JDS 251 Women in Jewish Society
Credits: 3
Prerequisites: JDS 112 or JDS 209
Corequisites: None
Type: LEC
Status of women in the structure of Jewish law. Emphasizes the variety of stresses, both legal and social, placed on Jewish women from ancient times to the contemporary world.

JDS 252 Women in Jewish Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Woman's role in classical Jewish literature; Pentateuchal narrative, Chronicles, Song of Songs, and the books of Ruth and Esther.

JDS 210 Introduction to the Old Testament
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Critical, thematic, historic, and literary study of the roots of Judeo-Christian tradition as recorded in the Law, Prophets, and the Writings of ancient Israel; different methods of biblical criticism.

JDS 241 The American Jewish Woman
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Relationships and conflicts that shaped the identity of the American Jewish woman: Jewish women and the American women's rights movement; immigrant Jewish women and labor activism; impact of feminism on Judaism.
JDS 225 Modern Jewish Thought
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Concerns of Jewish religion today: faith, practice, Israel, the Holocaust, science, and the deity - according to Hermann Cohen, Leo Baeck, Franz Rosenzweig, Martin Buber, Abraham Heschel, and Mordecai Kaplan.

JDS 229 The Jew in Medieval Times
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Poets, philosophers, mathematicians, bankers, traders: how they and their families lived within and outside the ghettos of the Middle East and Europe.

JDS 230 Modern Jewish History
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Jewish experience from 1770 to the present day; ethnic origins and backgrounds of contemporary Jewry in the United States, Canada, and Israel.

JDS 235 The American Jewish Experience
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
American Jewish life from colonial beginnings to the present: immigration; assimilation; social mobility; education and the family; group identity.

JDS 237 History of Israel and Zionism
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Development of the Zionist idea and its implementation; Israel and its historic purpose as a center of religious and political hope.

JDS 242 Hebrew Literature in Translation
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Readings of the major Hebrew authors from the Haskalah (nineteenth-century Hebrew language renaissance) until today’s writers in Israel and America. Themes emphasize cultural survival and other current topics in Hebrew literature.

JDS 250 Introduction to Biblical Hebrew
Credits: 5
Prerequisites: None
Corequisites: None
Type: LEC
Reading and understanding the Hebrew Bible without recourse to complicated grammatical exercises; stresses fundamentals, not the problems of the language.

JDS 253 Ethics of the Jewish Bible
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
An in-depth look at key biblical events, including the creation, humans’ first sin, the sin of the golden calf. What do these events mean? What is their symbolic significance?

JDS 254 Rashi’s Commentaries on the Bible
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Rashi’s interpretive methods as compared to those of Ibn Ezra, Nachmanides, and the Kimchis.

JDS 255 Aggada: Jewish Story Line
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Jewish folklore elements as presented in the Talmud, Midrash, and later rabbinic literature: stories, riddles, parables, homilies, proverbs, songs, and aphorisms about and of the rabbits.

JDS 260 Midrash: Rabbinic Exegesis
Credits: 3
Prerequisites: JDS 229 or permission of instructor
Corequisites: None
Type: LEC
Surveys the fascinating and creative literary devices and novel interpretation of Biblical narratives by Talmudic Age of the rabbis.

JDS 261 Responsa Literature
Credits: 3
Prerequisites: JDS 229 or permission of instructor
Corequisites: None
Type: LEC
Surveys the Responsa literature that answers every day life questions and that began in the post-Talmudic period and has continued to flourish until the present.

JDS 262 Topics in Hebrew Language and Literature
Credits: 3
Prerequisites: Permission of instructor
Corequisites: None
Type: LEC
Complements the offerings of Judaic Studies. Hebrew grammar or that of other Semitic languages (not Arabic) and reading of various periods’ literary texts in the original tongue.

JDS 265 Readings in the Hebrew Bible
Credits: 3
Prerequisites: JDS 250 or permission of instructor
Corequisites: None
Type: LEC
Readings of selected literature in the Hebrew Bible.

JDS 266 Minor Hebrew Prophets
Credits: 3
Prerequisites: JDS 265 or permission of instructor
Corequisites: None
Type: LEC
Book of Amos and other minor prophets in Hebrew; analyzes the style of Hebrew prophecy; grammatical exercises to improve and reinforce knowledge of syntax and vocabulary construction.

JDS 267 Wisdom Literature in the Hebrew Bible
Credits: 3
Prerequisites: JDS 265 or permission of instructor
Corequisites: None
Type: LEC
Selections from the books of Proverbs and Psalms in Hebrew illustrating the styles of this type of didactic literature, Hebrew Bible, and poetry.

JDS 280 Jewish Mysticism
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Jewish outlook concerning the mysteries of creation, the mystical concepts of the soul, reincarnation.

JDS 283 The Holocaust and Jewish Law
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Full range of legal and ethical problems posed during the Holocaust and the precedent-setting decisions set down in the Responsa literature.

JDS 284 Israel and Jewish Law
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Historical, sociological, and legal concerns that surround the development of Jewish business law and ethics, and introduces them to a comparative study of Jewish and American law relating to business and economic issues.

JDS 285 Talmudic Law
Credits: 3
Prerequisites: JDS 283, or JDS 284, or JDS 295, or permission of instructor
Corequisites: None
Type: LEC
Jewish legal history through the centuries. Led to an understanding of the trends of Jewish legal history through the centuries.

JDS 288 Old Testament Prophets
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Prophetic vision of the Old Testament and its relations to life realities of the people of Israel - personal; social; political. Uses biblical texts in translation.

JDS 295 Development of Jewish Law
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Historical, sociological, and legal concerns in early and later rabbinic literature that led to an understanding of the trends of Jewish legal history through the centuries.

JDS 296 Jewish Business Ethics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Surveys Jewish business attitudes from the perspective of Jewish law and ethics. Familiarizes students with the history and development of Jewish business law and ethics, and introduces them to a comparative study of Jewish and American law relating to business and economic issues.

JDS 302 Art and Archaeology of Ancient Assyria
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
The history and development of ancient Assyrian culture; focuses on how individual strains of different cultures in the variegated peoples that make up the ancestry and contemporaries of the historical Assyrians can be reworked by these ancient peoples to create a sense of common heritage; the relationship between ancient Assyria and biblical history.

JDS 304 Mesopotamian Archaeology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies the masterpieces of the architecture, painting, and sculpture of the societies that lived in the Tigris and Euphrates Valleys until the era of the Persian Empire.

JDS 382 Topics in Talmudic Law
Credits: 3
Prerequisites: JDS 283, or JDS 284, or JDS 295, or permission of instructor
Corequisites: None
Type: LEC
Specialized studies of how specific Jewish laws developed and their relationship to intricate legal systems, including civil and ritual law in Judaism.

JDS 384 Maimonides: His Life and Works
Credits: 3
Prerequisites: junior status
Corequisites: None
Type: SEM
Maimonides’ life in Spain, Palestine, and Egypt; Maimonides and Aristotelian philosophy; the Mishnah Torah, the Guide for the Perplexed, and the Thirteen Principles of Faith.
KOR 101 First-Year Korean
Credits: 4
Prerequisites: KOR 101 or permission of instructor
Corequisites: None
Type: LEC
First-year (elementary) Korean aims to help students acquire elementary proficiency in Korean. Not open to students who have previous exposure to the Korean language. Places special focus on mastering pronunciation, writing system, basic vocabulary, and basic grammar used in carrying out simple real-life tasks. Students can expect a chance to understand cultural difference and identity as well.

KOR 102 First-Year Korean
Credits: 5
Prerequisites: KOR 101 or permission of instructor
Corequisites: None
Type: LEC
First-year (elementary) Korean aims to help students acquire elementary proficiency in Korean. Not open to students who have previous exposure to the Korean language. Places special focus on mastering pronunciation, writing system, basic vocabulary, and basic grammar used in carrying out simple real-life tasks. Students can expect a chance to understand cultural difference and identity as well.

KOR 201 Second-Year Korean
Credits: 4
Prerequisites: KOR 102 or permission of instructor
Corequisites: None
Type: LEC
Equips students with intermediate communicative skills in Korean. Expects students to initiate and be engaged in spontaneous dialogues with little difficulty. Students should be able to understand simple Korean text and compose short essays in Korean. Emphasizes expansion of knowledge of grammar and vocabulary.

KOR 202 Second-Year Korean
Credits: 4
Prerequisites: KOR 201 or permission of instructor
Corequisites: None
Type: LEC
Equips students with intermediate communicative skills in Korean. Expects students to initiate and be engaged in spontaneous dialogues with little difficulty. Students should be able to understand simple Korean text and compose short essays in Korean. Emphasizes expansion of knowledge of grammar and vocabulary.

KOR 301 Third-Year Korean
Credits: 4
Prerequisites: KOR 202 or permission of instructor
Corequisites: None
Type: LEC
Helps students to achieve advanced proficiency in Korean and become familiar with Korean culture. Expects students to engage in conversations on various concrete and abstract topics, and to improve their skills for understanding authentic Korean texts and composing essays in Korean. Students also expand their vocabulary, including basic Chinese characters.

KOR 302 Third-Year Korean
Credits: 4
Prerequisites: KOR 301 or permission of instructor
Corequisites: None
Type: LEC
Helps students to achieve advanced proficiency in Korean and become familiar with Korean culture. Expects students to engage in conversations on various concrete and abstract topics, and to improve their skills for understanding authentic Korean texts and composing essays in Korean. Students also expand their vocabulary, including basic Chinese characters.

KOR 331 Korean Literature I
Credits: 3
Prerequisites: Two years of Korean language study or permission of instructor
Corequisites: None
Type: LEC
Begin with a brief historical introduction to Korean literature. Students read and discuss various genres of Korean literature, including essays, novels, poetry, and drama.

KOR 332 Korean Literature II
Credits: 3
Prerequisites: Two years of Korean language study and/or KOR 331 or permission of instructor
Corequisites: None
Type: LEC
Second half of the KOR 331-KOR 332 sequence. Continues with study of essays, novels, poetry, and drama, focusing on modern to contemporary literature.

KOR 351 Korean Literature in Translation I
Credits: 3
Prerequisites: ENG 101
Corequisites: None
Type: LEC
Classical Korean literature from early times to the 19th century, taught in two parts - prose and poetry. Prose includes folktale, essays, short stories (18th C) and pantom novels (18-19th C). Poetry includes haengga (the oldest poems before 10th C), shio (10-19th C), and kasas (18th-19th C). Cross listed with ENG 463.

KOR 352 Korean Literature in Translation II
Credits: 3
Prerequisites: ENG 101
Corequisites: None
Type: LEC
Modern Korean literature since the 20th century taught in two parts - prose and poetry. Prose is confined to short stories (Danpyunsosul), and they can be categorized into three distinctive periods of time: Japanese occupation (1905-1945), liberation and Korean wartime (1940s-50s), and industrialization (1960s and after). Poetry (Hyundai) is from modern Korean poets, and they can be more easily classified according to the themes.

KOR 391 The Feminine in Kabbalah
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the symbolic position of the feminine in Jewish mystical tradition through intensive, close reading of primary sources of kabbalistic texts, many including readings and discussions of primary sources of kabbalistic texts, many through intensive, close reading of the text.
KOR 482 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Topics vary each semester.

KOR 496 Internship/Practicum
Credits: 1
Prerequisites: None
Corequisites: None
Type: TUT
Hands-on experience in language and cultural studies at institutions and organizations in Western New York and/or nationwide.

KOR 499 Independent Study
Credits: 1
Prerequisites: permission of instructor
Corequisites: None
Type: TUT
For advanced students of Korean.

Latino/a Studies

LLS 200 Black Roots in Spanish American Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines literature of the Spanish American black experience by writers of African and European ancestry.

LLS 204 Introduction to Puerto Rican Culture
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC/SEM
Explores dichotomies, such as history and myth, culture and acculturation, and tradition and change in relation to the Puerto Rican experience on the island and on the mainland.

LLS 208 Twentieth-Century Puerto Rican Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC/SEM
Studies major Puerto Rican authors of the twentieth century within the framework of historical colonial Puerto Rican reality.

LLS 301 Ethnicity and the Puerto Rican Experience
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Examines class and race as coordinates of the Puerto Rican experience in the world; also considers ethnicity as it relates to the discovery and perception of reality.

LLS 303 Mainland Puerto Rican Experiences
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Examines lifestyle and emerging cultural personality of Puerto Ricans raised on the mainland, as well as Puerto Rican dynamics’ role in American social and cultural change.

LLS 305 Contemporary Afro-Caribbean Religion
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Familiarizes students with the rich cultural syncretisms of Afro-Caribbean culture from a Latin American perspective, challenges the misma of mysticism surrounding the religions as viewed by developed nations, and provides students with the basic skills necessary to conduct field research from an anthropological perspective.

LLS 307 History of Ideas in Puerto Rico
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Examines sociopolitical ideas that have exerted a decisive influence in the formation of a Puerto Rican culture and conscience from the second half of the nineteenth century to present times.

LLS 308 Black Presence in Latin American Culture
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Considers black presence and black heritage within Latin American culture, viewed through literature, films, art, and the theatre. Also explores stereotypes in arts and the mass media.

LLS 401 Seminar in Puerto Rican Studies
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Special topics pertaining to Puerto Rican and Latin American experiences.

LLS 402 Puerto Rican Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Surveys major issues in Puerto Rican society from the late 1800s to the present as represented in major literary texts from the five literary genres: novel, short story, drama, poetry, and essay. Class, gender, race, and ethnicity are the major topics that inform class readings and discussions.

LLS 404 Havana: City and Culture
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
An interdisciplinary course that examines Havana’s urban development, from the sixteenth century to the present, as a process that has produced not only a city of universal projections but also a complex symbolic universe that speaks of the struggles and aspirations of its citizenry.

Learning Center

ULC 147 Intermediate Algebra
Credits: 4
Prerequisites: ULC 147 or equivalent
Corequisites: None
Type: LEC
Reviews precalculus algebra and trigonometry, emphasizing functions (transformations, combinations, and composite functions). Topics include graphing and applications of linear, inverse, quadratic, polynomial and rational functions; limits and the derivatives; exponential and logarithmic functions and applications; and trigonometric functions emphasizing sine and cosine.

ULC 211 College Writing I
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Helps writers grasp the fundamentals of standard written English. Concentrates on expository essay writing for diverse audiences. Instruction initially emphasizes focus development, content generation, and organization. Sentence structure and grammar are also a focus. Experts students to revise their work extensively.
One-on-one conferences and small group feedback sessions are a regular part of the classroom setting.

ULC 252 Writing the Research Paper
Credits: 3
Prerequisites: ENG 101, ESL 408, or ULC 212
Corequisites: None
Type: LEC
Writing research and term papers is a primary activity during a student’s four years of college. Introduces students to proper research skills and procedures for collecting and reorganizing information into a well-written report. Teaches students a basic method of writing a research paper.
**Legal Studies**

**JLS 130 American Jury Trials**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Acquires students with the developmental patterns of cities, gives them a basic understanding of city government forms and how these fit into the state and national governmental systems, and increases their understanding of policies that have shaped city development and change.  
Focuses on cities from three perspectives: 1) spatial growth and development, 2) governmental structure and lawmaking authority, and 3) policies that shaped cities or were designed to change them in some way.

**JLS 132 Local Government Law and Politics**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces the structure of local governments, theories of local political decision-making, and laws relating to local decision makers. Also examines a few specific areas of local concern as case studies to determine whether the decision-making models conform to reality. These areas include public libraries, property taxes, school boards, sewers, and zoning. When appropriate, local decision-makers are invited to speak.

**JLS 133 Law and the Consumer**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Explores modern consumer trends and relevant legal doctrines; the nature of consumer transactions; credit practices, credit repair, debt collection, contract abuses, and statutory remedies.

**JLS 145 Urban Development, Law, and Policy**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Acquires students with the developmental patterns of cities, giving them a basic understanding of city government forms and how these fit into the state and national governmental systems, and increases their understanding of policies that have shaped city development and change.  
Focuses on cities from three perspectives: 1) spatial growth and development, 2) governmental structure and lawmaking authority, and 3) policies that shaped cities or were designed to change them in some way.

**Writing Systems**

**LIN 104 Writing Systems**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Surveys the ways in which natural languages have been, and are today, represented graphically throughout the world. We examine several types of systems (ideographic, logographic, syllabic, and alphabetic) and examine the linguistic principles that underlie each of these systems.

**Languages**

**LIN 106 Languages of the World**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Overview of the world's languages: what languages there are, what they are like, how they are similar, and how they are different.

**LIN 108 Roots of English**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Word roots in English, their history and development, meanings and combinations, usage and variations. Borrowings into and from English. English as a world language.

**LIN 198 Freshman Seminar**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: SEM  
Varies each semester depending on instructor.

**LIN 200 Language in Pluralistic America**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Language variation by ethnicity, race, class, gender, and religion in American society. (A cognate equivalent to UGC 211 American Pluralism.)

**LIN 205 Introduction to Linguistic Analysis**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces the structure of language (phonetics, phonology, morphology, semantics, and syntax), looking at a broad variety of languages; approaches to linguistic analysis and theory.

**LIN 207 Language, Society, and the Individual**

Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces the functions of language in social groups; the acquisition of language; the relationships among language, thought, and culture; bilingualism and second language teaching.
LIN 275 Languages and Cultures of Native North America
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Expression of meaning and linguistic concepts in a number of native languages of North America.

LIN 301 Structure of English: The Sound System
Credits: 3
Prerequisites: LIN 205
Corequisites: None
Type: LEC
Sound structure of English, including the articulation of sounds, phonological patterns and alternations, and dialects.

LIN 302 Structure of English: Grammar and Lexicon
Credits: 3
Prerequisites: LIN 205
Corequisites: None
Type: LEC
An interdisciplinary approach to the understanding of knowledge and mind, guided by principles of formal systems and computation. Concepts and approaches from psychology, philosophy, artificial intelligence, linguistics, and neuroscience.

LIN 345 Natural Language and the Computer
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Natural language applications such as search engines, and speech recognition play an increasingly important role in society. It seems like a very simple process, and yet it is very difficult. This class addresses the problems faced by computers in dealing with human language.

LIN 355 Child Language Development
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Acquisition of the structure and function of a child's native language. Relationships among the development of language, cognition, biology, and social interaction.

LIN 356 An Introduction to Contemporary Theories of Metaphor
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
General overview of the analysis of metaphors and analogy from a linguistic and cognitive perspective.

LIN 401 Introduction to the Computer
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
An interdisciplinary approach to the understanding of knowledge and mind, guided by principles of formal systems and computation. Concepts and approaches from psychology, philosophy, artificial intelligence, linguistics, and neuroscience.

LIN 402 Phonology Practicum
Credits: 3
Prerequisites: LIN 301 and LIN 302 or permission of instructor
Corequisites: None
Type: LEC
Analyzing the sound systems of diverse languages.

LIN 404 Discourse-Pragmatics
Credits: 3
Prerequisites: LIN 301 and LIN 302 or permission of instructor
Corequisites: None
Type: LEC
Use of language in communicative acts (e.g., speech acts, conversational principles, text structure, discourse-governed grammatical alternations, topic, focus, and theme).

LIN 405 Bilingualism and Language Contact
Credits: 3
Prerequisites: LIN 205 or permission of instructor
Corequisites: None
Type: LEC
Linguistic, psychological, educational, and sociocultural characteristics of bilingualism, multilingualism, and language contact.

LIN 406 Meaning Communication
Credits: 3
Prerequisites: LIN 205 or permission of instructor
Corequisites: None
Type: LEC
Focuses on social and referential aspects of human communication.

LIN 410 Morphology
Credits: 3
Prerequisites: LIN 302 or permission of instructor
Corequisites: None
Type: LEC
Structure of words; different theoretical approaches to the analysis of morphemes, words, and idioms.

LIN 413 Language and Cognition
Credits: 3
Prerequisites: LIN 205 and LIN 207, or permission of instructor
Corequisites: None
Type: LEC
Examines classificatory phenomena in lexical and grammatical structure from a cross-linguistic perspective, focusing on African, European, East Asian, and Native American languages.

LIN 414 History of the English Language
Credits: 4
Prerequisites: None
Corequisites: None
Type: SEM
Introduces the linguistic and cultural development of the English language from its beginnings to the present.

LIN 415 Syntax I
Credits: 3
Prerequisites: LIN 205
Corequisites: None
Type: LEC
Introduces the syntactic structure of Romance languages, what makes them similar (and distinct from other Indo-European languages), and how they differ from each other. Languages covered include Catalan, French, Italian, Portuguese, Romanian, and Spanish.

LIN 417 Psycholinguistics
Credits: 3
Prerequisites: LIN 205 and LIN 207, or permission of instructor
Corequisites: None
Type: LEC
Psycholinguistic processes involved in producing and comprehending language, including speech sounds, meaning, lexicon, syntax, discourse, and literacy.

LIN 421 Linguistic Anthropology
Credits: 3
Prerequisites: LIN 207 or permission of instructor
Corequisites: None
Type: LEC
Relationship between language and culture cross-culturally from the point of view of linguistic anthropology. Relies on primary readings, looking both at descriptive studies of particular languages and cultures, and theoretical issues, specifically the Linguistic Relativity Hypothesis.

LIN 425 Typology and Universals
Credits: 3
Prerequisites: LIN 302 or LIN 415
Corequisites: None
Type: LEC
Ways in which languages are similar to and different from each other, including morphological categories, word order, case marking, and grammatical relations.

LIN 431 Phonetics
Credits: 3
Prerequisites: LIN 205
Corequisites: None
Type: LEC
Fundamental aspects of phonetics: articulation, aerodynamics, acoustics, suprasegmentals, phonetic features, sound change, and universals; focus on cross-linguistic analysis.

LIN 432 Phonology I
Credits: 3
Prerequisites: LIN 205
Corequisites: None
Type: LEC
Thorough grounding in phonological analysis, using data from a wide variety of languages. Briefly introduces phonological theory.

LIN 433 Phonology II
Credits: 3
Prerequisites: LIN 432
Corequisites: None
Type: LEC
Current developments in phonological theory, including derivational and non-derivational approaches.

LIN 434 Syntax II
Credits: 3
Prerequisites: LIN 415
Corequisites: None
Type: LEC
Introduces contemporary syntactic theory, including generative and non-generative approaches.

LIN 437 The Syntax of Romance
Credits: 3
Prerequisites: Permission of instructor, LIN 415 or any other syntax course is recommended
Corequisites: None
Type: LEC
Introduces the syntactic structure of Romance languages, what makes them similar (and distinct from other Indo-European language families, e.g. Germanic languages like English) and how they differ from each other. Languages covered include Catalan, French, Italian, Portuguese, Romanian, and Spanish.

LIN 438 Semantics
Credits: 3
Prerequisites: LIN 205
Corequisites: None
Type: LEC
Introduces basic concepts and methods in the analysis of natural language meaning.

LIN 439 Historical Linguistics
Credits: 3
Prerequisites: LIN 432 or permission of instructor
Corequisites: None
Type: LEC
Language change, the divergence and convergence of dialects and languages in time and space, and linguistic reconstruction.

LIN 443 Semantics II
Credits: 3
Prerequisites: LIN 415 or permission of instructor
Corequisites: None
Type: LEC
Introduces the description of the meaning of sentences; focuses on how the meaning of sentences is built from the meaning of individual words.
LIN 448 Formal Semantics
Credits: 3
Prerequisites: LIN 415, LIN 443, or permission of instructor
Corequisites: None
Type: LEC
Surveys formal approaches to the study of meaning.

LIN 455 Language Acquisition
Credits: 3
Prerequisites: LIN 301 and LIN 302; or LIN 432 and LIN 415
Corequisites: None
Type: LEC
Surveys the child's linguistic development, primarily in phonology, morpho-syntax, semantics, and discourse; current controversies in acquisition theory.

LIN 465 Introduction to Dialectology
Credits: 3
Prerequisites: LIN 432 or equivalent
Corequisites: None
Type: LEC
Introduces the field of computational linguistics, which is concerned with the understanding and use of language by computers.

LIN 467 Computational Linguistics
Credits: 3
Prerequisites: permission of instructor
Corequisites: None
Type: LEC/REC
Introduces the field of computational linguistics, which is concerned with the understanding and use of language by computers.

LIN 481 Cognitive Foundations of Language
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores the meanings of grammatical elements across languages in order to understand the fundamental conceptual structure of language in general.

LIN 493 Sociolinguistics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Language structure and development in social contexts of speech communities; processes of linguistic change; linguistic behavior as an index of social status; problems of language or dialect minorities.

LIN 494 Senior Seminar
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Advanced seminar on various topics.

LIN 495 Supervised Teaching
Credits: 3
Prerequisites: Junior standing & Linguistics Major or permission of instructor
Corequisites: None
Type: TUT
For undergraduate teaching assistants.

LIN 496 Internship
Credits: 2
Prerequisites: None
Corequisites: None
Type: TUT
Language teaching experience either in a UB department (Linguistics, a language department, English Language Institute, etc.), in the Buffalo public schools, or at a public service agency (International Institute of Buffalo, Herman Badillo Institute, Literacy Volunteers, etc.). Open to majors and non-majors. Apply to director of undergraduate studies.

LIN 497 Honors Thesis
Credits: 3
Prerequisites: None
Corequisites: None
Type: TUT
Guidance in, and supervision of, the preparation of a research essay required to complete a degree with honors. Apply to director of undergraduate studies.

LIN 498 Senior Seminar
Credits: 3
Prerequisites: permission of instructor
Corequisites: None
Type: TUT
Advanced seminar on a special topic of linguistics research.

LIN 499 Independent Study
Credits: 1
Prerequisites: None
Corequisites: None
Type: TUT
Apply to director of undergraduate studies.

Mathematics

MTH 115 Survey of Algebra and Trigonometry
Credits: 4
Prerequisites: None
Corequisites: None
Type: LEC/LAB
A pre-calculus course; covers topics from the NYS Regents Course III: order, absolute value, inequalities, exponents, radicals, polynomials, rational expressions, solving systems of linear equations, quadratic equations and inequalities, functions (rational, logarithmic, exponential, trigonometric), graphing, trigonometric identities. Emphasizes applications to problems. This fast paced course reviews Course III and prepares students for further courses in mathematics. Students with three years of high school math but with weak algebra skills should take ULC 147 before MTH 115. Students who have had only two years of high school mathematics may take MTH 115, or may prefer to take a two-semester sequence covering this material more thoroughly and at a more moderate pace: ULC 147 and ULC 148.

MTH 117 Applications of Mathematical Concepts
Credits: 3
Prerequisites: two years of NYS Regents-level high school mathematics
Corequisites: None
Type: LEC
Intended to be non-technical. Emphasizes conceptually sophisticated and aesthetically appealing mathematical discoveries of the twentieth century, such as mathematical aspects of social choice, management science, and growth and symmetry.

MTH 119 Survey of Finite Mathematics
Credits: 4
Prerequisites: three years of NYS Regents-level high school mathematics
Corequisites: None
Type: LEC/LAB
Elementary topics in topology, probability, numerical sequences, and groups.

MTH 120 Selected Topics in Calculus
Credits: 1
Prerequisites: permission of undergraduate director
Corequisites: None
Type: TUT
Allows transfer students to efficiently learn specific topics from UB calculus courses that were not covered in calculus courses they took at other institutions.

MTH 121 Survey of Calculus and its Applications I
Credits: 4
Prerequisites: NYS Regents Course III or MTH 115 with grade of C or higher
Corequisites: None
Type: LEC/LAB
For students in social, biological, and management sciences. Limits, continuity, differentiation of algebraic and exponential functions; applications; introduces integration.

MTH 122 Survey of Calculus and Its Applications II
Credits: 4
Prerequisites: MTH 121 or MTH 131 with grade of C or higher
Corequisites: None
Type: LEC/LAB
Continuation of MTH 121. Maximization of functions of several variables using both calculus and elementary linear programming techniques. Elementary integration, simple differential equations, matrix algebra.

MTH 131 Mathematical Analysis for Management
Credits: 4
Prerequisites: NYS Regents Course III or MTH 115 with grade of C or higher
Corequisites: None
Type: LEC/LAB
For students in Management. Limits, continuity, differentiation of algebraic and exponential functions. Applications, partial derivatives and applications. Introduces integration.

MTH 141 College Calculus I
Credits: 4
Prerequisites: trigonometry or NYS Regents Course III or MTH 115 with grade of C or higher
Corequisites: None
Type: LEC/LAB
Beginning of a three-semester sequence in calculus for students of mathematics, natural sciences, and engineering. Covers differentiation and integration with applications.

MTH 142 College Calculus II
Credits: 4
Prerequisites: MTH 141 with grade of C or higher
Corequisites: None
Type: LEC/LAB
Differentiation and integration of transcendental functions; infinite sequences; series and power series; integration methods; additional topics in analytic geometry.

MTH 153 Honors Calculus I
Credits: 4
Prerequisites: permission of instructor or a score of 4 or 5 on the advanced placement calculus exam or equivalent. Credit may be given in addition to advanced placement credit
Corequisites: None
Type: LEC/LAB
First course in the honors sequence for intended math majors or for others with suitable preparation. Emphasizes proofs and concepts of calculus.

MTH 154 Honors Calculus II
Credits: 4
Prerequisites: MTH 153 with grade of C or higher or permission of instructor
Corequisites: None
Type: LEC/LAB
Continuation of MTH 153. May be taken in addition to advanced placement credit.
MTH 172 Principles of Mathematical Computing
Credits: 4
Prerequisites: CSE 113 with grade of C or higher
Corequisites: None
Type: LEC/LAB
Programming through data structures (sorting algorithms) and applications in scientific computing. Credit is not given for both MTH 172 and CSE 114.

MTH 191 Introduction to Discrete Mathematics I
Credits: 4
Prerequisites: working knowledge of a programming language
Corequisites: None
Type: LEC/LAB
First part of a two-semester sequence. Provides the mathematical foundations for the study of computer science. Also approved for mathematics majors in Concentration GS/ED. Topics include sets, relations, functions, mathematical induction, fundamental counting methods, difference equations, and sequences and series.

MTH 192 Introduction to Discrete Mathematics II
Credits: 4
Prerequisites: MTH 191 or CSE 191 with grade of C or higher
Corequisites: None
Type: LEC/LAB
Second part of a two-semester sequence. Provides the mathematical foundations for the study of computer science. Topics include discrete probability, mathematical logic, linear algebra, and graph theory. Same as CSE 192.

MTH 241 College Calculus III
Credits: 4
Prerequisites: MTH 142 with grade of C or higher
Corequisites: None
Type: LEC/LAB
Geometry and vectors of n-dimensional space; Green's theorem, Gauss theorem, Stokes theorem; multidimensional differentiation and integration; application to 2- and 3-D space.

MTH 251 Honors Calculus III
Credits: 4
Prerequisites: permission of instructor
Corequisites: None
Type: LEC/LAB
Third-semester calculus course for honors students and students with an excellent record in previous calculus courses. Emphasizes proofs and concepts of calculus.

MTH 272 Mathematics of Data Manipulation
Credits: 4
Prerequisites: MTH 172 or CSE 114 with grade of C or higher
Corequisites: None
Type: LEC/LAB
Aspects of data representation and manipulation needed for applications programming together with an introduction to their mathematical theory.

MTH 306 Introduction to Differential Equations
Credits: 4
Prerequisites: MTH 142 with grade of C or higher
Corequisites: None
Type: LEC/LAB
Analytic solutions, qualitative behavior of solutions to differential equations. First-order and higher-order ordinary differential equations, including nonlinear equations. Covers analytic, geometric, and numerical perspectives as well as an interplay between methods and model problems. Discusses necessary matrix theory and explores differential equation models of phenomena from various disciplines. Uses a mathematical software system designed to aid in the numerical and qualitative study of solutions, and in the geometric interpretation of solutions.

MTH 309 Introductory Linear Algebra
Credits: 4
Prerequisites: MTH 142 or MTH 192 or CSE 192 with grade of C or higher
Corequisites: None
Type: LEC/LAB
Linear equations, matrices, determinants, vector spaces, linear mappings, inner products, eigenvalues, eigenvectors.

MTH 310 Applications of Linear Algebra
Credits: 4
Prerequisites: MTH 306, MTH 309 with grades of C or higher
Corequisites: None
Type: LEC/LAB
Topics selected by the instructor.

MTH 311 Introduction to Higher Mathematics
Credits: 4
Prerequisites: MTH 241 with grade of C or higher
Corequisites: None
Type: LEC/LAB
Develops the student's ability to read, comprehend and construct rigorous proofs. Topics may include the following: the number systems N, Z, Q, R and the existence of irrational numbers; sets and functions; size of sets (finite/infinite, countable/uncountable); the countability of the rationals and the uncountability of the real numbers; boundedness; upper and lower bounds; lub's and glb's; lub and glb property; density of the rationals in the reals; Archimedean property of the reals; mathematical induction, including strong induction and the well-ordering of the natural numbers; sequences of real numbers, including the Monotone Convergence Theorem, Cauchy sequences, and the Bolzano-Weierstrass Theorem.

MTH 313 Elements of Set Theory
Credits: 4
Prerequisites: MTH 241 with grade of C or higher or permission of instructor
Corequisites: None
Type: LEC/LAB
Cardinals, ordinals, order-types, and operations on them. Axiom of choice. Sets.

MTH 314 Logic for Computer Science
Credits: 3
Prerequisites: at least one year of previous training in college mathematics and one year of programming
Corequisites: None
Type: LEC
Introduces predicate calculus, emphasizing proof theory rather than model theory. Gives some programming exercises.

MTH 335 Elements of Geometry
Credits: 4
Prerequisites: MTH 311, MTH 309 with grades of C or higher
Corequisites: None
Type: LEC
Euclidean and non-Euclidean geometries. Studies the Hilbert postulates and various models, emphasizing Euclidean and Lobachevskian geometries.

MTH 336 Projective Geometry
Credits: 4
Prerequisites: MTH 241 with grade of C or higher or permission of instructor
Corequisites: None
Type: LEC
Projective geometry is both a generalization and a simplification of familiar Euclidean geometry, omitting concepts of distance and angle. The small set of axioms has an important duality property. There are several famous theorems relating figures in the plane. May consider Three-D geometry and specialization to Euclidean and other geometries, as time permits. Requires no previous geometry.

MTH 337 Introduction to Scientific and Mathematical Computing
Credits: 4
Prerequisites: MTH 141 with grade of C or higher
Corequisites: None
Type: LEC/LAB
For students in all scientific disciplines. Introduces the fundamental numerical techniques used in high-performance scientific computing, including sorting, numerical integration, root finding for nonlinear systems, elementary linear algebra, and basic ordinary differential equations. Emphasizes an experimental approach to scientific computing. Students learn the basics of UNIX, write and debug programs in FORTRAN, and use computational and visualization tools in Matlab. Cross-listed as CSE 337.

MTH 343 Codes
Credits: 3
Prerequisites: MTH 309 with grade of C or higher
Corequisites: None
Type: LEC
Introduction to the study of code design and decoding. Topics include: error-correcting codes, decoding algorithms, and the algebraic structure of codes. The course covers linear codes and cyclic codes, as well as some applications of coding theory to information theory and cryptography.

MTH 353 Introduction to Combinatorics I
Credits: 3
Prerequisites: MTH 241 with grade of C or higher
Corequisites: None
Type: LEC
Permutations, combinations, and other problems of selecting and arranging objects subject to various restrictions; generating functions; recurrence relations; inclusion-exclusion theorem.

MTH 354 Introduction to Combinatorics II
Credits: 3
Prerequisites: MTH 241 with grade of C or higher
Corequisites: None
Type: LEC
Theory of graphs: Eulerian and Hamiltonian circuits; trees; planarity; colorability; directed graphs and tournaments; isomorphism; adjacency matrix; applications to problems in communication, scheduling, and traffic flow.

MTH 411 Probability Theory
Credits: 4
Prerequisites: MTH 141-MTH 142 or equivalent with grades of C or higher
Corequisites: None
Type: LEC/LAB
A first course in probability. Introduces the basic concepts of probability theory and addresses many concrete problems. A list of basic concepts includes axioms of probability, conditional probability, independence, random variables (continuous and discrete), distribution functions, expectation, variance, joint distribution functions, limit theorems.

MTH 412 Introduction to Statistical Inference
Credits: 4
Prerequisites: MTH 141 or equivalent and MTH 411 with grades of C or higher or permission of instructor
Corequisites: None
Type: LEC/LAB
Topics include review of probability, conditional probability, Bayes' Theorem; random variables and distributions; expectation and properties; covariance, correlation, and conditional expectation; special distributions; Central Limit Theorem and applications; estimations, including Bayes; estimators, maximum likelihood estimators, and their properties. Includes use of sufficient statistics to improve estimators, distribution of estimators, unbiasedness, hypothesis testing, linear statistical models, and statistical inference from the Bayesian point of view.

MTH 413 Introduction to Mathematical Logic I
Credits: 3
Prerequisites: MTH 313 with grade of C or higher or permission of instructor
Corequisites: None
Type: LEC
Informal and formal development of propositional calculus; predicate calculus and predicate calculus with equality; completeness theorem and some consequences.
MTH 414 Introduction to Mathematical Logic II
Credits: 3
Prerequisites: MTH 314 or MTH 413 with grade of C or higher
Corequisites: None
Type: LEC
Gödel's incompleteness theorem; decidability and recursiveness; consistency problems.

MTH 417 Survey of Multivariable Calculus
Credits: 4
Prerequisites: MTH 241 with grade of C or higher
Corequisites: None
Type: LEC/LAB
For math majors in Concentration C, and majors of science and engineering. Surveys functions of several variables; differentiation, composite, and implicit functions; critical points; line integrals; Green's theorem. Vector field theory; gradient, divergence, and curl; integral theorems. Introduces functions of a complex variable; curves and regions in the complex plane; analytic functions, Cauchy-Riemann equations, Cauchy integral formula. Applications.

MTH 418 Survey of Partial Differential Equations
Credits: 4
Prerequisites: MTH 306 with grade of C or higher
Corequisites: None
Type: LEC/LAB
Surveys elementary differential equations of physics; separation of variables and superposition of solutions; orthogonal functions and Fourier series. Introduces boundary value problems, Fourier and Laplace transforms.

MTH 419 Introduction to Algebra I
Credits: 4
Prerequisites: MTH 309 with grade of C or higher; MTH 311 with grade of C or higher recommended
Corequisites: None
Type: LEC/LAB
Topics in finite rings and algebraic number theory.

MTH 420 Introduction to Algebra II
Credits: 4
Prerequisites: MTH 309 with grade of C or higher; MTH 311 with grade of C or higher recommended
Corequisites: None
Type: LEC/LAB
Topics in advanced linear algebra.

MTH 424 Survey of Fourier Series Methods
Credits: 3
Prerequisites: MTH 431 with grade of C or higher or permission of instructor
Corequisites: None
Type: LEC
For mathematics, science, and engineering majors with strong mathematics backgrounds. Theory of Fourier series and transforms, orthogonal sets, special functions, applications.

MTH 425 Introduction to Complex Variables I
Credits: 3
Prerequisites: MTH 241 with grade of C or higher
Corequisites: None
Type: LEC
For students of physics, electrical and other areas of engineering, and mathematics. Analyticity; calculus over the complex numbers. Cauchy theorems, residues, singularities, conformal mapping. Weierstrass convergence theorem; analytic continuation.

MTH 426 Introduction to Complex Variables II
Credits: 3
Prerequisites: MTH 425 with grade of C or higher
Corequisites: None
Type: LEC
Continuation of MTH 425. Weierstrass and Mittag-Leffler theorems, harmonic functions, conformal mapping and Green's function, analytic equivalence, and Riemann mapping theorem. Monodromy theorem, external mappings.

MTH 427 Introduction to Topology I
Credits: 3
Prerequisites: MTH 431 with grade of C or higher
Corequisites: None
Type: LEC
Abstract topological spaces, bases, convergence, filters, and nets; separation axioms, continuity, and homeomorphisms; connectedness, separability, compactness.

MTH 428 Introduction to Topology II
Credits: 3
Prerequisites: MTH 427 with grade of C or higher
Corequisites: None
Type: LEC
Continuation of MTH 427. Product and quotient topologies; compactification; complete semi-metric spaces; metrization; topological algebra. Applies results to such fields as differential equations, numerical analysis, probability theory.

MTH 429 Introduction to the Theory of Numbers I
Credits: 3
Prerequisites: MTH 419 with grade of C or higher
Corequisites: None
Type: LEC
The Euclidean algorithm and unique factorization; arithmetical functions; congruences, residues, residue systems; primitive roots; certain diophantine equations.

MTH 430 Introduction to the Theory of Numbers II
Credits: 3
Prerequisites: MTH 429 with grade of C or higher
Corequisites: None
Type: LEC
Continuation of MTH 429. Irrational numbers; continued fractions from a geometric viewpoint; best rational approximations to real numbers; the Fermat-Pell equation; quadratic fields and integers. Applications to diophantine equations.

MTH 431 Introduction to Real Variables I
Credits: 4
Prerequisites: MTH 311 with grade of C or higher
Corequisites: None
Type: LEC/LAB
Comprehensive and rigorous course in the study of real valued functions of one real variable. Topics include sequences of numbers, limits and the Cauchy criterion, continuous functions, differentiation, inverse function theorem, Riemann integrability, sequences and series, uniform convergence. A prerequisite for most advanced courses in analysis.

MTH 432 Introduction to Real Variables II
Credits: 4
Prerequisites: MTH 431 with grade of C or higher
Corequisites: None
Type: LEC/LAB
Rigorous course in analyzing dimensions greater than one. Includes details of three basic theorems: the inverse function theorem, the implicit function theorem, and the change of variables theorem in multiple integrals. Topics include continuously differentiable functions, the chain rule, inverse and implicit function theorems, Riemann integration, partitions of unity, change of variables theorem.

MTH 434 Basic Measure Theory
Credits: 3
Prerequisites: MTH 431 with grade of C or higher
Corequisites: None
Type: LEC/LAB
The real numbers, the extended numbers, sequences, limit superior and limit inferior, topology for the real numbers and continuity of functions. The Lebesgue outer measure, measurable sets and Lebesgue measure, nonmeasurable sets, measurable functions. Egoroff's Theorem and Lusin's Theorem. The Riemann integral, the Lebesgue integral and the convergence theorems. Differentiation of functions of bounded variation, absolute continuity, the Lp spaces.

MTH 435 Introduction to Analysis
Credits: 3
Prerequisites: MTH 419 or MTH 429 with grade of C or higher
Corequisites: None
Type: LEC/LAB
Lebesgue measure, measurable sets and nonmeasurable sets, measurable functions. Egoroff's Theorem and Lusin's Theorem. The Riemann integral, the Lebesgue integral and the convergence theorems. Differentiation of functions of bounded variation, absolute continuity, the Lp spaces.

MTH 436 Introduction to Cryptography
Credits: 3
Prerequisites: MTH 419 or MTH 429 with grade of C or higher
Corequisites: None
Type: LEC
Exposes the basics of cryptography, which is the systematic study of methods of concealing messages from people who are not authorized to read them. Topics include the following: cryptosystem definitions and basic types of attacks; substitution ciphers. Hill ciphers; congruences and modular exponentiation; digital encryption standard; public key and RSA cryptosystems; pseudorandomness and primality testing; Pollard rho method; basic finite field theory; discrete log and digital signatures.

MTH 437 Introduction to Numerical Analysis I
Credits: 4
Prerequisites: CSE 113 or CSE 115; MTH 241, MTH 306, MTH 309 with grades of C or higher or permission of instructor
Corequisites: None
Type: LEC/LAB
First part of a 2-semester sequence which explores the design and implementation of numerical methods to solve the most common types of problems arising in science and engineering. Most such problems cannot be solved in terms of a closed analytical formula, but many can be handled with numerical methods learned in this course. Topics for the two semesters include: how a computer does arithmetic, solving systems of simultaneous linear or nonlinear equations, finding eigenvalues and eigenvectors of (large) matrices, minimizing a function of many variables, fitting smooth functions to data points (interpolation and regression), computing integrals, solving ordinary differential equations (initial and boundary value problems), and solving partial differential equations of elliptic, parabolic, and hyperbolic types. We study how and why numerical methods work, and also their errors and limitations. Students gain practical experience through course projects that entail writing computer programs.

MTH 438 Introduction to Numerical Analysis II
Credits: 4
Prerequisites: MTH 437 or CSE 437 with grade of C or higher
Corequisites: None
Type: LEC/LAB
Second part of the 2-semester sequence described under MTH 437.

MTH 443 Fundamentals of Applied Mathematics I
Credits: 4
Prerequisites: MTH 306 with grade of C or higher
Corequisites: None
Type: LEC
Mathematical formulation and analysis of models for phenomena in the natural sciences. Includes derivation of relevant differential equations from conservation laws and constitutive relations. Potential topics include diffusion, stationary solutions, traveling waves, linear stability analysis, scaling and dimensional analysis, perturbation methods, variational and phase-space methods, kinematics, and laws of motion for continuous media. Examples from areas might include, but are not confined to, biology, fluid dynamics, elasticity, chemistry, astrophysics, geophysics.

MTH 444 Fundamentals of Applied Mathematics II
Credits: 4
Prerequisites: MTH 306 with grade of C or higher
Corequisites: None
Type: LEC
Explores other topics described in MTH 443.

Undergraduate Course Descriptions 2007-08 University at Buffalo
MTH 455 Mathematical Modeling
Credits: 3
Prerequisites: MTH 306, MTH 309 with grades of C or higher
Corequisites: None
Type: LEC
Introduces the use of mathematical modeling in applied mathematics using a case study approach. Population ecology; chemical kinetics; traffic dynamics.

MTH 456 The Mathematics of Voting
Credits: 3
Prerequisites: Junior or senior standing
Corequisites: None
Type: LEC
Introduces the mathematical theory of voting - the systemic analysis of the ways to determine a choice of a group from the choices of individuals within a group - with applications to economies and politics. Examines voting procedures including the standard plurality vote, the antiplurality vote, the Borda count, Condorcet's method, and run-off elections. Provides an understanding of how different procedures effect group decisions. Uses convex geometry in the plane and in three spaces. Also discusses political power.

MTH 457 Problem Solving Seminar
Credits: 3
Prerequisites: MTH 306, MTH 411 and some experience with specific programming; minimum grades of B in these courses
Corequisites: None
Type: LEC
Open discussion and solving of a series of quantitatively based problems involving both individual and student team efforts. Central to the active and cooperative learning experience is communicating results via carefully written technical reports and oral presentations. Analytic, geometric, and numerical problem solving techniques may all be used.

MTH 458 Mathematical Finance
Credits: 3
Prerequisites: MTH 241, MTH 306, MTH 309 with grades of C or higher
Corequisites: None
Type: LEC
Introduces the mathematical theory and computation of modern financial products used in the banking and corporate world. Derives and analyzes mathematical models for the valuation of derivative products.

MTH 459 Mathematical Finance 2
Credits: 3
Prerequisites: MTH 458 with grade of C or higher
Corequisites: None
Type: LEC
Describes the mathematical development of both the theoretical and the computational techniques used to analyze financial instruments. Specific topics include utility functions; forwards, futures, and swaps; and modeling of derivatives and rigorous mathematical analysis of the models, both theoretically and computationally. Develops, as needed, the required ideas from partial differential equations and numerical analysis.

MTH 460 Theory of Games
Credits: 4
Prerequisites: MTH 241, MTH 309 with grades of C or higher or permission of instructor
Corequisites: None
Type: LEC/LAB
Introduces the mathematical theory of games - a systematic approach to modeling conflict, competition, cooperation, and negotiation - with applications to mathematics, economics, politics and evolutionary biology. A game, in mathematical terms, consists of a starting point and various choices made by 'players.' Each choice might lead to new choices or to an outcome that ends the game. Some choices might be random; some might be made without full information about what has transpired. The players are each trying to maximize their own payoff, but the play of each might influence the results of the others. The approaches Game Theory uses to analyze conflict between two or more people lead to results that can seem paradoxical as well as illuminating. The most important thing a student can take from this course is a useful way of approaching decisions, from the trivial - how does a couple decide which movie to see - to the critical - how should countries pursue their goals in cooperation or conflict with their allies and enemies. Partial list of topics: Prisoner's Dilemma, game trees, pure and mixed strategies, backward induction, normal form, Nash equilibrium, chance moves, utility functions, domination, convexity, payoff regions, strictly competitive games, separating hyperplanes, repeating games, and cooperative bargaining theory.

MTH 461 Topics in Algebra
Credits: 3
Prerequisites: permission of instructor
Corequisites: None
Type: LEC
Treats problems, methods, and recent developments pertaining to a specific area of algebra. Topics courses can be taken more than once for credit.

MTH 462 Topics in Analysis
Credits: 3
Prerequisites: permission of instructor
Corequisites: None
Type: LEC
Treats problems, methods, and recent developments pertaining to analysis. Topics courses can be taken more than once for credit.

MTH 463 Topics in Applied Mathematics
Credits: 3
Prerequisites: permission of instructor
Corequisites: None
Type: LEC
Treats problems, methods, and recent developments pertaining to applied mathematics. Topics courses can be taken more than once for credit.

MTH 464 Topics in Combinatorial Analysis
Credits: 3
Prerequisites: permission of instructor
Corequisites: None
Type: LEC
Treats problems, methods, and recent developments pertaining to combinatorial analysis. Topics courses can be taken more than once for credit.

MTH 465 Lectures in Geometry
Credits: 3
Prerequisites: permission of instructor
Corequisites: None
Type: LEC
Provides a broader understanding of differential geometry. Comprehensively introduces the theory of curves and surfaces in space. Moves toward the goal of viewing surfaces as special concrete examples of differentiable manifolds, reached by studying surfaces using tools that are basic to studying manifolds. Topics include curves in 3-D space, differential forms, Frenet formulas, patch computations, curvature, isometries, intrinsic geometry of surfaces. Serves as an introduction to more advanced courses involving differentiable manifolds.

MTH 466 Topics in Logic and Set Theory
Credits: 3
Prerequisites: permission of instructor
Corequisites: None
Type: LEC
Treats problems, methods, and recent developments pertaining to logic and set theory. Topics courses can be taken more than once for credit.

MTH 467 Topics in Number Theory
Credits: 3
Prerequisites: variable (set by instructor)
Corequisites: None
Type: LEC
Treats problems, methods, and recent developments in any area of mathematics that does not fit nearly or fully under the title of any other "Topics in..." course.

MTH 468 Topics in Numerical Analysis
Credits: 3
Prerequisites: permission of instructor
Corequisites: None
Type: LEC
Treats problems, methods, and recent developments in any area of mathematics that does not fit nearly or fully under the title of any other "Topics in..." course.

MTH 469 Topics in Topology
Credits: 3
Prerequisites: permission of instructor
Corequisites: None
Type: LEC
Treats problems, methods, and recent developments pertaining to topology. Topics courses can be taken more than once for credit.

MTH 470 Topics in Mathematics
Credits: 3
Prerequisites: variable (set by instructor)
Corequisites: None
Type: LEC
Treats problems, methods, and recent developments in any area of mathematics that does not fit nearly or fully under the title of any other "Topics in..." course.

MTH 496 Internship in Mathematics
Credits: 1
Prerequisites: Accepted math major, junior/senior standing with a minimum of 24 credits in mathematics, permission of director of undergraduate studies
Corequisites: None
Type: TUT
Students get field experience in mathematical employment, in business, industry or education, working under the joint supervision of an off-campus supervisor and a university faculty member, usually the director of undergraduate studies. May be taken once only.

MTH 497 Honors Thesis in Mathematics
Credits: 4
Prerequisites: math major seeking honors degree in mathematics
Corequisites: None
Type: TUT
Open only to math majors intending to seek an honors degree in mathematics. For information, consult the director of undergraduate studies in the Department of Mathematics.

MTH 499 Independent Study
Credits: 1
Prerequisites: None
Corequisites: None
Type: TUT
Individual study arranged between student and faculty member in an area of mathematics of particular interest to the student.
Mechanical Engineering

MAE 177 Introduction to Engineering Drawing and CAD

Credits: 2
Prerequisites: None
Corequisites: None
Type: LEC/LAB
Provides a first exposure to mechanical design for mechanical and aerospace engineers. Includes the nature and visual representation of mechanical components and principles of engineering drawing and sketching for mechanical design. Utilizes up-to-date computer-aided design software (such as AutoCad) for mechanical drawings and mechanical design.

MAE 204 Thermodynamics I

Credits: 3
Prerequisites: MTH 142 or equivalent
Corequisites: None
Type: LEC
Covers conservation of mass, first and second laws of thermodynamics, thermodynamic properties, equilibrium, and their application to physical and chemical systems.

MAE 277 Introduction to Mechanical and Aerospace Engineering Practice

Credits: 3
Prerequisites: EAS 140, MAE 177
Corequisites: None
Type: LEC
An overview of engineering in industry; introduces engineering design concepts, reverse engineering, case studies including a hands-on product design project, basics of manufacturing processes, elementary modeling of engineering systems, and technical communications. Students who have completed MAE 311, MAE 364, or MAE 377 should see the Director of Undergraduate Studies to select an alternative course.

MAE 311 Machines and Mechanisms I

Credits: 3
Prerequisites: EAS 209
Corequisites: MAE 381
Type: LEC
Examines analysis and design of machine elements; including theories of failure, fatigue strength, and endurance limits; fluctuating stresses; Goodman diagram; and fatigue design under torsional and combined stresses. Also covers design of bolted connections, fasteners, welds, springs, ball and roller bearings, journal bearings, gears, clutches, and brakes.

MAE 334 Introduction to Instrumentation and Computers

Credits: 3
Prerequisites: EAS 209
Corequisites: EAS 200
Type: LEC/LAB
Introduces data acquisition using A/D converters. Theory of A/D and D/A converters, fundamentals and examples of transducers used for mechanical measurements, static and dynamic response, amplifiers, theory of A/D and D/A converters, error analysis, elementary statistics. Two lectures and one three-hour laboratory weekly.

MAE 335 Fluid Mechanics

Credits: 3
Prerequisites: EAS 209
Corequisites: EAS 204
Type: LEC
Hydro- and aerostatics; substantial derivatives; Reynolds transport equation; control volume approach for conservation of mass, linear momentum, moment of momentum, and the first law of thermodynamics; dimensional analysis and similarity; laminar and turbulent pipe flow of liquids; boundary-layer theory; one-dimensional, compressible flow; potential flow.

MAE 336 Heat Transfer

Credits: 3
Prerequisites: EAS 204, EAS 209
Corequisites: None
Type: LEC
Introduces the transport of heat by conduction, convection, and radiation. Topics include transient and steady-state, one- and multidimensional heat conduction (treated both analytically and numerically); single-phase, laminar and turbulent, and forced and natural convection both within ducts and on external surfaces (dimensional analysis and empirical correlations); two-phase transport (boiling and condensation); radiative properties of materials and analysis of radiative heat transfer in enclosures; and analysis of heat exchangers.

MAE 338 Fluid and Heat Transfer Laboratory

Credits: 1
Prerequisites: MAE 335, MAE 336
Corequisites: None
Type: LAB
Complements coursework in fluid mechanics and heat transfer.

MAE 340 Systems Analysis

Credits: 4
Prerequisites: EAS 208, MAE 334
Corequisites: MAE 376
Type: LEC/LAB
Modeling and analysis of system dynamics, with an emphasis on engineering design; characterization of electrical, mechanical, thermal, and hydraulic system components; characterization of transducers; use of state space and matrix notation in system modeling and analysis; formulation methods for systems containing multiterminal components; formulation of state equations; digital computer simulation techniques; and analog computer concepts. Three credit-hours of lecture, and one three-hour lab per week.

MAE 364 Manufacturing Processes

Credits: 3
Prerequisites: None
Corequisites: MAE 381
Type: LEC
Examines manufacturing processes including casting, forming, cutting, joining, and molding of various engineering materials (metals and non-metals). Also studies manufacturing considerations in design including material and process selection, tooling, product quality, and properties/processing trade-offs. Includes quality control and automation issues.

MAE 376 Applied Mathematics for MAE

Credits: 3
Prerequisites: EAS 230, MTH 306
Corequisites: None
Type: LEC
Considers the solution of engineering problems using computational methods. Topics include linear algebra, sets of linear and nonlinear equations, an introduction to Matlab, ordinary differential equations, and matrix eigenvalues. Also covers topics in statistics (particularly with normal distributions) and engineering applications involving error analysis. Considers interpolation, splines, and nonlinear curve fitting as time permits.

MAE 377 Product Design in a CAD Environment

Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces data acquisition using A/D converters, fundamentals and examples of transducers used for mechanical measurements, static and dynamic response, amplifiers, theory of A/D and D/A converters, error analysis, elementary statistics. Two lectures and one three-hour laboratory weekly.

MAE 381 Engineering Materials

Credits: 3
Prerequisites: CHE 107
Corequisites: EAS 209
Type: LEC
Introduces the physics and chemistry of engineering materials including metals, ceramics, polymers, and composites. Covers the relationships among the processing, internal structure, material properties, and applications. Internal structure includes crystal structure, imperfections, and phases. Processing includes annealing, precipitation hardening, and heat treatment of steel. Properties include mechanical properties and corrosion behavior. Also considers current industrial needs.

MAE 385 Engineering Materials Laboratory

Credits: 1
Prerequisites: MAE 381
Corequisites: None
Type: LAB
Involves experiments designed to illustrate the relationships among the processing, internal structure and properties of engineering materials, emphasizing metals and their heat treatment, microstructure and mechanical properties. Provides hands-on experience in metallography, heat treatment and mechanical testing. Includes laboratory report writing and work in groups.

MAE 412 Machines and Mechanisms II

Credits: 3
Prerequisites: EAS 208, MAE 376
Corequisites: None
Type: LEC
Studies kinematics and dynamics of machinery; including linkages, geometry of motion, mobility, cam design, gear trains, and computing mechanisms. Also covers velocity and acceleration analysis by graphical, analytical, and numerical techniques; static and dynamic force analysis in machinery; engine analysis; flywheels; and balancing.

MAE 415 Analysis of Structures

Credits: 3
Prerequisites: EAS 209, MAE 376
Corequisites: None
Type: LEC
Examines the theory of elastic structural components; including elastic stress analysis; equilibrium, strain displacement, and compatibility; yield criteria; energy methods; finite element analysis and numerical methods.

MAE 416 Aerospace Structures

Credits: 3
Prerequisites: MAE 415
Corequisites: None
Type: LEC
Explores the theory of light structures; including beam bending, shear stress, shear center, and composite beams; sheetflow, warping stresses, and secondary warping; torsion of thin-walled single and multicell tubes; deformation of struts, plates, frames, and trusses; stress analysis of connections; composite structures and sandwich construction. Also covers computer implementation with applications to aircraft and aerospace structures.
MAE 417 Applied Orthopedic Biomechanics
Credits: 3
Prerequisites: EAS 209
Corequisites: None
Type: LEC
Studies the design of implants and prostheses in relation to the biomechanics of the musculoskeletal system. Topics include bone physiology, testing methods (tension, compression, bending, torsion, shear, and fatigue, including nondestructive testing), strain gage application, composite theory of bone, stress fractures and fatigue properties in the musculoskeletal system, fracture healing, external/internal fixation (Ilizarov, etc.), aging and osteoporosis, pathology of osteoarthritis, joint replacement and arthroplasty, and spine biomechanics.

MAE 420 Biomechanics of the Musculoskeletal System
Credits: 3
Prerequisites: EAS 209
Corequisites: None
Type: LEC
Reviews basic aspects of anatomy, including forces transmitted in the body, bones as structural members, and joint and muscle forces. Also considers kinaesthetics of body motions, instantaneous centers of joint motions, behavior of normal and abnormal joints, remodeling, biomaterials, and ligaments and tendons. Also studies functions of orthotics and prostheses, including design considerations. Involves a weekly seminar and one or two laboratory sessions.

MAE 422 Gas Dynamics
Credits: 3
Prerequisites: MAE 335
Corequisites: None
Type: LEC
Examines fundamentals of gas dynamics and compressible aerodynamics; including one-dimensional isentropic flow, one-dimensional flow with friction and with heating or cooling, and normal shocks. Also explores multidimensional flows, Prandtl-Meyer flow, oblique shocks, small perturbation theory, and supersonic airfoil theory.

MAE 423 Introduction to Propulsion
Credits: 3
Prerequisites: MAE 335
Corequisites: None
Type: LEC
Examines combustion thermodynamics; flow in nozzle, diffuser, and constant area. Reviews combustion thermodynamics; Type: LEC

MAE 424 Aerodynamics
Credits: 4
Prerequisites: MAE 335
Corequisites: None
Type: LEC/LAB
Examines flow over airfoils and wings; ideal flow theory, singularity solutions, superposition, source, and vortex panel methods; method of source panels; 2-D airfoil theory, pressure distributions and lift; effects of compressibility; finite wings; viscous aerodynamics; boundary-layer theory; and friction drag. Includes an aerodynamics laboratory experience, considering airfoil characteristics, boundary-layer measurements, and jet flow.

MAE 425 Spacecraft Dynamics and Control
Credits: 3
Prerequisites: MAE 376
Corequisites: None
Type: LEC
Introduces the concepts of spacecraft orbital mechanics and attitude dynamics. Orbital mechanics is the study of the postion of a space vehicle in the gravitational field of a central body, usually Earth or some other planet. The motion of a spacecraft is described by its position and velocity in a coordinate system fixed to the central body. In this course, we will study the basic equations of motion and how they can be used to determine the state of a spacecraft. We will also study the effects of external forces, such as atmospheric drag and solar radiation pressure, on the motion of a spacecraft.

MAE 426 Analytical Methods
Credits: 3
Prerequisites: MAE 376
Corequisites: None
Type: LEC
Covers solution methods for practical problems in mechanical and aerospace engineering, including partial differential equations. Uses Fourier series, orthogonal functions, Laplace transforms, examples of partial differential equations (e.g. waves and heat conduction equations), method of separation of variables, and Bessel functions. Also introduces an introduction to complex variable theory, and application to potential flow.

MAE 427 Finite Element Techniques
Credits: 3
Prerequisites: MAE 311, MAE 376
Corequisites: None
Type: LEC
Provides a detailed presentation of finite element techniques in the areas of solid mechanics, structures, heat transfer, and fluid flow, with applications from mechanical and aerospace engineering. Stresses computer applications.

MAE 431 Energy Systems
Credits: 3
Prerequisites: EAS 204, MAE 335
Corequisites: None
Type: LEC
Continuation of thermodynamics. Studies availability, psychrometrics, real gases, combustion thermochromistry, phase and chemical equilibrium, fuel cells, flow through nozzles, and blade passages.

MAE 432 Computer Aided Analysis in Fluid and Thermal Sciences
Credits: 3
Prerequisites: MAE 335, MAE 336, MAE 376
Corequisites: None
Type: LEC
For seniors and beginning graduate students interested in computer-based analysis of engineering problems in fluid mechanics and heat transfer. Emphasizes applications of computer analysis to engineering design of fluid/thermal systems. Surveys the general governing equations and methods to solve them, including finite-difference, finite-volume, panel methods, and finite element methods. Introduces state-of-the-art computer tools for analysis and graphical representation of results. Gives students a broad view of computational fluid mechanics for engineering applications in the fluid/thermal sciences.

MAE 433 Continuous Control System
Credits: 3
Prerequisites: MAE 340
Corequisites: None
Type: LEC
Examines system modeling and identification of plants to be controlled; use of feedback control systems; design of feedback control laws including P, I, D, block diagrams, transfer functions, and frequency response functions; control system design and analysis in the time domain and frequency domain; computer simulation of control systems; stability analysis using Routh-Hurwitz criterion; design for stability, speed of response, and accuracy; root locus, Bode, and Nyquist plots; compensation strategies; and state space control design and analysis.

MAE 434 Aircraft Design
Credits: 3
Prerequisites: MAE 436
Corequisites: MAE 416
Type: LEC
Involves practice predicting performance of existing designs with comparison to actual performance; and analyzes performance of new, student-designed aircraft. Conceptual aircraft design for specific mission profiles is facilitated by course-licensed software.

MAE 436 Flight Dynamics
Credits: 3
Prerequisites: MAE 340
Corequisites: None
Type: LEC
Reviews practical aerodynamics of wings and bodies, as well as performance of aircraft and missiles in the atmosphere. Topics include longitudinal, lateral, and directional static stability; control effectiveness; control forces; basic equations of motion of flight vehicles; aerodynamics, thrust and gravity forces; and stability derivatives. Analyzes aircraft and missile dynamic stability, as well as typical model responses to control inputs. Further studies autopilots, stability augmentation, and analysis of the pilot as a control-system element.

MAE 438 Smart Materials
Credits: 3
Prerequisites: MAE 381
Corequisites: None
Type: LEC
Introduces concepts and applications of smart materials, which refer to materials that can sense a certain stimulus and, in some cases, even react to the stimulus in a positive way so as to counteract negative effects of the stimulus. Strain/stress sensors and actuators are emphasized. Topics include intrinsically smart structural materials, piezoelectric and electrostrictive materials, magnetostrictive materials, electromagnetic and magnetothermoelectric fluids, shape memory materials and optical fibers.

MAE 439 Heating, Ventilation, and Air Conditioning
Credits: 3
Prerequisites: MAE 336
Corequisites: None
Type: LEC
Focuses on the transportation of supplies to the producer and from the producer to the consumer. Topics include warehousing, physical distribution, inventory control, transportation logistics, and newer types of inventory systems designed for more effective cost control.

MAE 440 Smart Materials
Credits: 3
Prerequisites: MAE 438
Corequisites: None
Type: LEC
Fosters an understanding of discrete variable systems; synthesis of discrete time controllers; engineering consideration of computer controlled systems.
MAE 448 Issues in Concurrent Design
Credits: 3
Prerequisites: senior standing
Corequisites: None
Type: LEC
Current interest is incorporating quality and manufacturing concerns in the early stages of the design process. This results in concepts as concurrent engineering, total quality management, function deployment, robust design, Taguchi’s quality functions, teaming approaches for complex design, and many others. This course addresses these concepts, particularly as they pertain to complex engineering design. Investigates industrial case studies and design projects incorporating some or all of the above concepts, provides first-hand experience.

MAE 449 Design of Complex Engineering Systems
Credits: 3
Prerequisites: senior standing
Corequisites: None
Type: LEC
Applies domain-independent design methods and decision-support theories and tools to the design of large-scale, complex systems. Covers the role of design, decision-making, and open engineering systems in a globally competitive society. Topics include descriptive and prescriptive models of design, decision theory, utility theory, game theory, design of experiments, approximation, and stochastic and deterministic processes.

MAE 451 Design Process and Methods
Credits: 3
Prerequisites: senior standing
Corequisites: None
Type: LEC
Discusses the fundamental concepts and activities of design processes. Investigates domain-independent topics of design processes. These topics include idea conception, teamwork, quality, experimental design, optimization, and technical communication. In addition, discusses fundamental methods of design, including design making, conceptual design, cost evaluation, ethics issues, and intellectual property issues, which are investigated through interactive lectures and individual and group exercises.

MAE 453 Inelastic Stress Analysis
Credits: 3
Prerequisites: MAE 415
Corequisites: None
Type: LEC
Examines the physical basis of inelastic behavior of materials; inelastic constitutive laws; thermoelastic, viscoelastic, plastic, and nonlinear creep; applications; flexure of beams; torsion of bars; and plane strain.

MAE 454 Road Vehicle Dynamics
Credits: 3
Prerequisites: MAE 340
Corequisites: None
Type: LEC
Covers the forces and torques generated by tires (under both traction and braking) and by the relative wind; two-wheel and four-wheel models of a vehicle; simplified stability and control of transients; steady-state response to external disturbances; effects of the rollover of freedom; equations of motion in body-fixed coordinates; lateral load transfer; force-moment analysis; and applications of feedback-control theory to the design of subsystems for improved performance.

MAE 454 Road Vehicle Dynamics
Credits: 3
Prerequisites: MAE 340
Corequisites: None
Type: LEC
Covers the forces and torques generated by tires (under both traction and braking) and by the relative wind; two-wheel and four-wheel models of a vehicle; simplified stability and control of transients; steady-state response to external disturbances; effects of the rollover of freedom; equations of motion in body-fixed coordinates; lateral load transfer; force-moment analysis; and applications of feedback-control theory to the design of subsystems for improved performance.

MAE 458 Tribology
Credits: 3
Prerequisites: senior standing or permission of instructor
Corequisites: None
Type: LEC
Examines friction, lubrication, and wear; contact of real surfaces; mechanics of friction; surface failures; boundary lubrication; fluid properties; thin-film lubrication; thick-film lubrication; and bearing and lubricant selection.

MAE 459 Manufacturing Automation
Credits: 3
Prerequisites: MAE 364
Corequisites: None
Type: LEC
Introduces the theory of automation as related to manufacturing and design integration, including hardware, software, and algorithm issues involved in fast and flexible product development cycles. Studies strategies of automated manufacturing systems; CAD/CAM; and integration, programming, and simulation. Additional topics include robotics (e.g. applications in welding, material handling, and human intensive processes), Reverse Engineering (e.g. modeling product from laser and CMM data of parts), Virtual Environments (e.g. industrial applications of virtual reality and prototyping), Intelligent Diagnostics (e.g. sensor fusion for machine tool monitoring), Automated Inspection (e.g. computer vision and methods of automated quality control), and Design for Manufacturing (e.g. issues involved in concurrent product development).

MAE 464 Manufacturing Automation
Credits: 3
Prerequisites: MAE 364
Corequisites: None
Type: LEC
Introduces the theory of automation as related to manufacturing and design integration, including hardware, software, and algorithm issues involved in fast and flexible product development cycles. Studies strategies of automated manufacturing systems; CAD/CAM; and integration, programming, and simulation. Additional topics include robotics (e.g. applications in welding, material handling, and human intensive processes), reverse engineering (e.g. modeling product from laser and CMM data of parts), virtual environments (e.g. industrial applications of virtual reality and prototyping), intelligent diagnostics (e.g. sensor fusion for machine tool monitoring), automated inspection (e.g. computer vision and methods of automated quality control), and design for manufacturing (e.g. issues involved in concurrent product development).

MAE 465 Environmental Acoustics
Credits: 3
Prerequisites: senior standing
Corequisites: None
Type: LEC
Introduces engineering acoustics and applications. Covers fundamentals of wave motion; propagation of plane and spherical waves; transmission and absorption of sound; microphones, amplifiers, and instrumentation for sound measurement; effects of noise on hearing, and speech interference; environmental noise criteria; sound quality; room acoustics; enclosures, resonators, filters and mufflers; and sources of noise, including their mechanisms, identification, and reduction.

MAE 466 Vibration and Shock
Credits: 3
Prerequisites: MAE 340, MAE 311 or MAE 415
Corequisites: None
Type: LEC
Introduces theoretical foundations to perform basic GN&C operations. Topics include review of rotational kinematics and dynamics, orbital mechanics, Kalman filtering, GPS tracking and navigation, attitude and orbit determination, and advanced GN&C techniques. Gives examples using spacecraft, aircraft, launch, and missile vehicles.

MAE 467 Thermodynamics of Engineering Materials
Credits: 3
Prerequisites: EAS 204, MAE 381
Corequisites: None
Type: LEC
The laws of classical thermodynamics are applied to the investigation of the general physical behavior required of all materials. In addition to the usual thermal and fluid (pressure) effects, electrical, magnetic, surface, and imposed stress/strain effects as well as their interactions are considered. The various attributes of pure (unary) and multi-component systems are analyzed such as phase stability, metastability, and instability; and the construction and interpretation of phase diagrams. Finally, elementary principles of statistical thermodynamics and atomic/molecular mechanisms are introduced in order to illustrate how thermodynamic properties may be predicted from first principles.

MAE 472 Guidance, Navigation & Control
Credits: 3
Prerequisites: MAE 340, knowledge of matrix theory
Corequisites: None
Type: LEC
Introduces the concepts of guidance, navigation and control (GN&C) of dynamical vehicles. Guidance equipment and software is first used to compute the vehicle location required to satisfy mission requirements. Navigation then tracks the vehicle’s actual location, and control then transports the vehicle to the required location. Introduces theoretical foundations to perform basic GN&C operations. Topics include review of rotational kinematics and dynamics, orbital mechanics, Kalman filtering, GPS tracking and navigation, attitude and orbit determination, and advanced GN&C techniques. Gives examples using spacecraft, aircraft, launch, and missile vehicles.

MAE 473 Graphics in Computer-Aided Design
Credits: 3
Prerequisites: senior standing
Corequisites: None
Type: LEC
Examines basic programming concepts in computer-aided design (CAD) for mechanical engineers, including interactive computing in design; the role of graphics in CAD; 2-D graphics; computer graphic operations, including curve generation and splines; and 3-D graphics, including data structures, rotation, translation, reflection, isometric and perspective projection, hidden line removal, shading, surface generation, solid modeling concepts, and object-oriented programming. Involves computer programming projects in C++.
MAE 476 Mechanotronics
Credits: 3
Prerequisites: MAE 334
Corequisites: None
Type: LEC
Studies the theory and practice of hardware and software interfacing of microprocessors with analog and digital sensor/actuators to realize mechatronic systems. Coverage includes microprocessor architectures, programming, digital and analog circuits, sensors, actuators, communication protocols, and real-time and operator interface issues as applicable to the design and implementation of simple mechatronic subsystems. Lectures emphasize basics of theory, architecture, and operation and are supplemented by labs aimed at building basic competence by hands-on practical implementation.

MAE 477 Computer-Aided Design Applications
Credits: 3
Prerequisites: senior standing
Corequisites: None
Type: LEC/LAB
Considers concepts in computer-aided engineering, including principles of computer graphics, finite element analysis, kinematic analysis, and animation of mechanical systems. Studies the use of integrated CAD/CAE tools. Incorporates projects in solid modeling, stress analysis of machine parts and structures, and mechanism response and animation.

MAE 478 Cardiovascular Biomechanics
Credits: 3
Prerequisites: MAE 335, senior standing in engineering
Corequisites: None
Type: LEC
Introduces the mechanical behavior of the cardiovascular system, basic physiology, and application of engineering fundamentals to obtain quantitative descriptions. Major topics include rheology of blood, mechanics of the heart, dynamics of blood flow in the heart and circulation, control of cardiac output, blood pressure, and regional blood flow.

MAE 482 Introduction to Composite Materials
Credits: 3
Prerequisites: MAE 381
Corequisites: None
Type: LEC
Provides a basic understanding of composite materials (manufacturing and mechanical properties). Examines behavior of directional and short-fiber composites; analysis of laminated composites; performance of composites, including fracture, fatigue, and creep under various conditions; fracture modes of composites; manufacturing and microstructural characterization of composites; experimental characterization and statistical analysis; and polymeric, metallic, and ceramic composites.

MAE 484 Principles and Materials for Micro-Electro-Mechanical Systems (MEMS)
Credits: 3
Prerequisites: MAE 381
Corequisites: None
Type: LEC
Current interest in micro-electro-mechanical systems or MEMS is driven by the need to provide a physical window to the micro-electronics systems, allowing them to sense and control motion, light, sound, heat, and other physical forces. Such micro-systems that integrate microelectronics and sensing elements on the same chip present an interesting engineering problem in terms of their design, fabrication, and choice of materials. Addresses the design, fabrication, and materials issues involved in MEMS. Displays these issues within the context of MEMS for mechanical sensing and actuation, magnetic devices, thermal devices, automotive applications, and BiMEMS for biomedical applications.

MAE 487 Modern Theory of Materials
Credits: 3
Prerequisites: PHY 207, MAE 381
Corequisites: None
Type: LEC
Develops fundamentals of modern theories of solids. Topics include reciprocal lattices, diffraction theory, electron energy bands, and phonon dispersion.

MAE 493 Mathematical Methods in Robotics
Credits: 3
Prerequisites: MAE 412
Corequisites: None
Type: LEC
A mathematical introduction to modeling, analysis and control of robotic systems. The first part of the course deals with the theoretical frameworks for modeling, analysis (kinematics and dynamics) and control of generic robotic mechanical systems, rooted in rich traditions of mechanics and geometry. The rest of the course will examine many of these issues in the context of serial-chain and parallel-chain manipulators, wheeled mobile robots (and hybrid combinations of these systems).

MAE 494 Design Project
Credits: 3
Prerequisites: senior standing
Corequisites: MAE 451
Type: TUT
Students working in teams of two or three under the supervision of a faculty member complete an original engineering design, which in some cases results in hardware. Design problems are drawn from industry and initiated by faculty. Where practical, two or more teams compete to solve the same problem. Teams meet individually with faculty on a weekly basis to discuss their projects.

MAE 496 Engineering Project
Credits: 3
Prerequisites: Senior standing and permission of instructor
Corequisites: None
Type: TUT
Provides experience in real-world engineering problems for senior mechanical and aerospace students. Assigns projects from local industry. Normally requires students to spend eight hours weekly in an engineering office. Students must present written and oral reports.

MAE 498 Undergraduate Research & Creative Activity
Credits: 1
Prerequisites: permission of instructor
Corequisites: None
Type: TUT
Students collaborate with faculty research mentors on an on-going project in a faculty member's laboratory or conduct independent research under the guidance of a faculty member. This experience provides students with an inquiry based learning opportunity and engages them as active learners in a research setting. Arrangements must be made with a specific faculty member before registration.

MAE 499 Independent Study in Mechanical Engineering
Credits: 1
Prerequisites: permission of instructor
Corequisites: None
Type: TUT
Independent engineering projects or reading courses may be arranged with individual faculty members. Students must make arrangements with a specific faculty member for work on a particular topic before registering.

Media Study

DMS 101 Basic Filmmaking
Credits: 4
Prerequisites: None
Corequisites: None
Type: SEM
Equipment, materials, and techniques involved in the construction of motion pictures; nature and process of the medium; 8mm and 16mm film. Lab fee.

DMS 103 Basic Video
Credits: 4
Prerequisites: None
Corequisites: None
Type: SEM
Image and sound formation; energy and time structures observed on the cathode ray tube; competency with basic video equipment in production of tapes. Lab fee.

DMS 105 Basic Documentary
Credits: 4
Prerequisites: None
Corequisites: None
Type: SEM
The fundamental theoretical, creative, and technical concerns of documentary and video production. Lab fee.

DMS 107 Film History I
Credits: 4
Prerequisites: None
Corequisites: None
Type: LEC/LAB
Surveys developments in international cinema from the 1890s to the present.

DMS 108 Film History II
Credits: 4
Prerequisites: None
Corequisites: None
Type: LEC/LAB
Surveys developments in international cinema from the 1980s to the present.

DMS 109 Introduction to Film Interpretation
Credits: 4
Prerequisites: None
Corequisites: None
Type: LEC
Identification of and intellectual appreciation for the elements of film as a major art form.

DMS 110 Programming for Digital Art
Credits: 4
Prerequisites: permission of instructor
Corequisites: None
Type: LEC
Introduces students to programming in a general purpose computer language. Discusses the underlying fundamentals of how computers, electronics, and digital media work; and the mathematical bases of these fields. Presents students with ways that programming can be used in creating new, interactive, digital media art. Recommended for students interested in programming graphics and virtual reality. Lab fee.
**DMS 121 Basic Digital Arts**
Credits: 4  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Fundamental concepts and methods that underlie the use of computers in generating and processing images and sound, in the context of typical contemporary artistic practice in painting, photography, film, video, and music. Lab fee.

**DMS 155 Introduction to New Media**
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC/LAB  
Introduces basic digital tools and fundamental concepts used in the development of interactive and non-interactive digital media. Focuses on theoretical and practical aspects of creating digital messages with authoring/presentation tools. Provides a foundation for creating a broad range of digital media. Lab fee.

**DMS 213 Immigration and Film**
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Examines silent and early sound films, as well as contemporary films; as a reflection of the immigrant experience, as a site of struggle between older and newer immigrants, and as an instrument of government politics.

**DMS 221 Web Design**
Credits: 4  
Prerequisites: None  
Corequisites: None  
Type: SEM  
Involves analyzing and creating web sites and web-based media for a variety of communication purposes. Addresses topics such as audience analysis, interface design, graphic design, and usability testing. Lab fee.

**DMS 231 3-D Character Animation**
Credits: 4  
Prerequisites: permission of instructor  
Corequisites: None  
Type: SEM  
Provides students with an understanding of 3-D animation principles and how to use digital tools effectively to create animated compositions. Lab fee.

**DMS 259 Introduction to Media Analysis**
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: SEM  
Provides students with a theoretical and historical grounding in analyzing the media and visual revolution of the 20th century. Encourages students to experiment with various media codes in their final exam projects in which they combine technical skills with analytical and critical thinking.

**DMS 303 Video Analysis**
Credits: 4  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Viewing and analyzing electronic image/sound structures and compositional models (video art) in a context of contemporary critical thought; viewing tapes, readings, and lectures; having participatory discussions; and entertaining visitors conversant with the state of the art.

**DMS 304 Video Analysis**
Credits: 4  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Viewing and analyzing electronic image/sound structures and compositional models (video art) in a context of contemporary critical thought; viewing tapes, readings, and lectures; having participatory discussions; and entertaining visitors conversant with the state of the art.

**DMS 305 Film Analysis**
Credits: 4  
Prerequisites: None  
Corequisites: None  
Type: LEC/LAB  
World cinema, American avant-garde, personal-independent cinema, including a view to its European counterpart.

**DMS 306 Film Analysis**
Credits: 4  
Prerequisites: None  
Corequisites: None  
Type: LEC/LAB  
World cinema, American avant-garde, personal-independent cinema, including a view to its European counterpart.

**DMS 333 Third World Cinema**
Credits: 4  
Prerequisites: None  
Corequisites: None  
Type: LEC/LAB  
Introduces students to a collection of film and television productions, from colonized, neo-colonized, and de-colonized countries whose political, economic, and cultural structures have been shaped by the colonial process.

**DMS 341 Intermediate Video Workshop**
Credits: 4  
Prerequisites: DMS 103 or DMS 105; portfolio review  
Corequisites: None  
Type: SEM  
Provides technical skills for effective use of video as an artistic tool for documentation and for personal expression. Covers lighting, editing, postproduction, video electronics, and staging. Lab fee.

**DMS 343 Digital Video**
Credits: 4  
Prerequisites: DMS 103, DMS 121  
Corequisites: None  
Type: LEC  
Video postproduction as digital study; integrating digital arts production with video imagery. Lab fee.

**DMS 400 Film Workshop I**
Credits: 4  
Prerequisites: DMS 101, portfolio review  
Corequisites: None  
Type: SEM  
Creative explorations and experimental articulations of primary cinematic realities; encourages development of personal styles. Lab fee.

**DMS 401 Advanced Film Production I**
Credits: 4  
Prerequisites: DMS 301 or permission of instructor  
Corequisites: None  
Type: SEM  
Introduces microphones, 1/4-inch magnetic tape recording and editing, and A&B roll editing. Lab fee.

**DMS 403 Advanced Documentary Production**
Credits: 4  
Prerequisites: DMS 341 or DMS 342; permission of instructor  
Corequisites: None  
Type: SEM  
Principles and theory of documentary form, ethical issues, methods. Production work in digital video, audio, web based media or still photography. Lab fee.

**DMS 406 Ethnographic Film**
Credits: 4  
Prerequisites: None  
Corequisites: None  
Type: SEM  
Provides a critical understanding of ethnographic media and cultural documents. Combines theory and hands-on production practice. Examines ethnocultural issues of representation, marginality, community collaboration, indigenous media and fieldwork for media.

**DMS 409 Nonfiction Film**
Credits: 4  
Prerequisites: None  
Corequisites: None  
Type: LEC/LAB  
Introduces students to a collection of non-fiction and documentary film and video from 1920 to the present, examining non-fiction and documentary filmmaking. Combines theory and hands-on production practice. Examines cultural issues of representation, marginality, community collaboration, indigenous media and fieldwork for media.

**DMS 413 Film Narrative**
Credits: 4  
Prerequisites: DMS 419; permission of instructor  
Corequisites: None  
Type: SEM/LAB  
The conceptual and practical production of digital art, primarily focusing on the manipulation and generation of moving images and sounds from within a computer environment. Lab fee.

**DMS 420 Advanced Digital Arts Production**
Credits: 4  
Prerequisites: DMS 121 or DMS 155; portfolio review  
Corequisites: None  
Type: SEM/LAB  
The conceptual and practical production of digital art, primarily focusing on the manipulation and generation of moving images and sounds from within a computer environment. Lab fee.

**DMS 415 Special Topics**
Credits: 4  
Prerequisites: None  
Corequisites: None  
Type: LEC/LAB  
In-depth study of media topics. Recent topics have included gender and technology, cyber theory, virtual communities, and interface design.

**DMS 416 Special Topics**
Credits: 4  
Prerequisites: None  
Corequisites: None  
Type: LEC/LAB  
In-depth study of media topics. Recent topics have included gender and technology, cyber theory, virtual communities, and interface design.

**DMS 419 Advanced Digital Arts Production**
Credits: 4  
Prerequisites: DMS 121 or DMS 155; portfolio review  
Corequisites: None  
Type: SEM/LAB  
The conceptual and practical production of digital art, primarily focusing on the manipulation and generation of moving images and sounds from within a computer environment. Lab fee.

**DMS 423 Programming Graphics I**
Credits: 3  
Prerequisites: DMS 121 or DMS 155; portfolio review  
Corequisites: None  
Type: SEM/LAB  
Production course. Introduces students to the concepts and practice of programming 2-D computer graphics using C++, Open GL, the GLUT libraries, and a basic sound server. The major focus is on creating interactive art experiences by programming both graphics and sound. Students write their own code to create customized computer tools and visuals and learn the fundamentals of graphics programming. Lab fee.

**DMS 424 Programming Graphics II**
Credits: 3  
Prerequisites: DMS 423; permission of instructor  
Corequisites: None  
Type: SEM/LAB  
Builds on DMS 423 and extends students’ knowledge of Open GL and C++ into programming virtual reality environments. Students use CAVElib software to build immersive 3-D virtual worlds. Lab fee.
DMS 425 Visual Media Poetics
Credits: 4
Prerequisites: None
Corequisites: None
Type: SEM
Provides an opportunity to explore the expressive potential of language as a creative material, with a focus on its alphabetic, visual, and aural levels, with a focus on forms of visual expression, including Concrete Poetry. We will be thinking about the multiple possibilities of language, as a conjunction of possibilities, textures, tones, meanings, and media. We will look at digital literature as a merging of form, image, language, and sound, and we will explore works that somehow do this to extraordinary effect.

DMS 426 Sound Media Poetics
Credits: 4
Prerequisites: None
Corequisites: None
Type: SEM
Experimental poetry, sound poetry, and digital media poetry share certain features of improvisation, composition, and structure. This seminar will concentrate on a close examination of innovative literary and media forms from the perspective of sound. It will involve careful reading of experimental poetry, close listening to sound poetry, and examination of digital media works, where applicable.

DMS 428 2D Animation Graphics
Credits: 4
Prerequisites: One of the following: DMS 121, DMS 101, DMS 103, or DMS 231
Corequisites: None
Type: SEM
Introduces students to major concepts in 2D animation and motion graphic design. Topics include developing concepts, rotoscoping, interpolated animation, and composing animation with video. Surveys the history of animation, fine arts animation, and contemporary trends in motion graphic design. Students will produce a finished portfolio of animation and motion graphic design work. (Production intensive design course.)

DMS 434 Special Topics
Credits: 4
Prerequisites: None
Corequisites: None
Type: SEM
Topics vary by semester.

DMS 435 Narrative Scriptwriting
Credits: 4
Prerequisites: Portfolio review, permission of instructor
Corequisites: None
Type: SEM
Gives students first-hand experience with all the primary aspects and stages of preproduction planning (scriptwriting and storyboarding or structural diagramming) of a feature film.

DMS 438 Building a VR Art Project I
Credits: 3
Prerequisites: DMS 121 or DMS 155; portfolio review
Corequisites: None
Type: SEM/LAB
For students with graphics programming experience and 3-D modeling packages (specifically Maya). Students collaborate as teams to build immersive virtual reality art experiences. Introduces the student to the Vgbrasil system, a high-level VR authoring toolkit for large-scale art projects. Lab fee.

DMS 439 Building a VR Art Project II
Credits: 3
Prerequisites: DMS 438, permission of instructor
Corequisites: None
Type: SEM/LAB
In this sequel to DMS 438 students extend their skills with VR authoring tools and programming/modeling for real-time applications. Focuses on networking with remote sites, as well as the use of agents, smart environments, gaming techniques, interface and interactivity, and effective sound design in VR. Lab fee.

DMS 440 Women Directors
Credits: 4
Prerequisites: None
Corequisites: None
Type: SEM
Introduces students to major concepts in 2D animation and motion graphic design. (Production intensive design course.)

DMS 442 Advanced Video Production
Credits: 4
Prerequisites: DMS 341 or DMS 342
Corequisites: None
Type: SEM/LAB
Making independent video art: camera work, editing, acting, and directing. Group exercises and critiques. Requires video production and postproduction outside of class. Lab fee.

DMS 444 Sound Design
Credits: 4
Prerequisites: portfolio review, or permission of instructor
Corequisites: None
Type: SEM
Explores issues and techniques in the area of sound design and audio production. Contextualizes the relationship between image and sound by drawing from many media forms, existing and/or original, to create and visually represent sound. Lab fee.

DMS 447 Sound Design
Credits: 4
Prerequisites: None
Corequisites: None
Type: LEC/LAB
Examines the history of the so-called avant-garde, from the Russian and French avant-garde of the 1920s to the postwar European and American experimental milieu. While focusing primarily on Europe and North America, the course gives attention to related developments in Africa, Asia, and South America, depending on availability. Questions of methodology, canon, genre, marginality, oppositionality, plagiarism, primitivism, originality, and ideology come into theoretical play while we examine the Institutional Mode and its discontents.

DMS 457 Locative Media and the City
Credits: 4
Prerequisites: None
Corequisites: None
Type: SEM
Introduces students to major concepts in 2D animation and motion graphic design. Topics include developing concepts, rotoscoping, interpolated animation, and composing animation with video. Surveys the history of animation, fine arts animation, and contemporary trends in motion graphic design. Students will produce a finished portfolio of animation and motion graphic design work. (Production intensive design course.)

DMS 461 Elements of Machine Culture
Credits: 4
Prerequisites: None
Corequisites: None
Type: SEM
Explores issues relating to culture and technology. Focuses on advanced readings and fiction pertaining to cyberculture. Critically analyzes technology including social meanings of technological tools, formalist and socialist art practices, the organic body, the mechanical engine, cyborgs, artificial intelligence, virtual reality, and robotics.

DMS 474 Seminar on Postmodernism
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Various theoretical discussions of postmodernism and approaches to particular texts, which define them as postmodern and/or use theories of postmodernism in their analysis.
Medical Technology

MT 101 Introduction to Medical Technology I
Credits: 1
Prerequisites: None
Corequisites: None
Type: SEM
Includes visits to local hospital laboratories to view medical technologists at work in the various specialty areas, and discussion of current topics guided by senior students under faculty supervision.

MT 150 The Human Body in Health and Disease
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces the basic biochemistry, emphasizing the human body, in conjunction with a basic knowledge of the effects of disease, heredity, abuse, and age on its organs or systems. Integrates current health-care issues where appropriate.

MT 201 Medical Terminology
Credits: 1
Prerequisites: None
Corequisites: None
Type: SEM
Includes medical terminology and discussion of current topics.

MT 302 Instrumental Analysis
Credits: 4
Prerequisites: coregistration in MT 401 or equivalent, MT and BTE majors only
Corequisites: None
Type: LEC/LAB
Covers principles and operation of a variety of instruments used in clinical laboratories and medical research. Discusses physical and chemical properties of matter that make measurement possible. Presents theoretical and practical aspects of spectrall, electrochemical, chromatographic, colligative and nuclear instrumentation. Also presents relevant calculations and applies them in lab experiments.

MT 401 Clinical Biochemistry
Credits: 4
Prerequisites: CHE 202 or equivalent or permission of instructor
Corequisites: None
Type: LEC/REC
Presents basic biochemistry, emphasizing human metabolic pathways and their relationship to health and disease. Case studies and problem-solving illustrate the applications of biochemistry to human disease and its diagnosis in the clinical laboratory.

MT 402 Fundamentals of Immunology
Credits: 3
Prerequisites: MIC 301 or equivalent or BIO 205 or equivalent
Corequisites: None
Type: LEC/LAB
Explores functions and mechanisms of the human immune system, including antigen-antibody reactions and their application to serological testing. Autoimmune diseases, syphilis, hepatitis, AIDS, infectious mononucleosis, cytomegalovirus infections and toxoplasmosis are among the disease states studied.

MT 405 Clinical Hemohematology
Credits: 4
Prerequisites: MT 402, junior standing in medical technology
Corequisites: None
Type: LEC/LAB
Studies human blood group antigens and antibodies; also examines compatibility testing for blood transfusions and problem solving involving case studies.

MT 407 Clinical Chemistry
Credits: 6
Prerequisites: MT 302, MT 401, junior standing in medical technology or permission of instructor
Corequisites: None
Type: LEC/LAB
Discusses pathological and physiological implications of electrolytes, blood gases, metabolites, enzymes, hormones, and drugs. Emphasizes developing technical competencies in analytical methods and computer-based data reduction and interpretation. Covers introductory methods of evaluation, quality control and basic statistical decision-making procedures.

MT 408 Hospital Chemistry
Credits: 3
Prerequisites: MT 407, second-semester senior standing in medical technology
Corequisites: None
Type: LAB
Assignment in a clinical laboratory that provides supervised practicum in clinical chemistry.

MT 409 Clinical Microbiology
Credits: 3
Prerequisites: MT 401 or BCH 403 or BIO 205; MIC 301 or equivalent
Corequisites: None
Type: LEC/LAB
Involves a comprehensive study of the classification, etiology, pathogenicity, laboratory identification, diagnosis, and treatment of bacterial infections. Emphasizes techniques and methods used to identify and isolate bacterial pathogens. Provides an overview of the classification and pathogenicity of viral infections. The laboratory consists of microscopic, biochemical and immunological procedures to identify pathogens from clinical specimens.

MT 410 Hospital Microbiology
Credits: 3
Prerequisites: MT 409, MT 429, second-semester senior standing in medical technology
Corequisites: None
Type: LAB
Assignment in a clinical laboratory that provides supervised practicum in clinical bacteriology.

MT 411 Clinical Hematology
Credits: 4
Prerequisites: MT 405, senior standing in medical technology
Corequisites: None
Type: LEC/LAB
Comprehensive study of clinical hematology. The lecture focuses on the components of blood and their specific role, hemapoiesis, and the incidence, etiology, diagnosis and treatment of hematologic disorders. The laboratory complements the lecture and provides the opportunity to develop a working knowledge of the basis for hematologic laboratory testing, the development of the technical skills for the performance of a variety of laboratory procedures and the interpretation of laboratory results.

MT 412 Hospital Hematology
Credits: 3
Prerequisites: second-semester senior standing in medical technology
Corequisites: None
Type: LAB
Assignment in a clinical laboratory that provides supervised practicum in clinical hematology.

MT 413 Clinical Elective
Credits: 2
Prerequisites: second-semester senior standing in medical technology
Corequisites: None
Type: LAB
Involves rotations designed to provide depth and enrichment of students’ experience in particular health-care areas pertinent to medical technology (e.g., virology, nuclear medicine, toxicology, tissue pathology, cardiology).

MT 414 Hospital Blood Bank
Credits: 3
Prerequisites: MT 405, second-semester senior standing in medical technology
Corequisites: None
Type: LAB
Assignment in a clinical laboratory that provides supervised practicum in blood banking.

MT 416 Clinical Parasitology
Credits: 1
Prerequisites: MT 409 or permission of instructor
Corequisites: None
Type: LEC/LAB
Assignment in a clinical laboratory that provides supervised practicum in blood banking.

MT 417 Laboratory Education and Seminar
Credits: 2
Prerequisites: senior standing in medical technology or permission of instructor
Corequisites: None
Type: LEC/SEM
Examines clinical and classroom instructional design, evaluation strategies, statistical tools, and teaching skills; seminar portion features student presentations about topics relevant to medical technology.

MT 419 Phlebotomy
Credits: 1
Prerequisites: second-semester senior standing in medical technology
Corequisites: None
Type: LEC/LAB
Assignment in a clinical laboratory that provides instruction and supervised practicum in blood-collection techniques.

MT 420 Clinical Correlations
Credits: 1
Prerequisites: second-semester senior standing in medical technology
Corequisites: None
Type: LEC
Discusses case studies using problem-solving techniques to analyze and interpret relevant clinical and laboratory data. A comprehensive examination covers all program coursework.

MT 421 Clinical Urinalysis and Body Fluids
Credits: 1
Prerequisites: MT 407 or permission of instructor
Corequisites: None
Type: LEC/LAB
Explores theoretical and applied aspects of urinalysis and body fluids.

MT 422 Biomedical Technology and Diagnostics
Credits: 2
Prerequisites: MT 401 or equivalent, senior standing in biotechnology or medical technology or permission of instructor
Corequisites: None
Type: LEC/LAB
Discusses the basic biochemistry needed to understand Mendelian genetics, basic techniques used in molecular biology, practical uses of molecular biotechnology in diagnosis, research and industry, and ethical issues surrounding the use of biotechnology. Laboratory consists of hands-on and demonstration exercises illustrating techniques used in biomolecular technology and diagnosis.

MT 423 Laboratory Management
Credits: 1
Prerequisites: second-semester senior standing in medical technology or permission of instructor
Corequisites: None
Type: LEC
Covers managerial theory and practice, resume writing and interviewing, influence of regulatory agencies, and current issues affecting health care.
MT 426 Technical Communications for the Scientific Professional
Credits: 4
Prerequisites: undergraduate junior bio-technology majors only or permission of instructor
Corequisites: None
Type: LEC
Covers the multiple styles of presentation that are required for effective technical communication, emphasizing the ability to accurately analyze and present data and technical information. Formats that are emphasized include writing abstracts, materials and methods, introductions with references, standard operating protocols, figure legends, and patent applications. Additional lectures cover avoiding common errors in grammar and usage, accessing library resources, and use of molecular biology databases. Expect graduate students to complete a grant application and generate a completed bibliography to be used in their thesis research. The course also covers the correct usage of multiple software packages used in science writing, including Adobe Photoshop, SPSS, and EndNote.

MT 428 Forensic Science
Credits: 3
Prerequisites: organic chemistry and biology or permission of instructor
Corequisites: None
Type: LEC
Introduces the field of forensic science, including the general areas of forensic serology, DNA analysis, chemistry/drug analysis, firearms/tool marks, arson, and trace evidence.

MT 429 Clinical Mycology
Credits: 1
Prerequisites: MIC 301 or equivalent, MT 409, senior standing in medical technology or permission of instructor
Corequisites: None
Type: LEC/LAB
Comprehensive study of the classification, etiology, pathogenity, diagnosis and treatment of fungal infections. Emphasizes techniques and methods used to isolate and identify fungal pathogens. The laboratory consists of microscopic and biochemical procedures to identify molds and yeasts from clinical specimens.

MT 430 Bioseparation Techniques
Credits: 2
Prerequisites: MT 302, MT 401
Corequisites: None
Type: LAB
Introduces the biochemistry of selected laboratory experiments designed to provide the student experience with common analytical techniques associated with the isolation, quantification, and characterization of biomolecules emphasizing instrumentation. Practices multiple bioseparation techniques including thin layer, classical column, high performance liquid, and gas chromatography as well as electrophoretic separation. Also employs automated and semi-automated chemistry systems.

MT 431 Clinical Hemostasis
Credits: 2
Prerequisites: MT 405, MT 411, senior standing in medical technology
Corequisites: None
Type: LEC/LAB
Comprehensive study of hemostasis including an in-depth examination of the components of coagulation and fibrinolytic systems and related disorders. Emphasizes the clinical and diagnostic features of the disorders of coagulation and fibrinolysis, and the selection and performance of appropriate laboratory tests.

MT 432 Introduction to Medical Genetics
Credits: 1
Prerequisites: MT 401 or equivalent
Corequisites: MT 422
Type: LEC
Discusses the basic principles of medical genetics, including basic Mendelian genetics, the molecular and biochemical basis of genetics, developmental genetics, genetics of complex diseases, genetics of cancer, genetic counseling, and prenatal diagnosis.

MT 434 Cell and Tissue Culture Techniques
Credits: 4
Prerequisites: BIO 201, MIC 301, MT 402
Corequisites: None
Type: LEC/LAB
Introduces the concepts of cell and tissue culture, with specific laboratory exercises designed to expose the student, through the use of primary and established cell lines, to sterile technique, media preparation, quality control and cell line validation, passaging of nonadherent and adherent cells, cryopreservation, and microscopy and digital photography. Cellular assays for viability, proliferation, invasion, and apoptosis are performed.

MT 445 Biotechnology Career Preparation
Credits: 1
Prerequisites: MT 401, MT 402, MT 302
Corequisites: None
Type: SEM
Explores various careers in biotechnology with participation by individuals from various biotechnology companies. Discusses career options such as research and development, quality control and quality assurance, regulatory affairs, marketing, management, patent development, and sales. Teaches written skills including preparation of a resume and a curriculum vitae. Oral skills include preparing for and experiencing a mock interview.

MT 499 Independent Study
Credits: 1
Prerequisites: permission of instructor
Corequisites: None
Type: TUT
Involves method and equipment evaluations or other short-term projects, arranged in consultation with individual faculty members.

MT 401 Principles of Medicinal Chemistry I
Credits: 3
Prerequisites: CHE 202 or CHE 252
Corequisites: None
Type: LEC
Intended for pharmacy majors. Covers physicochemical and structural basis of drug action, drug sources, mechanisms of action, drug design and selectivity, drug incompatibility, and drug interactions.

MT 402 Principles of Medicinal Chemistry II
Credits: 3
Prerequisites: MCH 401
Corequisites: None
Type: LEC
Studies mechanisms of action and other factors that influence drug action within specific drug classes of pharmacodynamic and chemotherapeutic drugs, drug structures, and structure-activity relationships.

MT 427 Combinatorial Chemistry
Credits: 2
Prerequisites: CHE 202 or CHE 252 or permission of instructor
Corequisites: None
Type: LAB/LEC
Examines medicinal and synthetic organic chemistry aspects of the design, simultaneous synthesis and computerized tracking, in a highly efficient and automated fashion of many new compounds. Students may take the lecture module alone, but the lab requires completion of the lecture and permission of the instructor.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Type</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Corequisites</th>
<th>Description</th>
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<tbody>
<tr>
<td>MCH 498</td>
<td>Undergraduate Research Participation in</td>
<td>TUT</td>
<td>1</td>
<td>None</td>
<td>None</td>
<td>Involves independent research projects in medicinal chemistry involving literature search and lab work.</td>
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<td></td>
<td>Medicinal Chemistry</td>
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<td>MCH 499</td>
<td>Independent Studies</td>
<td>TUT</td>
<td>1</td>
<td>None</td>
<td>None</td>
<td>Involves development of a special topic of student interest under a tutorial arrangement.</td>
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<tr>
<td>MIC 301</td>
<td>Fundamentals of Microbiology</td>
<td>DIS</td>
<td>4</td>
<td>BCH 403 or BIO 205; MIC 301, permission of instructor</td>
<td>None</td>
<td>Discusses and provides limited laboratory experience in some aspect of microbiology or immunology.</td>
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<tr>
<td>MIC 499</td>
<td>Independent Study</td>
<td>TUT</td>
<td>1</td>
<td>Permission of instructor</td>
<td>None</td>
<td>The first part of the course covers anatomy and function of the immune system, cell interactions, antibody structure and function, antigen-antibody reactions, cell-mediated immunity, and biological effects of immunological reactions. In the later half of this course we will discuss immune defense and immunopathology as it relates to allergy/hypersensitivity, inflammation, innate immunity, mucosal immunity, vaccines and tumor immunity. This is an introductory course and is presented entirely as lectures. Students will be expected to read assigned chapters in textbooks and /or some recent publications in scientific journals prior to each lecture. Assignments, announcements and slides for lectures are provided on line. An understanding of the principles of biochemistry, molecular and cell biology is necessary; students lacking this background may have difficulty with this course.</td>
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MFC 141 Dietary Supplements  
Credits: 1  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Reviews the history of dietary supplements. Topics covered include the various forms, doses, claims made, and possible adverse effects of the most popular dietary supplements. Critiques possible underlying mechanisms. Identifies populations that may be benefited or harmed. Teaches students to judge health claims and assess risks with the most popular dietary supplements. Evaluates students by an on-line multiple choice test for each supplement and a short review of a supplement not covered, or by more details on one present.

MFC 146 Introduction to C++  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces practical, real-world applications of C++ programming and the theory of object-oriented design for Windows. Covers templates, multiple inheritance, C++ streams, exception handling and other C++ programming topics. Previous programming knowledge is highly recommended.

MFC 149 Visual Basic  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
An event-driven programming course taught through the Visual Basic (6.0) environment. Students gain not only an understanding of programming but also how to use it in the context of a graphical user interface, such as Windows 95 or 98. Since Windows programs often share information, this programming language becomes very useful when creating macros and adding programming enhancements.

MFC 199 Career Decision Making  
Credits: 1  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Assists the adult student in clarifying education and career plans for decision making. Students learn how to assess personal interests, abilities, values, and goals; research and evaluate various career options; and organize a job search.

MFC 209 Special Topics in Micro Applications  
Credits: 1  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Content varies each semester.

MFC 210 Special Topics in Micro Applications  
Credits: 1  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Content varies each semester.

MFC 211 Special Topics in Micro Applications  
Credits: 1  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Content varies each semester.

MFC 212 Special Topics in Micro Applications  
Credits: 1  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Content varies each semester.

MFC 213 Special Topics in Micro Applications  
Credits: 1  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Content varies each semester.

MFC 214 Introduction to Perl  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Offers an introduction to Perl, a programming language that is widely used to translate data from one format to another and to generate web pages. Requires no previous programming experience. Topics include lists and hashes, loops, regular expressions, file and data handling, references, subroutines, modules, and an introduction to CGI. Uses free Perl software for Windows computers. Requires software purchase.

MFC 215 Programming for the Web II  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Students apply HTML and JavaScript to create web sites employing the principles of usability engineering and information architecture. Topics include creation of web page features, FTP, accessibility, usability, information design, and the graphic design of web pages. The course also includes introductions to cascading style sheets (CSS), dynamic HTML, and JavaScript. The Windows software used includes Text-pad, WSFTP, MS IE, and Netscape. Students do not need to purchase software because all software is included on the textbook's CD-ROM.

MFC 217 Programming C++ for Beginners  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
A non-object based introduction to programming and programming concepts using C++. Designed for individuals that have no prior programming experience. Topics include: algorithm development, step-by-step program design, the use of a compiler to run and debug code, and basic programming structures as loops, if statements and functions.

MFC 218 Microcomputer Applications II  
Credits: 3  
Prerequisites: MFC 118 or equivalent  
Corequisites: None  
Type: LEC  
Introduces relational database management concepts and their applications in business settings. Also includes discussion of settings and spreadsheet macro concepts. Expects students to complete a series of projects using Excel in a Windows environment.

MFC 221 Purchasing: Procurement Aspects  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Surveys the organization and practice of purchasing management in organizational settings, emphasizing procurement functions and responsibilities. Topics include capital equipment, inventory control, traffic, receiving, storeroom, and surplus material. Utilizes a case-study approach to determine the right quality, price, time, quantity, and source.

MFC 222 Purchasing: Managerial Aspects  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Surveys the applications and uses of purchasing as a function of management. Utilizes a case-study approach to such topics as planning and organization, appraisal and control, negotiation, legal aspects, value analysis, make or buy, automation, and government purchasing.

MFC 223 Transportation Management and Law  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
An overview of transportation management in today's deregulated environment. Topics include the Motor Carrier's Act and the Staggers Act of 1980, which altered motor and rail carriage in the United States; the effects of antitrust laws; hazardous materials regulations; and other regulations as they apply to transportation today.

MFC 224 Materials Management  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces the objectives, techniques, and organization of materials management. Topics include the economics of material plans; periodic control systems; order point; techniques of inventory control; and methods of improving coordination, communication, and control for increased productivity and decreased material cost. Knowledge of basic statistics helpful but not required.
MFC 250 Introduction to Health Care in the United States
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces the structure and process of health care in the United States, as well as critical policy issues the system confronts. Topics include the historical development of the health-care system; types of facilities, services, agencies, and personnel that constitute the system; levels of health-service intervention and special problems of high-risk populations, and responses to each by the health-care system; quality-control activities; and critical health-policy dilemmas that health-care administrators face.

MFC 273 Business Letters
Credits: 2
Prerequisites: None
Corequisites: None
Type: LEC
Elements of style that contribute to clear, effective professional business writing; common grammatical errors and how to avoid them; types of business documents and style appropriate to each.

MFC 274 Applied Marketing Techniques
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Allows students to apply a broad mix of marketing actions and techniques to real world situations. Includes in-depth review of how to establish a marketing plan, the marketing methods available to achieve corporate goals, and the creative process employed to communicate to the targeted market.

MFC 301 Introduction to Telecommunications
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Surveys the discipline of telecommunications in today’s deregulated environment for current or prospective managers of telephone and data communications systems. Topics include fundamental voice and data concepts, network design, customer premise equipment and central office equipment, modes of transmission, marketing and regulations issues, management of systems, and future directions. No prior technical background required.

MFC 303 Intermediate Data Communications and Networks
Credits: 3
Prerequisites: MFC 301 or permission of instructor
Corequisites: None
Type: LEC
Analyzes the methodologies and components used in communicating voice and data information by means of digital signals. Topics include fundamental concepts; characters and codes; communication lines, fiber optics, and satellite communications; terminals, modems, and interfaces; protocols; local area and packet networks; and network design, devices, and management.

MFC 305 Digital Internetworking
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Analyzes the emerging technologies used in today’s networks, emphasizing theory, design, and practical applications. Topics include Digital Technology, Text, Frame Relay, ISDN, and ATM, and applying them to multiprotocol networks. In-depth study of the equipment that comprises a network, including high-speed multiplexers, routers, FRADs, and switches.

MFC 307 Intermediate Local Area Networking
Credits: 3
Prerequisites: MFC 218 or MFC 303 or permission of instructor
Corequisites: None
Type: LEC
Focuses on the problems, problems, and trends involved in designing, implementing, and maintaining PC-based local area networks (LANs) for distributed application processing. Students learn concepts and techniques that enable them to become qualified participants in LAN projects.

MFC 308 Telecommunications Management
Credits: 3
Prerequisites: MFC 301
Corequisites: None
Type: LEC
Exposes students to various elements of telecommunications management, ranging from “selling” the project internally to vendor selection, RFP composition, project implementation, and management of the system after installation. Encourages development of basic analytical skills, including problem diagnosis, financial analysis, and overall project development. Strong writing skills are helpful.

MFC 310 Project Analysis and Design
Credits: 3
Prerequisites: MFC 101; MFC 115 or MFC 118; or permission of instructor
Corequisites: None
Type: LEC
Introduces business systems analysis. Topics include project initiation, preliminary and detailed investigation and analysis, design of systems I/O, file design, systems processing, and controls. The laboratory segment focuses on the use of these tools and techniques to develop the system life cycle and prepare feasibility reports, walkthrough exercises, system approval, and follow-up, and the use of CASE tools to supplement the required test material.

MFC 312 Database Management Systems
Credits: 3
Prerequisites: MFC 101, or MFC 118 and at least a one-semester course in a programming language, or permission of instructor
Corequisites: None
Type: LEC
Examines fundamental database concepts and architecture, with an emphasis on commercially available systems. Topics include critical evaluation of important implementation issues, approaches, and alternatives in a relational database environment. Projects are completed using the university mainframe computers; however, multiple platform experimentation is assigned to provide background in available software, such as ORACLE. Database languages include SQL, QMF, and subsequent Query languages implemented on specific systems.

MFC 318 Microcomputer Applications III
Credits: 3
Prerequisites: MFC 218 or equivalent
Corequisites: None
Type: LEC
Provides advanced-level studies in the design and implementation of computer applications based on relational database management systems. Focuses on systems theory design and programming in a Windows-based DBMS language. Topics include design methodologies, application generation, and interface with other Windows-based programs using Access. Students prepare, design, and implement several projects that cover all major issues.

MFC 330 Entrepreneurship and the Small Business
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines main characteristics of effective small-business operations. Skills and characteristics of the entrepreneur, forms of ownership, location, financing, organization, supervision, and marketing.

MFC 331 Financial Controls for Small Business
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines basic accounting practices and tax issues, emphasizing applications for small businesses. Purpose, design, and use of various financial documents; costs and inventory controls; creation and use of financial statements; tax liability and consequences; forms of revenue, costs, depreciation, and investments; daily operations; and tax planning.

MFC 332 Paralegal Principles and Procedures
Credits: 4
Prerequisites: None
Corequisites: None
Type: LEC
For employed paralegals or other legal workers or students interested in becoming paralegals. Students learn skills necessary to increase billable hours and productivity. Covers legal analytical research and writing, using legal terminology, professional legal writing of interoffice memos, civil pleadings, and discovery motions. Other topics covered are Evidence Preservation, Investigating, Introduction to Torts, Contracts, Criminal Law, Rules of Civil and Appellate Procedure, and Rules of Ethics for Paralegals.

MFC 334 Legal Research & Writing
Credits: 1
Prerequisites: MFC 32 or permission of instructor
Corequisites: None
Type: LEC
Students learn to independently conduct thorough law library research and draft memorandums of law on a variety of legal issues. Focuses on proficient legal analytical research and writing. Students draft several memorandums of law, each one more complex, which they should be able to use as professional writing samples.

MFC 335 The Small Business Plan and Sources of Capital
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Components of a business plan for launching or expanding small businesses. Students communicate a detailed description of the entrepreneurial idea, develop methodologies used in strategic planning, locate and evaluate various types of capital sources for financing a small business (e.g., bank financing, investors, agency financing, and customer/employee financing), and construct a formal business plan.
MFC 336 Bankruptcy Law
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Basics of bankruptcy law as an introductory bankruptcy manual for legal assistants. Ranges from detailed procedural aspects of common bankruptcy litigation practice to the policy and history behind bankruptcy law. Describes the differences of each chapter of bankruptcy code, the impact of the substantive rights and duties of the parties within each chapter, and appropriate procedures and deadlines to protect such rights. Also covers basic litigation issues such as stay relief, avoidance actions, dismissals, nondischargeables and confirmation matters. Students draft the basic court documents (Chapter 7, 11, 13 and petitions) as well as basic bankruptcy litigation complaints.

MFC 337 Promoting the Small Business
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Small businesses usually require promotional strategies different from those used in promoting larger ventures. Examines the market characteristics of various types of small businesses, and strategies that may be effective in promoting customer acceptance of their products and services.

MFC 338 Marketing Strategies
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Students learn the fundamentals of developing an effective marketing plan, profiling a target market, analyzing competition, differentiating and positioning a product/service, understanding the market's decision-making process, developing effective distribution and communication strategies, and understanding buyer behavior and how to improve sales performance.

MFC 339 Introduction to Oracle Database
Credits: 1
Prerequisites: None
Corequisites: None
Type: LEC
Utilizing the Oracle Database 10G Express Edition, students will learn the fundamentals of Relational Database Systems Management. This includes installation and configuration, command line management of the database including table, query, user creation and management. The course will then focus on using database development tools to begin developing database driven applications to ease data entry, management, and reporting. Course is intended for students with little to no prior database experience. A technical discipline is required to understand the more fundamental technology concepts. No programming experience is required.

MFC 340 Business Issues for Women and Minorities
Credits: 1
Prerequisites: None
Corequisites: None
Type: SEM
Describe the workplace for women and minorities comprehensive business start-up information. Includes information for new owners, funding sources, special opportunities and guest speakers on pertinent topics.

MFC 341 Interviewing Techniques for Personnel Administrators
Credits: 1
Prerequisites: None
Corequisites: None
Type: LEC
Types of interviewing (structured and unstructured, stress, single, group, etc.) and their uses in hiring, evaluation, termination, and other day-to-day areas of personnel administration; and legal and ethical restrictions on questioning. Exercises emphasize practical skills.

MFC 342 Performance Appraisal
Credits: 1
Prerequisites: None
Corequisites: None
Type: LEC
Nature, rationale, and methods of implementing various types of systems used in evaluating and recording an employee's performance; systems examined range from numerical rating scales to management by objective based systems, and performance versus developmental appraisals; exercises in developing and testing various systems.

MFC 343 Grievance Administration
Credits: 1
Prerequisites: None
Corequisites: None
Type: LEC
Employee grievance and grievance procedure within the framework of personnel policy, grievance investigation, how to argue a case and write a response, steps within a grievance, union and nonunion procedures, case studies and exercises in writing and answering grievances.

MFC 344 Personnel Records Systems
Credits: 1
Prerequisites: None
Corequisites: None
Type: LEC
Assists personnel staff in determining which types of records should be maintained in developing appropriate records maintenance systems; medical records; references and reference checking; legal requirements and restrictions, including right of access; and computer-based records systems.

MFC 345 Compensation Administration
Credits: 1
Prerequisites: None
Corequisites: None
Type: LEC
Overview of wage and salary administration for persons seeking a general knowledge of the field; job analysis, pricing, salary, and benefit structure; emphasizes writing job descriptions and on locating sources of salary information.

MFC 346 Diversity in the Workplace
Credits: 1
Prerequisites: None
Corequisites: None
Type: LEC
Explores the changing demographics of the workforce and strategies by which the potentials of diversity can be realized toward individual and organizational goals. Examines the processes of change, change styles, and methods of encouraging change, conflict and conflict resolution; and cultural bias and methods of managing the organizational assets that exist in individual and group differences.

MFC 347 OSHA-on-the-Job Safety Programs
Credits: 1
Prerequisites: None
Corequisites: None
Type: LEC
Concepts, issues, and approaches to occupational safety; federal and state regulations; legal and ethical responsibilities of industry; inspections; organization of safety committees; and safety awareness and training programs.

MFC 348 Benefits Administration
Credits: 1
Prerequisites: None
Corequisites: None
Type: LEC
Overview and approaches to the design and administration of employee benefits programs, including statutory benefits (unemployment, workers' compensation, disability, and social security), life and health insurance, payroll taxes and other non-wage benefits, and other fringe benefits. Assessment of costs and impact for the employer and employee; communicating benefits information to employees.

MFC 349 Regulation in the Health-Care Environment
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
The New York State health-care industry is one of the most regulated employers in the United States. Regulations permeate and control the entire system: hospitals; long-term care facilities; home health agencies; physicians, nurses, and care givers; insurance companies; ambulatory care facilities; and others. How a provider or facility functions and what services can be provided are determined by regulation or through the regulatory processes presented from the perspective of both the Department of Health and the specific providers.

MFC 350 Health-Care Data and its Uses
Credits: 1
Prerequisites: None
Corequisites: None
Type: LEC
Focuses on the varieties of information and data maintained by the health-care industry, and on how data analysis may be used to provide new insights and measurements from such perspectives as quality, need, usage, benefits, and cost.

MFC 351 Third-Party Reimbursement
Credits: 1
Prerequisites: None
Corequisites: None
Type: LEC
Policies and practices of third-party payers, their influence and impact on health-care economics, and the delivery of services within health-care facilities.

MFC 352 Medical Ethics and Substitute Decision Making
Credits: 1
Prerequisites: None
Corequisites: None
Type: LEC
Examines the everyday ethical problems faced by medical staff and family members, particularly in terminal cases. Students become familiar with legal documents and issues, such as health-care proxies, do not resuscitate orders, living wills, guardianships, and powers of attorney, that are related to the incompetent or unconscious hospitalized patient.

MFC 353 Leadership Issues for Health-Care Professionals
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Leadership issues designed to assist health-care professionals in personal development through the understanding of issues that affect their ability to complete tasks, prepare for the future, and motivate associates to perform up to their ability.

MFC 354 Integration of Leadership Skills and Total Quality Management
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines contemporary issues facing management and administration in a changing and expanding health-care environment. How to integrate and apply learned leadership skills in a total quality management concept.
MFC 361 Managed Care-Impact on Health Delivery System
Credits: 2
Prerequisites: None
Corequisites: None
Type: LEC
Introduces and defines managed care as it relates to each component of the health-care delivery system. Designed to be highly interactive; representatives of various agencies of the delivery system share their perspectives and experience. Intended for clinicians, managers, and supervisors in health-care organizations.

MFC 365 Basic Real Estate Law
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
The basics of real estate law emphasizing New York State real estate law and the practice and custom of real estate law in WNY. Students learn the key issues in representing the parties to a real estate transaction—the buyer, the seller, and the bank. Provides a practical approach to understanding real estate transactions. Students draft the basic real estate documents as well as basic real estate litigation complaints.

MFC 421 Advanced Purchasing Strategies
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Focuses on advanced purchasing techniques. Topics include cost and price analysis, the role of the buyer, international purchasing, the Robinson-Patman Act and other regulations, manual procedures, and computerized systems.

MFC 422 Fundamentals of Contract Management
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces contract management, emphasizing contract formation and other aspects of the pre-award phase. Topics include contract development and contract award, primary contracting agencies and authorities, types of contracts, special contracting situations, bids, negotiation, and award controversies.

MFC 423 Preparation and Negotiation of Contracts for Government and the Private Sector
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the principles and processes of contract negotiation in government and the private sector from establishment of source selection plan, solicitation, proposal preparation, and evaluation, through contract award. Topics include the importance of objectives and thorough preparation, effective negotiation strategies and tactics, players and roles, conventions and ethics, contract adjustment, and other post-award actions. Utilizes case studies and exercises to develop planning and negotiation skills.

MFC 424 Law of Procurement for Government and the Private Sector
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Analyzes not only the laws that regulate procurement in the public and private sector, such as the Uniform Commercial Code (UCC) and Federal Acquisition Regulations (FAR), but also those that regulate business relationships that arise from contractual agreements. Overview of the legal basis and policy implications of the government’s authority to enter into contracts for the acquisition of goods and services. Topics include contract types, methods of contracting, remedies for unsuccessful offers, contract modifications, terminations, inspection, acceptance and warranty, claims, and remedies. Contrasts social goals of the federal procurement law with the utilization and substitution of the UCC.

MFC 425 Logistics and Distribution Management
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Focuses on the transportation of supplies to the producer and from the producer to the consumer. Topics include warehousing, physical distribution, inventory control, transportation logistics, and newer types of inventory systems designed for more effective cost control.

MFC 426 Production Planning
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines plant location and layout, machine and workforce capacities, and other factors involved in production design. Topics include approaches used in production planning and timing, and their integration with the managerial objectives of the firm; as well as concepts used by engineers to measure and improve productivity, including job analysis, project management, and quality control.

MFC 427 Contract Price Analysis
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Overview of various approaches to cost/price analysis and their roles in government activities. Topics include quantitative methods of analyzing and forecasting costs, pricing practices and theory used by private industry, analyzing direct and indirect costs, the use of weighted guidelines, fact-finding and negotiation techniques, the Truth in Negotiations Act, cost accounting standards, and special-pricing problems.

MFC 428 Contract Administration: Post-Award
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Focuses on issues that affect the administration of government contracts from the time of award through closeout. Topics include contract interpretation; risk allocation; changes, delays and adjustments; differing site conditions; inspection; acceptance; warranties; disputes; payment; and discharge decisions, with specific reference to mental health patients, children, and the elderly.

MFC 450 Strategic Planning and Budgeting for Health-Care Departments
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Strategic planning and budgeting emphasizing the department within the health-care facility, as well as the relationship of the departmental plan and budget to that of the organization as a whole. Topics include stages in the development of a strategic plan; factors to be considered; how the plan may be presented, implemented, and revised; the relation of planning to budgeting; and the budget cycle and its components.

MFC 451 Human Resources Issues for Health-Care Managers
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces the management of human resources for clinicians and supervisors of health-care units. Key course components include leadership principles and styles, motivational theory, communication skills, counseling and corrective action, performance appraisal, management of change, and work groups and labor relations. Emphasizes the application of theory to practical day-to-day supervision in the workplace. Roundtable discussions by participants facilitate sharing of health-care management experiences.

MFC 452 Quality Management in Health Care
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces the basic components of a quality-management program within the health-care industry. Lecture, discussion, case studies, and projects develop familiarity with the principles of quality management interventions applicable to settings ranging from individual departments to small health-related businesses. Emphasizes implementing team concepts to foster customer-oriented health-care systems.

MFC 455 Introduction to Information Systems
Credits: 1
Prerequisites: None
Corequisites: None
Type: TUT
Introduction to technology implications to business and society. Course (e.g., APY 499). To enroll, the student must obtain approval of a university faculty member or an approved adjunct faculty member willing to oversee the project, and must submit a written outline of the proposed course of study for approval by MFC staff. For details, application forms, and deadlines, contact Millard Fillmore College at (716) 829-5131.

MFC 480 Independent Study
Credits: 1
Prerequisites: None
Corequisites: None
Type: TUT
For adult students who wish to work independently under the direction of a faculty member on a special academic problem or project that cannot be undertaken through a regular departmental independent study course (e.g., APY 499). To enroll, the student must obtain approval of a university faculty member or an approved adjunct faculty member willing to oversee the project, and must submit a written outline of the proposed course of study for approval by MFC staff. For details, application forms, and deadlines, contact Millard Fillmore College at (716) 829-5131.

MFC 481 Special Topics
Credits: 1
Prerequisites: None
Corequisites: None
Type: LEC
Topic of interest.

MFC 482 Special Topics
Credits: 1
Prerequisites: None
Corequisites: None
Type: LEC
Topic of interest.

MFC 483 Special Topics
Credits: 1
Prerequisites: None
Corequisites: None
Type: LEC
Topic of interest.

MFC 499 Independent Study
Credits: 1
Prerequisites: None
Corequisites: None
Type: TUT
For adult students who wish to work independently under the direction of a faculty member on a special academic problem or project that cannot be undertaken through a regular departmental independent study course (e.g., APY 499). To enroll, the student must obtain approval of a university faculty member or an approved adjunct faculty member willing to oversee the project, and must submit a written outline of the proposed course of study for approval by MFC staff. For details, application forms, and deadlines, contact Millard Fillmore College at (716) 829-5131.
Music

MUS 105 Elementary Harmony and Counterpoint I
Credits: 4
Prerequisites: None
Corequisites: None
Type: LEC/LAB
Develops skills and techniques necessary for aural and written comprehension of linear, melodic, harmonic, rhythmic, and formal aspects of eighteenth- and nineteenth-century music.

MUS 106 Elementary Harmony and Counterpoint II
Credits: 4
Prerequisites: None
Corequisites: None
Type: LEC/LAB
Continuation of MUS 105.

MUS 109 Master Composer
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies the life and times of a single composer or a group of composers. Designed for the nonmajor. Requires no background in music.

MUS 110 Seminar in Music History
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies a specific area of the history of music. Topics change with each offering. Specifically designed for nonmajors.

MUS 111 Music in Western Civilization
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
A chronological panorama of Western music from medieval times to the present day for nonmajors; explores and defines underlying social and cultural conditions with resultant parallels between music and other arts.

MUS 112 Music in Western Civilization
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
A chronological panorama of Western music from medieval times to the present day for nonmajors; explores and defines underlying social and cultural conditions with resultant parallels between music and other arts.

MUS 113 Music and Society
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
The relationship between music and twentieth-century American society. Examines art, folk, and commercial music in an attempt to uncover musical meaning, both as a reflection of and stimulus for social change. Requires no prior experience or training.

MUS 114 Genres of Music
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies one of the historically established musical forms, such as opera, concerto, symphony, quartet, computer music, or film music; lectures and listening assignments. Nonmajors; no prerequisites.

MUS 115 Understanding Music
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
History of musical style from the Renaissance to the present day. Examines selected masterpieces of Western music as well as such recent phenomena as serialism, minimalism, electronic, and computer music; requires no previous formal training in music.

MUS 116 Theory of Music for Nonmajors
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Elements of writing music; melody, rhythm, intervals, chords, harmony, tone color, and styles of musical expression. Music signs and symbols; traditional language of “tonal” music, with examples drawn from popular and classical music. No prerequisites.

MUS 117 Pop Music - Ragtime to Rock
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Lectures, recorded musical examples, and handouts both explain and describe the roots of American popular music as found in Early American, European, African, Latin American, and African American cultures.

MUS 118 Pop Song in America
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Fosters sensitivity to and familiarity with American popular song of this century. We study, listen to, and discuss popular song as an indicator of the mores and sentiments of America. Highlights the combined efforts of composer, lyricist, vocalist, instrumentalist, and arranger.

MUS 121 University Chorus
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Open to all members of the university community without audition; performs major works with orchestra.

MUS 130 UB Marching Band
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Open to all members of the university community without audition; performs in support of athletic events and other campus activities.

MUS 131 UB Concert Band
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
We rehearse and perform traditional and nontraditional band literature; one or two public concerts given each semester. Membership is drawn from all schools and departments of the university; open by audition.

MUS 133 Marching Band Drill Design and Orchestration
Credits: 3
Prerequisites: None
Corequisites: None
Type: TUT
This course provides thorough instruction in the compositional techniques of marching band drill design and orchestration. The course will contain basic theory and diagrammed applications of the Precision Drill System and Philosophy including, but not limited to, music, rhythmic applications, and eurhythms. The student will gain insight into the diagramming, plotting, and directing of evolutions, maneuvers, free form, and dynamic free form applications. Upon successful completion of the course, the student will be well versed in the fundamental principles involved in the visual aspects of exhibition marching. The goals is to prepare students for their role as drill instructors and design consultants for the UB Marching Band and any or all applications of visual choreography associated with athletic bands.

MUS 134 Fundamentals of Exhibition Marching
Credits: 3
Prerequisites: None
Corequisites: None
Type: TUT
This course provides thorough instruction in the fundamental principles of marching and maneuvering. The course contains basic theory and diagrammed applications of the Precision Drill System and Philosophy including, but not limited to, music, rhythmic applications, and eurhythms. The student will gain insight into the diagramming, plotting, and directing of evolutions, maneuvers, free form, and dynamic free form applications. Upon successful completion of the course, the student will be well versed in the fundamental principles involved in the visual aspects of exhibition marching. The goals is to prepare students for their role as drill instructors and design consultants for the UB Marching Band and any or all applications of visual choreography associated with athletic bands.

MUS 138 UB Symphony Orchestra
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Includes campus-wide and community-wide membership. We welcome performers concentrating in other disciplines; and give one or two public concerts each semester. Auditions are held at the beginning of each semester.

MUS 143 UB Percussion Ensemble
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Study and performance of works from the vast repertoire for percussion ensemble.

MUS 151 University Choir
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
A select vocal ensemble that performs a variety of choral literature; open to all students of the university by audition.

MUS 155 Basic Keyboard
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Functional piano, harmonization of melodies, scales, sight reading, accompanying, and preparation of pieces at various difficulty levels. Music majors only.
MUS 156 Jazz Ensemble: Big Band
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Traditional big band consisting of a reed section (saxes with some doubles on flute and clarinet), a brass section (trumpets and trombones), and a rhythm section (piano, guitar, bass, drums and vibes). The band studies and performs repertoire from the early big band swing period to today's big band contemporary and fusion sounds.

MUS 157 Jazz Ensemble: Combo
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Two ensembles are available: Jazz Ensemble Combo (JEC) and an Advanced (JE) Combo. The JEC performs and studies repertoire of the great jazz combos throughout the history of jazz including Art Blakey and the Jazz Messengers, Herbie Silver, Cannonball Adderley, and many others. Some jazz vocalists are encouraged to audition for this class.

The Advanced JE is a contemporary ensemble that performs very demanding and challenging music of this idiom. A prerequisite is an advanced level of improvisational skills, as well as compositional experience. Transcriptions and the creation of original compositions are integral components of this ensemble.

MUS 159 Piano
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private piano study. Audition required.

MUS 160 Piano
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private piano study. Audition required.

MUS 163 Organ
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private organ study. Requires audition.

MUS 164 Organ
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private organ study. Requires audition.

MUS 169 Voice
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private voice study. Requires audition.

MUS 170 Voice
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private voice study. Requires audition.

MUS 205 Jazz Theory
Credits: 3
Prerequisites: MUS 105-MUS 106 or permission of instructor
Corequisites: None
Type: LEC
Various approaches to analyzing jazz; variation techniques and the improvised line.

MUS 206 Music in the Movies
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines film music, considered within its chronological, thematic, and cultural contexts. Devotes class time to the presentation of classic or representative films in the history of film scoring, relevant musical material and concepts, and the basic vocabulary of music and film criticism.

MUS 211 Intermediate Harmony and Counterpoint I
Credits: 5
Prerequisites: None
Corequisites: None
Type: LEC/LAB
Builds on the foundation of first-year theory (MUS 105-MUS 106), systematically incorporates harmonic analysis and counterpoint.

MUS 212 Intermediate Harmony and Counterpoint II
Credits: 5
Prerequisites: None
Corequisites: None
Type: LEC/LAB
Builds on the foundation of first-year theory (MUS 105-MUS 106), systematically incorporates harmonic analysis and counterpoint.

MUS 213 Music History Survey I
Credits: 3
Prerequisites: one year of theory
Corequisites: None
Type: LEC
Chronological survey of music from ancient to baroque period.

MUS 214 Music History Survey II
Credits: 3
Prerequisites: MUS 213
Corequisites: None
Type: LEC
Chronological survey of music, continuing from the late baroque to twentieth century.

MUS 219 Vocal Diction
Credits: 2
Prerequisites: None
Corequisites: None
Type: LEC
Principles of pronunciation, enunciation, and articulation of Italian, French, and German texts, as related to solo vocal literature. Required of all voice students enrolled in primary study; open to pianists and, by permission of instructor to nonmajors.

MUS 246 World Music
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces the student to music from all over the world, and expands concepts of music in the process. Students learn about different instruments from other cultures and how they influence the music they produce, and explore common features of Asian, European, African, American, and Oceanic music. Students also learn different ways of listening. Designed for nonmajors. Requires no musical background.

MUS 265 Rock Music
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Surveys American music from Colonial times to the present with special emphasis on twentieth-century music.

MUS 300 Music Pluralism Since 1900
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies a segment of the vast catalog of chamber music literature. Content may change each semester, and cover a specific school, composer, style, or ensemble instrumentation. Requires a final paper and/or a final exam on repertoire.

MUS 311 Master Composer
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies the life and works of a single master composer or group of composers.

MUS 314 Chamber Music Literature
Credits: 2
Prerequisites: None
Corequisites: None
Type: LEC
Surveys American music from Colonial times to the present with special emphasis on twentieth-century music.

MUS 321 University Chorus
Credits: 3
Prerequisites: None
Corequisites: None
Type: LAB
Open to all members of the university community without audition; often performs major works with orchestra.

MUS 324 Piano Literature
Credits: 2
Prerequisites: None
Corequisites: None
Type: LEC
Literature of the piano covering works of one composer, several composers, or particular form or period. Requires a final paper and/or a final exam on repertoire. Required of piano majors; nonmajors may take the course by permission of instructor.

MUS 330 UB Pep Band
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Same as MUS 130.

MUS 331 UB Symphony Band
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Same as MUS 131.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Co-requisites</th>
<th>Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUS 333</td>
<td>Opera History</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Surveys the principal opera composers and their works.</td>
</tr>
<tr>
<td>MUS 334</td>
<td>UB Percussion Ensemble</td>
<td>2</td>
<td>None</td>
<td>None</td>
<td>LAB</td>
<td>Provides an opportunity to sing in a fully-staged opera as well as concert performances with orchestra. Opera Studio also affords students classes in acting, musical coaching, and scene work in their original languages. Special guest artists make presentations based on availability. Open by audition only.</td>
</tr>
<tr>
<td>MUS 338</td>
<td>UB Symphony Orchestra</td>
<td>2</td>
<td>None</td>
<td>None</td>
<td>LAB</td>
<td>Same as MUS 143.</td>
</tr>
<tr>
<td>MUS 340</td>
<td>Chamber Music</td>
<td>2</td>
<td>None</td>
<td>None</td>
<td>LAB</td>
<td>Music majors and interested performers may study and perform the chamber music repertoire. This can include such combinations as piano duo, string quartet, wind quintet, vocal duets and many other instrumental ensembles. Admission by audition.</td>
</tr>
<tr>
<td>MUS 341</td>
<td>History of Jazz I</td>
<td>3</td>
<td>MUS 115-MUS 116, MUS 213 or permission of instructor</td>
<td>None</td>
<td>LEC</td>
<td>1917 to the present; basic issues of musical structure that interest different genres and periods (form, improvised variation, blues, the vocal); assumes elementary analysis and basic understanding of music notation.</td>
</tr>
<tr>
<td>MUS 343</td>
<td>Elements of Conducting I</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Fundamental conducting and rehearsal techniques. Participation in performing ensembles expected.</td>
</tr>
<tr>
<td>MUS 344</td>
<td>Elements of Conducting II</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Fundamental conducting and rehearsal techniques. Participation in performing ensembles expected.</td>
</tr>
<tr>
<td>MUS 350</td>
<td>UB Opera Studio</td>
<td>2</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Provides an opportunity to sing in a fully-staged opera as well as concert performances with orchestra. Opera Studio also affords students classes in acting, musical coaching, and scene work in their original languages. Special guest artists make presentations based on availability. Open by audition only.</td>
</tr>
<tr>
<td>MUS 351</td>
<td>University Choir</td>
<td>2</td>
<td>None</td>
<td>None</td>
<td>LAB</td>
<td>Same as MUS 151.</td>
</tr>
<tr>
<td>MUS 356</td>
<td>Jazz Ensemble: Big Band</td>
<td>2</td>
<td>None</td>
<td>None</td>
<td>LAB</td>
<td>Same as MUS 156.</td>
</tr>
<tr>
<td>MUS 357</td>
<td>Jazz Ensemble: Combo</td>
<td>2</td>
<td>None</td>
<td>None</td>
<td>LAB</td>
<td>Same as MUS 157.</td>
</tr>
<tr>
<td>MUS 400</td>
<td>Composition Seminar</td>
<td>2</td>
<td>MUS 106</td>
<td>None</td>
<td>SEM</td>
<td>Introduces issues of free composition within the twentieth-century art-music tradition. Investigates relevant literatures and musical techniques. Students receive critical feedback on individual composition projects, working toward the goal of a concert of student works. Explores related issues, such as notation, instrumentation, orchestration, and aesthetics. Open to music majors only.</td>
</tr>
<tr>
<td>MUS 401</td>
<td>Introduction to Electronic Music I</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Two-semester course for students interested in music produced by electronic means. Explores the history and practice of electronic music, synthesizer music, and computer music. Examines experimental, rock, and other popular forms. Students learn basic studio techniques, synthesis/sound manipulation techniques, and psychoacoustics.</td>
</tr>
<tr>
<td>MUS 402</td>
<td>Introduction to Electronic Music II</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Two-semester course for students interested in music produced by electronic means. Explores the history and practice of electronic music, synthesizer music, and computer music. Examines experimental, rock, and other popular forms. Students learn basic studio techniques, synthesis/sound manipulation techniques, and psychoacoustics.</td>
</tr>
<tr>
<td>MUS 407</td>
<td>Composition</td>
<td>4</td>
<td>MUS 400</td>
<td>None</td>
<td>TUT</td>
<td>Writing and analysis under professional guidance in private consultations and class discussions. Students must present examples of their work and are accepted by permission of instructor. May be repeated for credit.</td>
</tr>
<tr>
<td>MUS 408</td>
<td>Genres of Music</td>
<td>3</td>
<td>MUS 213-MUS 214</td>
<td>None</td>
<td>LEC</td>
<td>Studies one of the historically established musical forms, such as opera, concerto, symphony, quartet; lectures and listening assignments. Music majors only or by permission of instructor.</td>
</tr>
<tr>
<td>MUS 409</td>
<td>Music of the Middle Ages</td>
<td>3</td>
<td>MUS 213-MUS 214</td>
<td>None</td>
<td>LEC</td>
<td>Western music from Gregorian chant to the fourteenth century.</td>
</tr>
<tr>
<td>MUS 410</td>
<td>Music of the Renaissance</td>
<td>3</td>
<td>MUS 213-MUS 214</td>
<td>None</td>
<td>LEC</td>
<td>Western music from Dunstable and the Burgundian School to the end of the sixteenth century.</td>
</tr>
<tr>
<td>MUS 411</td>
<td>Music of the Baroque Era</td>
<td>3</td>
<td>MUS 213-MUS 214</td>
<td>None</td>
<td>LEC</td>
<td>Music from Monteverdi to J. S. Bach.</td>
</tr>
<tr>
<td>MUS 413</td>
<td>Music of the Romantic Period</td>
<td>3</td>
<td>MUS 213-MUS 214</td>
<td>None</td>
<td>LEC</td>
<td>Nineteenth-century music from Schubert to Mahler.</td>
</tr>
<tr>
<td>MUS 414</td>
<td>Music of the Twentieth Century</td>
<td>3</td>
<td>MUS 213-MUS 214</td>
<td>None</td>
<td>LEC</td>
<td>Eighteenth-century counterpoint practice; requires writing compositions in this style.</td>
</tr>
<tr>
<td>MUS 421</td>
<td>Vocal Literature</td>
<td>2</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Masterworks of all periods; technical means employed in composition.</td>
</tr>
<tr>
<td>MUS 437</td>
<td>Analysis of Tonal Music</td>
<td>3</td>
<td>MUS 211-MUS 212</td>
<td>None</td>
<td>LEC</td>
<td>Analytical studies covering a variety of twentieth-century Western musical styles.</td>
</tr>
<tr>
<td>MUS 438</td>
<td>Analysis of Twentieth-Century Music</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Analytical studies covering a variety of twentieth-century Western musical styles.</td>
</tr>
<tr>
<td>MUS 447</td>
<td>Seminar in Music History</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Fulfills upper-level music history requirements of B.A. students preparing a senior thesis. May cover various aspects of music history according to the student’s individual needs.</td>
</tr>
<tr>
<td>MUS 450</td>
<td>Senior Thesis</td>
<td>4</td>
<td>None</td>
<td>None</td>
<td>TUT</td>
<td>Same as MUS 157.</td>
</tr>
</tbody>
</table>
MUS 451 Trombone
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private trombone study. Audition required.

MUS 452 Trombone
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private trombone study. Audition required.

MUS 453 Tubा
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private tubа study. Audition required.

MUS 454 Tubа
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private tubа study. Audition required.

MUS 455 Percussion
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private percussion study. Audition required.

MUS 456 Percussion
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private percussion study. Audition required.

MUS 459 Piano
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private piano study. Audition required.

MUS 460 Piano
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private piano study. Audition required.

MUS 461 Harp
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private harp study. Audition required.

MUS 462 Harp
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private harp study. Audition required.

MUS 463 Organ
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private organ study. Audition required.

MUS 464 Organ
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private organ study. Audition required.

MUS 465 Harpsichord
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private harpsichord study. Audition required.

MUS 466 Harpsichord
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private harpsichord study. Audition required.

MUS 467 Guitar
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private guitar study. Audition required.

MUS 468 Guitar
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private guitar study. Audition required.

MUS 469 Voice
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private voice study. Audition required.

MUS 470 Voice
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private voice study. Audition required.

MUS 471 Violin
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private violin study. Audition required.

MUS 472 Violin
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private violin study. Audition required.

MUS 473 Viola
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private violа study. Audition required.

MUS 474 Viola
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private violа study. Audition required.

MUS 475 Cello
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private cello study. Audition required.

MUS 476 Cello
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private cello study. Audition required.

MUS 477 Double Bass
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private double bass study. Audition required.

MUS 478 Double Bass
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private double bass study. Audition required.

MUS 479 Saxophone
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private saxophone study. Audition required.

MUS 480 Saxophone
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private saxophone study. Audition required.

MUS 481 Flute
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private flute study. Audition required.

MUS 482 Flute
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private flute study. Audition required.

MUS 483 Oboe
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private oboe study. Audition required.

MUS 484 Oboe
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private oboe study. Audition required.

MUS 485 Clarinet
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private clarinet study. Audition required.

MUS 486 Clarinet
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private clarinet study. Audition required.

MUS 487 Bassoon
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private bassoon study. Audition required.

MUS 488 Bassoon
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private bassoon study. Audition required.

MUS 489 French Horn
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private French horn study. Audition required.

MUS 490 French Horn
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private French horn study. Audition required.

MUS 491 Trumpet
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private trumpet study. Audition required.

MUS 492 Trumpet
Credits: 2
Prerequisites: None
Corequisites: None
Type: LAB
Private trumpet study. Audition required.

MUS 499 Independent Study
Credits: 1
Prerequisites: None
Corequisites: None
Type: TUT
Open to music majors engaged in special study or research in areas not covered by regular courses; permission of the supervising faculty member.
Music Theatre

MTR 210 Musical Theatre Repertoire 1
Credits: 3
Prerequisites: Sophomore MTR majors or permission of instructor
Corequisites: None
Type: SEM
Introduces the student to music theatre song literature from 1959/1960 to the present with concurrent exploration and development of the skills needed to create a music theatre song performance.

MTR 220 Musical Theatre Dance I
Credits: 3
Prerequisites: THD 213, THD 263, or permission of instructor
Corequisites: None
Type: SEM
Basic music theatre dance from the late nineteenth century to the present. Class work coordinates dance styles with shows from each period.

MTR 250 Special Topics in Music Theatre
Credits: 1
Prerequisites: Music Theatre majors or permission of instructor
Corequisites: None
Type: SEM
Specialized aspects of the musical theatre. Usually includes literary and/or historical content in addition to practical technique work. Content varies from semester to semester.

MTR 302 Musical Theatre History
Credits: 3
Prerequisites: sophomore standing or above
Corequisites: None
Type: LEC
Explores the development of music theatre forms. Includes the contributions of composers, lyricists, and librettists, as well as cast members, directors, choreographers, and designers; and employs audio and video materials.

MTR 305 Music Theatre Workshop
Credits: 3
Prerequisites: MTR 210 or permission of instructor
Corequisites: None
Type: SEM
Develops audition and performance techniques. Includes vocal coaching, résumé writing, musical theatre scene study, and mock auditions. Uses videotape for critical analysis of student progress.

MTR 320 Musical Theatre Dance II
Credits: 3
Prerequisites: MTR 220; THD 214 or THD 341; and THD 264 or THD 371; or permission of instructor
Corequisites: None
Type: SEM
History of American show dance emphasizing style and practical application of knowledge. Continuation of MTR 220 concentrating on technical expertise as well as historical knowledge.

MTR 350 Special Topics in Music Theatre
Credits: 1
Prerequisites: Music Theatre majors or permission of instructor
Corequisites: None
Type: SEM
Specialized aspects of the musical theatre. Usually includes literary and/or historical content in addition to practical technique work. Content varies from semester to semester.

MTR 405 GEMMAS Musical Theatre Company
Credits: 1
Prerequisites: audition or permission of instructor
Corequisites: None
Type: SEM
Professional performance experience in musical theatre production; working through the process from rehearsals to a staged production.

MTR 410 Musical Theatre Repertoire 2
Credits: 3
Prerequisites: MTR 210, MTR majors, or permission of instructor.
Corequisites: None
Type: SEM
Introduces the student to music theatre song literature from 1866 to 1959 and continues to build on music theatre song performance skills begun in MTR 210.

MTR 420 Musical Theatre Scene Study
Credits: 3
Prerequisites: MTR 210, MTR 302, TH 209, one semester of vocal instruction, or permission of instructor
Corequisites: None
Type: SEM
Develops scene analysis, script preparation, and rehearsal techniques specifically geared toward music theatre performance. Explores texts from the classical and contemporary repertory. Emphasizes the integration of singing and acting techniques in performance.

MTR 450 Special Topics in Music Theatre
Credits: 1
Prerequisites: permission of instructor
Corequisites: None
Type: SEM
Focuses on a specialized aspect of the musical theatre. Usually includes literary and/or historical content in addition to practical technique work. Content varies from semester to semester.

MTR 460 Applied Voice for Music Theatre
Credits: 2
Prerequisites: permission of instructor
Corequisites: None
Type: SEM
Proper technique of vocal production. Gives particular attention to the utilization of healthy technique in performing musical theatre material.

MTR 496 Internship Music Theatre
Credits: 2
Prerequisites: permission of instructor
Corequisites: None
Type: TUT
An internship position with a professional company or educational institution. Focuses on actual “field” experience to enhance the student’s preparation for a professional career in musical theatre.

MTR 499 Independent Study
Credits: 1
Prerequisites: Junior standing
Corequisites: None
Type: TUT
Substantial independent research or applied project under the supervision of a faculty member.

Nuclear Medicine Technology

NMD 113 Human Anatomy
Credits: 4
Prerequisites: None
Corequisites: None
Type: LEC/LAB
Explores applications of nuclear medicine career opportunities and current topics within the NMT field. Includes visits to clinical sites, the NMT Program facilities on the South Campus and the University Central Radiopharmaceutical Service facility.

NMD 305 Immunology for NMT
Credits: 1
Prerequisites: junior standing in nuclear medicine technology or permission of instructor
Corequisites: None
Type: LEC
Reviews basic immunology terminology and principles, including innate versus acquired immunity, antigens, immunogenecity, structural and biological properties of antibodies, antigen-antibody reactions, and tumor immunology.

NMD 321 Basic Radiation Science
Credits: 4
Prerequisites: junior standing in nuclear medicine technology
Corequisites: None
Type: LEC
Studies basic radiation physics, including atomic structure, radioactivity, properties of ionizing radiation, interaction with matter, and principles of basic radiation detection devices.

NMD 324 Nuclear Medicine Instrumentation
Credits: 4
Prerequisites: NMD 321 and NMD 325, junior standing in nuclear medicine technology
Corequisites: None
Type: LEC/LAB/REC
Examines operating principles of basic and advanced radiation measuring and imaging devices, including sodium-iodide crystal detectors and PET Scanners.
NMD 325 Radiation Safety for NMT
Credits: 2
Prerequisites: junior standing in nuclear medicine technology or permission of instructor
Corequisites: None
Type: LEC/REC
Covers indications and procedures for all routine approved radionuclide therapies, as well as radiation exposure/protective for the general public from patients receiving these therapies.

NMD 327 Radiobiology for NMT
Credits: 2
Prerequisites: junior standing in nuclear medicine technology or permission of instructor
Corequisites: None
Type: LEC
Emphasizes human radiobiology. Explores factors influencing radiation effects, tissue-sensitivity tolerance, and clinical applications.

NMD 340 Patient Care and Management in NMT
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Reviews the basic hospital organization, medical records, and patient-care skills required in nuclear medicine.

NMD 399 InVivo Studies I
Credits: 3
Prerequisites: Junior standing in nuclear medicine technology
Corequisites: None
Type: LEC
Involves clinical procedures of the following organ systems - skeletal, respiratory, gastro-intestinal, genitourinary, and endocrine. Focuses on indications, technical aspects, and the technologist's responsibilities.

NMD 400 InVivo Studies II
Credits: 3
Prerequisites: NMD 385
Corequisites: NMD 324
Type: LEC/LAB
Involves radionuclide procedures of the central nervous system and the heart. Focuses on indications, technical aspects, and the technologist's responsibilities.

NMD 401 InVivo Studies III
Credits: 2
Prerequisites: Senior standing in nuclear medicine technology
Corequisites: NMD 425 and NMD 496
Type: LEC
Covers tumor imaging procedures, infrequently performed procedures, and positron emission tomography (PET) studies. Focuses on indications, technical aspects, and the technologist's responsibilities.

NMD 415 Radionuclide Therapy
Credits: .8
Prerequisites: Senior standing in nuclear medicine technology
Corequisites: None
Type: LEC
Covers indications and procedures for all routine approved radionuclide therapies, as well as radiation exposure/protective for the general public from patients receiving these therapies.

NMD 416 Departmental Management for NMT
Credits: .8
Prerequisites: Senior standing in nuclear medicine technology
Corequisites: NMD 322 and NMD 425
Type: LEC
Helps students understand the roles and responsibilities of supervising technologists. Topics covered include quality assurance, hospital accreditation, accreditation specific to nuclear medicine, billing management, staff supervision, informed consent, liability, and malpractice.

NMD 425 Clinical Conference A
Credits: 2
Prerequisites: senior standing in nuclear medicine technology
Corequisites: None
Type: SEM
Reviews case studies and journal articles, and demonstrates and discusses topics related to the in vivo studies courses and to Clinical Rotations. Requires oral presentations.

NMD 426 Clinical Conference B
Credits: 2
Prerequisites: senior standing in nuclear medicine technology
Corequisites: None
Type: SEM
Reviews case studies and journal articles, and demonstrates and discusses topics related to the in vivo studies courses and to Clinical Rotations. Requires oral presentations.

NMD 451 Radiopharmacy
Credits: 2
Prerequisites: junior standing in nuclear medicine technology
Corequisites: None
Type: LEC/REC
Examines selected physiological and psychosocial factors that influence and characterize human growth and development throughout the life span. Includes lecture/discussion and class participation activities.

NUR 101 Introduction to Nursing
Credits: 2
Prerequisites: None
Corequisites: None
Type: SEM
Introduces first year nursing students to the nursing profession, the School of Nursing, and the university. Students learn skills required for success in their academic program with an emphasis on the critical thinking process and the varied career paths in the nursing profession.

NUR 102 Careers in the Health Sciences
Credits: 1
Prerequisites: None
Corequisites: None
Type: LEC
This course will introduce students to various health science disciplines within the University and will assist them in identifying the associated career paths. It will offer informational lectures by various department representatives who will inform students as to the expectations and necessary skills needed for success in each discipline. This course is designed specifically to assist students in choosing a major for a career that meets their personal objectives.

NUR 250 Human Growth and Development
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines concepts embodied in selected nursing theories and models and how they relate to professional issues in practice. Explores selected issues and dilemmas confronting both the nursing profession and the individual nurse. Also discusses various value systems that operate within the health-care delivery system and that influence professional practice.

NUR 293 Informatics and the Health Care Environment
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces students to the health care environment emphasizing the interface between the health care delivery system and informatics. Explores various environments where people obtain health care, including clinics, hospitals, and community settings. Students become familiar with health care terminology, government health policies, and the influence of managed care organizations on the health care environment.

NUR 302 Professional Issues in Practice
Credits: 1
Prerequisites: BS/MS nursing student pre-006
Corequisites: None
Type: SEM
Examines concepts embodied in selected nursing theories and models and how they relate to professional issues in practice. Explores selected issues and dilemmas confronting both the nursing profession and the individual nurse. Also discusses various value systems that operate within the health-care delivery system and that influence professional practice.

MIC 301 Fundamentals of Microbiology
Credits: 4
Prerequisites: College course in biology and chemistry; at least sophomore standing
Corequisites: None
Type: LEC/LAB
This course is a cross listed section of MIC 301 Fundamentals of Microbiology for nursing majors only. Introduces principles of microbiology for students of biomedical sciences, biotechnology, medical technology, environmental engineering, and nursing degree programs. Examines the structure and biological functions of microorganisms including bacteria, fungi, viruses, and parasites. Emphasizes the mechanisms by which microorganisms cause diseases in humans. Also includes an immunology unit that introduces the principles and uses of immunology in infectious disease diagnosis and treatment. The laboratory provides hands-on experience in techniques involved in isolation and characterization of microorganisms. Involves three hours of lecture and one three-hour laboratory weekly. Requires laboratory.

MIC 309 Health Assessment: Concepts and Skills
Credits: 4
Prerequisites: Basic, ABS, or RN/BS nursing student
Corequisites: None
Type: LEC/LAB
Prepares students to perform a health assessment on an adult and child. Emphasizes a systematic and comprehensive health assessment as a database for identifying nursing diagnoses. Highlights developmental aspects, sociocultural influences, health illness perceptions, normal variations of health-status findings, and documentation throughout the course. Students become familiar with the use of assessment instruments through practice in a supervised on-campus laboratory. Must be taken in program sequence.
NUR 310 Assessment of Families and Communities
Credits: 3
Prerequisites: Basic, ABS, or RN/BS nursing student
Corequisites: None
Type: LEC
Focuses on developing and utilizing comprehensive assessments of families and communities. Plans intervention strategies relative to the needs, problems, and level of wellness of the population unit. Must be taken in program sequence.

NUR 348 Introduction to Nursing Research
Credits: 3
Prerequisites: Basic, ABS, or RN/BS nursing student
Corequisites: None
Type: LEC
Introduces students to scientific inquiry in nursing using a formal research approach. Discusses specific elements of the research process including problem identification, literature review, variables, research design, sampling concepts, data collection, data analysis and interpretation. Includes the processes of research dissemination, critique and application. Must be taken in program sequence.

NUR 368 Research in Human Sexuality
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Elective open to non-nursing students. Focuses on current research on human sexual behavior, including physiological response during sexual activity, early development of sexual attitudes, varieties of sexual relationships, and social/moral issues related to sexual attitudes.

NUR 370 Nursing as a Profession
Credits: 3
Prerequisites: Basic, ABS, or RN/BS nursing student
Corequisites: None
Type: LEC
Focuses on nursing as a profession, including its history, current stage of development, and future goals. Emphasizes attributes of the professional nurse and processes essential for competent professional practice, including critical thinking, information-seeking strategies, legal/ethical decision making, and communication skills. Must be taken in program sequence.

NUR 371 Health-Care Delivery Perspectives
Credits: 3
Prerequisites: Basic, ABS, or RN/BS nursing student
Corequisites: None
Type: LEC
Explores the characteristics of health-care delivery systems within a social, political, and economic context. Analyzes issues surrounding health-care delivery and emphasizes the impact of various models of health care on the nursing profession. Must be taken in program sequence.

NUR 372 Health Promotion
Credits: 3
Prerequisites: Basic or ABS nursing student
Corequisites: None
Type: LEC
Introduces the concepts of health promotion as a framework for nursing practice, including health, motivation, therapeutic relationships, populations at risk, and stress management. Provides an opportunity to develop and implement a health-promotion program. Must be taken in program sequence.

NUR 373 Basic Nursing Therapeutics
Credits: 3
Prerequisites: Basic or ABS nursing student
Corequisites: None
Type: LAB
Examines concepts and skills basic to nursing interventions across the life span applicable in a variety of nursing situations. Emphasizes nursing process, documentation, professional responsibility, and therapeutic communication. Also studies pain management, comfort measures, and assistance with activities of daily living. Involves experiences in on-campus laboratory and clinical sites. Must be taken in program sequence.

NUR 374 Primary Care with Families across the Life Span
Credits: 5
Prerequisites: Basic or ABS nursing student
Corequisites: None
Type: LEC
Describes the characteristics of primary health care and its delivery. Examines the nurse's role in delivery of primary health/community-based services focusing on health promotion, disease prevention, and management of episodic illness. Addresses health risks of age groups across the life span within the context of family, culture, and socioeconomic level. Healthy People Goals and other national initiatives provide direction for developing strategies. Must be taken in program sequence. NUR 374 L must be taken concurrently.

NUR 376 Principles of Nursing Leadership
Credits: 1
Prerequisites: Basic nursing student
Corequisites: None
Type: LEC
Focuses on leadership skills common to clinical, managerial, and professional situations in nursing. Includes content on motivation, decision-making strategies, change theory, situational leadership, power, and conflict management. Must be taken in program sequence.

NUR 377 Issues in Primary Care
Credits: 2
Prerequisites: RN/BS student
Corequisites: None
Type: LEC
Examines the characteristics and delivery of primary care/community-based health care. Identifies health risks of age groups across the life span within the context of family, culture and socioeconomic level. Addresses nursing roles focusing on risk assessment, health promotion, disease prevention, and evidenced-based interventions. Must be taken in program sequence.

NUR 440 Critical Elements in Nursing Leadership
Credits: 4
Prerequisites: ABS or RN/BS nursing student
Corequisites: None
Type: LEC
Emphasizes concepts characteristic of baccalaureate nursing education: critical thinking, communication, leadership, and management. Integrates leadership and management skills, organizational structure and behavior, case management for at-risk populations, personnel performance appraisal, quality management, planned change, teaching principles, learning, delegating, and health care informatics. Must be taken in program sequence.

NUR 470 Health Maintenance and Restoration
Credits: 4
Prerequisites: Basic or ABS nursing student
Corequisites: None
Type: LEC
Examines nursing management skills and behaviors with applicability in a wide variety of client-care settings. Emphasizes organizational structure and behavior, applying information management and case-management techniques to the management of care for groups of clients, and applying principles of delegation, supervision, and personnel evaluation to management of care provided by others. Must be taken in program sequence.

NUR 471 Clinical Seminar: Health Maintenance and Restoration
Credits: 1
Prerequisites: Basic or ABS nursing student
Corequisites: None
Type: LEC
Studies clinical situations encountered in NUR 470 L. Nursing Therapeutics in Health Maintenance and Restoration. Students share clinical reports and raise critical questions regarding practice issues, and propose and evaluate responses. Issues focus on direct care, health-system concerns, and professional interactions at both the client and system levels. Must be taken in program sequence.

NUR 472 Nursing Management of Patient Care
Credits: 1
Prerequisites: Basic nursing student
Corequisites: None
Type: LEC
Examines nursing management skills and behaviors with applicability in a wide variety of client-care settings. Emphasizes organizational structure and behavior, applying information management and case-management techniques to the management of care for groups of clients, and applying principles of delegation, supervision, and personnel evaluation to management of care provided by others. Must be taken in program sequence.

NUR 473 RN Transition to Baccalaureate Nursing
Credits: 4
Prerequisites: RN/BS nursing student
Corequisites: None
Type: SEM
Focuses on leadership skills and behaviors that nurses apply in a wide range of clinical, managerial, and professional situations. Emphasizes career management, population health/wellness/prevention management, strategic planning, fiscal management, bioinformatics, risk management, and legal, ethical, and malpractice issues. Discusses professional advancement, job satisfaction, and burnout prevention. Also examines organizational frameworks to enhance empowerment in the work environment, cultural competency and diversity in the workplace, genetics and genomics, unions, labor laws, accreditation agencies, and professional influence. Must be taken in program sequence.

NUR 475 Nursing Management in Complex Situations
Credits: 2
Prerequisites: Basic nursing student
Corequisites: None
Type: LEC
Focuses on specific responsibilities of the nurse manager, including information management, human resource management, fiscal management, quality management, and management of change. Students apply critical thinking, decision-making, and leadership skills to studying these areas of responsibility. Must be taken in program sequence.
NUR 478 Concepts of Complex Acute Care
Credits: 3
Prerequisites: Basic or ABS nursing student
Corequisites: None
Type: LEC
Reviews knowledge and skills required to care for patients throughout their life spans who have complex, life-threatening health problems, including trauma, problems with oxygenation, disruptions of the nervous system, and disruption of the immune system. Emphasizes assessment skills and nursing interventions to restore physiological and psychological stability. Must be taken in program sequence. NUR 470 L must be taken concurrently.

NUR 479 Clinical Seminar: Complex Acute Care
Credits: 1
Prerequisites: Basic or ABS nursing student
Corequisites: None
Type: SEM
Content derived from clinical situations encountered in NUR 478 L Nursing Therapeutics in Complex Acute Care. Students share clinical reports and raise critical questions regarding practice issues and propose and evaluate responses. Issues focus on direct care, health-system concerns, and professional interactions at both the client and system levels. Must be taken in program sequence.

NUR 480 Health Care Management in the Community
Credits: 2
Prerequisites: RN/BS nursing student pre-2006 - NUR 309, NUR 310, NUR 370, NUR 371, NUR 372, NUR 374 L, NUR 377 and NUR 440 (may be taken as corequisite)
Corequisites: None
Type: LAB
Examines the provision of community-based care in the current managed care environment. Explores concepts of health promotion, health restoration, case management, and rehabilitation in caring for individuals, families, or groups/populations in an assigned community setting.

NUR 494 Baccalaureate RN Leadership Capstone Experience
Credits: 4
Prerequisites: RN/BS nursing student
Corequisites: None
Type: LAB
This clinical laboratory course, designed specifically for registered nurses, is a community based capstone experience in nursing leadership. Concepts of health/wellness/prevention and disease management are utilized in caring for individuals, groups, or populations in a community setting. Students will incorporate management skills including quality improvement, risk management, fiscal responsibility, health and social policy, information systems, teaching and learning principles, and will coordinate, monitor, and evaluate diverse components of aggregates. Must be taken in program sequence.

NUR 496 Issues in Clinical Practice
Credits: 1
Prerequisites: Basic or ABS nursing student
Corequisites: None
Type: SEM
Accompanies a summer clinical experience in which students provide patient care at a health-care agency in the Buffalo area. Focus of discussions is on issues that arise out of patient care and the clinical setting such as communication, clinical skills, interactions with colleagues, and documentation of care that is provided. Must be taken in program sequence.

NUR 499 Independent Study
Credits: 1
Prerequisites: permission of instructor
Corequisites: None
Type: TUT
Supplements regular offerings of the department. Students must secure the instructor's permission before registering for an independent study.

NUR 496 Issues in Clinical Practice
Credits: 1
Prerequisites: Basic or ABS nursing student
Corequisites: None
Type: SEM
Accompanies a summer clinical experience in which students provide patient care at a health-care agency in the Buffalo area. Focus of discussions is on issues that arise out of patient care and the clinical setting such as communication, clinical skills, interactions with colleagues, and documentation of care that is provided. Must be taken in program sequence.

Nutrition
NTR 108 Human Nutrition
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores basic concepts integral to the science of nutrition. Emphasizes metabolic and physiologic principles underlying digestion and absorption of nutrients, chemical structure and metabolic fate of nutrients, the biochemistry role of nutrients in maintaining health, and the effects of over- and under-nutrition on disease pathogenesis.

NTR 109 Nutrition in Practice
Credits: 3
Prerequisites: NTR 108
Corequisites: NTR 110
Type: LEC
Builds upon the principles of nutrition learned in NTR 108. Assumes a mastery of the concepts of nutrition as they relate to chemistry, metabolism, and physiology-presented in NTR 108. Emphasizes individual, clinical, social, and applied aspects of nutrition, including food labeling, diet analysis, pseudo-vitamins, and food allergies. Covers additional aspects of health and nutrition such as hypertension, osteoporosis, and inborn errors of metabolism.

NTR 110 Nutrition in Practice Lab
Credits: 1
Prerequisites: NTR 108
Corequisites: NTR 109
Type: LAB
Lab course for NTR 109. Dietary analysis with personal changes are conducted and monitored along with analysis and differentiation of food components. Includes observing and analyzing the food system (farm, processing, and delivery) through field trips and group reports.

NTR 301 Dietary Assessment
Credits: 1
Prerequisites: NTR 108
Corequisites: None
Type: LAB
Prepares students to assess dietary intake of individuals, groups, and populations and how it relates to physical activity. Also prepares students to interpret data arising from dietary assessment.

NTR 401 Nutrition and Health
Credits: 3
Prerequisites: one course in biology, chemistry, or physiology, or permission of instructor
Corequisites: None
Type: LEC
Discusses nutrition as an important element for maintaining optimal health. Emphasizes the importance of each nutrient based on its biochemical and physiological functions. Also covers nutritional needs at specific stages in the life cycle, and the implication of nutrition in major health problems in the United States, such as obesity, cardiovascular disease, hypertension, and cancer. Students learn to determine nutritional status through dietary analysis and to evaluate nutritional information.

NTR 402 Nutrition in the Life Cycle
Credits: 3
Prerequisites: NTR 108
Corequisites: None
Type: LEC
Explores the role of diet and nutrition in growth, development, maturation, and aging throughout the state of life, from preconception through late adulthood.

NTR 499 Independent Study
Credits: 1
Prerequisites: permission of instructor
Corequisites: None
Type: TUT
Offers the student a unique educational experience not covered by existing formal courses. This may include library research, laboratory projects, learning new techniques, or participating in ongoing projects.
## Occupational Therapy

### OT 230 Therapeutic Interaction
- **Credits:** 3
- **Prerequisites:** None
- **Type:** LEC
- Examines therapeutic approaches used by occupational therapists in working with patients and their families. Also explores interactions among work, play/leisure, and self-care.

### OT 301 Orientation to Occupational Therapy
- **Credits:** 3
- **Prerequisites:** None
- **Type:** LEC
- Provides an overview of philosophy, theory, and occupational therapy practice.

### OT 314 Pediatric Dysfunction and Occupation
- **Credits:** 2
- **Prerequisites:** None
- **Type:** LEC
- Presents the etiology, course, prognosis, and medical management of diseases and disabilities of concern to occupational therapists working with children.

### OT 317 Medical Terminology and Pharmacology
- **Credits:** 1
- **Prerequisites:** None
- **Type:** LEC
- Introduces language used by health-care professionals whose medical decisions affect and determine the course of the rehabilitation and therapeutic process. The course includes a four-week introductory unit on the fundamentals of pharmacology.

### OT 318 Rehabilitation Medicine II
- **Credits:** 2
- **Prerequisites:** None
- **Type:** LEC
- Examines various orthopedic conditions, their clinical management, and their impact on occupational performance.

### OT 341 Critical Analysis of Scientific Literature
- **Credits:** 2
- **Prerequisites:** None
- **Type:** LEC/DIS
- Enables students to access, interpret and analyze research articles and oral presentations, and apply the findings to clinical practice, rehabilitation and/or exercise training.

### OT 342 Neuroscience I
- **Credits:** 3
- **Prerequisites:** ANA 407
- **Type:** LEC
- Explores the fundamental neurophysiology and clinical neuroanatomy of sensory systems.

### OT 343 Neuroscience II
- **Credits:** 3
- **Prerequisites:** ANA 407
- **Corequisites:** OT 345
- **Type:** LEC
- A continuation of OT 342, focusing on clinical neuroanatomy of motor systems and integration of sensory, motor, and cognitive functions.

### OT 344 Neuroanatomy I
- **Credits:** 1
- **Prerequisites:** ANA 407
- **Corequisites:** None
- **Type:** LAB
- Exposes students to anatomical structures associated with neurophysiological concepts discussed in OT 342 and OT 343.

### OT 345 Neuroanatomy II
- **Credits:** 1
- **Prerequisites:** ANA 407
- **Corequisites:** None
- **Type:** LAB
- Exposes students to the anatomical structures associated with neurophysiological concepts discussed in OT 342 and OT 343.

### OT 346 Introduction to Scientific Writing for Health and Rehabilitation Professionals
- **Credits:** 1
- **Prerequisites:** None
- **Corequisites:** ES/OT 341
- **Type:** LEC
- Introduces BS/MS OT students to the process of writing a literature review. Accompanies ES/OT 341. Critical Analysis to Scientific Literature. Completion of this course will enable students to use a written format to communicate their analyses of research articles and begin to develop research questions. Course is designed for OT students, but is open to any student who has taken ES/OT 341.

### OT 351 OT Practice Skills I
- **Credits:** 2
- **Prerequisites:** None
- **Corequisites:** None
- **Type:** LAB
- Explores the use of various media and activity analysis as therapeutic resources for occupational therapists. Provides students with principles and procedures necessary to restore occupational roles and daily living skills with persons experiencing dysfunction.

### OT 352 OT Practice Skills II
- **Credits:** 3
- **Prerequisites:** None
- **Corequisites:** None
- **Type:** LAB
- Focuses on assistive technology and environmental adaptations to meet individual occupational performance needs.

### OT 353 OT Practice Skills III
- **Credits:** 2
- **Prerequisites:** None
- **Corequisites:** None
- **Type:** LAB
- Addresses activities related to adult life roles, including occupation-based activity, wheelchair evaluations, driver evaluations, environmental assessment and adaptation, aquatic therapy, physical agent modalities, and community access.

### OT 361 Functional Anatomy
- **Credits:** 3
- **Prerequisites:** None
- **Corequisites:** None
- **Type:** LEC/LAB
- Examines kinesiology, biomechanics, and ergonomics for occupational therapy students.

### OT 371 Human Development I
- **Credits:** 3
- **Prerequisites:** None
- **Corequisites:** None
- **Type:** LEC/LAB
- Considers human development from the prenatal period of life through adolescence. Also examines factors affecting growth and development during this time span and their significance in evaluation and treatment.

### OT 372 Human Development II
- **Credits:** 2
- **Prerequisites:** None
- **Corequisites:** None
- **Type:** LEC
- Explores human development from young adult to aged. Also considers factors affecting growth and development during this time span and their significance in evaluation and treatment.

### OT 381 Theory of Occupational Therapy With Lab
- **Credits:** 3
- **Prerequisites:** None
- **Corequisites:** None
- **Type:** LEC/LAB
- Presents the philosophy and theory of occupational therapy. Also examines the theory of occupational behavior, which provides a broad perspective for practice. The lab provides experience with occupational assessment.

### OT 382 Issues in Service Delivery
- **Credits:** 3
- **Prerequisites:** None
- **Corequisites:** None
- **Type:** LEC/LAB
- Gives an overview of current issues impacting the roles, functions, and provision of OT service in diverse areas of occupational therapy practice, from clinical and management perspectives.

### OT 402 Psychosocial Practice I
- **Credits:** 4
- **Prerequisites:** OT 351, OT 371, OT 372, OT 381, OT 382
- **Corequisites:** OT 402
- **Type:** LEC
- Reviews the medical management of psychiatric disorders and occupational therapy intervention strategies in treating the mentally ill, and introduces group process theory.

### OT 403 Psychosocial Practice II
- **Credits:** 3
- **Prerequisites:** OT 351, OT 371, OT 372, OT 381, OT 382
- **Corequisites:** OT 402
- **Type:** LEC/LAB
- Incorporates an in-depth study of practice issues in mental health with a group process lab. Includes one week, full-time Level I fieldwork.

### OT 405 Physical Disabilities Practice
- **Credits:** 4
- **Prerequisites:** OT 342, OT 343
- **Corequisites:** None
- **Type:** LEC/LAB
- Applies occupational theory and techniques in the treatment of persons with a physical disability. Includes one week full-time Level I fieldwork.

### OT 410 Applied Neurophysiology
- **Credits:** 3
- **Prerequisites:** OT 342, OT 343
- **Corequisites:** None
- **Type:** LEC/LAB
- Considers the basic concepts underlying neurophysiological control of motor behavior, and applies these concepts in the treatment of neuromuscular dysfunction.

### OT 412 Rehabilitation Medicine I
- **Credits:** 2
- **Prerequisites:** None
- **Corequisites:** None
- **Type:** LEC
- Examines various orthopedic conditions, their clinical management, and their impact on occupational performance.

### OT 440 Applied Treatment in Pediatrics
- **Credits:** 4
- **Prerequisites:** OT 314, OT 371
- **Corequisites:** None
- **Type:** LEC/LAB
- Presents techniques used by occupational therapists in pediatrics. Includes one week of full-time Level I fieldwork, as well as a lab.

### OT 450 Prosthetics and Orthotics
- **Credits:** 3
- **Prerequisites:** None
- **Corequisites:** None
- **Type:** LEC/LAB
- Examines the knowledge and skills required for manufacturing splints and orthotic devices, and for fitting and operating orthoses and prostheses.
**Pharmaceutical Sciences**

**PHC 250 Apothecarial Adventures**  
Credits: 3  
Prerequisites: None  
Type: LEC  
Honors seminar focusing on the pharmaceutical and pharmacotherapeutic sciences behind well known (and not so well known) drugs that are widely used by society.

**PHC 311 Pharmaceutical Mathematics and Statistics**  
Credits: 3  
Prerequisites: None  
Type: LEC  
Applies pharmaceutical mathematical concepts and techniques to contemporary pharmacy practice. Explores problem solving and covers descriptive and inferential statistical techniques, applying them to pharmaceutical study and practice.

**PHC 312 Physical Pharmacy**  
Credits: 3  
Prerequisites: PHC 311  
Type: LEC  
Covers physical chemical properties of drugs, theory and practice applicable to the design and evaluation of drug dosage forms, principles of solubility, solution equilibria, chemical kinetics, heterogeneous systems, and solids.

**PHC 331 Case Studies in Pharmaceutical Sciences**  
Credits: 2  
Prerequisites: None  
Type: LEC  
Introduces pharmaceutical sciences as a scientific discipline; also explores pharmaceutical organizations, pharmaceutical resources, research ethics and scientific misconduct, elements of the scientific method, and contemporary issues facing the discipline.

**PHC 332 Introduction to Research**  
Credits: 1  
Prerequisites: None  
Type: LEC  
Introduces research methods and hypothesis testing; the role of research methods in experimental design, execution, and data analysis; and consideration of the research process in research proposals.

**PHC 407 Selected Topics**  
Credits: 1  
Prerequisites: None  
Type: LEC  
Covers selected topics, particularly the more recent advances in pharmacuetics.

**PHC 411 Introduction to Pharmacokinetics and Biopharmaceutics I**  
Credits: 4  
Prerequisites: PHC 312  
Type: LEC  
Examines factors influencing the absorption, distribution, excretion, and metabolism of drugs in humans; also studies the roles these processes play in therapeutic and adverse effects of drug products.

**PHC 412 Introduction to Pharmacokinetics and Biopharmaceutics II**  
Credits: 2  
Prerequisites: PHC 411  
Type: LEC  
Continuation of PHC 411. Presents examples of the rationale for therapeutic monitoring.

**PHC 413 Pharmaceutics Seminar**  
Credits: 1  
Prerequisites: None  
Type: SEM  
Students, faculty, and visiting scientists discuss the latest developments in pharmaceutical research.

**PHC 414 Pharmaceutics Seminar**  
Credits: 1  
Prerequisites: None  
Type: SEM  
Students, faculty, and visiting scientists discuss the latest developments in pharmaceutical research.

**PHC 420 Pharmaceutical Analysis**  
Credits: 1  
Prerequisites: None  
Type: LEC  
Reviews modern methods used in analyzing drugs and drug products, focusing on HPLC.

**PHC 421 Pharmaceutical Principles**  
Credits: 3  
Prerequisites: permission of instructor  
Type: LEC  
Examines drug degradation kinetics, drug dosage formulation, solid drug dosage form dissolution kinetics, and pharmacokinetics.

**PHC 425 Pharmaceutical Biotechnology: From Bench to Bedside**  
Credits: 2  
Prerequisites: BCH 403 or BIO 205  
Type: LEC  
Overview of recombinant DNA techniques relevant to pharmaceutical biotechnology. Covers pharmaceutical chemistry, basic pharmaceutical sciences, pharmacokinetics, pharmacology, and pharmacotherapeutics of selected biopharmaceuticals.

**PHC 426 Pharmaceutical Biotechnology Virtual Laboratory**  
Credits: 1  
Prerequisites: None  
Type: DIS  
A discussion-based course that incorporates a virtual, interactive software program to illustrate the biopharmaceutical drug discovery, research, and development process.

**PHC 431 Important Advances in Pharmaceutical Sciences**  
Credits: 2  
Prerequisites: None  
Type: LEC  
Examines classical and contemporary advances in the drug-development process, including drug analysis, drug delivery, biopharmaceuticals, pharmacokinetics, and pharmacodynamics.

**PHC 432 Methods of Scientific Communication**  
Credits: 1  
Prerequisites: PHC 408 or permission of instructor  
Type: LEC  
Students learn how to communicate their research project results using the scientific poster and paper as a communication tool.

**PHC 497 Departmental Honors Thesis or Project**  
Credits: 1  
Prerequisites: None  
Type: TUT  
Department honors or thesis project.

**PHC 498 Undergraduate Research and Creative Activity**  
Credits: 1  
Prerequisites: Permission of Instructor  
Type: TUT  
Involves lab and/or literature research participation on current problems.

**PHC 499 Independent Study**  
Credits: 1  
Prerequisites: permission of instructor  
Type: TUT  
Involves development and assessment, through literature review and discussions, of a topic of student interest.

**Pharmacology and Toxicology**

**PMY 302 Introduction to Pharmacology**  
Credits: 4  
Prerequisites: PGY 300 or PGY 451  
Type: LEC  
Introductory survey of the major drug groups commonly used in therapeutics. Presents the scientific bases of drug action and the utilization of their properties in the diagnosis and treatment of disease. Content and instruction is largely directed toward students in biomedical and life sciences programs (e.g., nursing and exercise science). Prerequisites include a strong background in basic sciences (chemistry and biology) and physiology (PGY 300 or equivalent).

**PMY 405 Principles of Pharmacology**  
Credits: 4  
Prerequisites: BCH 403, PGY 451, PGY 452  
Type: LEC  
Explores principles of drug action on biological systems, action mechanism of each agent class on specific organ systems, a review and extension of pertinent physiologic concepts of that system, chemical structure-drug activity relationships, sites of action, metabolic patterns of principal drugs, and therapeutic and toxicologic aspects. Dual-listed with BCP 511.

**PMY 406 Principles of Pharmacology**  
Credits: 4  
Prerequisites: PMY 405  
Type: LEC  
Explores principles of drug action on biological systems, action mechanism of each agent class on specific organ systems, a review and extension of pertinent physiologic concepts of that system, chemical structure-drug activity relationships, sites of action, metabolic patterns of principal drugs, and therapeutic and toxicologic aspects. Dual-listed with BCP 512.

**PMY 409 Experimental Pharmacology**  
Credits: 3  
Prerequisites: PMY 405  
Type: LEC  
Explores fundamental pharmacologic, biomedical and molecular techniques; complements instruction in PMY 405 and PMY 406. Priority goes to PMY majors.
PMY 455 Toxicology Fundamentals
Credits: 2
Prerequisites: PGY 451, BCH 403
Type: TUT
Designed to introduce students to the basic principles and practice of toxicology. Chemical mutagenesis and carcinogenesis will also be included, with an emphasis on understanding mechanisms for these responses. An overview of risk assessment will include quantitative aspects of cancer and non-cancer based risk assessments. The adverse effects of several classes of chemicals will be investigated at specific target organs. An emphasis will also be placed on understanding the mechanism(s) for the adverse responses of specific agents at a given target site.

PMY 498 Undergraduate Research Participation in Pharmacology and Toxicology
Credits: 1
Prerequisites: None
Type: LAB/TUT
Direct involvement in original research involving a literature search and laboratory work.

PMY 499 Independent Study
Credits: 1
Prerequisites: None
Type: TUT
Involves a literature search and library work on a current topic in pharmacology or toxicology. Includes interdisciplinary projects, such as analyses of trends in drug use, toxicological projects, and applied clinical aspects.

Pharmacy

PHM 201 Orientation to Pharmaceutical Fields
Credits: 1
Prerequisites: None
Type: LEC
Introduces value theory, good and bad, justification of obligations to others, relationship of free choice and determinism, and contemporary moral problems analyzed by ethical principles.

Philly 108 Knowledge and Reality
Credits: 3
Prerequisites: None
Type: LEC
Introduces epistemology, metaphysics, knowledge as a reflection of the real world’s properties and its relation to different viewpoints, the world as material objects, the mind and matter, and the role of scientific and technical knowledge in today’s world.

PHI 110 Philosophy of Human Nature
Credits: 3
Prerequisites: None
Type: LEC
Introduces philosophical views of being human and consequences of these for thought, action, and emotion.

PHI 117 Professional Ethics
Credits: 3
Prerequisites: None
Type: LEC
Introduces ethical issues encountered in such professions as medicine, engineering, public service, the media, business, social work, accounting, law, and manufacturing with an environmental impact, as well as the central concepts of professionalism.

Philosophy

PHI 101 Introduction to Philosophy
Credits: 3
Prerequisites: None
Type: LEC
Examines general topics in various areas of philosophy showing different sides of issues; develops critical thought and philosophical method.

PHI 107 Ethics
Credits: 3
Prerequisites: None
Type: LEC
Introduces ethical issues encountered in such professions as medicine, engineering, public service, the media, business, social work, accounting, law, and manufacturing with an environmental impact, as well as the central concepts of professionalism.

PHI 129 Special Topics
Credits: 3
Prerequisites: None
Type: SEM
Provides for the study of various philosophical topics not covered in other 100-level courses.

PHI 138 Topics in Ethics
Credits: 3
Prerequisites: None
Type: LEC
Studies selected issues of obligations and values: what are the bases of judgments of right, wrong, good and bad, and what are the applications of these?

PHI 154 Asian Wisdom
Credits: 3
Prerequisites: None
Type: SEM
Explores spirit, thought, and action of Asians culled from the contemporary relevance of classical readings. Texts include Hinduism, Buddhism, Confucianism, Taoism, and Zen.

PHI 162 Law, Morality, Authority
Credits: 3
Prerequisites: None
Type: LEC
Enforcement of morals by law, the proper authority of the state or society over the individual.

PHI 212 Introduction to Philosophy of Religion
Credits: 3
Prerequisites: None
Type: LEC
Introduces issues and questions in religion, including existence of a deity, religion and science, and functions of religion in personal life.

PHI 213 World Religions
Credits: 3
Prerequisites: None
Type: LEC
Surveys major religions, including Christianity, Judaism, Islam, Hinduism, Buddhism.

PHI 215 Introduction to Deductive Logic
Credits: 3
Prerequisites: None
Type: LEC
Covers definitions, formal and informal errors of reasoning, and principles of deductive reasoning; also examines the Aristotelian tradition.
PHI 221 Introduction to the Philosophy of Science  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Examines current ethical positions and applications to problems in business.

PHI 236 Business Ethics  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Surveys political theories in a systematic or historical way.

PHI 244 Topics in Aesthetics  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces the formal techniques of deductive reasoning.

PHI 338 Law and Morality  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces philosophy through literature, such as Voltaire’s Candide and Sartre’s Nausea, which present philosophical issues in vivid forms.

PHI 347 Gender and Philosophy  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces the formal techniques of deductive reasoning.

PHI 424 Topics in Aesthetics  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces philosophy through literature, such as Voltaire’s Candide and Sartre’s Nausea, which present philosophical issues in vivid forms.

PHI 444 Aesthetic Theory and Criticism  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces philosophy through literature, such as Voltaire’s Candide and Sartre’s Nausea, which present philosophical issues in vivid forms.

PHI 256 Topics in History of Philosophy  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Examines current ethical positions and applications to problems in business.

PHI 333 Epistemology  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces the formal techniques of deductive reasoning.

PHI 250 Topics in Philosophy of History  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Studies the history of ethics from ancient times through the Enlightenment. Also covers ancient Hebrew, Greek, medieval, and modern moral theories.

PHI 334 Environmental Ethics  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces the formal techniques of deductive reasoning.

PHI 329 Metaphysics  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces the formal techniques of deductive reasoning.

PHI 323 Philosophy of Religion  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces the formal techniques of deductive reasoning.

PHI 235 Symbolic Logic  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces the formal techniques of deductive reasoning.

PHI 336 History of Ethics  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces the formal techniques of deductive reasoning.

PHI 320 Philosophy of Mind  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces the formal techniques of deductive reasoning.

PHI 337 Social and Ethical Values in Medicine  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces the formal techniques of deductive reasoning.

PHI 321 Philosophy of Natural Sciences  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces the formal techniques of deductive reasoning.

PHI 338 Law and Morality  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces the formal techniques of deductive reasoning.

PHI 322 Philosophy of Social Sciences  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces the formal techniques of deductive reasoning.

PHI 340 Law and Responsibility  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces the formal techniques of deductive reasoning.

PHI 352 Eastern Philosophy  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces the formal techniques of deductive reasoning.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Corequisites</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHI 356</td>
<td>Special Topics</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Critically considers a selected philosophical issue.</td>
</tr>
<tr>
<td>PHI 359</td>
<td>American Philosophy</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Examines early development of American philosophical thought; considers leading movements and thinkers, such as idealism, pragmatism (Peirce, James, Dewey), and realism.</td>
</tr>
<tr>
<td>PHI 360</td>
<td>Ancient Philosophy</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Reviews the history of Greek philosophy from Pre-Socratic philosophers to the Hellenistics.</td>
</tr>
<tr>
<td>PHI 366</td>
<td>Medieval Philosophy</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Studies the history of philosophy from Plotinus to the end of the Middle Ages.</td>
</tr>
<tr>
<td>PHI 370</td>
<td>Early Modern Philosophy</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Reviews the history of metaphysics and epistemology from the Renaissance to Kant.</td>
</tr>
<tr>
<td>PHI 380</td>
<td>Nineteenth-Century Philosophy, Kant to Nietzsche</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Considers philosophy from Kant to the twentieth century; including idealism, post-Hegelian philosophies, positivism, utilitarianism, evolutionism, and intellectual movements at the close of the nineteenth century.</td>
</tr>
<tr>
<td>PHI 388</td>
<td>Twentieth-Century Philosophy</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Examines representative movements and issues in present-day philosophy in Europe and America.</td>
</tr>
<tr>
<td>PHI 389</td>
<td>Contemporary Latin American Thought</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Surveys principal positions and traditions in contemporary philosophy in Latin America.</td>
</tr>
<tr>
<td>PHI 398</td>
<td>Special Topics</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Provides for the study of various philosophical topics not covered in other 300-level courses.</td>
</tr>
<tr>
<td>PHI 412</td>
<td>Philosophy of Religion</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Performs advanced critical analysis of selected issues in religious belief.</td>
</tr>
<tr>
<td>PHI 415</td>
<td>Logical Theory I</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Reviews modern studies in propositional logic, formal techniques that can be used to analyze inferences, and philosophical topics and problems related to propositional logic. Some acquaintance with logic desirable.</td>
</tr>
<tr>
<td>PHI 416</td>
<td>Logical Theory II</td>
<td>3</td>
<td>PHI 315</td>
<td>None</td>
<td>LEC</td>
<td>Continuation of PHI 415. Considers predicate logic, generalization, and related philosophical issues.</td>
</tr>
<tr>
<td>PHI 417</td>
<td>Modal Logic</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Examines philosophical topics and problems arising from modern studies in logic.</td>
</tr>
<tr>
<td>PHI 418</td>
<td>Philosophy of Mathematics</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Explores philosophical topics and problems of mathematics and its logical foundations.</td>
</tr>
<tr>
<td>PHI 419</td>
<td>Philosophy of Logic</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Reviews philosophical topics and issues of logic, both historical and contemporary.</td>
</tr>
<tr>
<td>PHI 420</td>
<td>Topics in Philosophy of Science</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Involves an in-depth critical examination of selected issues in philosophy of the natural or social sciences.</td>
</tr>
<tr>
<td>PHI 438</td>
<td>Topics in Ethics</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>SEM</td>
<td>Addresses selected issues in ethics from a historical, contemporary, or thematic perspective.</td>
</tr>
<tr>
<td>PHI 442</td>
<td>Contemporary Issues of Social Philosophy</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>SEM</td>
<td>Examines strengths and weaknesses of current social philosophy positions.</td>
</tr>
<tr>
<td>PHI 443</td>
<td>Topics in Legal Philosophy</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>SEM</td>
<td>Considers philosophical issues in law, including theories of law, evidence, argument, punishment and penalties.</td>
</tr>
<tr>
<td>PHI 444</td>
<td>Aesthetics</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>SEM</td>
<td>Considers in-depth selected theories of art.</td>
</tr>
<tr>
<td>PHI 452</td>
<td>Eastern Philosophy</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>SEM</td>
<td>Examines selected views, traditions or issues in Chinese, Japanese, Indian, or Southeast Asian philosophies.</td>
</tr>
<tr>
<td>PHI 454</td>
<td>Chinese Philosophy</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>SEM</td>
<td>Examines selected views, traditions or issues in Chinese philosophy.</td>
</tr>
<tr>
<td>PHI 462</td>
<td>Plato</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>SEM</td>
<td>Involves detailed consideration of central issues in Plato's philosophy.</td>
</tr>
<tr>
<td>PHI 463</td>
<td>Aristotle</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>SEM</td>
<td>Involves detailed consideration of central issues in Aristotle's philosophy.</td>
</tr>
<tr>
<td>PHI 465</td>
<td>Ancient Philosophy</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>SEM</td>
<td>Considers selected issues in ancient philosophy, including comparison of major positions.</td>
</tr>
<tr>
<td>PHI 469</td>
<td>Medieval and Renaissance Philosophy</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Examines selected traditions or issues in philosophy from 500 to 1600 AD.</td>
</tr>
<tr>
<td>PHI 489</td>
<td>Special Topics</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Provides for the study of various philosophical topics not covered in other 400-level courses.</td>
</tr>
<tr>
<td>PHI 490</td>
<td>Introduction to Wittgenstein</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Studies Wittgenstein's philosophical development and positions.</td>
</tr>
<tr>
<td>PHI 497</td>
<td>Honors Thesis or Project</td>
<td>1</td>
<td>None</td>
<td>None</td>
<td>TUT</td>
<td>An overview of research procedures that have particular relevance to the practice of occupational therapy. Emphasis is placed on the application of research methods and the interpretation of research results in establishing the scientific foundation of professional practice.</td>
</tr>
<tr>
<td>PHI 498</td>
<td>Undergraduate Research and Creative Activity</td>
<td>1</td>
<td>None</td>
<td>None</td>
<td>TUT</td>
<td>Designed to provide graduate students in the health related professions with the concepts and methods needed to evaluate individual client change in natural settings. The emphasis is on application of single-subject and time series designs in clinical and educational environments. Specific emphasis is placed on the design and analysis of data from single-subject research investigations.</td>
</tr>
<tr>
<td>PHI 499</td>
<td>Independent Study</td>
<td>1</td>
<td>None</td>
<td>None</td>
<td>TUT</td>
<td>First of two courses focusing on the provision of related services to children with disabilities in school settings. The course looks at educational law relating to these children, roles and functions of the related services of educational administration, and examines current issues and controversies relating to special education. All topics are related to the role of occupational therapy in the school.</td>
</tr>
</tbody>
</table>
Physics

PHY 100 Introduction to Physics
Credits: 4
Prerequisites: None
Corequisites: None
Type: LEC/REC
Preparation for PHY 101-PHY 108 or PHY 118-PHY 158. Covers the same topics as PHY 107, but in greater depth. Class size is limited. In general, taken by students in the University Honors Program, but other students may take it with permission of instructor.

PHY 101 College Physics
Credits: 4
Prerequisites: None
Corequisites: PHY 151
Type: LEC/REC
Prepares non-calculus, introductory physics, including mechanics, heat, waves, and sound.

PHY 102 College Physics II
Credits: 4
Prerequisites: PHY 101
Corequisites: PHY 152
Type: LEC/REC
Prepares non-calculus, introductory physics, including electricity and magnetism, light, optics, and modern physics.

PHY 106 General Physics I
Credits: 4
Prerequisites: None
Corequisites: MTH 141
Type: LEC/REC
A calculus-based introductory course primarily for chemistry, engineering, and physics majors. Covers kinematics, Newton’s laws, energy, momentum, rotational motion, and oscillations.

PHY 107 General Physics II
Credits: 4
Prerequisites: PHY 106
Corequisites: PHY 153
Type: LEC/REC
Prepares non-calculus, introductory physics, including electricity and magnetism, light, optics, and modern physics.

PHY 107 Honors Physics I
Credits: 4
Prerequisites: None
Corequisites: MTH 141
Type: LEC/REC
Covers the same topics as PHY 107, but in greater depth. Class size is limited. In general, taken by students in the University Honors Program, but other students may take it with permission of instructor.

PHY 108 Honors Physics II
Credits: 4
Prerequisites: PHY 107 or PHY 117
Corequisites: MTH 142, PHY 158
Type: LEC/REC
Covers the same topics as PHY 108, but in greater depth. Class size is limited. In general, taken by students in the University Honors Program, but other students may take it with permission of instructor.

PHY 119 How Things Work
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Describes working principles of devices used in everyday life, such as the video recorder, fax machine, and television. Reviews the history of discoveries that made each device possible, as well as development of the device. Explores the consequences of particular devices in society. Suitable for non-science majors, but science and engineering majors are expected to greatly benefit from it also.

PHY 121 Descriptive Astronomy I
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC/LAB
Introduces astronomy, astronomical instrumentation, the birth and evolution of stars, black holes, constellations and the night sky, covering scales in the universe, the history of astronomy from ancient times to the present, neutron stars, spectroscopy, and white dwarfs.

PHY 122 Descriptive Astronomy II
Credits: 3
Prerequisites: PHY 121
Corequisites: None
Type: LEC/LAB
Covers the Milky Way galaxy, the galaxies in the universe, cosmology and the origin of the universe, the formation of the solar system, earthlike planets, planets of the outer solar system, meteorites, asteroids, and comets. Course themes concentrate on origins: How did the universe begin? What was the origin of the earth? How did life begin?

PHY 150 College Physics I Lab
Credits: 1
Prerequisites: None
Corequisites: PHY 101
Type: LAB
Studies heat, mechanics, sound, and waves.

PHY 151 College Physics I Lab
Credits: 1
Prerequisites: None
Corequisites: PHY 101
Type: LAB
Studies heat, mechanics, sound, and waves.

PHY 152 College Physics II Lab
Credits: 1
Prerequisites: None
Corequisites: PHY 102
Type: LAB
Studies electricity and magnetism, light, optics, and modern physics.

PHY 158 General Physics II Lab
Credits: 1
Prerequisites: PHY 107
Corequisites: PHY 108
Type: LAB
Conducts experiments on mechanics, as well as electricity and magnetism.

PHY 207 General Physics III
Credits: 4
Prerequisites: PHY 107-PHY 108
Corequisites: MTH 241
Type: LEC/REC
Examines sound waves, electromagnetic waves, and geometrical and physical optics. Introduces modern physics, including discovery of the electron, the photon, wave-particle duality, the Bohr model of H-atom, the Schrödinger equation, quantum numbers, the Pauli principle and periodic table, and lasers.

PHY 208 General Physics IV
Credits: 3
Prerequisites: PHY 107, PHY 108
Corequisites: MTH 306
Type: LEC
Examines thermodynamics, including temperature, zeroth law, thermal expansion, specific heat, first law, second law, entropy, third law, kinetic theory, Brownian motion, and the ideal gas. Also explores special relativity, including historical background, Lorentz transformations, length contraction, time dilation, invariance of the laws of physics, relativistic dynamics and kinematics, and paradoxes.

PHY 217 Honors Physics III
Credits: 3
Prerequisites: PHY 107 and PHY 108, or PHY 117 and PHY 118
Corequisites: MTH 241
Type: LEC
Covers the same topics as PHY 207, but in greater depth. Class size is limited. In general, taken by students in the University Honors Program, but other students may take it with permission of instructor.

PHY 257 General Physics III Lab
Credits: 1
Prerequisites: PHY 107 and PHY 108/PHY 158, or PHY 117 and PHY 118
Corequisites: PHY 207
Type: LAB
Conducts experiments on waves, geometrical and physical optics, and modern physics.

PHY 286 Maple in Physics
Credits: 1
Prerequisites: PHY 107-PHY 108
Corequisites: None
Type: LEC
Introduces basic syntax and capabilities of this computer calculus/algebra system as applied to obtain analytical solutions to problems in physics. Students taking PHY 386 learn the same syntax as PHY 286 students, but are required to do more advanced problems such as occur in junior-senior physics courses. A student may receive academic credit for only one of the two courses.

PHY 301 Intermediate Mechanics I
Credits: 3
Prerequisites: PHY 107 and MTH 306
Corequisites: None
Type: LEC
Vectors, Newtonian mechanics: rectilinear motion of a particle, general motion of a particle in three dimensions, oscillations, Hamilton’s variational principle: derivation of Lagrange’s equations and Hamilton’s equations with simple applications, equivalence to Newtonian dynamics, forces of constraint and the Lagrange multiplier method, generalized forces, noninertial reference systems, gravitation and central forces.

PHY 302 Intermediate Mechanics II
Credits: 3
Prerequisites: PHY 301
Corequisites: None
Type: LEC
Whenever feasible, the Lagrangian method will be applied. Dynamics of systems of particles, mechanics of rigid bodies: planar motion, motion of rigid bodies in three dimensions, dynamics of oscillating systems.

PHY 307 Modern Physics Lab
Credits: 2
Prerequisites: PHY 207 or PHY 217, PHY 208, PHY 257
Corequisites: None
Type: LAB
Conducts experiments in thermodynamics and modern physics.

PHY 310 Intermediate Optics
Credits: 3
Prerequisites: PHY 207 or PHY 217
Corequisites: None
Type: LEC
Examines geometrical and physical optics. Explores diffraction, interference, polarization, and other wave properties of light, and the quantum nature of light and lasers.

PHY 311 Applied Acoustics of Music
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
A general, practical course. Covers the nature of sound; the ear and the hearing process; consonance and dissonance; scales and harmonic series; basic physics of musical instruments; high fidelity systems; and theatre, studio, and room acoustics.
PHY 386 Maple in Physics
Credits: 1
Prerequisites: PHY 107, PHY 108, PHY 207, PHY 208, and junior standing
Corequisites: None
Type: LAB
Introduces basic syntax and capabilities of the computer calculus/algebra system as applied to obtain analytical solutions to problems in physics. Students taking PHY 386 learn the same syntax as PHY 286 students, but are required to do more advanced problems such as occur in junior-senior physics courses. A student may receive academic credit for only one of the two courses.

PHY 401 Modern Physics I
Credits: 3
Prerequisites: MTH 306, PHY 207, PHY 208
Corequisites: None
Type: LEC
Introduces basic concepts, one-dimensional examples, formalism of quantum mechanics.

PHY 402 Modern Physics II
Credits: 3
Prerequisites: PHY 401
Corequisites: None
Type: LEC
Angular momentum, three-dimensional problems, hydrogen atom, time-independent perturbation theory, electron spin and fine structure, time-dependent perturbation theory, quantum statistics.

PHY 403 Electricity and Magnetism I
Credits: 3
Prerequisites: MTH 241, MTH 306, PHY 108
Corequisites: None
Type: LEC
Introduces basic concepts, one-dimensional examples, formalism of quantum mechanics.

PHY 404 Electricity and Magnetism II
Credits: 3
Prerequisites: PHY 403
Corequisites: None
Type: LEC
Introduces basic concepts, one-dimensional examples, formalism of quantum mechanics.

PHY 405 Thermal and Statistical Physics I
Credits: 3
Prerequisites: MTH 306, PHY 208, PHY 301
Corequisites: None
Type: LEC
Introduces basic concepts, one-dimensional examples, formalism of quantum mechanics.

PHY 406 Thermal and Statistical Physics II
Credits: 3
Prerequisites: PHY 207 or PHY 217; PHY 401, PHY 405
Corequisites: None
Type: LEC
Introduces basic concepts, one-dimensional examples, formalism of quantum mechanics.

PHY 407 Advanced Laboratory
Credits: 3
Prerequisites: PHY 207 or PHY 217; PHY 208, PHY 257, PHY 307, PHY 401
Corequisites: None
Type: LAB
Involves individual work with faculty in a research laboratory.

PHY 408 Advanced Laboratory
Credits: 3
Prerequisites: PHY 207 or PHY 217; PHY 208, PHY 257, PHY 307, PHY 401
Corequisites: None
Type: LAB
Involves individual work with faculty in a research laboratory.

PHY 410 Computational Physics I
Credits: 3
Prerequisites: PHY 207 or PHY 217; PHY 401
Corequisites: None
Type: LEC
Introduces basic concepts, one-dimensional examples, formalism of quantum mechanics.

PHY 411 Computational Physics II
Credits: 3
Prerequisites: PHY 410
Corequisites: None
Type: LEC
Introduces basic concepts, one-dimensional examples, formalism of quantum mechanics.

PHY 412 Nuclear and Particle Physics
Credits: 3
Prerequisites: PHY 401
Corequisites: None
Type: LEC
Introduces basic concepts, one-dimensional examples, formalism of quantum mechanics.

PHY 413 Electronics
Credits: 3
Prerequisites: PHY 108 or permission of instructor
Corequisites: None
Type: LEC/LAB
Introduces basic concepts, one-dimensional examples, formalism of quantum mechanics.

PHY 414 Experimental Techniques
Credits: 2
Prerequisites: permission of instructor
Corequisites: None
Type: TUT
Involves individual work with faculty in a research laboratory.

PHY 415 Experimental Techniques
Credits: 2
Prerequisites: permission of instructor
Corequisites: None
Type: TUT
Involves individual work with faculty in a research laboratory.

PHY 480 Special Topics in Physics
Credits: 1
Prerequisites: None
Corequisites: None
Type: LEC
Introduces basic concepts, one-dimensional examples, formalism of quantum mechanics.

PHY 497 Honors
Credits: 1
Prerequisites: None
Corequisites: None
Type: TUT
For students who wish to do a senior thesis. Consult the undergraduate director, Professor Fuda, for details.

PHY 498 Undergraduate Research
Credits: 1
Prerequisites: None
Corequisites: None
Type: TUT
Introduces basic concepts, one-dimensional examples, formalism of quantum mechanics.
<table>
<thead>
<tr>
<th>Course Title</th>
<th>Type</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Corequisites</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physiology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PGY 300 Human Physiology</td>
<td>LEC</td>
<td>4</td>
<td>ANA 113 or BIO 200 or CHE 101</td>
<td></td>
<td>Functions of the human body; interrelationships of the organ systems as humans respond and adapt to their environment.</td>
</tr>
<tr>
<td>PGY 405 Cell &amp; Membrane Physiology</td>
<td>LEC</td>
<td>4</td>
<td>BIO 00 and CHE 101</td>
<td></td>
<td>Contemporary issues of cell structure and function and experimental methods used in modern cell biology research. Lectures concern basic principles and show how these principles are derived from research through reviewing original journal articles.</td>
</tr>
<tr>
<td>Polishing</td>
<td>TUT</td>
<td>1</td>
<td>POL 03 or permission of instructor</td>
<td></td>
<td>* Undergraduate research tutorial.</td>
</tr>
<tr>
<td>PGY 427 Neurophysiology</td>
<td>LEC</td>
<td>4</td>
<td>POL 04 or permission of instructor</td>
<td></td>
<td>* Physiological responses of the body to the internal stresses caused by disease.</td>
</tr>
<tr>
<td>PGY 428 Neurophysiology Laboratory</td>
<td>TUT</td>
<td>4</td>
<td>POL 04 or permission of instructor</td>
<td></td>
<td>* Functional organization and operation of the mammalian nervous system.</td>
</tr>
<tr>
<td>PGY 451 Human Physiology I</td>
<td>LEC</td>
<td>3</td>
<td>BIO 200 and CHE 202</td>
<td></td>
<td>* First semester of a two-semester lecture course in human body functions.</td>
</tr>
<tr>
<td>PGY 452 Human Physiology II</td>
<td>LEC</td>
<td>3</td>
<td>POL 101 or POL 102</td>
<td></td>
<td>* Second semester of a two-semester lecture course in human body functions.</td>
</tr>
<tr>
<td>PGY 498 Physiology Research</td>
<td>LEC</td>
<td>1</td>
<td>Upper Division Health Sciences Major</td>
<td></td>
<td>* Students participate in original investigative work that includes both laboratory work and literature searching.</td>
</tr>
<tr>
<td>PGY 499 Independent Study</td>
<td>TUT</td>
<td>1</td>
<td>Permission of instructor</td>
<td></td>
<td>* Undergraduate research tutorial.</td>
</tr>
<tr>
<td>PGY 232 Intro to Polish Literature</td>
<td>TUT</td>
<td>3</td>
<td>POL 204 or permission of instructor</td>
<td></td>
<td>* Survey of major Polish literary works of the 19th and 21st centuries.</td>
</tr>
<tr>
<td>PGY 305 Advanced Polish</td>
<td>LEC</td>
<td>3</td>
<td>POL 204 or permission of instructor</td>
<td></td>
<td>* Emphasizes conversation and written compositions. Readings of short stories, poetry, essays, and plays yield vigorous discussions in Polish.</td>
</tr>
<tr>
<td>PGY 306 Advanced Polish</td>
<td>LEC</td>
<td>3</td>
<td>POL 305 or permission of instructor</td>
<td></td>
<td>* Emphasizes conversation and written compositions. Readings of short stories, poetry, essays, and plays yield vigorous discussions in Polish.</td>
</tr>
<tr>
<td>PGY 323 Polish Literature in Translation</td>
<td>LEC</td>
<td>3</td>
<td>Upper Division Health Sciences Major</td>
<td></td>
<td>* Emphasizes conversation and written compositions. Readings of short stories, poetry, essays, and plays yield vigorous discussions in Polish.</td>
</tr>
<tr>
<td>PGY 324 Poland Today</td>
<td>LEC</td>
<td>3</td>
<td>Upper Division Health Sciences Major</td>
<td></td>
<td>* Examines major socioeconomic, political, and cultural happenings and developments in Poland since World War II, Solidarity, the disintegration and collapse of the Communist regime in 1989, the leap to the market economy, and political pluralism.</td>
</tr>
<tr>
<td>PGY 338 Poland in Central Europe</td>
<td>LEC</td>
<td>3</td>
<td>Upper Division Health Sciences Major</td>
<td></td>
<td>* Examines major socioeconomic, political, and cultural happenings and developments in Poland since World War II, Solidarity, the disintegration and collapse of the Communist regime in 1989, the leap to the market economy, and political pluralism.</td>
</tr>
</tbody>
</table>
Political Science

PSC 100 Enduring Issues in Political Science
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces political science; focuses on concepts that have been developed over the long tradition of research and that advance our understanding of different features of political life.

PSC 101 Introduction to American Politics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores the theory and practice of the American political system; the three government branches, federalism, political parties, groups in the electoral and governmental process, public policy making, and contemporary political problems.

PSC 102 Introduction to International Politics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces contemporary and historical international relations; also examines nationalism, imperialism, power diplomacy, and ideological conflict.

PSC 103 Politics Abroad
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces foreign political systems; explores significant political similarities and differences among countries.

PSC 104 Introduction to Political Philosophy
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies recurring themes in political thought, such as justice and equality, using the works of major political philosophers.

PSC 105 Democracy in America
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores the meaning of a political community's self-government, constitutional limitations on political rule, citizen participation and representation, reorganization of constitutional government with democracy and equality, and proper functions of government in relation to the economy and society.

PSC 118 Just and Unjust War
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the ethical restraints on the use of force that have become increasingly germane during the latter part of the 20th century.

PSC 180 Election Year Politics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces national election politics in the United States. Focuses on the voters, the candidates, and the media.

PSC 200 Empirical Political Science
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the basis for and methods of empirical political science, and studies empirical hypotheses formulation and testing. Formerly PSC 391.

PSC 211 Issues in Contemporary Politics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Current topics of political interest, such as AIDS or government regulation of the economy. Topics vary for each offering of the course.

PSC 214 Congressional Elections
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces the context, rules, actors, outcomes, and implications of elections to the United States House and Senate. Teaches students to approach and evaluate individual races or specific election years within a general framework of analysis.

PSC 215 Law and the Political Process
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the role of law as a political instrument; and the relations between law and morality, technology, economics, and social reform.

PSC 216 Political Leadership
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Political leadership in contemporary countries: general problems such as accession and succession, charismatic leadership, and democratic and dictatorial leadership; selected case studies of political leadership.

PSC 221 Psychology and Politics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Study of the manifestations of human nature in political life. Includes such topics as political symbolism and mass response; leadership and identification; political socialization; emotional expression; and the relationship between motive and public action.

PSC 222 Politics and Society
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces students to classic and contemporary issues and readings in political sociology, centering on the relationship of social and political forces. Draws empirical illustrations and cases from American and other “advanced industrial” societies.

PSC 223 Politics and Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Focuses on the representation of politics in the 20th century: in theory and practice - in contemporary literature.

PSC 224 Politics and Technology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces foreign political systems; explores significant political similarities and differences among countries.

PSC 225 Equality and Justice in the United States
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the conflict between the American people's commitment to equality, as stated in the Declaration of Independence, and its correspondence with economic and racial realities.

PSC 226 Marxism and Politics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Survey of recent (since 1970) developments in the Marxist theory of the state; the functions of the state in modern capitalist countries; interpretations of U.S. politics, including the role of interest groups, unions, classes, bureaucracy, parties, and governmental policies; criticisms of the Leninist mode of party organization; and strategies and prospects of political action.

PSC 227 Politics and Geography
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces institutions that operate within and among China, Taiwan, Japan, and Korea; also considers the political, social, and economic settings in which international business is transacted in East Asia.

PSC 229 East Asian Political Economy
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces politics of major foreign economic and political systems, and other “advanced industrial” societies.

PSC 231 Issues in Contemporary Politics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores significant political similarities and differences among countries.

PSC 232 Politics and Society
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces students to classic and contemporary issues and readings in political sociology, centering on the relationship of social and political forces. Draws empirical illustrations and cases from American and other “advanced industrial” societies.

PSC 233 Politics and Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Focuses on the representation of politics in the 20th century: in theory and practice - in contemporary literature.

PSC 234 Political Leadership
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Political leadership in contemporary countries: general problems such as accession and succession, charismatic leadership, and democratic and dictatorial leadership; selected case studies of political leadership.

PSC 235 Equality and Justice in the United States
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the conflict between the American people's commitment to equality, as stated in the Declaration of Independence, and its correspondence with economic and racial realities.

PSC 236 Marxism and Politics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Survey of recent (since 1970) developments in the Marxist theory of the state; the functions of the state in modern capitalist countries; interpretations of U.S. politics, including the role of interest groups, unions, classes, bureaucracy, parties, and governmental policies; criticisms of the Leninist mode of party organization; and strategies and prospects of political action.

PSC 237 Politics and Geography
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces institutions that operate within and among China, Taiwan, Japan, and Korea; also considers the political, social, and economic settings in which international business is transacted in East Asia.

PSC 238 East Asian Political Economy
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces politics of major foreign economic and political systems, and other “advanced industrial” societies.

PSC 239 Issues in Contemporary Politics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores significant political similarities and differences among countries.

PSC 240 Politics and Society
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces students to classic and contemporary issues and readings in political sociology, centering on the relationship of social and political forces. Draws empirical illustrations and cases from American and other “advanced industrial” societies.

PSC 241 Political Leadership
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Political leadership in contemporary countries: general problems such as accession and succession, charismatic leadership, and democratic and dictatorial leadership; selected case studies of political leadership.

PSC 242 Equality and Justice in the United States
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the conflict between the American people's commitment to equality, as stated in the Declaration of Independence, and its correspondence with economic and racial realities.

PSC 243 Marxism and Politics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Survey of recent (since 1970) developments in the Marxist theory of the state; the functions of the state in modern capitalist countries; interpretations of U.S. politics, including the role of interest groups, unions, classes, bureaucracy, parties, and governmental policies; criticisms of the Leninist mode of party organization; and strategies and prospects of political action.
PSC 302 Protecting Civil Liberties
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies processes by which policies dealing with civil liberties are implemented. Examines federal and local public bureaucracies charged with law enforcement, the nature of legal services, litigation strategies, and reform proposals.

PSC 303 Constitutional Law
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines common law background of the American Constitution and the Constitution's role in American politics; selected problem areas.

PSC 304 Legislative Politics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies legislative process in the United States; including organization, internal dynamics, and functioning of legislative bodies; and their relations with the executive and judicial branches and with groups in society.

PSC 305 Judicial Politics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines courts in the American political system, selection of judges, flow of decisions through trial and appellate courts, consideration of judicial decision making, and relations with other government institutions.

PSC 306 The American Presidency
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores the presidency's role in the politics and policy process of the United States, including growth, scope, and limits of presidential power.

PSC 307 Political Parties
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Analyzes structures, functions, and roles of political parties in American government and politics, as well as internal dynamics and citizen identification with parties and polities.

PSC 308 Organizational Theory in Political Institutions
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Considers basic theories about organizations, their structure, and their behavior (both the organization and its members). Applies these theories to a number of institutions in American politics.

PSC 309 American Federalism
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines political relationships and policy outcomes associated with the changing nature of the federal system and intergovernmental relations over the past fifty years.

PSC 310 Public Administration
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores structures and functions of public bureaucracies, including civil servants' behavior and political control of administrative behavior.

PSC 311 State Politics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Reviews significant political institutions, processes, and problems in the fifty states.

PSC 312 Urban Politics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Considers social and historical patterns underlying the organization of power in American municipalities, and the means by which power is brought to bear upon the problems of the city.

PSC 313 Voting and Public Opinion
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Describes Americans' political preferences, explaining how these preferences develop and change, and examines the impact of these preferences on democratic politics. A portion of the course analyzes recent and current electoral behavior; the remainder suggests historical and theoretical frameworks that can help us understand trends in opinion and voting that have emerged since World War II.

PSC 314 Public Policy Making
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines dynamics of the policy process in the United States, including agenda-setting, formulation, and implementation. Case studies in substantive policy areas illustrate these processes.

PSC 315 American Political Economy
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the relationship between the political system and the economic system, including the nature of American capitalism, government regulation of the economy, the role of economic factors in the political system, and selected economic problems.

PSC 316 Politics of Political Choice
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Considers choices made in the political arena. Also examines the scientific study of politics, including the development and appropriateness of theories and models to political behavior.

PSC 317 Environmental Politics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Present ecological crisis; adaptations which society must make in its political system to deal with resulting problems.

PSC 319 Media in American Politics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Reviews the historical context of the mass media in American politics, legal issues surrounding freedom of speech and press, the production of news, the media's role in campaigns and elections, the media as a political institution that interacts with the three branches of government, citizen response to news coverage of politics, and the cultural impact of daily media fare.

PSC 320 Political Socialization
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines political learning, political change and political stability theories, kinds of political teaching, and adult socialization into citizen roles.

PSC 324 Politics of Housing
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Development of housing policy in the U.S.; growth of federal housing programs since the National Housing Act of 1937; role played by local governments and the housing industry in making use of such programs; achievements of programs in public housing, urban renewal, model cities, and housing subsidies.

PSC 325 American Foreign Policy Problems
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Considers selected problems in American foreign policy, such as the United States' relations with Europe or the Third World, arms control and disarmament, and the United States' future world role.

PSC 326 War and International Security
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores nuclear weapons' impact on United States national security; considers nuclear deterrence, arms control, and United States-Soviet relations.

PSC 327 The Cold War and After
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Reassesses the cold war between the United States and the Soviet Union, from the Bolshevik revolution until the collapse of the Soviet Union.

PSC 328 Economics and Foreign Policy
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores American foreign economic relations; American trade, aid, and investment relations; and the American role in the international economic system.

PSC 329 US-Latin American Relations
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Intergovernmental relations in the Western Hemisphere; relations between Latin American nations and the U.S.

PSC 330 International Relations Problems
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines selected questions regarding international conflict and cooperation.

PSC 331 Foreign Policy Making
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Considers decision making in foreign policy; the role of Congress, the Presidency, the State Department, public opinion, and interest groups.
PSC 332 International Organizations
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the United Nations, specialized agencies, and other intergovernmental organizations in peacekeeping, economic development, and social welfare; also studies regional integration.

PSC 333 International Relations Theory
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces international relations theory, including the nature of the international system, alliances, nuclear strategy, negotiation, and decision making within governments.

PSC 335 American Foreign Policy
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines American foreign policy, particularly since World War II.

PSC 336 Russian Foreign Policy
Credits: 3
Prerequisites: sophomore standing
Corequisites: None
Type: LEC
Studies continuity and change in Russian foreign policy, forces motivating Russian behavior in world affairs, and selected problems of Russian foreign policy.

PSC 337 Chinese Foreign Policy
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines American foreign policy, particularly since World War II.

PSC 338 Comparative Foreign Policy
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies foreign policy of the People's Republic of China. The historical background and specific issues such as China and the U.S., China and the Third World, and Sino-Soviet relations are examined.

PSC 339 International Law
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the existing body of international law and the functions that international law performs.

PSC 340 Politics in Western Europe
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Considers governmental institutions and political processes in major Western European nations.

PSC 341 Political Change
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the United Nations, specialized agencies, and other intergovernmental organizations in peacekeeping, economic development, and social welfare; also studies regional integration.

PSC 342 Politics of Developing Nations
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines political change south of the Sahara in the post-independence period; analyzes historical, geographical, economic, and social factors of the pre-independence period. Also considers social classes, social patterns, colonialism, nationalism, the military's role, Africa in world politics, and transformation in southern Africa.

PSC 344 Political Campaigns
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines political campaign strategies and the role of government in America's largest trading partner and neighbor to the north. Given primary attention to Canadian politics and institutions, but also examines campaigns for Congress and state offices, as well as campaigning in primary elections.

PSC 345 Canadian Politics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines political change south of the Sahara in the post-independence period; analyzes historical, geographical, economic, and social factors of the pre-independence period. Also considers social classes, social patterns, colonialism, nationalism, the military's role, Africa in world politics, and transformation in southern Africa.

PSC 346 Individuals and World Politics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Surveys international politics from the individual decision maker's vantage point.

PSC 350 Politics of the U.S.S.R.
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the United Nations, specialized agencies, and other intergovernmental organizations in peacekeeping, economic development, and social welfare; also studies regional integration.

PSC 351 Politics in E. Europe Post Soc. Sts.
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines only the countries of the former Warsaw Pact and the states of the former Soviet Union.

PSC 355 Asian Politics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the United Nations, specialized agencies, and other intergovernmental organizations in peacekeeping, economic development, and social welfare; also studies regional integration.

PSC 370 African Politics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines political change south of the Sahara in the post-independence period; analyzes historical, geographical, economic, and social factors of the pre-independence period. Also considers social classes, social patterns, colonialism, nationalism, the military's role, Africa in world politics, and transformation in southern Africa.

PSC 371 Middle Eastern Politics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines political change south of the Sahara in the post-independence period; analyzes historical, geographical, economic, and social factors of the pre-independence period. Also considers social classes, social patterns, colonialism, nationalism, the military's role, Africa in world politics, and transformation in southern Africa.

PSC 372 Latin American Politics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines political change south of the Sahara in the post-independence period; analyzes historical, geographical, economic, and social factors of the pre-independence period. Also considers social classes, social patterns, colonialism, nationalism, the military's role, Africa in world politics, and transformation in southern Africa.

PSC 373 International Futures
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Surveys international politics from the individual decision maker's vantage point.

PSC 376 Money in Politics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Surveys international politics from the individual decision maker's vantage point.

PSC 378 Politics of Gender
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Surveys international politics from the individual decision maker's vantage point.

PSC 379 Latino Politics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
An introduction to the interactions of the Latino people in the U.S. with political institutions and public policy.

PSC 380 Classical and Medieval Political Philosophy
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines major contributions to political philosophy from Plato and Aristotle to Machiavelli.

PSC 382 Machiavelli to Marx Political Philosophy
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the United Nations, specialized agencies, and other intergovernmental organizations in peacekeeping, economic development, and social welfare; also studies regional integration.

PSC 383 Twentieth-Century Political Philosophy
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the United Nations, specialized agencies, and other intergovernmental organizations in peacekeeping, economic development, and social welfare; also studies regional integration.

PSC 384 American Political Thought I: Colonial Era to the Civil War
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the United Nations, specialized agencies, and other intergovernmental organizations in peacekeeping, economic development, and social welfare; also studies regional integration.

PSC 385 Asian Politics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the United Nations, specialized agencies, and other intergovernmental organizations in peacekeeping, economic development, and social welfare; also studies regional integration.

PSC 386 Political Change
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the United Nations, specialized agencies, and other intergovernmental organizations in peacekeeping, economic development, and social welfare; also studies regional integration.

PSC 387 Money in Politics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the United Nations, specialized agencies, and other intergovernmental organizations in peacekeeping, economic development, and social welfare; also studies regional integration.

PSC 388 Machiavelli to Marx Political Philosophy
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the United Nations, specialized agencies, and other intergovernmental organizations in peacekeeping, economic development, and social welfare; also studies regional integration.

PSC 389 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Content varies by semester.

PSC 392 Political Analysis Lab
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introductory to some basic techniques of data collection and analysis in political science; survey research; small group experiments.

PSC 393 Game Theory and Politics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introductory to some basic techniques of data collection and analysis in political science; survey research; small group experiments.
PSC 395 Empirical Theory: Democracy
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
This class focuses on key questions related to the empirical study of democratic governments, or aspects thereof.

PSC 401 Advanced Civil Liberties
Credits: 3
Prerequisites: PSC 301, PSC 302
Corequisites: None
Type: LEC
This advanced senior course, designed for students about to enter law school, addresses selected topics in civil liberties in America, such as civil rights, criminal procedure, and First Amendment rights.

PSC 406 Supreme Court Seminar
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Introduces statistics and their applications in political science.

PSC 412 Comparative Political Institutions
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Focuses on institutions and their relationship to political behaviors by elites and masses, as well as their connection to policy outcomes. Examines how institutions such as presidential systems, parliamentary systems, executive powers, electoral rules, and legislative structures such as committees influence political actors' strategies. Executive-legislative relations and their effects on policy will occupy a central role. Examines states both in the developed and developing world.

PSC 413 Comparative Political Economy
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces comparative political economy, and the comparative politics of domestic economic policies. Topics include market reforms in developed, developing, and postsozialist countries, varieties of welfare capitalism, varieties of democratic institutions and their effects on economic policies, and more. Some background in economics is helpful.

PSC 418 The International System
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Considers the international system's evolution from the late 19th century to the present. Uses diplomatic history and contemporary international affairs as a "laboratory" for testing various theories about international politics.

PSC 419 International Crisis Seminar
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
An advanced topic intended for juniors and seniors who have a strong interest in the field of international relations. Provides an opportunity for students to develop research and library skills by writing a paper on a subject related to the seminar's main focus.

PSC 420 Comparing Political Parties
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines internal organization, functions, and impact of political parties from a comparative perspective.

PSC 421 Comparative Bureaucracies
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC

PSC 426 Comparative Political Institutions
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the development, primarily since World War II, of international systems for the promotion and protection of human rights.

PSC 430 Human Rights
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the development, primarily since World War II, of international systems for the promotion and protection of human rights.

PSC 436 Citizen Participation
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Considers individual political behavior patterns in selected countries, and explores differences and similarities across nations in voting behavior and public opinion.

PSC 438 Civil-Military Relations
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the armed forces' involvement in political affairs, civilian control of the military, causes and effects of military seizures of control, and the importance of coercion within the political process.

PSC 451 Major Political Philosophers
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Course will emphasize the detailed analysis of the thought of a particular philosopher or tradition. Examples would include Aristotle, Hegel, Nietzsche, or Current Marxist Thought.

PSC 470 Legal Political Theory
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the political science and legal studies majors who plan to go to law school to delve deeply into an important issue relating to the supreme court. Provides an opportunity for students to develop legal research and library skills by writing a paper on a subject related to the seminar's main focus.

PSC 495 Senior Seminar
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Enables a select number of upper-class political science and legal studies majors to lead to the submission of an honors thesis. Requires permission of instructor.

PSC 496 Political Science Internship
Credits: 1
Prerequisites: None
Corequisites: None
Type: TUT
Involves supervised independent study leading to the submission of an honors thesis. Requires permission of instructor.

PSC 497 Honors Thesis
Credits: 3
Prerequisites: None
Corequisites: None
Type: TUT
Involves supervised independent study leading to the submission of an honors thesis. Requires permission of instructor.

PSC 499 Independent Study
Credits: 1
Prerequisites: None
Corequisites: None
Type: TUT
Requires permission of instructor.
Portuguese

POR 101 Elementary Portuguese 1st Semester
Credits: 5
Prerequisites: None
Corequisites: None
Type: LEC
Covers fundamentals of Portuguese pronunciation, vocabulary, and grammar.

POR 102 Elementary Portuguese 2nd Semester
Credits: 5
Prerequisites: POR 101
Corequisites: None
Type: LEC
Covers fundamentals of Portuguese pronunciation, vocabulary, and grammar.

POR 201 Intermediate Portuguese 1st Semester
Credits: 3
Prerequisites: POR 102
Corequisites: None
Type: LEC
Involves practice in grammar, pronunciation, and conversation practice; expands student vocabulary through selected readings.

POR 202 Intermediate Portuguese 2nd Semester
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Involves practice in grammar, pronunciation, and conversation practice; expands student vocabulary through selected readings.

POR 496 Internship/Practicum
Credits: 1
Prerequisites: Permission of Instructor
Corequisites: None
Type: TUT
Hands-on experience in language and cultural studies at institutions and community organizations in the Western New York area.

POR 498 Undergraduate Research
Credits: 1
Prerequisites: Permission of Instructor
Corequisites: None
Type: TUT
Students collaborate with faculty research mentors on an ongoing faculty research project or conduct independent research under the guidance of a faculty member.

Psychology

PSY 101 Introductory Psychology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
General survey of perception; learning and memory; cognitive, developmental, personality, abnormal, and social psychology; and behavioral neuroscience. Requires participation in research or a short paper.

PSY 207 Psychological Statistics
Credits: 4
Prerequisites: MTH 115 or equivalent
Corequisites: None
Type: LEC/LAB
Graphs; permutations; combinations; probability; regression; correlation; analysis of variance; descriptive and inferential statistics; parametric and nonparametric tests appropriate to psychological research. Three hours of lecture and one hour of recitation weekly.

PSY 250 Scientific Inquiry in Psychology
Credits: 3
Prerequisites: PSY 101, PSY 207
Corequisites: None
Type: LEC
The research process; deductive and inductive reasoning in science; nature of theory; hypothesis testing and empirical data; scientific knowledge and its applications.

PSY 312 Abnormal Psychology
Credits: 3
Prerequisites: PSY 101
Corequisites: None
Type: LEC
Theory and description of the major behavior disorders and the psychopathology of everyday life; causes and treatment of these disorders.

PSY 323 Community Psychology
Credits: 3
Prerequisites: PSY 101
Corequisites: None
Type: LEC
Introduces theoretical concepts and developing practices in community psychology and community mental health.

PSY 324 Clinical Psychology
Credits: 3
Prerequisites: PSY 101
Corequisites: None
Type: LEC
Introduces clinical psychology. Methods of assessing abnormal behavior, modes of intervention, theories of treatment, and ethical issues.

PSY 325 Health Psychology
Credits: 3
Prerequisites: PSY 101
Corequisites: None
Type: LEC
Introduces the scientific study of the behavioral and social aspects of health.

PSY 331 Social Psychology
Credits: 3
Prerequisites: PSY 101
Corequisites: None
Type: LEC
Behavior of individuals and their relations with others; aggression; attraction; attitude formation and change; conformity; obedience; helping; stereotypes; group processes.

PSY 332 Social Conflict and its Resolution
Credits: 3
Prerequisites: PSY 101
Corequisites: None
Type: LEC
Overview of social conflict theory and of conflict resolution practice. Topics include the nature and cause of conflict, strategic choice in conflict, escalation, negotiation, and third-party intervention. Emphasizes psychological approaches, but is not limited to them.

PSY 333 Psychology of Work in Organizations
Credits: 3
Prerequisites: PSY 101
Corequisites: None
Type: LEC
Theory, research, and practices of organizational psychologists; behavior of individuals within organizations; principles of industrial psychology.

PSY 336 Developmental Psychology
Credits: 3
Prerequisites: PSY 101
Corequisites: None
Type: LEC
Major developmental changes in areas of human behavior, cognition, personality, and social life from the perspective of current theories about development.

PSY 341 Cognitive Psychology
Credits: 3
Prerequisites: PSY 101
Corequisites: None
Type: LEC
Information-processing approach to human behavior; how people interpret and understand the environment; recognition; memory; language.

PSY 342 Introduction to Cognitive Science: Concepts of the Mind
Credits: 3
Prerequisites: PSY 101
Corequisites: None
Type: LEC
An interdisciplinary approach to the understanding of knowledge and mind, guided by principles of formal systems and computation. Concepts and approaches from psychology, philosophy, artificial intelligence, linguistics, and neuroscience.

PSY 343 Sensory Processes and Perception
Credits: 3
Prerequisites: PSY 101
Corequisites: None
Type: LEC
Surveys experimental data and theories of perception. Perceptual organization and neurophysiology of brain systems, and neural and computational representations involved in vision, hearing, and cutaneous and chemical senses.

PSY 351 Biopsychology
Credits: 3
Prerequisites: PSY 101
Corequisites: None
Type: LEC
Physiological studies, mainly on the nervous system, relevant to selected theoretical issues in perception, learning, motivation, and problem solving.

PSY 402 Psychopharmacology
Credits: 3
Prerequisites: PSY 351, psychology major
Corequisites: None
Type: LEC
Basic brain chemistry and its influence on behavior. Distribution and elimination of drugs, drug-receptor interactions, and the neuroanatomical distribution of specific neurotransmitter systems. Special topics in biological psychiatry.

PSY 404 Alcohol and Health
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
The relationship between alcohol use and psychological, social, and physical well-being. Conceptualizes problem drinking within a social psychological paradigm; implications of different conceptions for the prevention and treatment of alcohol problems.

PSY 405 Data Analysis Techniques
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Instruction and hands-on experience employing SPSS statistical package on desktop computers. Includes nonparametric statistics, T-tests, ANOVA (including factorial and repeated measures designs), and introduces correlation, regression, and factor analysis. Emphasizes appropriate choice among statistical methods.

PSY 407 Consciousness and the Self
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Examines how the unconscious mind works, how much of the self resides in the unconscious, and how the unconscious can and cannot be accessed. Classes are broken up into a number of different activities; each is designed to develop different skills while learning about consciousness and the self.
PSY 408 Small-Group Processes
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Reviews research on small-group dynamics, with attention to applying these concepts to improve groups in organizations.

PSY 409 Organizational Development and Change
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Studies methods of working with organizations to improve their effectiveness. Involves individual, group, and organizational-level change processes.

PSY 410 Existential Psychology
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Examines the difference in concepts of self and the self-referent nature of their world.

PSY 411 Self and Self-Esteem
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Examines the difference in concepts of self and the self-referent nature of their world.

PSY 412 Psychology of Aggression and Violence
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Examines the difference in concepts of self and the self-referent nature of their world.

PSY 413 Social Cognition
Credits: 3
Prerequisites: PSY 331, psychology major
Corequisites: None
Type: LEC
Examines the difference in concepts of self and the self-referent nature of their world.

PSY 414 Assessment of Individual Differences
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Examines the difference in concepts of self and the self-referent nature of their world.

PSY 415 Psychology and Law
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Examines legal issues related to selected social problems in light of psychological theory, research, and clinical experience.

PSY 416 Reasoning and Problem Solving
Credits: 3
Prerequisites: PSY 341 or PSY 342, psychology major
Corequisites: None
Type: LEC
Examines the difference in concepts of self and the self-referent nature of their world.

PSY 417 Psychology of Identity
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Examines the difference in concepts of self and the self-referent nature of their world.

PSY 418 Behavior Modification and Behavioral Medicine
Credits: 3
Prerequisites: PSY 322, psychology major
Corequisites: None
Type: LEC
Examines the difference in concepts of self and the self-referent nature of their world.

PSY 419 Biological Bases of Memory
Credits: 3
Prerequisites: PSY 351, psychology major
Corequisites: None
Type: LEC
Examines the difference in concepts of self and the self-referent nature of their world.

PSY 420 Systems and Theories of Psychology
Credits: 3
Prerequisites: psychology major, completion of at least two 300-level requirements
Corequisites: None
Type: LEC
Examines the difference in concepts of self and the self-referent nature of their world.

PSY 421 Anxiety Disorders
Credits: 3
Prerequisites: psychology major, PSY 322 recommended
Corequisites: None
Type: LEC
Examines the difference in concepts of self and the self-referent nature of their world.

PSY 422 Mood Disorders
Credits: 3
Prerequisites: psychology major, PSY 322 recommended
Corequisites: None
Type: LEC
Examines the difference in concepts of self and the self-referent nature of their world.

PSY 423 Counseling and Psychological Assessment
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Examines the difference in concepts of self and the self-referent nature of their world.

PSY 424 Abnormal Child Psychology
Credits: 3
Prerequisites: psychology major, PSY 322 recommended
Corequisites: None
Type: LEC
Examines the difference in concepts of self and the self-referent nature of their world.

PSY 425 Psychology of Human Sexuality
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Examines the difference in concepts of self and the self-referent nature of their world.

PSY 426 Biological Bases of Mental Disorders
Credits: 3
Prerequisites: PSY 351, psychology major
Corequisites: None
Type: LEC
Examines the difference in concepts of self and the self-referent nature of their world.

PSY 427 Adult Development and Aging
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Examines the difference in concepts of self and the self-referent nature of their world.

PSY 428 Language Development
Credits: 3
Prerequisites: PSY 341, psychology major
Corequisites: None
Type: LEC
Examines the difference in concepts of self and the self-referent nature of their world.

PSY 429 Psychophysiology
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Examines the difference in concepts of self and the self-referent nature of their world.

PSY 430 Evolutionary Psychology
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Examines the difference in concepts of self and the self-referent nature of their world.

PSY 431 Psychology and Environmental Hazards
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Examines the difference in concepts of self and the self-referent nature of their world.

PSY 432 Sport and Exercise Psychology
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Examines the difference in concepts of self and the self-referent nature of their world.

PSY 433 Neuropsychology
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Examines the difference in concepts of self and the self-referent nature of their world.

PSY 434 Sport and Exercise Psychology
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Examines the difference in concepts of self and the self-referent nature of their world.

PSY 435 Psychology of Reproduction
Credits: 3
Prerequisites: PSY 351, psychology major
Corequisites: None
Type: LEC
Examines the difference in concepts of self and the self-referent nature of their world.

PSY 436 Neuropsychology
Credits: 3
Prerequisites: PSY 351, psychology major
Corequisites: None
Type: LEC
Examines the difference in concepts of self and the self-referent nature of their world.

PSY 437 Cross-Cultural Psychology
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Examines the difference in concepts of self and the self-referent nature of their world.

PSY 438 Sport and Exercise Psychology
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Examines the difference in concepts of self and the self-referent nature of their world.
PSY 439 Biopsychology of Stress
Credits: 3
Prerequisites: PSY 351, psychology major
Corequisites: None
Type: LEC
Stress and the body’s various reactions to it.

PSY 440 Hormones and Behavior
Credits: 3
Prerequisites: PSY 351, psychology major
Corequisites: None
Type: LEC
Familiarizes students with the structure, function, and principles of the endocrine/autonomic system and how this system helps to initiate and regulate behavior (e.g. stress, reproduction, cyclicity in behavior, ingestion, and aggression).

PSY 443 The Neurobiology of Communication in Animals
Credits: 3
Prerequisites: PSY 351, psychology major
Corequisites: None
Type: LEC
Focuses on the evolution, function, design, and diversity of animal communication systems such as song and visual signaling in birds, calls and echolocation in dolphins, echolocation and olfactory signaling in bats, olfactory signaling in insects, and electrical signaling in fish.

PSY 444 Memory
Credits: 3
Prerequisites: psychology major; PSY 341 recommended
Corequisites: None
Type: LEC
How knowledge is represented, stored, and retrieved by humans; attention; language comprehension; nature and causes of forgetting.

PSY 446 Animal Cognition
Credits: 3
Prerequisites: psychology major, PSY 341 recommended
Corequisites: None
Type: LEC
Focusses on animal minds, including perception, attention, representation, concept and rule learning, judgments of time and number, tool use, communication, self-awareness, and awareness of the other.

PSY 447 Psychology of Music
Credits: 3
Prerequisites: psychology major, PSY 341 recommended
Corequisites: None
Type: LEC
How we perceive, remember, and respond to music. Representation of musical knowledge, emotional and aesthetic response to music, listening styles of novices and experts, music’s role in human culture.

PSY 448 Psycholinguistics
Credits: 3
Prerequisites: PSY 341, psychology major
Corequisites: None
Type: LEC
What individuals know when they know a natural language; how that language is acquired; what the facts of language tell us of the structure of the mind.

PSY 449 Motivational Theory
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Development of ideas concerning the problem of motivation; important experiments in the development of these ideas; current theories of motivation; data relevant to an examination of these theories.

PSY 450 Advanced Research Methods in Psychology
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Development and application of skills needed to conduct and evaluate research. Strongly recommended for students who plan to attend graduate school.

PSY 451 Drug Addiction
Credits: 3
Prerequisites: PSY 351, psychology major
Corequisites: None
Type: LEC
The scientific study of drug addiction, emphasizing biological and psychological theories.

PSY 452 Psychology of Race and Racism
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Psychological aspects of historical and contemporary race relations in the United States. Topics include stereotyping, prejudice, discrimination, conflict, and cooperation.

PSY 455 Applied Behavior Analysis with Children 1
Credits: 3
Prerequisites: permission of instructor
Corequisites: PSY 498
Type: SEM
Undertakes further study of Maxwell's equations, electric and magnetic susceptibilities, electromagnetic radiation, electromagnetic fields from a moving charge, waveguides and transmission lines, Poynning's vector, and Lorentz force. Also examines relativistic invariance.

PSY 456 Applied Behavior Analysis with Children 2
Credits: 3
Prerequisites: permission of instructor
Corequisites: PSY 498
Type: SEM
PSY 455 and PSY 456 offer students the opportunity to learn about current assessment and treatment methodologies for school-age children with disruptive behavior problems and 2) apply this knowledge in hands-on interactions with children within actual school settings. Topics covered include an overview of disruptive behavior disorders found in school-age children, functional behavioral assessment tools used with children, and empirically supported treatments for children with disruptive behavior problems.

PSY 457 Cognitive Development
Credits: 3
Prerequisites: PSY 341, psychology major
Corequisites: None
Type: LEC
The growth of cognitive functioning from infancy to adolescence. Considers the major theoretical approaches that are taken in studying cognitive development.

PSY 461 Senior Seminar
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: SEM
Topical seminars and laboratory courses.

PSY 464 Senior Seminar
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: SEM
Topical seminars and laboratory courses.

PSY 466 Senior Seminar
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: SEM
Topical seminars and laboratory courses.

PSY 467 Senior Seminar
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: SEM
Topical seminars and laboratory courses.

PSY 468 Senior Seminar
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: SEM
Topical seminars and laboratory courses.

PSY 470 Senior Seminar
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: SEM
Topical seminars and laboratory courses.

PSY 471 Senior Seminar
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Stress and the body’s various reactions to it.

PSY 474 Senior Seminar
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: SEM
Topical seminars and laboratory courses.

PSY 475 Senior Seminar
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: SEM
Topical seminars and laboratory courses.

PSY 477 Special Topics
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Current theories, research, and controversies in the major subareas of psychology. Specific topics and content change each semester.

PSY 478 Special Topics
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Current theories, research, and controversies in the major subareas of psychology. Specific topics and content change each semester.

PSY 479 Special Topics
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Current theories, research, and controversies in the major subareas of psychology. Specific topics and content change each semester.

PSY 480 Special Topics
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Current theories, research, and controversies in the major subareas of psychology. Specific topics and content change each semester.
PSY 481 Special Topics
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Current theories, research, and controversies in the major subareas of psychology. Specific topics and content change each semester.

PSY 482 Special Topics
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Current theories, research, and controversies in the major subareas of psychology. Specific topics and content change each semester.

PSY 483 Special Topics
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Current theories, research, and controversies in the major subareas of psychology. Specific topics and content change each semester.

PSY 484 Special Topics
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Current theories, research, and controversies in the major subareas of psychology. Specific topics and content change each semester.

PSY 485 Special Topics
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Current theories, research, and controversies in the major subareas of psychology. PSY 485-PSY 490 are part of the Cognitive and Behavioral neurosciences courses. Specific topics and content change each semester.

PSY 486 Special Topics
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Current theories, research, and controversies in the major subareas of psychology. PSY 485-PSY 490 are part of the Cognitive and Behavioral neurosciences courses. Specific topics and content change each semester.

PSY 487 Special Topics
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Current theories, research, and controversies in the major subareas of psychology. PSY 485-PSY 490 are part of the Cognitive and Behavioral neurosciences courses. Specific topics and content change each semester.

PSY 488 Special Topics
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Current theories, research, and controversies in the major subareas of psychology. PSY 485-PSY 490 are part of the Cognitive and Behavioral neurosciences courses. Specific topics and content change each semester.

PSY 489 Special Topics
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Current theories, research, and controversies in the major subareas of psychology. PSY 485-PSY 490 are part of the Cognitive and Behavioral neurosciences courses. Specific topics and content change each semester.

PSY 490 Special Topics
Credits: 3
Prerequisites: psychology major
Corequisites: None
Type: LEC
Current theories, research, and controversies in the major subareas of psychology. PSY 485-PSY 490 are part of the Cognitive and Behavioral neurosciences courses. Specific topics and content change each semester.

PSY 495 Undergraduate Supervised Teaching
Credits: 1
Prerequisites: psychology major
Corequisites: None
Type: TUT
Undergraduate teaching assistant (UTA) positions are available for certain psychology courses to those students who have completed the course or its equivalent with a grade of A, have achieved junior status, and have a minimum GPA of 3.0 overall. Students must apply for UTA positions with the appropriate instructor. Credit does not count toward the major. Graded P/F.

PSY 496 Supervised Applied Experience
Credits: 1
Prerequisites: psychology major
Corequisites: None
Type: TUT
A program of applied work in a community, government, or private agency or organization related to the major in psychology. Must be agreed upon by the student and a faculty sponsor in the department. Credit does not count toward the major. Graded P/F.

PSY 497 Honors
Credits: 1
Prerequisites: psychology major; permission of instructor
Corequisites: None
Type: SEM
Independent research for two semesters with a faculty member. Apply in junior year.

PSY 498 Undergraduate Research
Credits: 1
Prerequisites: psychology major
Corequisites: None
Type: TUT
A program of supervised research to be agreed upon by the student and a faculty sponsor in the department, including procedures for evaluating student performance. Student receives a letter grade.

PSY 499 Independent Study
Credits: 1
Prerequisites: psychology major
Corequisites: None
Type: TUT
A program of scholarship to be agreed upon by the student and a faculty sponsor in the department, including procedures for evaluating student performance. Student receives a letter grade.

Religious Studies

RSP 113 Myth and Religion in the Ancient World
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces the traditions of the Hebrews throughout the patriarchal narrative of Genesis; the law corpus in Exodus; and the early history in Judges, Samuel, and Kings. Studies texts in the context of historical and literary of the ancient Near East.

RSP 211 Introduction to Catholicism
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces the history, beliefs, and practices of Catholic Christianity. Examines issues in contemporary Catholicism and its relationship to American society.

RSP 231 World Religions
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces the world's religious systems and their cultural bases, including Hinduism, Buddhism, Taoism, Confucianism, Shinto, Judaism, and modern religious substitutes.

RSP 218 Jesus: His Life and History
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Investigates the life and history of Jesus. As we explore the facts, opinions, and meaning attendant to the Historical Jesus, we examine the difficulties of such an intellectual and historical inquiry, review the controversies consequent to this famous scholarly pursuit, and assess our own position and thinking.
### RSP 223 Western Church History
- **Credits:** 3
- **Prerequisites:** None
- **Corequisites:** None
- **Type:** LEC
- **Corequisites:** None
- **Prerequisites:** None
- **Credits:** 3

Examines the development of the Christian church within European history from Pentecost to the start of the Enlightenment. Covers material in three major divisions of time: the ancient church (to A.D. 600), the medieval church (600-1517), and the Reformation church (1517-1700). Emphasizes the important leaders and issues of each era.

### RSP 224 American Church History
- **Credits:** 3
- **Prerequisites:** None
- **Corequisites:** None
- **Type:** LEC
- **Corequisites:** None
- **Prerequisites:** None
- **Credits:** 3

Surveys the Christian church’s background and development in American history from the first establishment to the present era. Emphasizes major individuals associated with the American church, and covers material in four major divisions: the colonial era (1607-1789), the national era (1790-1860), the federal era (1861-1919), and the modern era (1920-present).

### RSP 221 Paul and the Early Church
- **Credits:** 3
- **Prerequisites:** None
- **Corequisites:** None
- **Type:** LEC
- **Corequisites:** None
- **Prerequisites:** None
- **Credits:** 3

Considers Paul’s first letter to the Corinthians (1st Corinthians) and early church struggles for orthodoxy.

### RSP 242 New Testament Literature and Thought
- **Credits:** 3
- **Prerequisites:** None
- **Corequisites:** None
- **Type:** LEC
- **Corequisites:** None
- **Prerequisites:** None
- **Credits:** 3

Explores the first three gospels: Matthew, Mark, and Luke. Considers their authorship, audience, style, structure; and engages in comparative studies of specific themes and emphases.

### RSP 246 Gospel of John and Apocalypse
- **Credits:** 3
- **Prerequisites:** None
- **Corequisites:** None
- **Type:** SEM
- **Corequisites:** None
- **Prerequisites:** None
- **Credits:** 3

Undertakes a comprehensive study of the fourth gospel, including its authorship, time, and situation of composition; and its unique theological perspective. By way of comparison and contrast, the course examines the book of Apocalypse or Revelations.

### RSP 260 Introduction to Christian Ethics
- **Credits:** 3
- **Prerequisites:** None
- **Corequisites:** None
- **Type:** LEC
- **Corequisites:** None
- **Prerequisites:** None
- **Credits:** 3

Considers specific ethical issues in light of the message of Jesus, the Christian concept of love, how ethical decisions are made, and the role of Jesus in ethics.

### RSP 282 Christianity in Western Culture
- **Credits:** 3
- **Prerequisites:** None
- **Corequisites:** None
- **Type:** LEC
- **Corequisites:** None
- **Prerequisites:** None
- **Credits:** 3

Explores the interplay and cross-fertilization of European cultures and the various branches of the Christian religion; examines these in a historical and contemporary context.

### RSP 288 Old Testament Prophets
- **Credits:** 3
- **Prerequisites:** None
- **Corequisites:** None
- **Type:** SEM
- **Corequisites:** None
- **Prerequisites:** None
- **Credits:** 3

Using Biblical texts, studies the prophetic vision of the Old Testament and relates it to the realities of life of Israel’s people personally, as well as socially and politically.

### RSP 321 The Synoptic Gospels
- **Credits:** 3
- **Prerequisites:** None
- **Corequisites:** None
- **Type:** LEC
- **Corequisites:** None
- **Prerequisites:** None
- **Credits:** 3

Reviews the first three gospels: Matthew, Mark, Luke. Considers their authorship, audience, style, structure; and engages in comparative studies of specific themes and emphases.

### RUS 101 Elementary Russian 1st Semester
- **Credits:** 5
- **Prerequisites:** None
- **Corequisites:** None
- **Type:** LEC
- **Corequisites:** None
- **Prerequisites:** None
- **Credits:** 5

For students who have either 1) had previous experience with Russian but would benefit from a review before going into intermediate level courses, or 2) been exposed to Russian informally in their home setting, but who do not speak Russian fluently, have not had any formal training in Russian, and are not literate in Russian.

### RUS 223 Intermediate Russian 1st Semester
- **Credits:** 5
- **Prerequisites:** None
- **Corequisites:** None
- **Type:** LEC
- **Corequisites:** None
- **Prerequisites:** None
- **Credits:** 5

Develops reading, conversation, and grammar, focusing on Russian culture. Topics include meetings, weddings, family issues, Russian cooking, traditions and customs, nature, art, and the Russian soul. A video accompanies the text.

### RUS 301 Third-Year Russian 1st Semester
- **Credits:** 3
- **Prerequisites:** RUS 224 or permission of instructor
- **Corequisites:** None
- **Type:** LEC
- **Corequisites:** None
- **Prerequisites:** None
- **Credits:** 3

Develops reading, conversation, and grammar, focusing on Russian culture. Topics include meeting people, weddings, family issues, Russian cooking, traditions and customs, nature, art, and the Russian soul. A video accompanies the text.

### RUS 311 Russian Culture
- **Credits:** 3
- **Prerequisites:** None
- **Corequisites:** None
- **Type:** LEC
- **Corequisites:** None
- **Prerequisites:** None
- **Credits:** 3

Examines highlights of Russian culture, including art, architecture, music, literature, religion, food, customs, the Russian soul, the burning question of what it means to be Russian, and Russia’s relationship to the West.

### RUS 324 Russian Literature in Translation
- **Credits:** 3
- **Prerequisites:** None
- **Corequisites:** None
- **Type:** LEC
- **Corequisites:** None
- **Prerequisites:** None
- **Credits:** 3

Selection of readings from Russian literature in English translation.

### RUS 350 Russian Topics: Culture and Literature
- **Credits:** 3
- **Prerequisites:** None
- **Corequisites:** None
- **Type:** LEC
- **Corequisites:** None
- **Prerequisites:** None
- **Credits:** 3

Explores a selected topic in Russian linguistics, literature, or cultural history.

### RUS 408 Fourth-Year Russian
- **Credits:** 3
- **Prerequisites:** None
- **Corequisites:** None
- **Type:** LEC
- **Corequisites:** None
- **Prerequisites:** None
- **Credits:** 3

Engages students in advanced Russian conversation and composition.

### RUS 422 Russia Culture
- **Credits:** 3
- **Prerequisites:** None
- **Corequisites:** None
- **Type:** SEM
- **Corequisites:** None
- **Prerequisites:** None
- **Credits:** 3

A video accompanies the text.

### RUS 229 Women in Russian Literature
- **Credits:** 3
- **Prerequisites:** None
- **Corequisites:** None
- **Type:** LEC
- **Corequisites:** None
- **Prerequisites:** None
- **Credits:** 3

Major women writers from the beginning of Russian literature to the present.
RUS 426 19th Century and 20th Century Literary Masterpieces
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Seminar on specific topics in contemporary Russian culture.

RUS 499 Independent Study
Credits: 1
Prerequisites: permission of instructor
Corequisites: None
Type: TUT
Supplements regular offerings of the department. Students must secure the instructor’s permission before registering for independent study.

Social Sciences

Interdisciplinary

ASI 100 University Honors Seminars
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Restricted to students in the University Honors Program; offered under specific titles that vary from semester to semester. Usually satisfies general education requirements, as well as honors requirements.

ASI 200 University Honors Seminar
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Restricted to students in the University Honors Program; offered under specific titles that vary from semester to semester. Usually satisfies general education requirements, as well as honors requirements.

ASI 300 University Honors Seminar
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Restricted to students in the University Honors Program; offered under specific titles that vary from semester to semester. Usually satisfies general education requirements, as well as honors requirements.

ASI 400 University Honors Seminar
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Restricted to students in the University Honors Program; offered under specific titles that vary from semester to semester. Usually satisfies general education requirements, as well as honors requirements.

ASI 401 Arts and Sciences Interdisciplinary Community-Linked Research
Credits: 4
Prerequisites: None
Corequisites: None
Type: LAB
Provides research experience for undergraduates through participation in a large collaborative research project that has links to the community. A group of UB faculty and members of the community are involved in the research with the students.

SSC 100 Careers in Human Services
Credits: 1
Prerequisites: Permission of Instructor
Corequisites: None
Type: LEC
Explores the range of professional and graduate school opportunities in human services and related fields.

SSC 103 Introduction to Health and Human Services
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies the health and human service system in the United States and locally, as it has been affected by history, changing values, and changes in the economic and political environment. Particularly emphasizes the gerontological, childhood, and community mental health service systems.

SSC 118 Introduction to Environmental Studies
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Involves an interdisciplinary approach to environmental issues. Explores ecological concepts, human environment, air and water pollution, pesticides, solid waste handling, mineral and energy resources, the nuclear fuel cycle, population and food resources, and environmental control.

SSC 209 Case Management
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
An applied skills course for the delivery of human services. Considers the roles and functions of case management and various vulnerable client groups as target populations. Involves analyzing cases for client needs and comprehensive service planning. Practice competency, quality of care, and ethical standards are major concerns of the course. Small group activities and community-based interviews are important student learning experiences.

SSC 210 Skill Development in Human Service
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces specific techniques and skills employed in human services careers.

SSC 213 Social Research Methods
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces procedures by which social scientists gather, analyze, and interpret information about the social world. Particularly emphasizes the use of campus-based resources for social service research.

SSC 218 Issues in Mental Health
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Identifies community mental health service components and explores trends and issues in the delivery of mental health services.

SSC 221 Writing in the Law
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the legal writing process. Introduces students to the unique organization and structure of the law library, traditional as well as electronic. Requires group research and individual writing assignments.

SSC 225 Statistics for Social Sciences
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Provides a foundation in statistical techniques for interpreting quantitative social data, including binomial and normal distributions, the Chi-Square test, hypothesis testing, and regression analysis.

SSC 238 Science, Religion, and Nature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
An environmental philosophy course that explores the impact of religion and science upon our perceptions of nature. Involves diverse studies in the areas of mythology, Eastern traditions, Western mysticism, Shamanism, the Gaia hypothesis, and environmental issues. Also includes a weekend workshop focused upon nature attunement, survival skills, and ecological studies.

SSC 305 Applied Child Development and Learning
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Integrates theory and current research with practical aspects of child rearing and family health. Explores developmental processes and behavior of young children as individuals and in group settings.

SSC 315 Field Ecology
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
A field-oriented course that explores the ecology of diverse ecosystems. Classes are conducted both on and off campus, and focus on interpretive experiences in the areas of botany, zoology, geology, herbolology, ornithology, and general ecology.
SSC 317 Environmental Politics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Focuses on the relationship between environmental problems and the political process. Explores definitions of an environmentally sustainable society. Then we attempt to answer the question of “how to get there from here.” This involves developing a theory of social change by examining a number of case studies. We study local environmental controversies from a political perspective through firsthand involvement or guest speakers. We also look at national environmental conflicts, such as the backlash against mainstream environmentalism created by the “Wise Use” movement and contemporary political forces championing property rights and states’ rights.

SSC 320 Issues in Mental Retardation/Developmental Disabilities
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Explores causation, prevention, advocacy, housing, education, employment, and community services. Defines career opportunities in this area.

SSC 326 Great Lakes Ecology
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
The Great Lakes hold nearly 20% of all the available fresh water on the planet. They provide drinking water, hydroelectricity, and both economic and recreational opportunities to millions who live around their shores. This class provides an understanding of the Great Lakes, from their formation to the important role they play in the political and ecological systems of North America. Focuses on historical and ecological aspects, as well as current political and policy issues surrounding the Great Lakes-St. Lawrence ecosystem. Students learn about the geology, biota, ecology, management, and social and political aspects of the Great Lakes, especially the lower lakes (Erie and Ontario). The course uses a multi-faceted ecosystem approach to diverse topics involved with understanding these complex ecological systems.

SSC 337 Social-Ethical Values in Medicine
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Applies ethical theories to analysis of important moral problems in health care and medicine. Same as PH 337.

SSC 343 Violence and the Family
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Addresses issues in violence and violence prevention with sections on theoretical definitions and historical context. Topics include the social context of violent behavior in families, child abuse and neglect, abusive parenting, violence against women, abuse of the elderly, violence in communities of color, and the media’s influence on the development of antisocial behavior. Explores special problems of child protection services and the justice system’s approach toward domestic violence.

SSC 350 Water Quality
Credits: 3
Prerequisites: High school chemistry or permission of instructor
Corequisites: None
Type: LEC
Examines technical aspects of control of environmental wastes, ways in which wastes are generated, and their effects on the environment. Includes field trips to a local modern sewage treatment facility and a local environmental laboratory.

SSC 360 Environmental Impact Statements
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Examines the preparation of environmental impact statements (EIS) in response to federal and state requirements. Explores the mechanics of preparing and evaluating the EIS, as well as considering alternative courses of action.

SSC 363 The Aging Process
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces the aging process. Explores physiological and clinical aspects.

SSC 365 The Family Process
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Considers the family: What is it? How does it work? How does it fail to work? Provides both United States and cross-cultural perspectives. Explores the theoretical foundation of family therapies.

SSC 385 Energy, Environment, and Society
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Focuses on the relationship between energy use and the associated impact on the environment and society. Explores our dependence upon traditional energy resources such as oil, coal, nuclear and natural gas as well as renewable energy resources such as geothermal, wind, solar, etc. Examines solutions to the difficult process of changing current energy consumption trends.

SSC 390 Human Services Administration
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Examines the practical aspects of managing a human services organization. Discusses the basic functions of management, including planning, budgeting, personnel, and organizational development. Presents these themes around such functions as team management, the consumer as customer, innovation, and creativity in attaining excellence.

SSC 391 Cognitive Science Colloquium
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Acquaints students with ongoing research in the range of disciplines affiliated with cognitive science. Primarily requires attendance at the weekly colloquium and symposium series of the Center for Cognitive Science. Requires students to read any relevant literature that has been publicly announced prior to the upcoming colloquium or symposium.

SSC 406 Law and the Environment
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines statutory and case law relating to pollution control, natural resources management, government regulation of land use, and the process and logic of decision making in governmental and legal institutions.

SSC 407 Health Care and the Elderly
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the human service system as it affects the mental health needs of children; also addresses specific needs of special groups.

SSC 419 Wilderness
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Focuses on wilderness and biocentrism. Explores the idea of wilderness along three pathways. Part 1 deals with the history of biological wilderness and philosophical wilderness from Spinoza to Leopold to Snyder. Part 2 covers biological and other wilderness qualities. Part 3 examines the social movements related to wilderness and biocentrism. Also explores environmental ethics and morals. Investigates proposals for wilderness restoration, preservation, and expansion. A close examination of indigenous cultures’ wilderness beliefs accompanies our study.

SSC 420 Child Mental Health
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the human service system as it affects the mental health needs of children; also addresses specific needs of special groups.

SSC 428 Legal Issues in Human Services
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Examines the human service system as it affects the mental health needs of children; also addresses specific needs of special groups.

SSC 441 Grant Writing for Non-Profits
Credits: 3
Prerequisites: ENG 102 or ENG 201 unless exempted
Corequisites: None
Type: LEC
Prepares student in human services and environmental studies for grant development. Overview of fundraising among non-profits, development of grant-writing strategies, and how to research and create grant proposals in a competitive market. Extensive proposal writing and composition. Integrated with current, ongoing internships if students simultaneously pursue a practicum in Health and Human Service (SSC 496) or Environmental Internship (SSC 496). Students not pursuing a practicum or internship will adopt and research a non-profit organization appropriate to their field of study.
SSC 431 Topics in Human Services
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Allows students to explore up-to-date information and current debates in their chosen field. Topic titles and offerings vary from semester to semester. Students should check with the Office of Interdisciplinary Degree Programs to determine how the course may be used to fulfill major requirements.

SSC 432 Topics in Legal Studies
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Allows students to explore up-to-date information and current debates in their chosen field. Topic titles and offerings vary from semester to semester. Students should check with the Office of Interdisciplinary Degree Programs to determine how the course may be used to fulfill major requirements.

SSC 433 Topics in Environmental Studies
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Allows students to explore up-to-date information and current debates in their chosen field. Topic titles and offerings vary from semester to semester. Students should check with the Office of Interdisciplinary Degree Programs to determine how the course may be used to fulfill major requirements.

SSC 434 Topics in Urban and Public Policy
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Allows students to explore up-to-date information and current debates in their chosen field. Topic titles and offerings vary from semester to semester. Students should check with the Office of Interdisciplinary Degree Programs to determine how the course may be used to fulfill major requirements.

SSC 448 Animals, Zoos, and Ecology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces the study of animal behavior. Explores natural behaviors and the factors affecting those behaviors by covering such topics as the evolution of behavior, the nervous and endocrine systems, biological rhythms, social systems, reproductive behavior, and more. Course participants examine and understand animal behavior through lectures, readings, short projects, and direct observation of the animal populations on zoo grounds.

SSC 479 Environmental Education Fieldstudies
Credits: 3
Prerequisites: SSC 315
Corequisites: None
Type: LAB
A one-week field-based course involving a teacher training program in the areas of field ecology, environmental analysis, and conservation biology. Students participate in both lecture and laboratory experiences designed to train them as field ecologists as well as environmental educators. Conducted in residence at the Woodlands Environmental Education Center. Linked to internship opportunities; see SSC 496 for information.

SSC 493 Ecology of Unique Environments
Credits: 3
Prerequisites: SSC 315
Corequisites: None
Type: LAB
Introduces the study of animal behavior. Explores natural behaviors and the factors affecting those behaviors by covering such topics as the evolution of behavior, the nervous and endocrine systems, biological rhythms, social systems, reproductive behavior, and more. Course participants examine and understand animal behavior through lectures, readings, short projects, and direct observation of the animal populations on zoo grounds.

SSC 496 Internship
Credits: 1
Prerequisites: Permission of Instructor
Corequisites: None
Type: TUT
Community internship, health and human services internship, or environmental studies internship. See the appropriate SSC advisor for details.

SSC 499 Independent Study
Credits: 1
Prerequisites: None
Corequisites: None
Type: TUT
Various instructors offer independent study. Check with the Office of Interdisciplinary Degree Programs each semester.

SOC 101 Introduction to Sociology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces the sociology of American Jews. Addresses the social foundations of the Jewish cultural experience, and, specifically, the relationship between the diverse population of Jewish religious adherents in the United States and the larger American society. Pays particular attention to issues of identity, family, social institutions, educational systems, assimilation, accommodation, and community matters. Additionally, the course moves beyond a strictly sociological perspective to present a survey and overview of the issues pertinent to the Jewish experience in America.

SOC 238 Women, Work, and Family in the 20th Century
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Same as AMS 238. Explores the experience of women of different race, class, and ethnic groups regarding changes in women's responsibilities in the family, participation in the labor force, and the development of new family forms. The course illuminates contemporary issues regarding work, marriage, and family from a historical perspective.

SOC 293 Social Research Methods
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines content analysis, unobtrusive measures, participant observation, surveys, field experiments, the relationship of methods to social theory development, ethical implications of the methods, and the use of research findings for designing social programs.

SOC 294 Basic Statistics for Social Sciences
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines content analysis, unobtrusive measures, participant observation, surveys, field experiments, the relationship of methods to social theory development, ethical implications of the methods, and the use of research findings for designing social programs.

SOC 304 Sociology of Aging
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores social and historical currents in the study of aging, physiological, social, and theoretical perspectives of gerontology; issues of daily living impinging on older persons; and the institutional and social structural consequences of demographic trends.
SOC 307 Criminology
Credits: 3
Prerequisites: None
Type: LEC
Explains patterns in the incidence and frequency of crime and delinquency based on criminological theory and research.

SOC 308 Sociology of the Life Course
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces theories and research on socialization processes. Provides an overview of development and socialization in childhood, adolescence, and adulthood.

SOC 309 Introduction to Social Change
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Basic issues and forces of social and cultural changes, both historic and contemporary.

SOC 310 Sociology of Education
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores schools and colleges as social institutions in the United States and other societies.

SOC 311 Sociology of the Family
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the family in terms of its internal structure and its relationships with major social institutions. The analysis is generally cross-cultural, specifically emphasizing the American family.

SOC 312 Sociology of Gender
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Makes visible what has been invisible through much of sociology’s history. Examines both the social process and social structure of gender relations.

SOC 313 Sociology of City Life
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies cities and metropolitan regions in terms of history, types, institutions, social organizations, ecological structure, and classes; urban problems; and city and regional planning.

SOC 314 Criminal Justice Systems
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies the institutions that administer criminal law: police, prosecutor, courts, probation service, and prisons and jails. Introduces substantive and procedural criminal law as applied by those institutions.

SOC 319 Juvenile Justice
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Reviews past and current legal reactions to adolescent deviance, delinquency, and crime.

SOC 320 Race and Ethnic Relations
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores intergroup relations in the United States among racial, religious, nationality groups. Considers factors in the development of intergroup hostility, acculturation, assimilation, and pluralism.

SOC 321 Race and Ethnic Relations
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines social epidemiology, including the influence of social conditions on health status, and the effect of social milieu on the appearance of chronic degenerative disease and mental disorders.

SOC 322 Introduction to Medical Sociology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines social epidemiology, including the influence of social conditions on health status, and the effect of social milieu on the appearance of chronic degenerative disease and mental disorders.

SOC 323 Sociology of Adolescence
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines patterns of communication implied by senders or inferred by receivers drawn from media. Also explores categories and rules for interpreting and creating patterns; the genesis of patterns in social science, conventional thought, practical experience, and imagination; and their effects on class, ethnic, sex, and age groupings.

SOC 324 Introduction to Mass Cultural Studies
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces the principles and methods of demographic analysis in sociology as it is used to examine population changes and their social, political, and economic implications for human societies.

SOC 325 Sociology of Work
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines productive employment and the social, political, and economic implications of work for individuals, families, and society. Analyzes the relationship between work and other social institutions, including family, leisure, and schooling.

SOC 326 Group Dynamics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Improves the student’s ability to observe, conceptualize, and explain small-group processes by analyzing events that occur in the group. Meetings are videotaped or sound-taped to aid analysis.

SOC 328 Social Stratification
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores systems of inequality in society, including theories of social stratification from Marx to the functionalists, forms of stratification systems, inequality in the United States, class consciousness, and class action.

SOC 329 Population Problems
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces the application of population studies to the development of human societies.

SOC 330 Sociology of Education
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies the organizational emergence of educational institutions to treat, isolate, and punish the criminal offender.

SOC 331 Sociology of Work
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the development of sociological thought, including contributions of Saint-Simon and Comte, Spencer, Marx, Durkheim, Weber, and others.

SOC 332 History and Development of Sociological Theory
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the development of sociological thought and the forerunners of sociological thought, including contributions of Saint-Simon and Comte, Spencer, Marx, Durkheim, Weber, and others.

SOC 333 Sociology of Adolescence
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores the development of sociological thought and the forerunners of sociological thought, including contributions of Saint-Simon and Comte, Spencer, Marx, Durkheim, Weber, and others.

SOC 334 Sociology of Adolescence
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores the development of sociological thought and the forerunners of sociological thought, including contributions of Saint-Simon and Comte, Spencer, Marx, Durkheim, Weber, and others.

SOC 335 Sociology of Gender
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores the development of sociological thought and the forerunners of sociological thought, including contributions of Saint-Simon and Comte, Spencer, Marx, Durkheim, Weber, and others.

SOC 336 Sociology of Communication
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores religious behavior as it relates to the larger social system, including American religious phenomena and its cross-cultural perspective.
SOC 365 Sociology of Developing Countries
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Provides a theoretical and cross-societal comparative analysis of the social-structural, cultural, and motivational changes in developing countries.

SOC 368 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Special topics in sociology determined by individual faculty interest. Topic titles and content vary from semester to semester. Check with the department for current offerings.

SOC 370 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Special topics in sociology determined by individual faculty interest. Topic titles and content vary from semester to semester. Check with the department for current offerings.

SOC 371 Individual and Society
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies the relation between the individual and society. Examines major theoretical problems, such as human nature; communication and language; perception; socialization; role playing; and the interdependence of values, ideologies, and social structures.

SOC 373 Sociology of Law
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces social science materials on the nature of law, legal institutions, the legal profession, and the impact of law on behavior. Also considers theories of law and legality, comparative legal systems, police, lawyers, judges, jury, the effect of law on behavior, and the use of sociology in the courts.

SOC 375 Postmodernism and War
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores war as a system of organized violence. Also examines state war (external war) and class war (internal war), the military-police complex, and the polymorphous violence of contemporary society.

SOC 379 Sociology of Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines popular magazine fiction in relation to levels of taste and general values, and novels as presenting social strata. Utilizes selected scientific studies. Requires individual projects.

SOC 381 Contemporary Protest Movements
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introductory course; involves the theoretical and empirical study of reform movements.

SOC 384 Collective Behavior and Social Movements
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies the individual's participation in, and the structure, strategies, and development of, organized groups that attempt to change society.

SOC 390 Race, Class, and Gender in the U.S. Military
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines race, class, and gender relations in the United States armed forces. Studies the military as a social institution. With the help of sociological concepts, theories, and methods, students analyze both the internal organization and the practices of the armed forces. The relationships between the military and other institutions. Additional topics include recent Congressional hearings and military policies on race relations, women in combat, sexual harassment, sexual orientation, and quality-of-life issues.

SOC 405 Sociology of Deviance
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores deviant behavior, and studies the sociological determinants of crime and delinquency, mental disorders, alcoholism, and drug addiction.

SOC 422 Senior Seminar in Medical Sociology
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Social factors play a critical role in health. Social conditions and situations not only promote the possibility of illness and disability; they also enhance prospects of disease prevention and health maintenance. Examines the social facets of health and disease, the social functions of health organizations, the social behavior of health personnel and the users of health care, and the relationship of health-care systems to other social systems.

SOC 431 Historical Sociology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Investigates the connection between biography, social structure and history.

SOC 440 Social Theories of Gender
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Reviews issues in critical theory, feminist theory, and postmodernism as they relate to sociology.

SOC 446 Environmental Sociology
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Examines the emerging field of environmental sociology in theoretical and substantive ways, focusing on issues of importance in all modern industrial societies. Concerns the reciprocal relationship between human societies and change within the natural environment.

SOC 464 Sociology of the Arts
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the arts and their relation to artists' roles.

SOC 467 Sociology and Social Policy
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Covers advanced topics in deviance, criminology, and sociology of law, or by permission of the instructor.

SOC 481 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Special topics in sociology determined by individual faculty interest. Topic titles and content vary from semester to semester. Check with the department for current offerings.

SOC 482 Senior Seminar: Sociology of Law
Credits: 3
Prerequisites: Completion of 64 undergraduate credit hours including a minimum of two of the following sociology courses: criminal justice systems, punishment, deviance, juvenile justice, criminology, and sociology of law, or by permission of the instructor.

SOC 485 Social Change
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines class interests, agency, social movements, culture and other important issues embedded in historical and contemporary perspectives on the processes of social change. We consider such topics and their place in understanding how society changes. Our focus is on change in the United States; however, we also look at case examples from other parts of the world and discuss how globalization impacts on our understanding of the processes of social change.

SOC 492 Analysis of Social Data
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Special topics in the quantitative analysis of social data.

SOC 496 Internship Program
Credits: 1
Prerequisites: None
Corequisites: None
Type: TUT
Typically conducted in a community agency, government office, or private setting. Gives students the opportunity to observe and participate in a variety of work experiences related to sociology. Open to sociology majors with junior or senior standing only.

SOC 497 Honors Program
Credits: 3
Prerequisites: minimum GPA of 3.25 in sociology and overall, completion of 36 credit hours, and permission of department.
Corequisites: None
Type: TUT
Participation in the departmental honors program.
SOC 499 Independent Study
Credits: 1
Prerequisites: None
Corequisites: None
Type: TUT
A program of work agreed upon by the student and a faculty sponsor. Requires a faculty sponsor in the department before registering.

Spanish

SPA 101 Elementary Spanish 1st Semester
Credits: 5
Prerequisites: None
Corequisites: None
Type: LEC
For students who have never had Spanish or had one year or less in high school. Reviews fundamentals of Spanish pronunciation, vocabulary, and grammar; emphasizes oral proficiency.

SPA 102 Elementary Spanish 2nd Semester
Credits: 5
Prerequisites: SPA 101 or permission of instructor
Corequisites: None
Type: LEC
For students who have never had Spanish or had one year or less in high school. Reviews fundamentals of Spanish pronunciation, vocabulary, and grammar; emphasizes oral proficiency.

SPA 104 Transitional Elementary Spanish
Credits: 5
Prerequisites: None
Corequisites: None
Type: LEC
A one-semester review course for students who have taken the Regents' exams or have had previous experience with Spanish, but who are not yet able to go into the second year of language study. Involves all four language skills (listening, speaking, reading, and, to some extent, writing), emphasizing grammatical structures and vocabulary fundamentals of simple, everyday conversation.

SPA 151 Intermediate Spanish 1st Semester
Credits: 3
Prerequisites: SPA 102, SPA 104, or three or more years of high school Spanish
Corequisites: None
Type: LEC
Reviews grammar and pronunciation, structured around extensive conversation practice. Also involves vocabulary expansion through literary and nonliterary readings.

SPA 152 Intermediate Spanish 2nd Semester
Credits: 3
Prerequisites: SPA 151 or permission of instructor
Corequisites: None
Type: LEC
Reviews grammar and pronunciation, structured around extensive conversation practice. Also involves vocabulary expansion through literary and nonliterary readings.

SPA 154 Intensive Intermediate Spanish
Credits: 5
Prerequisites: SPA 102, SPA 104, or permission of instructor
Corequisites: None
Type: LEC
A one-semester accelerated review of grammar and pronunciation structured around extensive conversation and writing practice. Covers, in one semester, the material offered in SPA 151-SPA 152.

SPA 171 Elementary Spanish for Heritage Speakers I
Credits: 3
Prerequisites: open to students who have not studied in a school in which Spanish was the language of instruction
Corequisites: None
Type: LEC
Provides intensive practice in basic grammatical patterns, and encourages vocabulary expansion through reading and writing in the target language. Teaches standard Spanish to students who learned Spanish at home, but have little or no formal instruction in the language. SPA 171 satisfies the proficiency requirement for general education. Students who need a fourth semester of a foreign language must continue with SPA 241.

SPA 172 Elementary Spanish for Heritage Speakers II
Credits: 3
Prerequisites: open to students who have not studied in a school in which Spanish was the language of instruction
Corequisites: None
Type: LEC
Further develops reading and writing skills of heritage speakers of Spanish; covers material offered in SPA 151-SPA 152. SPA 172 satisfies the proficiency requirement for those who have completed SPA 171-SPA 172.

SPA 207 Spanish Conversation and Composition
Credits: 3
Prerequisites: SPA 152, SPA 154, or equivalent
Corequisites: None
Type: LEC
Provides intensive practice in basic grammatical patterns, and encourages vocabulary expansion through reading and writing in the target language. Teaches standard Spanish to students who learned Spanish at home, but have little or no formal instruction in the language. SPA 171 satisfies the proficiency requirement for general education. Students who need a fourth semester of a foreign language must continue with SPA 241.

SPA 208 Spanish Conversation and Composition
Credits: 3
Prerequisites: SPA 152 or SPA 154 or permission of instructor
Corequisites: None
Type: LEC
Involves oral communication and development of writing skills in Spanish, intensive conversation, and writing of themes on contemporary topics. Requires oral participation.

SPA 210 How to Read a Spanish Text
Credits: 3
Prerequisites: SPA 152 or SPA 154 or permission of instructor
Corequisites: None
Type: LEC
Develops students' ability to analyze a piece of Spanish literature; considers prose and poetry from Peninsular Spanish and/or Spanish American literature.

SPA 215 Intermediate Review of Spanish Grammar
Credits: 3
Prerequisites: SPA 152 or SPA 154 or permission of director of undergraduate studies
Corequisites: None
Type: LEC
Reviews troublesome grammatical points through oral and written exercises; requires oral participation.

SPA 216 Hispanic Civilization
Credits: 3
Prerequisites: SPA 152 or SPA 154 or three years of high school Spanish
Corequisites: None
Type: LEC
Strengthens the student's knowledge of twentieth-century Hispanic cultures and civilizations and improves the student's command of spoken and written Spanish. Examines some of the major events and trends of the twentieth century that are helpful in understanding the contemporary scene, including the Mexican Revolution, the rise and fall of the Soviet Union, World Wars I and II, the Spanish Civil War, the ascent of the United States as a global power, and the phenomena of neocolonialism and dependency in developing countries. Emphasizes contemporary issues and movements (from 1972 to the present) relevant to Hispanics in the United States, the Caribbean, Mexico, Central America, Spain, and South America. Gives students the opportunity to learn how to access cultural information on the Internet. Taught in Spanish.

SPA 225 Spanish Language Through Theatre
Credits: 3
Prerequisites: SPA 152 or SPA 154 or permission of instructor
Corequisites: None
Type: LEC
Involves reading and discussion of Spanish and Spanish American plays; emphasizes improvement of oral and written expression in Spanish.

SPA 241 Spanish for Bilinguals
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Further develops reading and writing skills of heritage speakers of Spanish; covers spelling and style, grammar review, and expository writing. Satisfies fourth-semester foreign language requirement for those who have completed SPA 171-SPA 172.
SPA 301 Survey of Spanish Literature: Middle Ages to Seventeenth Century
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies the early history of Spanish literature, from its roots in Mozarabe and the oral tradition to the Golden Age of Spanish baroque drama, verse, and prose. Emphasizes the development of literature in its socio-historical context, as well as its relation to the history of the language.

SPA 302 Survey of Spanish Literature: Eighteenth Century to Present
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the literature and culture of the Spanish Middle Ages, from the origins of the language to the unification of the Spanish nation. Covers works from the time of the encomendero system to the Golden Age of Spanish culture.

SPA 303 Romanticism and Realism in Spain
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces the student to the major cultural trends and some important literary works of modern Spanish literature. Class lectures present general background information on the artistic movements, philosophical vogue, and historical events that have contributed to the development of Spanish literature. We read and discuss works by authors such as Bécquer, Galdós, and Martín Gaite.

SPA 304 Early Spanish American Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines historic and aesthetic backgrounds of, and conducts literary analysis of, some representative works of the romantic and antiromantic (realist) movement in nineteenth-century Spain.

SPA 305 Spanish Literature of the Middle Ages
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the literature and culture of the Spanish Middle Ages, from the origins of the language to the unification of the peninsula under the Catholic kings.

SPA 310 Introduction to Literary Criticism
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces salient features of various critical methods, including their application to novels, plays, and poetry from Peninsular Spanish and/or Spanish American literature.

SPA 311 Survey of Spanish American Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Reviews Spanish American literature from the earliest times to the present.

SPA 312 Advanced Grammar
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines grammatical categories of Spanish; provides extensive oral and written practice.

SPA 314 Advanced Composition and Conversation
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Develops advanced grammatical and writing skills through literary and nonliterary translations from English to Spanish and vice versa.

SPA 315 Advanced Writing for Native Speakers I
Credits: 3
Prerequisites: SPA 241
Corequisites: None
Type: LEC
For native speakers of Spanish; provides practice in developing and sustaining various forms of complex writing in Spanish.

SPA 316 Advanced Writing for Native Speakers II
Credits: 3
Prerequisites: SPA 315
Corequisites: None
Type: LEC
Continuation of SPA 315.

SPA 317 Spanish Literature of the Golden Age
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Golden Age of Spanish culture refers to the period stretching roughly from the end of the sixteenth century to the beginning of the eighteenth centuries, a time identified by many historians and scholars today as the dawn of the modem age. Examines this “early modernity” through careful attention to the works of such authors as Miguel de Cervantes, Francisco de Quevedo, Lope de Vega, and Calderón de la Barca.

SPA 320 Contemporary Spanish American Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies the principal characteristics of contemporary Spanish American literature, centered in the analysis of poems and short stories.

SPA 323 Business Spanish
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Addresses Spanish for the business world. Topics include correspondence, commercial terminology, readings, occasional translation of articles on financial subjects, discussions of documents, business customs, and practice in practical application. Requires oral participation.

SPA 325 Phonetics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines second language acquisition (SLA) from a variety of vantage points. Explores the factors that affect learning a second language (e.g. age, native language, environment, goals, and learner strategies), and outlines the succession of theories about how people acquire a second language. Students survey and share some of the relevant research literature on an SLA issue that interests them. Further, students engage in and reflect upon a practical observation or tutoring session.

SPA 326 Spanish American Literature in Translation
Credits: 3
Prerequisites: ENG 201
Corequisites: None
Type: LEC
Studies English versions of major works by Spanish American authors.

SPA 327 Spanish Culture and Civilization
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the history, geography, art, architecture, music, and customs of Spain.

SPA 328 Spanish American Culture and Civilization
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the history, geography, art, architecture, music, and cuisine of Spanish America.

SPA 330 Spanish American Themes
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines some of the most important themes in Spanish American life through selected readings (The Indian, Emancipation and Revolution, Country and City, Education: The University Reform of 1918), music, song, and dance. Most readings that illustrate the themes are literary works but their content deals with historical, political, sociological, anthropological, educational, and artistic matters.

SPA 333 Intensive Communicative Spanish Abroad
Credits: 3
Prerequisites: two semesters of intermediate Spanish or the equivalent
Corequisites: None
Type: LEC
Provides intensive oral and written practice in Spanish for participants in the department’s summer program at the University of Salamanca in Spain.

SPA 350 Spanish American Short Story
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Involves studying theories on the short story and their application to selected works of Isabel Allende, Juan José Arreola, María Luisa Bombal, Jorge Luis Borges, Julio Cortázar, Gabriel García Márquez, Horacio Quiroga, Juan Rufio, Arturo Uslar Pietri, and others. Conducted in Spanish.

SPA 360 Spanish American Literature in Translation
Credits: 3
Prerequisites: ENG 201
Corequisites: None
Type: LEC
Studies Spanish American Literature in Translation
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies English versions of major works by Spanish American authors.

SPA 361 Spanish Literature in Translation
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies English versions of major works by Spanish authors.

SPA 382 Introduction to Second Language Acquisition Theory
Credits: 3
Prerequisites: None, although basic linguistics courses and/or language courses helpful
Corequisites: None
Type: LEC
Examines second language acquisition (SLA) from a variety of vantage points. Explores the factors that affect learning a second language (e.g. age, native language, environment, goals, and learner strategies), and outlines the succession of theories about how people acquire a second language. Students survey and share some of the relevant research literature on an SLA issue that interests them. Further, students engage in and reflect upon a practical observation or tutoring session.

SPA 383 The Folktale in Spanish Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines content, structure, and function of traditional types of the folktale; considers ramifications of other literary genres between the Middle Ages and the eighteenth century in Spain.
SPA 405 The Quijote
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces students to questions of life, literature, and art in the time of Cervantes and to the meaning these problems can have for us today. Stresses the importance of genre as a means of interpretation. Gives attention to how modern feminist studies impact the experience of reading and understanding a literary text.

SPA 406 Early Twentieth-Century Spanish Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines historic and aesthetic backgrounds and selected readings of the works of Unamuno, Valle-Inclán, Azorín, Baroja, A. Machado, and others. Treats all literary genres (poetry, drama, novel). Gives special emphasis to the theme of Spain, its history, and its myths as they were recreated by these writers.

SPA 407 Contemporary Literature of Spain
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies main trends and analyzes some of the most significant works written in Spain after 1936. Includes all genres (poetry, novel, and drama).

SPA 408 History of Spanish Cinema
Credits: 3
Prerequisites: SPA 151; SPA 152 or the equivalent; SPA 207, SPA 208, or SPA 210 or permission of the instructor
Corequisites: None
Type: LEC
Introduces Spanish film history, including renowned directors, the current scene, and the principles of film theory. Accompanying readings deal with cinema as an integral part of Spanish cultural heritage. Class discussions are conducted in Spanish.

SPA 409 Age of Lorca
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Centered on García Lorca’s poetry and theatre, the course deals with one of the most important poetical groups in Hispanic letters and in twentieth-century European literature: the so-called Generation of 1927 (Lorca, Salinas, Guillén, Diego, Alexandre, Alberiti, and Cernuda). Studies several important avant-garde movements, such as surrealism, as well as currents in the contemporary period.

SPA 411 Spanish American Novel
Credits: 3
Prerequisites: SPA 210 or SPA 310
Corequisites: None
Type: LEC
Introduces students to questions of life, literature, and art in the time of Cervantes and to the meaning these problems can have for us today. Stresses the importance of genre as a means of interpretation. Gives attention to how modern feminist studies impact the experience of reading and understanding a literary text.

SPA 413 Grammar: Writing and Translation
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores the sound system of contemporary Spanish; provides theoretical and descriptive treatments.

SPA 415 Spanish American Poetry
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Reviews the poetic production of Spanish America. Emphasis on period varies. Readings may be selected from baroque and romantic poetry, modernism, the avant-garde, and contemporary poetry.

SPA 416 Spanish American Theatre
Credits: 3
Prerequisites: SPA 210 or SPA 310
Corequisites: None
Type: LEC
Students read and analyze ten plays while examining the following literary movements: realism, vanguardism, the Theatre of the Absurd, metatheatre, and postmodernism. Students use their Spanish speaking skills, as class participation is strongly encouraged.

SPA 419 Introduction to Spanish Linguistics
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces the fundamentals of Spanish phonology, morphology, syntax, and historical and dialectal variation.

SPA 420 History of the Spanish Language
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Studies the evolution of Spanish from its origin as a local variety of the Latin spoken in the Iberian Peninsula to its contemporary manifestation as a web of dialects spoken in Spain and the Americas.

SPA 421 Spanish American Drama
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Focuses on Cervantes’ dramatic and shorter prose works, including the Novelas Ejemplares, the Comedias, and the Entremeses.

SPA 424 Special Topics Abroad
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines major figures, works, and/or movements in Spanish literature; for participants in the department’s summer program at the University of Salamanca.

SPA 425 Literature Seminar Abroad
Credits: 1
Prerequisites: Permission of Instructor
Corequisites: None
Type: TUT
Hands-on experience in language and cultural studies at institutions and community organizations in the Western New York area.

SPA 426 Undergraduate Research and Creative Activity
Credits: 1
Prerequisites: Permission of Instructor
Corequisites: None
Type: TUT
Students collaborate with faculty research mentors on an ongoing faculty research project or conduct independent research under the guidance of a faculty member.

SPA 427 Independent Study
Credits: 1
Prerequisites: None
Corequisites: None
Type: TUT
Open only to students who have taken at least two courses at the 300/400 level and have a minimum GPA of 3.0 in their Spanish major or minor. Students must design a course of study they want to undertake in one semester. They choose a professor whose area of expertise most closely approximates their topic and must consult with the professor prior to registering for the course. The topic must not duplicate the content of a regular course.
Speech and Hearing Sciences

CDS 151 Introduction to Speech-Language Pathology and Audiology
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces etiology, diagnosis, and rehabilitation of auditory disorders.

CDS 288 Anatomy and Physiology of the Speech Mechanism
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Basic aspects of articulatory and acoustic phonetics and transcription. Recognize and describe phonetic symbols, transcribe American English using the International Phonetic Alphabet. Describe and explain the normal aspects of speech production, including basic aspects of speech anatomy and physiology, speech acoustics, suprasegmentals, phonological processes, and dialects.

CDS 289 Audiology: Diagnosis and Management
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces etiology, diagnosis, and rehabilitation of auditory disorders.

CDS 301 Language Development in Children
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores the acquisition of language form and function by typical developing children. Discusses the normal development of phonology, morphology, syntax, semantics, and pragmatics from infancy through early adolescence by examining empirical data and current theoretical issues and controversies. Examines the emergence of literacy skills and the differences in acquisition between mono- and bi-(or multi-) lingual children. Includes the impact of cultural, ethnic, gender, socioeconomic, and individual variation on children's normal language acquisition.

CDS 302 Language Disorders in Children
Credits: 3
Prerequisites: CDS 301
Corequisites: None
Type: LAB
Studies language disorders in children, including mental retardation, language learning disabilities, and autism. Topics include assessment techniques emphasizing language sample analysis, consideration of dialect differences, and treatment techniques to facilitate generalization.

CDS 382 Applied Physics of Sound
Credits: 9
Prerequisites: CSE 101; MTH 115 or higher or ULC 148
Corequisites: None
Type: LEC/LAB
Introduction to problem solving skills for speech and hearing sciences. Students will develop techniques to solve real problems encountered in speech and hearing from both the perspective of acoustic signal production and reception. A laboratory section is included.

CDS 392 Phonological Disorders: Diagnosis and Management
Credits: 3
Prerequisites: CDS 286, SHS majors only
Corequisites: None
Type: LEC
Introduction to sound acquisition in typically developing children and atypically developing children who exhibit speech or phonological disorders. Examine the major etiologies of speech disorders and coexisting conditions correlated with phonological disorders. Case studies will introduce various aspects of a comprehensive phonological evaluation and data analysis, and current approaches to phonological remediation.

CDS 428 Neural Basis of Communication
Credits: 3
Prerequisites: senior standing in speech and hearing science; SHS majors only
Corequisites: None
Type: LEC
Examines basic concepts of neuro-anatomy and neurophysiology as the foundation for understanding communication, sensory, motor and other processing problems of neurologically impaired children and adults.

CDS 469 Stuttering Therapy
Credits: 3
Prerequisites: CDS 288, senior standing in speech and hearing science; SHS majors only
Corequisites: None
Type: LEC
Covers theoretical and empirical approaches to the causes, origins, symptoms, development, assessment, and treatment of fluency disorders from early childhood through adolescence and adulthood.

CDS 480 Clinical Observation and Participation
Credits: 1
Prerequisites: senior standing in speech and hearing science; SHS majors only
Corequisites: None
Type: LAB
Examines basic concepts of neuro-anatomy and neurophysiology as the foundation for understanding communication, sensory, motor and other processing problems of neurologically impaired children and adults.

CDS 482 Diagnostics in Communicative Disorders
Credits: 3
Prerequisites: senior standing in speech and hearing science; SHS majors only
Corequisites: None
Type: LAB
Involves presentations and class discussions related to assessment and remediation of a variety of communication disorders. Minimum of twenty-five clock hours of directed observation in diagnosis and treatment of speech, language, and hearing disorders, which is required by ASHA as a prerequisite to clinical practice.

CDS 485 Speech Pathology in the Schools
Credits: 3
Prerequisites: CDS 88, senior standing in speech and hearing science; SHS majors only
Corequisites: None
Type: LEC
Studies the effect of hearing impairment on children and adults. Examines the application of knowledge of acoustics, linguistics, cognition, learning, and counseling psychology to the reduction of hearing handicaps.

CDS 486 Aural Rehabilitation
Credits: 3
Prerequisites: CDS 290, senior standing in speech and hearing science; SHS majors only
Corequisites: None
Type: LEC
Studies the effect of hearing impairment on children and adults. Examines the application of knowledge of acoustics, linguistics, cognition, learning, and counseling psychology to the reduction of hearing handicaps.

CDS 487 Psychoacoustic Science
Credits: 3
Prerequisites: CDS 382
Corequisites: None
Type: LEC
Focuses on animal minds, including perception, attention, representation, concept and rule learning, judgments of time and number, tool use, communication, self-awareness, and awareness of the other.

CDS 491 Special Topics
Credits: 3
Prerequisites: SHS majors only
Corequisites: None
Type: SEM
Content varies each semester.

CDS 493 Honors Research Seminar
Credits: 3
Prerequisites: Permission by petition
Corequisites: None
Type: TUT
Students admitted to the Early Admission Program (early admission to the graduate program in CDS at UB) participate in tutorials from individual academic and clinical faculty members in the department covering research and clinical methods in speech, language, and hearing abilities and disorders. Readings are pertinent to each topic, and students complete a paper or project with a faculty member in an area of interest.

CDS 497 Departmental Honors Thesis or Project
Credits: 3
Prerequisites: Acceptance into the departmental honors program and permission of instructor
Corequisites: None
Type: TUT
Accepted seniors pursue a specialized, independent study leading to an honors thesis or project.
**CDS 498 Undergraduate Research and Creative Activity**
Credits: 1
Prerequisites: None
Corequisites: None
Type: TUT
Students collaborate with faculty research mentors on an ongoing project in a faculty member's laboratory or conduct independent research under the guidance of a faculty member. This experience provides students with an inquiry-based learning opportunity and engages them as active learners in a research setting.

**CDS 499 Independent Study**
Credits: 1
Prerequisites: Permission by petition
Corequisites: None
Type: TUT
Individualized student work under the guidance of a faculty member, intended to pursue topics that are not currently offered through regular coursework at the university.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Corequisites</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TH 101</td>
<td>Introduction to Theatre</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Introduces reading a play as an imaging of action. Exploration of structuring plot, character, and other elements of a play. Comparisons with interpretations in live and video productions. Required for all majors and minors.</td>
</tr>
<tr>
<td>TH 105</td>
<td>Introduction to Theatre—Non majors</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Central theatrical and literary elements of dramatic art; readings in selected plays and criticism. Students attend several productions. For nonmajors.</td>
</tr>
<tr>
<td>TH 106</td>
<td>Introduction to Technical Theatre</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>LEC</td>
<td>Production elements: materials, equipment and construction of scenery, costumes, lighting and sound; production organization: run crews, stage management. Required of all majors.</td>
</tr>
<tr>
<td>TH 107</td>
<td>Costume Construction I</td>
<td>3</td>
<td>TH 106</td>
<td>None</td>
<td>LEC</td>
<td>Introduces materials, tools, and techniques; may include patterning; fabric identification, dyeing, and painting; projects on departmental productions.</td>
</tr>
<tr>
<td>TH 108</td>
<td>Basic Acting I</td>
<td>3</td>
<td>Freshman/sophomore standing or permission of instructor</td>
<td>None</td>
<td>LEC</td>
<td>Nature and elements of behavior-based acting; practical investigation and involvement; physical games; imaginative exercises; improvisations; preliminary introduction to scene work. Required of all majors and minors.</td>
</tr>
<tr>
<td>TH 109</td>
<td>Basic Acting II</td>
<td>3</td>
<td>TH 101, TH 106, TH 108, permission of instructor</td>
<td>None</td>
<td>LEC</td>
<td>Introduces scene study: how to break down a script; how to prepare an actor's scene; primary terms; a precise and exacting rehearsal method; how to make fundamental character choices; how to uncover the character's dramatic intentions. Emphasizes working together, sharing space, and playing objectives. Students must be willing to explore their emotional life as a means to living truthfully on stage.</td>
</tr>
<tr>
<td>TH 126</td>
<td>Topics in Arts and Culture</td>
<td>3</td>
<td>None</td>
<td>None</td>
<td>SEM</td>
<td>Provides students with the ability to discover, distinguish, recognize, and analyze the elements of theatre in contemporary American culture. Areas to be examined include other branches of the arts, family celebrations, social and political events, annual feasts and holidays, mass media including commercials and advertisements, sports events, pantomime, and radio. In each of these phenomena, we examine elements of theatre, such as script, acting, staging, costumes, lighting, and musical score.</td>
</tr>
<tr>
<td>TH 135</td>
<td>Production Practicum</td>
<td>1</td>
<td>None</td>
<td>None</td>
<td>LAB</td>
<td>Practical experience on productions based on lectures in TH 106.</td>
</tr>
<tr>
<td>TH 136</td>
<td>Production Practicum</td>
<td>3</td>
<td>TH 106</td>
<td>None</td>
<td>LAB</td>
<td>Practical experience on productions based on lectures in TH 106.</td>
</tr>
<tr>
<td>TH 203</td>
<td>Visual Imagination</td>
<td>3</td>
<td>TH 101 or TH 105; TH 106</td>
<td>None</td>
<td>LEC</td>
<td>Introduces and explores visual vocabulary; looking and seeing as learned skills; translation of idea to image. Required of all majors.</td>
</tr>
<tr>
<td>TH 205</td>
<td>Technical Drafting</td>
<td>3</td>
<td>TH 106</td>
<td>None</td>
<td>LEC</td>
<td>Transfer of designer's ideas to ground plans and working drawings.</td>
</tr>
<tr>
<td>TH 207</td>
<td>Stage Makeup</td>
<td>3</td>
<td>TH 203 and permission of instructor</td>
<td>None</td>
<td>LAB</td>
<td>Analysis, research, and design as essential elements in realizing makeup for a character; explores basic materials and techniques.</td>
</tr>
<tr>
<td>TH 208</td>
<td>Method Acting I</td>
<td>3</td>
<td>TH 109, permission of instructor</td>
<td>None</td>
<td>LEC</td>
<td>The study and practice of the Stanislavsky Method of relaxation and sensory exercises and its application to an actor in scene work and monologues. Concentrates on exercises that constitute Lee Strasberg's Method as well as scene and monologue work.</td>
</tr>
<tr>
<td>TH 209</td>
<td>Method Acting II</td>
<td>3</td>
<td>TH 208, TH 301, permission of instructor</td>
<td>None</td>
<td>LAB</td>
<td>Continues principles and techniques studied in TH 208. Advanced acting exercises based on the method developed by the late Lee Strasberg. Further develops the exploration and application of Lee Strasberg's Method according to principles and techniques developed by Stella Adler, Robert Lewis, and Sanford Meisner.</td>
</tr>
<tr>
<td>TH 210</td>
<td>Audition Workshop (Non-BFA)</td>
<td>3</td>
<td>THD 109</td>
<td>None</td>
<td>LAB</td>
<td>Studio/performance course focusing on three basic skills: scene analysis, &quot;cold&quot; readings, and monologue preparation. Students refine their ability to breakdown and analyze scripts and further develop their audition technique. These skills will be applied to the preparation and presentation of monologues and scenes from modern American and European plays, both realistic and nonrealistic, from the late 1980s and on. Requires all students be prepared and flexible, able to bring something new to each class and willing to adapt to direction and try new approaches to audition material.</td>
</tr>
<tr>
<td>TH 227</td>
<td>Voice Training I</td>
<td>3</td>
<td>TH 109 or permission of instructor</td>
<td>None</td>
<td>SEM</td>
<td>Exercises to consciously relax body tension, align the body, and deepen the awareness of breathing. Text work, such as Haku poetry, connects words to breathing.</td>
</tr>
<tr>
<td>TH 228</td>
<td>Voice Training II</td>
<td>3</td>
<td>TH 227 or permission of instructor</td>
<td>None</td>
<td>SEM</td>
<td>Continuation of TH 227, focuses on the development of vocal range, power, capacity, flexibility, and sensitivity. Text work-including poetry, monologues, sonnets, and scene work, along with exercises—continues the breathing/word connection.</td>
</tr>
<tr>
<td>TH 230</td>
<td>Theatre Crafts</td>
<td>3</td>
<td>TH 109, TH 106, TH 108</td>
<td>None</td>
<td>SEM</td>
<td>Research, materials, and techniques of properties for scenery and costume construction. May include paints and finishes, casting and sculpting, sewing, leatherwork, upholstery, fabric dyeing, painting techniques, and millinery and wigs.</td>
</tr>
</tbody>
</table>
TH 235 Production Practicum
Credits: 1
Prerequisites: TH 101, TH 106, TH 108
Corequisites: None
Type: LAB
Practical run crew experience on productions.

TH 236 Production Practicum
Credits: 1
Prerequisites: TH 101, TH 106, TH 108
Corequisites: None
Type: LAB
Practical run crew experience on departmental productions.

TH 301 Theatre History and Literature I
Credits: 3
Prerequisites: TH 101, TH 106, TH 108
Corequisites: None
Type: LEC
Early theatrical rituals: European theatre from antiquity (Greece and Rome), through the middle ages and Renaissance (including English Elizabethan theatre and Spanish Golden Age theatre), to seventeenth-century Baroque theatre in Italy and France, and Oriental theatre (India, China, Japan, Indonesia). Combines the study of theatre forms with reading and analyzing dramas. Required of all majors. Should be taken sophomore year.

TH 302 Theatre History and Literature II
Credits: 3
Prerequisites: TH 301 or permission of instructor
Corequisites: None
Type: LEC
American theatre from the sixteenth century until the present; European theatre from the eighteenth century until the present; international theatre exchange. Combines the study of theatre forms with reading and analyzing dramas. Required of all majors. Should be taken sophomore year.

TH 303 Scene Design I
Credits: 3
Prerequisites: TH 203
Corequisites: None
Type: LEC
American theatre from the sixteenth century until the present; European theatre from the eighteenth century until the present; international theatre exchange. Combines the study of theatre forms with reading and analyzing dramas. Required of all majors. Should be taken sophomore year.

TH 304 Scene Design II
Credits: 3
Prerequisites: TH 303
Corequisites: None
Type: LEC
American theatre from the sixteenth century until the present; European theatre from the eighteenth century until the present; international theatre exchange. Combines the study of theatre forms with reading and analyzing dramas. Required of all majors. Should be taken sophomore year.

TH 305 Costume Drafting and Draping
Credits: 3
Prerequisites: TH 107, TH 203 or permission of instructor
Corequisites: None
Type: LEC/LAB
Basic techniques of pattern development for stage costume; projects in patterning from designer's sketches.

TH 306 Costume Design I
Credits: 3
Prerequisites: TH 203
Corequisites: None
Type: LEC
Design of stage costume; projects in patterning.

TH 308 Poetic Text
Credits: 3
Prerequisites: TH 203, TH 209, TH 227, TH 302, major or minor, permission of instructor
Corequisites: None
Type: SEM
Authors' use of language, especially poetic and heightened language. Material is selected from a progression of styles beginning with naturalism and evolving to classical poetic texts. Stresses techniques of imaging, textual analysis, and full use of breath and voice to support the demands of non-naturalistic language.

TH 309 Mime/Movement for Actors
Credits: 3
Prerequisites: TH 228, TH 308 or permission of instructor
Corequisites: None
Type: SEM
Involves the actor's use of specific techniques as a tool to add awareness, flexibility, and suppleness to body movement so that the actor becomes free to concentrate on creating a role. This intensive training leads to a more elaborate physical building of the character, which unites the actor's body and mind with the script.

TH 314 Introduction to Dramaturgy
Credits: 3
Prerequisites: TH 101, TH 108, Theatre Major, or permission of instructor
Corequisites: None
Type: SEM
The dramaturg is an important collaborator in the theatrical production process, playing the multi-faceted role of historian, researcher, adaptor, translator, audience educator, and overall supporter of the production team. Working closely with the director, the dramaturg helps to shape and nourish the production and to facilitate the demanding process of bringing a play from the page to the stage. Introduces students to the fundamentals of production dramaturgy through close analysis of works by select playwrights of the contemporary historical theatre.

TH 315 Modern Theatre I
Credits: 3
Prerequisites: TH 302, junior/senior or permission of instructor
Corequisites: None
Type: LEC
Deals in some detail with the development of a dominant realistic tradition in the theatre at the end of the nineteenth century and then examines the modification of that tradition because of the attacks that set in almost at once. Emphasizes understanding individual plays, together with some appreciation of relevant developments in acting and scenic design. Figures include Zola, Ibsen, Strindberg, Hauptmann, Maeterlinck, Jarry, Chekhov, Synge, Koskela, Wedekind, Cocteau, as well as Antone, Stanislavsky, and Lugne-Poe.

TH 316 Modern Theatre II
Credits: 3
Prerequisites: TH 302, junior/senior or permission of instructor
Corequisites: None
Type: LEC
Significant developments in theatre art and play writing since World War I; selected readings in British and continental plays and criticism.

TH 320 American Drama
Credits: 3
Prerequisites: TH 302, junior/senior or permission of instructor
Corequisites: None
Type: LEC
Explores the contemporary American drama and theatre, specially emphasizing the plays of Arthur Miller, Tennessee Williams, William Inge, Clifford Odets, Sam Shepard, David Mamet, and the emerging playwrights of the '80s and early '90s.

TH 325 Performance and the Critic
Credits: 3
Prerequisites: TH 302, junior/senior or permission of instructor
Corequisites: None
Type: SEM
Surveys the performing arts (theatre, dance, music, etc.) to increase background knowledge and develop critical awareness. Reading includes criticism, material on the performing arts, and texts of plays. Students attend live performances and write critiques. Discussion of performances and assigned reading; guest speakers; screening of films and videotapes; workshops on critique writing.

TH 331 Problems in Technical Theatre
Credits: 3
Prerequisites: TH 203, TH 205 or permission of instructor
Corequisites: None
Type: LEC
Techniques employed in resolving problems in technical theatre. Requires lab work.

TH 332 Lighting Design I
Credits: 3
Prerequisites: TH 203 or permission of instructor
Corequisites: None
Type: LEC
Equipment, materials, methods of lighting the stage. Requires crew work. Should be taken sophomore year.

TH 333 Production Practicum
Credits: 1
Prerequisites: TH 101, TH 106
Corequisites: None
Type: LAB
Practical experience building departmental productions.

TH 334 Production Practicum
Credits: 1
Prerequisites: TH 101, TH 106
Corequisites: None
Type: LAB
Practical experience building productions.

TH 340 Makeup Studio
Credits: 1
Prerequisites: TH 203, TH 207, majors or permission of instructor
Corequisites: None
Type: LAB
Significant participation in the performance, design, technical, and management phases of departmental productions. Credit hours for a specific project must be arranged with instructor.

TH 341 Theatre Studio I
Credits: 1
Prerequisites: audition or permission of instructor
Corequisites: None
Type: LAB
Significant participation in the performance, design, technical, and management phases of departmental productions. Credit hours for a specific project must be arranged with instructor.

TH 342 Theatre Studio II
Credits: 1
Prerequisites: audition or permission of instructor
Corequisites: None
Type: LAB
Significant participation in the performance, design, technical, and management phases of departmental productions. Credit hours for a specific project must be arranged with instructor.

TH 343 Theatre Studio III
Credits: 1
Prerequisites: audition or permission of instructor
Corequisites: None
Type: LAB
Significant participation in the performance, design, technical, and management phases of departmental productions. Credit hours for a specific project must be arranged with instructor.
TH 344 Theatre Studio IV
Credits: 1
Prerequisites: audition or permission of instructor
Corequisites: None
Type: LAB
Significant participation in the performance, design, technical, and management phases of departmental productions. Credit hours for a specific project must be arranged with instructor.

TH 350 Properties Studio
Credits: 1
Prerequisites: department majors or permission of instructor
Corequisites: None
Type: LAB
Significant participation in the performance, design, technical, and management phases of departmental productions. Credit hours for a specific project must be arranged with instructor.

TH 370 Age of Shakespeare
Credits: 3
Prerequisites: TH 302, junior/seniors, or permission of instructor
Corequisites: None
Type: LEC
Dramatic works of Shakespeare's contemporaries-Christopher Marlowe, Ben Jonson, and others; theatre and theatrical practices of the period.

TH 401 Directing I
Credits: 3
Prerequisites: TH 101 or permission of instructor
Corequisites: None
Type: SEM
A practical course in directing. Provides students with the consciousness of theatre and creative directing: basic techniques in preparing the script for rehearsals, creating the space, collaborating with a designer, using tempo/rhythm, working with actors, preparing and conducting rehearsals.

TH 402 Directing II
Credits: 3
Prerequisites: TH 401 or permission of instructor
Corequisites: None
Type: SEM
Continuation of TH 401. Includes work on a play, script, or other material for a production: analyzing text, preparing lists of characters, settings, props, and music/sound effects. Creating a space: its character, dimensions, relationships between actors and audience, the role of light, use of objects within space, and shape of the space for the spectators. Explores the speed/tempo/rhythm of a production. Methods of casting, auditioning, rehearsing; methods of collaborating with authors, translators, literary advisors, designers, composers, stage managers, technical staff, and administrative staff.

TH 403 Scene Design 2
Credits: 3
Prerequisites: TH 303 or permission of instructor
Corequisites: None
Type: LEC
Further studies in scene design; individual projects.

TH 404 Scene Design 3
Credits: 4
Prerequisites: None
Corequisites: None
Type: SEM
The scene designer's process is exercised by creating production proposals for significant theatrical works. Particular attention is given to text analysis, research methods, visual communication, three-dimensional response, and presentation. The course culminates in a portfolio review where the student will demonstrate his/her ability to create innovative and appropriate scenic environments for given texts in diverse venues.

TH 406 Costume Design II
Credits: 3
Prerequisites: TH 306 or permission of instructor
Corequisites: None
Type: SEM
Further studies in costume design.

TH 408 Audition Techniques
Credits: 3
Prerequisites: TH 309 or permission of instructor
Corequisites: None
Type: SEM
Techniques and methods of preparation essential for successful auditions at the college, graduate school, and professional levels.

TH 409 Acting in Shakespeare
Credits: 3
Prerequisites: TH 408 or permission of instructor
Corequisites: None
Type: SEM
Deciphers rhythm and image codes in Shakespearean verse and incorporation of these elements into scene and character preparation. General social, historical, and theatrical orientation to Elizabethan England. Examines at least one tragedy and one comedy.

TH 411 Theatre Workshop
Credits: 1
Prerequisites: TH 109 or permission of instructor
Corequisites: None
Type: LAB
Workshop performance produced entirely with the resources of class members.

TH 413 Theatre Workshop
Credits: 1
Prerequisites: TH 302, junior/senior or permission of instructor
Corequisites: None
Type: LAB
Historical, artistic, practical aspects of a specific play or dramatic problem (audition), works of a specific playwright. Workshop performance produced entirely with the resources of class members.

TH 414 Theatre Workshop
Credits: 1
Prerequisites: TH 109 or permission of instructor, sophomore/junior status
Corequisites: None
Type: LAB
Historical, artistic, practical aspects of a specific play or dramatic problem (audition), works of a specific playwright. Workshop performance produced entirely with the resources of class members.

TH 416 Mask
Credits: 3
Prerequisites: TH 109, TH 203 or permission of instructor
Corequisites: None
Type: SEM
Studies mask traditions and practical exploration of mask technique, using neutral masks, full-face masks and half-masks. Develops skill in using sound, gesture and movement to create mask characters. Creating and performing solo or ensemble scenes, using mask characters.

TH 418 Theatrical Clowning
Credits: 3
Prerequisites: TH 109, TH 203 or permission of instructor
Corequisites: None
Type: SEM
The history of clowning in Western theatre, with some reference to non-Western cultures. Students learn clowning techniques—character work, transformation of objects, slapstick, and simple acrobatics. Each student develops an individual clown character and presents that character in performance before an audience.

TH 422 Advanced Acting: Special Topics
Credits: 3
Prerequisites: TH 209 or permission of instructor
Corequisites: None
Type: SEM
Particular techniques or methods of acting, focusing on the work of a major theoretician, practitioner or teacher of acting, such as Stanislavski, Michael Chekhov, Sanford Meisner, Lloyd Richards, or Lee Strasberg. Builds on previous work in the core acting sequence.
TH 423 Advanced Acting: Special Topics
Credits: 3
Prerequisites: TH 209 and permission of instructor
Corequisites: None
Type: LAB
Particular techniques or methods of acting, focusing on the work of a major theoretician, practitioner or teacher of acting, such as Stanislavski, Michael Chekhov, Sanford Meisner, or Lee Strasberg. Builds on previous work in the core acting sequence.

TH 424 Advanced Acting: Special Topics
Credits: 3
Prerequisites: TH 209, permission of instructor
Corequisites: None
Type: SEM
Intensive study of a particular movement, focusing on the work of a major theoretician, practitioner, or teacher of acting, such as Stanislavski, Michael Chekhov, Sanford Meisner, or Lee Strasberg. Builds on previous work in the core acting sequence.

TH 427 Voice and Movement
Credits: 3
Prerequisites: TH 228, permission of instructor
Corequisites: None
Type: ELC
Examines the connection between voice, movement, and language. Students learn to release habitual patterns of tension, to use their voices and bodies more spontaneously and expressively, and to communicate more effectively through sound, gesture and movement.

TH 433 Lighting Design
Credits: 3
Prerequisites: None
Corequisites: None
Type: ELC
Exercises the lighting designer's ability to communicate orally, visually, and graphically in the production process. Emphasis is given to visualization techniques and both hand and computer generated rendering techniques are explored.

TH 439 Studies in Design
Credits: 3
Prerequisites: department majors, permission of instructor
Corequisites: None
Type: SEM
Intensive study of a particular movement, designer, problem, or area in theatrical design or technology.

TH 440 Studies in Design
Credits: 3
Prerequisites: department majors, permission of instructor
Corequisites: None
Type: LAB
Intensive study of a particular movement, designer, problem, or area in theatrical design or technology.

TH 457 Comedy of Manners
Credits: 3
Prerequisites: department majors, junior/senior or permission of instructor
Corequisites: None
Type: SEM
Social and historical background that in 1660 led to the rise of Restoration comedy in England. Development of comedy of manners in works of Four English playwrights. Practical exploration and involvement; students work on scenes to develop understanding of the material's dramatic nature and interpretive problems.

TH 460 Asian Performing Arts
Credits: 3
Prerequisites: TH 302, junior/senior or permission of instructor
Corequisites: None
Type: SEM
Comprehensive study of a wide range of Asian performing arts, from the theatre and dance to ritual and popular entertainment. Both intercultural and interdisciplinary, the course draws on the arts, humanities and social sciences.

TH 464 Black Theatre Past and Present
Credits: 3
Prerequisites: TH 302, junior/senior or permission of instructor
Corequisites: None
Type: SEM
Surveys the roots and development of Black Theatre from its mythic traditions in Africa to the contemporary works of such as Orson Welles, Roman Polanski, Laurence Olivier, Peter Brook and Kenneth Branagh.

TH 466 Women in Theatre
Credits: 3
Prerequisites: TH 302 junior/senior or permission of instructor
Corequisites: None
Type: SEM
Studies works of women in theatre from Krotsvitha of Gandersheim to present-day women playwrights, actors, directors and designers.

TH 468 Sources of Modern Theatre
Credits: 3
Prerequisites: TH 302, junior/senior or permission of instructor
Corequisites: None
Type: LEC
Examines, in-depth, selected figures, movements, artists, and events that have had a seminal influence on modern theatre's development. Focuses on reading important texts, discussion, and individual research, but may include workshop activities when appropriate.

TH 477 Production Dramaturgy
Credits: 1
Prerequisites: None
Corequisites: None
Type: SEM
Students perform independent research, guided by an individually chosen thesis advisor, in addition to the thesis research mentor, leading to a written dissertation. Each candidate defends his or her original research project at the end of the individualized training period in a formal thesis defense. Typically two to three years are spent performing independent research.

TH 478 Arthur Miller
Credits: 3
Prerequisites: TH 302, junior/senior or permission of instructor
Corequisites: None
Type: SEM
Comprehensively studies Arthur Miller's dramatic work in its historical and theatrical context, particularly focusing on one of the major plays, such as Death of a Salesman or The Crucible.

TH 479 Brecht
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
A study of the plays, poetry and theatre aesthetic of Brecht, and the impact of that work on 20th Century Drama.

TH 480 Shakespeare on Stage
Credits: 3
Prerequisites: TH 302, junior or senior permission of instructor
Corequisites: None
Type: SEM
Explores Shakespeare in performance in the twentieth and twenty-first century. We view and analyze film and video of the plays as produced by the BBC, the Royal Shakespeare Company and directors such as Orson Welles, Roman Polanski, Laurence Olivier, Peter Brook and Kenneth Branagh.

TH 483 Ibsen
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Comprehensively studies Henrik Ibsen's major works, particularly emphasizing A Doll's House, The Wild Duck, Ghosts' and An Enemy of the People and the contribution these plays made to the birth of realistic drama.

TH 484 Theatre of Molière
Credits: 3
Prerequisites: TH 302, junior/senior or permission of instructor
Corequisites: None
Type: SEM
Examines, in-depth, selected figures, movements, artists, and events that have had a seminal influence on modern theatre's development. Focuses on reading important texts, discussion, and individual research, but may include workshop activities when appropriate.

TH 485 Playwriting Seminar
Credits: 3
Prerequisites: TH 101, TH 108 or TH 203 or permission of instructor
Corequisites: None
Type: SEM
Explores basic tools of the playwright's craft; writing exercises to release imagination and spontaneity; guided development of characters, dialogue, scenes, plot structures; writing a ten-minute or short one-act play, which receives a staged reading at the end of the semester. Analyzes published plays and professional productions. May be repeated for credit.

TH 486 Playwriting Seminar
Credits: 3
Prerequisites: TH 485 or permission of instructor
Corequisites: None
Type: SEM
Continuation of TH 485, for advanced students. Writing a full-length one-act play, which receives a staged reading at the end of the semester. Analyzes published plays and professional productions. May be repeated for credit.

TH 487 Major Figures
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Major dramatists or theatre artists; variable subjects.

TH 488 Major Figures
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Major dramatists or theatre artists; variable subjects.

TH 489 Major Figures
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Major dramatists or theatre artists; variable subjects.
TH 493 Advanced Directing
Credits: 3
Prerequisites: TH 402 or permission of instructor
Corequisites: None
Type: LAB
Continuation of TH 402, for advanced students.

TH 496 Art Management Internship
Credits: 1
Prerequisites: None
Corequisites: None
Type: TUT
Practical, hands-on experience. Includes work in the areas of promotion, public relations, theatre management, box office, ushering, etc.

TH 499 Independent Study
Credits: 1
Prerequisites: department majors, permission of instructor only
Corequisites: None
Type: TUT
Substantial independent research or applied project under the supervision of a faculty member.

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**Undergraduate Education**

**UE 141 Discovery Seminar Program**
 Credits: 1
Prerequisites: None
Corequisites: None
Type: LEC
The Discovery Seminar Program offers a small class experience for students, providing them with the opportunity to engage with a distinguished faculty member in a congenial, academic setting. Seminars will focus on current disciplinary or interdisciplinary topics in the faculty member's field. This program seeks to introduce students to the exciting intellectual atmosphere of UB, helping them to explore areas of interest and broaden their academic horizons. Intended for freshmen.

**UE 142 Academy Seminar**
 Credits: 2
Prerequisites: Permission of instructor
Corequisites: None
Type: SEM
This introductory seminar provides an overview of the mission and goals of the academies, with each section focusing on one of the academies. Currently, the academies include Civic Engagement and Research Exploration, and we hope to add additional academies in the future. The seminar is designed to create foundational knowledge that will allow for further exploration focusing on the theme of the academy. Students will be introduced to existing and new opportunities for applied learning (projects, workshops, lectures, clubs and other organizations). Students will develop strengths in specific areas to prepare for out-of-class experiences.

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**University at Buffalo Experience**

**UBE 101 University Experience**
 Credits: 1
Prerequisites: None
Corequisites: None
Type: SEM
Weekly seminar that assists first-year students in making the transition to the university. Through a small, interactive classroom environment intended to engage students in learning, we provide resources, foster important relationships, and help students understand their responsibilities and privileges within the university community. A faculty or staff member and an undergraduate peer mentor collaboratively teach the course.

UBE 101 is for first-year students only. Students who are not in their first semester will be deregistered from the course. The repeat policy does not apply to this course.

**UBE 102 Dynamics of Leadership**
 Credits: 2
Prerequisites: None
Corequisites: None
Type: SEM
For a student at the beginning of his/her leadership journey. Presents the fundamentals of leadership while allowing time for self-awareness and discovery. Explores and defines different aspects of leadership--leaders on campus, and leadership in action, while making it clear that leadership is not just a position. Designed to develop leaders through an interactive group experience and require each student to be an active participant.

**UBE 110 Introduction to Peer Education**
 Credits: 2
Prerequisites: None
Corequisites: None
Type: SEM
Prepares students for a peer education experience. Provides the skills necessary to play a role as a peer educator, a resident advisor, or a leader of a club or organization; or, prepares students for future careers.

**UBE 202 Career Planning**
 Credits: 3
Prerequisites: permission of instructor
Corequisites: None
Type: LEC
Assists students in examining their career choice. Focuses on career awareness, personal awareness, and educational awareness as they relate to the process of making a career decision. Discusses planning skills and self-assessment instruments that help identify tentative career options. Also explores decision-making strategies, resume/cover letter writing, interviewing skills, and job-search strategies.

**UBE 495 Undergraduate Supervised Teaching**
 Credits: 2
Prerequisites: None
Corequisites: None
Type: TUT
Students serve as undergraduate teaching assistants in one of the following courses: UBE 101 University Experience or UBE 202 Career Planning.

Responsibilities for UBE 101 TAs (peer mentors) include serving as role models and sources of support to new students enrolled in UB 101, helping to ease their transition to UB. Peer Mentors share their experiences as successful students, and they work in collaboration with a UB 101 instructor, assisting with class participation and facilitating class discussions.

Responsibilities for UBE 202 TAs include aiding the primary instructor and the students, and sharing their developing knowledge of the Career Services office.

**UBE 496 Internship/Practicum**
 Credits: 1
Prerequisites: Variable (set by instructor)
Corequisites: None
Type: TUT
Prepares students for a peer education experience. Provides the skills necessary to play a role as a peer educator, a resident advisor, or a leader of a club or organization; or, prepares students for future careers.

UBE 499 Independent Study
 Credits: 1
Prerequisites: permission of instructor
Corequisites: None
Type: TUT
Offers students unique educational experiences not covered by existing formal courses.
**Visual Studies**

**VS 150 Visual Theory, Aesthetics, and Criticism**
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces and explores visual, aesthetic, and critical theory, and the social and cultural dynamics that inform and influence contemporary art making. Required for first-year B.F.A. and B.A. Art Program majors. Lab fee.

**VS 152 Introduction to Visual Studies**
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces a critical knowledge and understanding of images and image systems, their history, and their intersection with the culture as a whole.

**VS 200 Visual Studies Speakers Series**
Credits: 1  
Prerequisites: None  
Corequisites: None  
Type: LEC/DIS  
A visiting lecture series of visual arts professionals practicing in the fields of visual art, design, multi-media, cultural theory, and criticism. Exposes students to a wide range of viewpoints, art practice, and contemporary theory. Speakers change each semester. Lab fee.

**VS 220 Topics in Visual Studies**
Credits: 3  
Prerequisites: VS 150  
Corequisites: None  
Type: LEC  
A course that explores different aspects of visual culture, which focuses on a different subject each semester that it is offered. Explores both the visual qualities and the critical analysis of a particular aspect of current and historical visual study.

**VS 260 Visual Theory, Aesthetics and Criticism 2**
Credits: 3  
Prerequisites: VS 150  
Corequisites: None  
Type: LEC  
Examines visual theory, aesthetic philosophy, and critical theory and their application to and effects on visual art of the 20th and 21st centuries. Provides a broad grounding in both Modern and Postmodern thought based upon a carefully considered exposure to a set of representative primary texts. Lab fee.

**VS 300 Topics in Visual Studies**
Credits: 3  
Prerequisites: VS 150  
Corequisites: None  
Type: LEC  
A course that explores different aspects of visual culture, which focuses on a different subject each semester that it is offered. Explores both the visual qualities and the critical analysis of a particular aspect of current and historical visual study.

**VS 375 Science, Culture, and Emerging Media**
Credits: 3  
Prerequisites: VS 150  
Corequisites: None  
Type: LEC  
Introduces critical issues in science, culture, and emerging media especially as they pertain to contemporary artistic practice. Topics are addressed through artists' works; selected readings include historical trends, biotechnology, virtuality, net theory, and cultural resistance. Lab fee.

**VS 400 Topics in Visual Studies**
Credits: 3  
Prerequisites: VS 150  
Corequisites: None  
Type: SEM  
A course that explores different aspects of visual culture, which focuses on a different subject each semester that it is offered. Explores both the visual qualities and the critical analysis of a particular aspect of current and historical visual study.

**VS 415 Special Topics**
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LAB  
Topics vary by semester.

**VS 449 Topics in Contemporary Photography**
Credits: 3  
Prerequisites: ART 348  
Corequisites: None  
Type: SEM  
Combines lecture, readings, and class discussion in examining major issues in contemporary photography. Theoretical, critical, and historical topics vary each semester. Lab fee.

**VS 473 Performativis Action**
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LAB  
Graduate and advanced undergraduate course on the theories and practice of performance and performativity in relation to the body in art. Integral to the curriculum are two visiting artist lecture/workshops on related topics. Explores issues such as audience interaction, site-specificity, public/private space, cultural and gender identity, technology, ritual, and the sensorial. Lab fee.

**VS 479 The Revolutionary Sublime**
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: SEM  
An advanced undergraduate seminar. Investigates the visual art that arose from revolutionary tensions between theory and everyday life in key European and American political upheavals.

**VS 480 Visual Culture Seminar: Discourse and Deconstruction**
Credits: 3  
Prerequisites: ART/VS 150  
Corequisites: None  
Type: SEM  
Provides the student with a critical examination of how the medium of photography has been philosophically problematized by poststructuralist theory, focusing upon visual culture and visual art. Lectures and directed reading provide the basis for discussion.

**VS 487 Visual Culture Seminar: Vision, Space, and Power**
Credits: 3  
Prerequisites: VS 150  
Corequisites: None  
Type: SEM  
Students consider the issues surrounding how we visually conceptualize both space and gender and how they are interrelated, focusing upon visual culture and visual art. Lectures and directed reading provide the basis for discussion.

**Women’s Studies**

**WS 101 Introduction to Women's Studies**
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: LEC  
Introduces students to basic concepts in women's studies. Covers the history of the women's movement and its relation to the rise of women's studies as a discipline. Examines and discusses a multiplicity of 'recurring themes' affecting different women's lives; including the social construction of gender, the impact of race, sexuality, reproduction, work, education, media, material condition (class), and women's agency. Discusses current controversies among feminists, and the broader political arena. Discovers how studying women's history challenges traditional notions of women and traditional notions of history.

**WS 126 Topics in Arts and Culture**
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: SEM  
Topics vary according to faculty/instructors.

**WS 149 Special Topics**
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: SEM  
Topics vary according to faculty/instructors.

**WS 167 Cross Cultural Topics**
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: SEM  
Topics vary according to faculty/instructors.
WS 205 Women in the Global System
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores how the current expansion of the world market is turning over the subjugation of women in traditional societies and looks at the consequences of globalization on the lives of women throughout the world. Women in developing countries share common patterns of location and differentiation within the international division of labor. Examines how women are struggling to represent their identities in the midst of rapid changes in their societies. Examines why more and more women are becoming active in the international human rights movement. Looks at how women are attempting to shape the discourse of development in different regions of the world economy. Intended to develop a multidisciplinary approach to gender and more specifically, to understand how gender is constructed by political, economic, and cultural discourses in industrialized and industrializing societies, and to understand the lived experiences between the lived experiences of women in these societies, the heterogeneous nature of women based on class, race, religion, and nationality, and how women's lives are changing in the context of the global economy.

WS 213 Women in Contemporary Society
Credits: 3
Prerequisites: none
Corequisites: none
Type: SEM
Explores the roles, functions, practices, and consciousness of women cross-culturally based in various U.S. communities. Focuses on the socio-cultural history of women's movements, issues and multiple oppressions. By understanding and examining race, class, gender, sexuality and nationality, students will learn how to think, read, and write in a critical and creative framework. Students will discover the importance of "re-claiming and education".

WS 222 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Topics vary according to faculty/instructors.

WS 225 Violence in a Gendered World
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Surveys components in the spectrum of gender-based violence, in the U.S. and in some other countries. Historical, legal, sociological, psychological, literary and first person accounts comprise the course readings. Students will gain an understanding of the dynamics of violence against women and children, social movements that attempt to ameliorate it, and how gender, race, class and theoretical grounding influence local, national and global efforts to end violence and empower women.

WS 228 Introduction to Feminist Theory
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Designed to introduce students to the complexity of feminist thought and theorizing. Covers a variety of the major schools of feminist thought and theorizing including Liberal, Radical, Socialist, Black, Post-modern, Psychoanalytic and Global Feminism. These schools, and the core writers and thinkers belonging to each, represent the major approaches to feminism as it has developed within the United States, and often abroad. A solid grasp of these core theories, their fundamental approaches, and their insights into social phenomenon and the key criticisms of each, will allow the student to enter into and participate in the ongoing conversations that characterizes feminist thought.

WS 234 Women in the Middle East
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Roles of women in Iran, Iraq, and Turkey; women's emancipation movements in these countries; and the impact of Islamic tradition.

WS 238 Women, Work, and Family in the Twentieth Century
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores the experience of women of different race, class, and ethnic groups regarding changes in women's responsibilities in the family, participation in the labor force, and the development of new family forms. Illuminates contemporary issues regarding work, marriage, and family from a historical perspective.

WS 240 Women in Contemporary Asia
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Surveys contemporary issues for women in East Asia and South East Asia namely, Taiwan, Japan, South Korea, Thailand, Indonesia Malaysia. One of the main objectives is to analyze the impact of development on various aspects of social life of women in Asia. Examines women's roles and opportunities in the process of development, including women of poor and working class households as well as women from middle class and professional backgrounds.

WS 241 Women in Developing Countries, Socio-economic and Political Perspectives
Credits: 3
Prerequisites: none
Corequisites: none
Type: SEM
Survey of women's socio-economic and political status in developing countries. Examination of policies and practices that shape their lives, as well as discourses that construct their experiences. Analyzes women's organizing, advocacy and social mobilization to engender change. Introduction to a broad, interdisciplinary and international literature focusing on current and emerging issues related to women's work and globalization; poverty and inequality; environmental justice; social practices such as female genital mutilation; and HIV/AIDS, within national, regional, and global contexts. Course will dwell on a variety of teaching material and combine lectures and discussions, as well as students' projects to promote an interactive learning environment, and to encourage critical thinking among students in analyzing salient issues pertinent to women's conditions in developing countries, and strategies to effect social change.

WS 247 Women in Latin America
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Women's political mobilization and its effects. Women's participation in the national movements, revolutions, rebellions, and social movements that have dominated Latin America's political, social, and economic development during the past 200 years. Readings illustrate the variety of women's participation by examining women's activism across time, space and political position. In particular, women's struggles to improve the quality of their lives and the lives of others are a central component of the course. Analyzes why women have been involved in political movements, the effects of women's activism on women's position within these societies, the changing relationship between men and women, contested understanding of gender relations, and the overall impact of these struggles on Latin American and Caribbean countries.

WS 248 Women in Development, Socio-economic and Political Perspectives
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Survey of women's socio-economic and political status in developing countries. Examination of policies and practices that shape their lives, as well as discourses that construct their experiences. Analyzes women's organizing, advocacy and social mobilization to engender change. Introduction to a broad, interdisciplinary and international literature focusing on current and emerging issues related to women's work and globalization; poverty and inequality; environmental justice; social practices such as female genital mutilation; and HIV/AIDS, within national, regional, and global contexts. Course will dwell on a variety of teaching material and combine lectures and discussions, as well as students' projects to promote an interactive learning environment, and to encourage critical thinking among students in analyzing salient issues pertinent to women's conditions in developing countries, and strategies to effect social change.

WS 252 Social History of Women in the United States, 1650-1875
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
History of women in the United States, emphasizing the 'common woman', family life; industrialization; sex roles and sexuality; history of feminism. Reading involves autobiographies, popular fiction, and other firsthand historical accounts.

WS 254 Women and Image in Fine Arts
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Art is a part of the human civilization and is influenced by the demands of society. Women always were the important art objects, but in different epochs artists treated them differently. By this difference we can see woman's role and place in the society. Discusses woman as art objects and artists.

WS 260 Women's Health: Problems and Practices
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Reviews the health care system in the U.S. and its treatment of women. Content includes a history of health care and the changing definition of "health", the current roles of women in this system, and the intersection of the legal system on women's bodies and women's health. Women in the 1970s and beyond started examining the politics of health care, which exploded into the millennium such as cost containment and restriction of services through managed care; newer and more expensive technologies; growing consumer dissatisfaction with the current system; and trends towards holistic and alternative care outside of the "mainstream" health care system. Develops an analysis of the current system with a rational plan for improving health care for all women. Addresses the roles that women have played in relation to health and health care, the history of women as healers, the shift to women as patients and consumers, and women as workers, both paid and unpaid, in the system of care.

WS 265 Sexuality and Orientation
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Examines the various constructions of women's sexualities: heterosexual, bisexual, and lesbian. Readings from literature, feminist theory, queer theory, psychol- ogy and sociology in order to develop an understanding of how sexuality is constructed. Examines the impact of violence, gender, health, media reproduction, class, and race on women's sexualities.
WS 270 Asian American Studies: Asian American Women Writers
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces students to some basic feminist critical theories, including French, Anglo-American, and “Third World” feminist assumptions and positions. Explores how women writers’ and poets’ creativity and technical strategies are related to the intersected issues of gender, race, ethnicity, sexuality, and class, through closely examining works by Asian American women.

WS 301 Introduction to Indigenous Women
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Focuses on Native American women, beginning with the creation story and ending with the modern-day role of Haudenosaunee women.

WS 304 Science Microworld: Biology of Women
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Presents basic facts about the biological structure and function of the female body across the life span. Physiologic adaptations during normal processes and disease processes are addressed. Women’s physical and mental health issues are presented in the context of women’s personal lives and society. Emphasizes the scientific basis of current knowledge and the social and cultural influences on women’s health. Discusses the role of women as consumers, practitioners, and scientists in women’s health care.

WS 305 Gender and the Custodial State
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Focuses on historical and cross cultural components informing contemporary issues of women’s imprisonment. With respect to the contemporary scene, emphasizes the process by which women come to be incarcerated and differentials in treatment of incarcerated women. Examines institutional forces in contemporary corrections generally which may contribute to an understanding of women’s imprisonment issues.

WS 308 Images of Women and Men in a Changing World
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Examines the history and development of gender imagery, historically to the current age of globalized mass-mediated images. Examines how mass media has influenced gender representation, socialization, and identity construction, primarily in the United States but also abroad. Analyzes the ways these representations implicate and are implicated and negotiated by gender, racial, class, ethnic, and religious minorities.

WS 312 Culture and Reproduction
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Explores the meanings and stratification of reproduction in our culture. Examines how culture constructs reproduction including controversial topics such as gay adoption, eugenics, reproductive technologies, teen sexuality and government’s role in reproduction. Uses a variety of sources from the fields of public health, epidemiology, feminist criticism and the women’s health movement to discover the history and current determinants of women’s reproductive health and reproductive rights.

WS 315 Cross-Cultural Study of Women
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Examines current policy frameworks and agendas such as the Millennium Development Goals (MDGs) and the responses to poverty, the gender inequalities in democratic participation and access to health, education, technology and economic resources. Interrogates the changing dynamics of households due to the combined effects of transnational migration, HIV/AIDS and conflicts and their gender implications. Revisits opportunities for social change in the face of an increased pressure from globalization, environmental degradation, a growing re-territorialization of the state, and many threats to human security.

WS 316 Gender Issues in Contemporary Africa
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
How do African women and men construct and reorder their lives on a daily basis? How do they negotiate their positions, ascribed gender roles and identities in familial, communal, and national spheres? What are the salient and socio-economic and political issues facing them? How do they emerge as agents of social change? Examines current policy frameworks and agendas such as the Millennium Development Goals (MDGs) and the responses to poverty, gender inequalities in democratic participation and access to health, education, technology and economic resources. Interrogates the changing dynamics of households due to the combined effects of transnational migration, HIV/AIDS and conflicts and their gender implications. Revisits opportunities for social change in the face of an increased pressure from globalization, environmental degradation, a growing re-territorialization of the state, and many threats to human security.

WS 323 Culture of Biology, Medicine, Gender and Race
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Introduces upper-level students to a gendered perspective to development that integrates multiple elements of the major theoretical paradigms into comprehensive analyses of production and reproduction, patriarchal and capitalism, class and gender, and gender and social relations.

WS 324 Controlling Reproduction: Reproductive Rights, Policies, Practices, and Technologies
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Explores questions such as: What constitutes women’s reproductive lives? How do women’s reproductive lives impact gender status in society? How do women’s reproductive lives differ by age, race, nationality and sexual preference? Who controls reproduction and the cultural discourse regarding reproduction? What public policies and practices foster or undermine reproductive freedoms? Why are reproductive rights integral to human rights?

WS 325 Law Interprets Gender: The United States Experience
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Introduces upper-level students to a legal examination of language and issues regarding gender and the law.

WS 350 Women and Global Development
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Investigates significant works in the field of women and development. Emphasizes a gendered perspective to development that integrates multiple elements of the major theoretical paradigms into comprehensive analyses of production and reproduction, patriarchal and capitalism, class and gender, and gender and social relations.

WS 356 Social History of Women, 1875–Present
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
The making of women’s lives in modern America: work and family, sexuality and politics, race and class. Lectures and readings in autobiographies and historical fiction.
WS 375 Topics in Women’s Studies
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Topics vary according to faculty/instructors.

WS 376 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Topics vary according to faculty/instructors.

WS 379 Sex: Gender and Popular Culture
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Examines how social constructions and expectations are shaped by popular culture, mainly television programming and films; and thus shape our ideas about ourselves and others as “feminine” and “masculine” and “sexual” beings. Discussion of texts on and viewing of episodes of popular television shows such as “Sex and the City,” “The L Word,” “Queer as Folk,” and “Will and Grace,” and several short films. By doing so, we hope to consider a number of questions including (1) how does “entertainment” act as a substitute for the transmission of social knowledge? (2) what are the advantages and disadvantages of popular culture in the construction of contemporary American life? (3) how does popular culture define “racialized” bodies? (4) how does popular culture impact the consumption of American socio-cultural values, globally? Students will develop knowledge of scholarly and popular writings on the use of television and film as shapers of contemporary American culture.

WS 382 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Topics vary according to faculty/instructors.

WS 387 Black Female in Literature
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Literature from African American women writers that explore their themes, images, and roles present in narratives, fiction, poetry, and plays. Our examination also includes selected works by African women.

WS 392 Junior Seminar in Women’s Studies
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Topics will vary according to faculty/instructors.

WS 400 Black Women Writers and the Reimagination of American Culture
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Topics vary according to faculty/instructors.

WS 401 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Topics vary according to faculty/instructors.

WS 402 Special Topics
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Topics vary according to faculty/instructors.

WS 414 Women and Public Policy
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Explores US policy on several important women’s issues in education, work, and family. Among the issues are creating equity in schools and colleges; equal pay; aid to families with dependent children, minimum wage/living wage; and child-bearing leave. The course also carries out a comparative analysis with other nations such as Canada and Sweden.

WS 415 Media, Gender and Society
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Looks at the history and development of gender imagery, from the age of oil painting to the current age of globalized mass mediated images. Examines the impact of mass media on gender representation, socialization, and identity construction in the United States as well as the rest of the world, and the way in which ethnic, geographic, cultural, racial, and religious differences affect the way gender images are received and used.

WS 425 Women’s Movement, Contesting Identities and Global Change
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Provides an overview of women’s movements from a global perspective, especially emphasizing organizational and empowerment strategies used by women in local struggles that aim at social change. We look at women’s movements, in particular across the developing world, and assess women’s share in demanding self-determination through various forms of activism against exploitation. The goal of the course is to help students sharpen their analytical skills in thinking about the oppressive economic and political forces at the national and international levels while at the same time learning more about those feminist struggles that confront forms of oppression.

WS 435 History of Working Women
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Traces the changes in women’s work in the home, in the family, and in the labor force in the nineteenth and twentieth centuries. Focusing on working class women’s experiences in the labor force, we explore the impact of urbanization and industrialization on women in different ethnic and racial communities, their experiences and conflicts with unions, and their contributions to labor struggles.

WS 447 Pedagogy and the Interegression of Methodology
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Introduces students to the basic concepts and practices of feminist pedagogy. Reviews the intellectual roots of feminist pedagogy and examines the ways in which feminist pedagogy has changed over the past twenty-five years. In addition, we explore the connection between feminist pedagogy and social movements, paying special attention to the ways in which feminist pedagogy addresses issues of class, race, and gender. Since the course intends to be useful in training future teachers, it has a practical component in which students design a small unit for a class and attempt to teach it.

WS 459 Television, Gender and Society
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Traces the rise of commercial television in the United States as a form, which has profoundly impacted upon the representation and social roles of women in the family and the workplace. We assume that television is a major cultural, social, and economic force in American society that has shaped and altered every aspect of our lives, and that as a social force it relies heavily on fixed notions of gender.

WS 464 History of the United States Feminist Movement
Credits: 3
Prerequisites: None
Corequisites: None
Type: SEM
Nineteenth- and twentieth-century feminist and women’s movements; sources of feminism; suffrage; women’s clubs; temperance; womanism.

WS 487 International Organizations, Gender, and Development
Credits: 3
Prerequisites: Recommended – WS 241 or WS 240 or completion of a lower level theory course in another discipline
Corequisites: None
Type: SEM
Provides students with critical frameworks to be abreast of current and emerging theories and approaches on gender, development, and global change from an interdisciplinary perspective. Provides students a forum to analyze and appraise development policies and practices from a gender perspective. Offers the opportunity to link theory and practice, as well as revisit the actual ‘practice’ of development through policy analysis, discursive analysis of development policies and practices, project appraisal and review of international organization’s agendas. Students will gain exposure to the politics and economics of gender and development, the changing institutions and social context of development, and the mediating influence of international organizations such as the World Bank and the UN, to critically analyze and formulate strategies and action plans for social change from a gender perspective.

WS 490 Senior Thesis
Credits: 3
Prerequisites: None
Corequisites: None
Type: LEC
Provides majors with the opportunity to develop a research paper that addresses the foundational interesting questions within the discipline: race, gender, sexuality, class/material condition, culture, language, and other indices of difference. The research paper (generally 30-50 pages in length) should reflect these larger discourses through the lens of a more specific topic. Required for majors only and consists of two sequential semesters of work in the student’s senior year.

WS 494 Senior Capstone Course
Credits: 3
Prerequisites: Completion of year 1-3 major requirements.
Corequisites: None
Type: SEM
Course for senior-level majors intended to provide a learning experience that integrates knowledge from lower-level courses. The course is designed to provide an opportunity for seniors to put into practice theories and concepts developed in their coursework. Topics may vary.
WS 495 Supervised Teaching  
Credits: 6  
Prerequisites: WS 447  
Corequisites: None  
Type: TUT  
Provides supervision for undergraduate teaching assistants in WS 213 Women in Contemporary Society. entails a weekly meeting that evaluates the past week’s teaching and prepares for the forthcoming week. All participants in the class have gone through the proper training and are undergraduate teachers in women’s studies.

WS 496 Women’s Studies Internship  
Credits: 1  
Prerequisites: None  
Corequisites: None  
Type: TUT  
Hands-on experience in the field. Provides an opportunity for majors to put into practice feminist theories and concepts developed in their coursework. In addition to valuable experiential learning, an internship can be used as the first step towards a career, an excellent addition to a resume, and a source for job contacts and future references. Internships are available, for example, at Planned Parenthood, Erie County Commission of the Status of Women, Everywoman Opportunity Center, Inc., or in an area of the student’s major concentration and interest. Department registration required. Permission of the internship and advisor required.

WS 497 Departmental Honors Thesis or Project  
Credits: 3  
Prerequisites: None  
Corequisites: None  
Type: TUT  
Accepted seniors pursue a specialized, independent study leading to an Honors thesis or project. The student and faculty member agree to regular meetings during which they discuss the student’s writing and progress toward completion of this specialized thesis or project. The student should expect to receive critical comments from the faculty member on her/his writing. The final product should be worthy of the designation of a thesis or project.

WS 498 Undergraduate Research and Creative Activity  
Credits: 3  
Prerequisites: Permission of Instructor  
Corequisites: None  
Type: TUT  
Students collaborate with faculty research mentors on an ongoing project in a faculty member’s laboratory or conduct independent research under the guidance of a faculty member. This experience provides students with an inquiry-based learning opportunity and engages them as active learners in a research setting. Students will choose someone whose area of expertise is most suited to the student’s interests, and student should discuss the possibility of working together prior to the semester.

WS 499 Independent Study  
Credits: 1  
Prerequisites: department registration and permission of instructor  
Corequisites: None  
Type: TUT  
Individualized student work under the guidance of a faculty member, intended to pursue topics not ordinarily offered through regular coursework. Individualized student work under the guidance of a faculty member, intended to pursue topics not ordinarily offered through regular coursework.

World Languages

ARI 101 Arabic First Year—First Semester  
Credits: 5  
Prerequisites: none  
Corequisites: none  
Type: LEC  
Teaches basic speaking, listening comprehension, reading and writing skills in Modern Standard Arabic. Gives students a good command of basic grammatical constructions and common expressions used in daily life, along with introductory knowledge about the Arab world’s cultural diversity. ARI 101 is for true beginners, or students whose exposure to Arabic is limited.

ARI 102 Arabic First Year—Second Semester  
Credits: 4  
Prerequisites: ARI 101 or equivalent  
Corequisites: none  
Type: LEC  
Expands on language skills mastered in ARI 101 and ARI 102. Reviews both basic and complex grammatical and pronunciation patterns, and provides intensive vocabulary expansion through a variety of readings, as well as conversation and writing practice.

ARI 201 Arabic Second Year—First Semester  
Credits: 4  
Prerequisites: ARI 102 or equivalent  
Corequisites: none  
Type: LEC  
Expands on language skills mastered in ARI 101 and ARI 102. Reviews both basic and complex grammatical and pronunciation patterns, and provides intensive vocabulary expansion through a variety of readings, as well as conversation and writing practice.

ARI 202 Arabic Second Year—Second Semester  
Credits: 4  
Prerequisites: ARI 201 or equivalent  
Corequisites: none  
Type: LEC  
Same as ARI 201.

ARI 499 Independent Study  
Credits: 2 - 4  
Prerequisites: Permission of Instructor  
Corequisites: none  
Type: TUT  
Supplements regular offerings of the department.

ASL 191 American Sign Language First Year—First Semester  
Credits: 3  
Prerequisites: none  
Corequisites: none  
Type: LEC  
Introductory course that develops functional fluency in American Sign Language using everyday situations as contexts for communication. Also addresses cultural and communication issues within the Deaf community.

ASL 192 American Sign Language First Year—Second Semester  
Credits: 3  
Prerequisites: ASL 191 or equivalent  
Corequisites: none  
Type: LEC  
For students who have a basic knowledge of sign language; develops further communicative competence in the language beyond the basic level.

ASL 193 American Sign Language Second Year—First Semester  
Credits: 3  
Prerequisites: ASL 192 or equivalent  
Corequisites: none  
Type: LEC  
Expands the focus on ASL grammar and sentence structure, and emphasizes receptive and expressive vocabulary development. Introduces dialogues, short to medium-length stories, narratives and conversational practice, and elementary ASL literature.

ASL 194 American Sign Language Second Year—Second Semester  
Credits: 3  
Prerequisites: ASL 193 or equivalent  
Corequisites: none  
Type: LEC  
Includes culturally significant topics related to the Deaf community, more complex ASL grammatical features; vocabulary-building; and comprehension and development of medium-length stories, narratives and dialogues.

ASL 211 American Sign Language Deaf Culture in America  
Credits: 3  
Prerequisites: none  
Corequisites: none  
Type: LEC  
Introduces Deaf culture in the US. Explores the social characteristics of Deaf culture, identity structures, behavior and norms, values, traditions, and the use of American Sign Language and/or other sign systems. Taught in ASL and spoken English.

DAN 191 Danish First Year—First Semester  
Credits: 5  
Prerequisites: none  
Corequisites: none  
Type: LAB  
Teaches basic speaking, listening comprehension, reading, and writing skills in Danish. Gives students a good command of basic grammatical constructions and common expressions used in daily life, along with introductory knowledge of Danish culture. DAN 191 is for true beginners, or students whose exposure to Danish is limited.

DAN 192 Danish First Year—Second Semester  
Credits: 3  
Prerequisites: DAN 191 or equivalent  
Corequisites: none  
Type: LAB  
Same as DAN 191.
DAN 193 Danish Second Year—First Semester
Credits: 3
Prerequisites: DAN 192 or equivalent
Corequisites: none
Type: LAB
Expands on language skills mastered in DAN 191 and DAN 192. Reviews both basic and complex grammatical and pronunciation patterns, and provides intensive vocabulary expansion through a variety of readings as well as conversation and writing practice.

DAN 194 Danish Second Year—Second Semester
Credits: 3
Prerequisites: DAN 193 or equivalent
Corequisites: none
Type: LAB
Same as DAN 193.

DAN 499 Independent Study
Credits: 1 - 8
Prerequisites: Permission of Instructor
Corequisites: none
Type: TUT
Supplements regular offerings of the department.

GRE 191 Greek (Modern) First Year—First Semester
Credits: 3
Prerequisites: none
Corequisites: none
Type: LAB
Teaches basic speaking, listening, reading and writing skills in Modern Greek. Covers basic grammar and syntax with emphasis on the spoken language. This is for course for true beginners, or students who are new to Modern Greek.

GRE 192 Greek (Modern) First Year—Second Semester
Credits: 3
Prerequisites: GRE 191 or equivalent
Corequisites: none
Type: LAB
Continuation of the material covered in GRE 191. This is the second part of the elementary course sequence. The emphasis is still on the spoken language, but it assumes that students have a strong command of the alphabet, know how to read a simple Modern Greek text and have good command of the grammar of nouns and adjectives, and present tense verb conjugations.

GRE 194 Greek (Modern) Second Year—Second Semester
Credits: 3
Prerequisites: GRE 193 or equivalent
Corequisites: none
Type: LAB
This is the second part of the intermediate course sequence and the course begins where GRE 193 left off. The course provides further practice in the written and spoken language through readings and conversation with emphasis on writing.

GRE 211 Introduction to Modern Greek
Credits: 3
Prerequisites: none
Corequisites: none
Type: LEC
Introduces contemporary Greek culture and society. Taught in English.

GRE 499 Independent Study
Credits: 1 - 8
Prerequisites: Permission of Instructor
Corequisites: none
Type: TUT
Supplements regular offerings of the department.

HIN 191 Hindi First Year—First Semester
Credits: 3
Prerequisites: none
Corequisites: none
Type: LAB
Teaches basic speaking, listening comprehension, reading, and writing skills in Hindi. Gives students a good command of basic grammatical constructions and common expressions used in daily life, along with introductory knowledge about Indian culture. HIN 191 is for true beginners, or students whose exposure to Hindi is limited.

HIN 192 Hindi First Year—Second Semester
Credits: 3
Prerequisites: HIN 191 or equivalent
Corequisites: none
Type: LAB
Same as HIN 191.

HIN 193 Hindi Second Year—First Semester
Credits: 3
Prerequisites: HIN 193 or equivalent
Corequisites: none
Type: LAB
Same as HIN 193.

HIN 194 Hindi Second Year—Second Semester
Credits: 3
Prerequisites: HIN 193 or equivalent
Corequisites: none
Type: LAB
Same as HIN 193.

HIN 499 Independent Study
Credits: 1 - 8
Prerequisites: Permission of instructor
Corequisites: none
Type: LEC
Supplements regular offerings of the department.

IRI 191 Irish Gaelic First Year—First Semester
Credits: 3
Prerequisites: none
Corequisites: none
Type: LAB
Teaches basic speaking, listening comprehension, reading, and writing skills in Irish Gaelic. Gives students a good command of basic grammatical constructions and common expressions used in daily life, along with introductory knowledge about Irish culture. IRI 191 is for true beginners, or students whose exposure to Irish is limited.

IRI 192 Irish Gaelic First Year—Second Semester
Credits: 3
Prerequisites: IRI 191 or equivalent
Corequisites: none
Type: LAB
Same as IRI 191.

IRI 193 Irish Gaelic Second Year—First Semester
Credits: 3
Prerequisites: IRI 192 or equivalent
Corequisites: none
Type: LAB
Expands on the language skills mastered in IRI 191 and IRI 192. Reviews both basic and complex grammatical and pronunciation patterns, and provides intensive vocabulary expansion through a variety of readings as well as conversation and writing practice.

IRI 194 Irish Gaelic Second Year—Second Semester
Credits: 3
Prerequisites: IRI 193 or equivalent
Corequisites: none
Type: LAB
Same as IRI 193.

THI 191 1st Year, 1st Semester Thai
Credits: 3
Prerequisites: none
Corequisites: none
Type: LAB
Teaches basic speaking, listening comprehension, reading, and writing skills in Thai. IRI 193 is for true beginners, or students whose exposure to Thai is limited.

THI 192 1st Year, 2nd Semester Thai
Credits: 3
Prerequisites: UKR 193 or equivalent
Corequisites: none
Type: LAB
Same as UKR 193.

THI 193 2nd Year, 1st Semester Thai
Credits: 3
Prerequisites: none
Corequisites: none
Type: LAB
Expands on language skills mastered in THI 191 and THI 192. Reviews both basic and complex grammatical and pronunciation patterns, and provides intensive vocabulary expansion through a variety of readings as well as conversation and writing practice.

THI 194 2nd Year, 2nd Semester Thai
Credits: 3
Prerequisites: none
Corequisites: none
Type: LAB
Continuation of THI 193.

THI 499 Independent Study
Credits: 1 - 8
Prerequisites: none
Corequisites: none
Type: TUT
Supplements regular offerings of the department.

UKR 191 Ukrainian First Year—First Semester
Credits: 3
Prerequisites: none
Corequisites: none
Type: LAB
Teaches basic speaking, listening comprehension, reading, and writing skills in Ukrainian. Gives students a good command of basic grammatical constructions and common expressions used in daily life, along with introductory knowledge of Ukrainian culture. UKR 191 is for true beginners, or students whose exposure to Ukrainian is limited. Course can be modified to meet unique student needs.

UKR 192 Ukrainian First Year—Second Semester
Credits: 3
Prerequisites: UKR 191 or equivalent
Corequisites: none
Type: LAB
Same as UKR 191.

UKR 193 Ukrainian Second Year—First Semester
Credits: 3
Prerequisites: UKR 192 or equivalent
Corequisites: none
Type: LAB
Same as UKR 193.

UKR 194 Ukrainian Second Year—Second Semester
Credits: 3
Prerequisites: UKR 193 or equivalent
Corequisites: none
Type: LAB
Same as UKR 193.

UKR 499 Independent Study
Credits: 1 - 8
Prerequisites: none
Corequisites: none
Type: TUT
Supplements regular offerings of the department.
VIE 191 1st Year, 1st Semester
Vietnamese
Credits: 3
Prerequisites: none
Corequisites: none
Type: LAB
Teaches basic speaking, listening comprehension, reading and writing skills in modern Vietnamese, along with introductory knowledge about the Thai culture. VIE 191 is for true beginners, or students whose exposure to Vietnamese is limited.

VIE 192 1st Year, 2nd Semester
Vietnamese
Credits: 3
Prerequisites: none
Corequisites: none
Type: LAB
Continuation of VIE 191

VIE 193 2nd Year, 1st Semester
Vietnamese
Credits: 3
Prerequisites: none
Corequisites: none
Type: LAB
Expands on language skills mastered in VIE 191 and VIE 192.

VIE 194 2nd Year, 2nd Semester
Vietnamese
Credits: 3
Prerequisites: none
Corequisites: none
Type: LAB
Continuation of VIE 193

VIE 499 Independent Study
Credits: 1 - 8
Prerequisites: none
Corequisites: none
Type: TUT
Supplements regular offerings of the department.