Course Descriptions

Accounting (ACC)

ACCB220 Financial Accounting (3)
An introduction to financial reporting of results of operations, cash flow and financial position of corporate entities through general-purpose financial statements. Emphasis is placed on the internal environment of business and the use of financial accounting information for management decision making. Prerequisite: Sophomore standing.

ACCB222 Managerial Accounting (3)
An introduction to the design and use of accounting information within an organization. Emphasis is placed on cost and revenue analysis for planning and control of organizational units and activities. Prerequisite: ACC-B220

ACCB311 Financial Reporting I (3)
The study of generally accepted accounting principles and the original authoritative pronouncements concerning measurement and reporting of an entity’s assets, revenue and results of operations. Particular emphasis is placed on developing the students analytical and professional writing skills. Prerequisite: ACC-B220 with a grade of C or better.

ACCB316 International Accounting (3)
Study of four major areas including financial accounting and managerial accounting for multinational corporations, international tax and comparative accounting systems.

ACCB320 Corporate Financial Reporting (3)
The objective of this course is to provide business students with an understanding of the more complex financial reporting issues of SEC registrant corporations. Financial reporting requirements significantly influence management strategy and investment decisions. Thus, managers and investors need to be informed of financial statements as prerequisite to making informed decisions. Prerequisite: ACC-B222 with a grade of C or better.

ACCB322 Cost Management (3)
The study of modern techniques for active management of operating costs to achieve organizational efficiency and effectiveness. Specific topics include: CVP analysis, JIT, identification of cost drivers, life cycle costing and strategic cost management issues. Prerequisite: ACC-B222 with a grade of C or better.

ACCB411 Financial Reporting II (3)
The study of the generally accepted accounting principles and original authoritative pronouncements concerning measurement and reporting of an entity’s liabilities, equity, and cash flow. Particular emphasis is placed on developing the students analytical and critical thinking skills. Prerequisite: ACC-B411 with a grade of C or better. FIN-B301 highly recommended.

ACCB412 FINANCIAL REPORTING III (3)
Study of accounting for corporate mergers and acquisitions, preparation of consolidated financial statements, and foreign currency transactions and translation. Other selected topics are examined. Prerequisite: ACC-B411 with a grade of C or better.

ACCB415 Contemporary Accounting Issues (3)
An examination of selected major and emerging issues in the discipline. Both theoretical and practice dimensions are examined through the use of cases and other materials. Prerequisite: Senior standing and permission of instructor.

ACCB418 Accounting for Not-for-Profit Organizations (3)
An examination of the specialized financial reporting and managerial applications of accounting to governmental and not-for-profit organizations. Specific topics include: fund accounting, specialized audit guidelines of AICPA, budgets and controls, and analysis of operations. Prerequisite: ACC-B222 with a grade of C or better.

ACCB425 Accounting Information Systems (3)
Study of the theoretical and practical aspects of designing and utilizing financial information systems. Particular attention is directed to internal financial controls and auditing EDP systems. Prerequisite: MIS-B200, ACC-B311 with a grade of C or better, or MIS-B410 or MIS-B450.

ACCB430 Federal Income Tax I (3)
Study of the U.S. Internal Revenue Code and the related accounting problems of measuring taxable business and personal income. Prerequisite: ACC-B220 with a grade of C or better.

ACCB440 Auditing (3)
Theory and application of standards and procedures used by independent certified public accountants in verifying business data in order to render an opinion and report on financial statements of the entity being examined. The duties, responsibilities and ethics of the auditor (CPA), generally accepted accounting principles and auditing standards are discussed. Prerequisite: ACC-B411 and ACC-B425 with a grade of C or better. (ACC-B425 may be taken concurrently with ACC-B440.)

ACCB480 Accounting Internship (3)
This course can be used as elective credit or as concentration credit. Participants will have the opportunity to develop new skills through experiential learning under the direction of a skilled practitioner. The arrangements for the working relationship must be established prior to the assignment. Prerequisite: Requires permission of the department chair, and junior or senior standing.

ACCB498 Special Study (1-3)
Requires permission of the department chair.

Aerospace Engineer (AE)

AE P102 General Aeronautics (3)
Aircraft types, theory of flight, aerodynamics of the airplane, aircraft performance, theory of control and aircraft stability, fundamentals of aircraft structures and the coordination of pilot and aircraft. Prerequisite: MT-P101 and PH-P109.

AE P200 Introduction to Aeronautics and Astronautics (3)
The nature of aerodynamic forces; incompressible and compressible fluid flow; lift and drag; introduction to performance, stability and control; propulsion; structures; rocket performance and orbits. The design process. Prerequisite: MT-P102 and PH-P211.

AE P275 Co-op with Industry (0)
Prerequisite: Sophomore standing. A full-time supervised work experience with an agency, firm or organization that employs persons in this degree field. This course is used for the first experiential learning session. Grading system is determined by department offering course. Offered every semester.

AE P297 Co-op in Aerospace Engineering (0)
Aerospace Engineering (AE) - Lower Division Course
An optional supervised work experience with an agency, firm or organization which employs engineers. The student receives a Pass or No Pass grade.

AE P302 Structure and Design (4)
Material properties; Statically indeterminate structures; weld and rivet analysis; working stresses, torsion of non circular sections, Torsion of thin-walled structures, asymmetrical bending. Spring Semester. Prerequisite: ES-F200 or ES-F210 and ES-F510 ES-F500.
AE P310 Gas Dynamics (3) One-dimensional gas dynamics; normal and oblique shock waves; Prandtl-Meyer flows; Rayleigh and Fanno-line flow; method of characteristics. Prerequisite: ES-P320 and ES-P222. Corequisite: MT-P570.

AE P311 Aerodynamics (3) Aerospace Engineering (AE) - Upper Division Course Circulation and vorticity; irrotational flows and potential flow theory; Kutta-Joukowski theorem; subsonic thin airfoil and finite wing theory; subsonic compressible flow; supersonic thin airfoil theory; slender body theory; Newtonian impact theory. Spring semester. Prerequisite: ES-P322 and MT-P570.

AE P320 Performance (3) Aircraft performance characteristics, level flight, rate-of-climb, range, endurance, take-off and landing, turn performance, energy state approximation, propulsion theory and analysis, constraint analysis, carpet plots and design methodology. Prerequisite: AE-P200.

AE P321 Stability and Control (3) Prerequisites: AE-P320 and ES-P430. Static stability and aircraft control; equations of motion, dynamic stability, design of a closed loop control. Fall semester.

AE P322 Astrodynamics (3) Space environment; two-body problem and introduction to orbit mechanics; rigid body dynamics; satellite dynamics, rocket performance; re-entry dynamics. Prerequisites: AE-P200 and ES-P211. Spring semester.

AE P330 Aerospace Structures I (3) Basic theory of elasticity with application to two dimensional problems in bending and torsion of solid and thin-walled sections; unsymmetrical bending; flight vehicle loads; properties of materials. Prerequisite: ES-P510.

AE P375 Co-op with Industry (0-3) A full-time supervised work experience with an agency, firm or organization that employs persons in this degree field. This course is used for the second experiential learning session. Grading system is determined by department offering course. Prerequisite: AE-P275. Offered every semester.

AE P376 Internship with Industry (0-3) A work experience with an agency, firm or organization that employs persons in this degree field. This experience may be full time or part-time as required by the industry sponsor. This course is used for the first experiential learning session. Grading system is determined by department offering course. Prerequisite: Junior standing. Offered every semester.

AE P410 Propulsion (3) Ramjet, turbojet, turboprop and turboshaft cycle analysis; component analysis and matching; turbojet off-design performance. Aircraft/engine integration. Prerequisite: AE-P310.

AE P411 Aerospace Laboratory (1) Experimental studies in subsonic and supersonic air flows. Measurements of strains and deflections in aerospace structures under simulated loading conditions; static and dynamic measurements. Design of experiments, collection, reduction, evaluation and comparison of data. Prerequisite: AE-P320 and AE-P350.

AE P414 Hypersonics (3) Introduction to hypersonics. Newtonian and Busemann Theory; slender body theory; shock expansion theory; small disturbance theory and supersonic similarity; blast wave theory. Thin shock layer theory. Prerequisite: AE-P510.

AE P416 Physical Gas Dynamics (3) Introduction of kinetic theory of gases, and statistics of classical and quantum mechanical systems. Equilibrium properties of gases, particularly air; ideal diatomic gas; equilibrium flow of real gases including effects of dissociation and ionization. Introduction to free flow molecular flow. Prerequisite: AE-P310.

AE P417 Viscous Flow Aerodynamics (3) Introduction to compressible and incompressible viscous flow. Navier-Stokes and energy equations developed using tensor techniques. Exact solutions to parallel flows. Laminar boundary layer; Von Karman Integral conditions; introduction to turbulence. Prerequisite: AE-P310, ES-P322.

AE P420 Stability and Control (3) Aerospace Engineering (AE) - Upper Division Course Static, stability and aircraft control; equations of motion, dynamic stability; closed loop control. Fall semester. Prerequisite: AE-P320 and ES-P350.

AE P422 Flight Simulation (3) Overview of various types of simulators; introduction to major software and hardware components of state-of-the-art simulators; development of computer models of aircraft systems and performance characteristics and interfacing the models with each other to achieve high fidelity real time aircraft simulation. Use of reconfigurable flight simulator, whenever possible. Prerequisite: AE-P420.

AE P423 Flight Testing (3) Theory and practice of obtaining flight-test data on vehicle drag polar; performance and stability of aircraft from actual flight tests; students plan the flight, fly the mission, record, reduce data, evaluate and compare with theory. Engineering simulator, FAR, Navy, Air Force manuals, owner's manual, etc. Permission of Instructor. Prerequisite: AE-P320.

AE P424 Helicopter Theory and Performance (3) Airfoil theory as applied to propellers and rotors. Momentum and blade element theories, rotor dynamics during climb, hover, descent and autorotation; preliminary design techniques and rotor blade dynamics. Prerequisite: AE-P320.


AE P426 Aerodynamics (3) Circulation and vorticity; irrotational flows and potential flow theory; Kutta-Joukowski theorem; subsonic thin airfoil and finite wing theory; subsonic compressible flow; supersonic thin airfoil theory; slender body theory; Newtonian impact theory. Airframe design to specifications with comparisons to existing airfoils (NASA, NASA, etc.). Spring semester. Prerequisites: ES-P322 and MT-A570.

AE P430 Aerospace Structures II (4) Space environment; two-body problem and introduction to orbit mechanics; rigid body dynamics; satellite dynamics, rocket performance; re-entry dynamics. Prerequisites: ES-P430 and MT-P570.


AE P433 Composite Materials for Structure and Design (3) (Cross listed with ME-P433) Fiber and resin systems. Composite material properties and characterization; laminates: laminates, macro and micro-mechanics. Analysis and design of lamina and laminate. Prerequisites: AE-P430 and MT-P570.

AE P440 Astrodynamics (3) Aerospace Engineering (AE) - Upper Division Course Space environment; two-body problem and introduction to orbit mechanics; rigid body dynamics; satellite dynamics, rocket performance; re-entry dynamics. Spring semester. Prerequisite: AE-P200 and ES-P211.

AE P441 Orbital Propulsion and Design (3) Prerequisite: AE-P420. Orbital dynamics of space vehicles with emphasis on engineering design and application to specific mission analysis. Orbit determination and navigation; orbital maneuvering; interplanetary transfer and trajectory optimization; proximity operations; perturbation effects. Prerequisite: AE-P440.

AE P442 Introduction to Space Dynamics (3) Prerequisites: AE-P440 and ES-P430. Motion in moving reference frames; Euler's equations; attitude dynamics; motion of a rigid spacecraft; attitude control systems and maneuvering, spacecraft attitude feedback control; attitude stabilization; attitude determination. Prerequisite: AE-P440 and ES-P430.

AE P450 Flight Vehicle Analysis and Design I (3) Application of aerospace engineering to the design methodology of a flight vehicle. Fall semester. Prerequisite: AE-P320.

AE P451 Flight Vehicle Analysis and Design II (3) Application of aerospace engineering to the detail design of a flight vehicle; model design, fabrication testing, evaluation and analysis. Spring semester. Prerequisite: AE-P420 and AE-P450.

AE P452 Hypersonic Propulsion and Design (3) Prerequisite: AE-P420. Hypersonic propulsion and mechanism of aerodynamic, propulsion, and thermodynamics to the design of an integrated airframe/propulsion system from a first principles approach. Identification of converged design space in which a possible solution can exist is inherent in approach. Prerequisite: AE-P410.

AE P453 Introduction to Computational Fluid Dynamics (3) This course is designed to establish the fundamentals of computational fluid dynamics schemes and methods to solve the PDEs. The students will learn how various schemes are applied to proposed model equations, and analyze the resulting solutions. Prerequisites: ES-P322, CS-P125.

AE P475 Co-op with Industry (0) A full-time supervised work experience with an agency, firm or organization that employs persons in this degree field. This experience may be full time or part-time as required by the industry sponsor. This course is used for the third experiential learning session. Grading system is determined by department offering course. Prerequisites: AE-P475. Offered every semester.

AE P476 Internship with Industry (0-3) A work experience with an agency, firm or organization that employs persons in this degree field. This experience may be full time or part-time as required by the industry sponsor. This course is used for the third experiential learning session. Grading system is determined by department offering course. Prerequisites: AE-P476 or Senior standing. Offered every semester.

AE P493 Special Lectures in Aerospace Engineering (3) Selected topics of special interest to aerospace engineering majors.

AE P498 Special Topics in Aerospace Engineering (3) Credit to be arranged. Independent study on an aerospace engineering topic under the direction of a faculty member.
Aerospace Studies (AES)

AES-P30  Air Force Leadership Studies (3)
The study of leadership and quality management fundamentals, professional knowledge. Air Force doctrine, leadership ethics, and communication skills required of an Air Force junior officer. Case studies are used to examine Air Force leadership and management situations as a means of demonstrating and exercising practical application of the concepts being studied. A mandatory leadership laboratory complements this course by providing advanced leadership experiences in officer-type activities, giving students the opportunity to apply leadership and management principles of this course. Classroom activity, three hours per week; Leadership Laboratory two hours per week, each semester.

AESP101  The Foundations of the United States Air Force (2)
A survey course designed to introduce students to the United States Air Force and Air Force Reserve Officer Training Corps. Featured topics include: mission and organization of the Air Force, officerhood and professionalism, military customs and courtesies, Air Force officer opportunities, group leadership principles, and an introduction to communication skills. Leadership Laboratory is mandatory for AFROTC cadets, and it complements this course by providing students with followership experiences. Classroom activity, two hours per week; Leadership Laboratory two hours per week, each semester.

AESP102  The Air Force Today (2)
Aerospace Studies (AES) - Lower Division (General Military)
A survey course designed to facilitate the transition from Air Force ROTC cadet to Air Force ROTC candidate. Featured topics include: Air Force heritage, Air Force leaders, Quality Air Force, an introduction to ethics and values, introduction to leadership, group leadership problems, and continuing application of communication skills. Leadership Laboratory is mandatory for AES-P30  Air Force Leadership Studies (3) course, and it complements this course by providing cadets with their first opportunity for applied leadership experiences discussed in class. Classroom activity, two hours per week; Leadership Laboratory two hours per week, each semester.

AESP201  The Evolution of USAF and Space Power (2)
Aerospace Studies (AES) - Lower Division (General Military)
Survey course designed to facilitate the transition from Air Force ROTC cadet to Air Force ROTC candidate. Featured topics include: Air Force heritage, Air Force leaders, Quality Air Force, an introduction to ethics and values, introduction to leadership, group leadership problems, and continuing application of communication skills. Leadership Laboratory is mandatory for AES-P30  Air Force Leadership Studies (3) course, and it complements this course by providing cadets with their first opportunity for applied leadership experiences discussed in class. Classroom activity, two hours per week; Leadership Laboratory two hours per week, each semester.

AESP202  The Air Force Way (2)
Aerospace Studies (AES) - Lower Division (General Military)
Survey course designed to facilitate the transition from Air Force ROTC cadet to Air Force ROTC candidate. Featured topics include: Air Force heritage, Air Force leaders, Quality Air Force, an introduction to ethics and values, introduction to leadership, group leadership problems, and continuing application of communication skills. Leadership Laboratory is mandatory for AES-P30  Air Force Leadership Studies (3) course, and it complements this course by providing cadets with their first opportunity for applied leadership experiences discussed in class. Classroom activity, two hours per week; Leadership Laboratory two hours per week, each semester.

AESP301  Air Force Leadership and Management (3)
Aerospace Studies (AES) - Upper Division (Professional Officer) Courses
The study of leadership and quality management fundamentals, professional knowledge. Air Force doctrine, leadership ethics, and communication skills required of an Air Force junior officer. Case studies are used to examine Air Force leadership and management situations as a means of demonstrating and exercising practical application of the concepts being studied. A mandatory leadership laboratory complements this course by providing advanced leadership experiences in officer-type activities, giving students the opportunity to apply leadership and management principles of this course. Classroom activity, three hours per week; Leadership Laboratory two hours per week, each semester.

AESP302  Air Force Leadership and Management (3)
Aerospace Studies (AES) - Upper Division (Professional Officer) Courses
The study of leadership and quality management fundamentals, professional knowledge. Air Force doctrine, leadership ethics, and communication skills required of an Air Force junior officer. Case studies are used to examine Air Force leadership and management situations as a means of demonstrating and exercising practical application of the concepts being studied. A mandatory leadership laboratory complements this course by providing advanced leadership experiences in officer-type activities, giving students the opportunity to apply leadership and management principles of this course. Classroom activity, three hours per week; Leadership Laboratory two hours per week, each semester.
AAMA400 Field Service (1-3)
This course is designed to provide students with opportunities to engage in a field study experience within the African American community or with agencies and institutions that affect or serve African American communities. Students will be encouraged to select placement in experiences that will provide a meaningful understanding of the specific populations(s) served as well as the cultural contexts of African American communities. Every Semester. Prerequisite: PERMISSION REQUIRED.

AAMA432 Psychology of Oppression (3)
This is a cross-listed course with PSY-A435. This course will satisfy the Cultural Diversity component of the Arts and Sciences Core. The course teaches students how to understand the mechanisms that undermine the appreciation of multiculturalism and other forms of diversity in society. The perspective emphasizes how socially constructed definitions of various groups are used to distinguish sameness and difference among people. Topics include micro- and macro-level theories of oppression, the importance of ideology in oppressive systems, and theories of social change and liberation.

AAMA434 African American Psychology (3)
This course is a cross-listed course with PSY-A434. This course will satisfy the Cultural Diversity component of the Arts and Sciences Core. The course reviews some of the theoretical perspectives in the psychological study of African Americans, examines some of the biases in past research, reviews current research in the field, and applies current theory and research to other areas of psychology (clinical, organizational, etc.). Fall semester.

AAMA440 The African American Child (3)
This course is designed to study the African American child from infancy through the early adult years from a societal/environment perspective. This course will be taught from an interdisciplinary perspective which will examine the cultural, educational, societal, economic, and political impacts that shape the socialization patterns of the African American child. Alternate Semesters.

AAMA460 Black Family: Practice and Policy Implications (3)
This course will examine the history, strengths, problems, struggles, strategies, and adaptive mechanisms of black families in contemporary society. It will provide a theoretical perspective for understanding the black family and a practical framework for working with black families. It will further suggest social action and advocacy strategies for policy change in the interest of improving the quality of black family life. Alternate Semesters.

AAMA465 This course is designed to provide an interdisciplinary analysis of the contemporary Civil Rights Movement and the leadership that emerged. The course will examine selected primary works of the local and national events of the 1950s to 1970s. Students will engage in oral history interviews to collect local history. Alternate Spring Semesters.

AAMA490 Black Women in Society (3)
This course is designed to provide an interdisciplinary approach for the study of the Africana women in the context of a changing society and the impact of the context from social, historical, cultural, political, and economic perspectives. Attention will be devoted to an examination of the relationships that have emerged between systems and as a result of societal conditions. The course will examine the impact of the diaspora upon the lives of Africana women from infancy to aging. Alternate Spring Semesters.

AAMA493 Special Topics (1-3)
Every Semester.

AAMA498 Advanced Independent Study: Research (3)
Independent study topics are assigned that deal with selected problems in the African American, Caribbean experience. Research topics may be integrated with students major. This course will serve as the capstone course for students pursuing the certificate in African American Studies. Every Semester Permission Required. Prerequisite: JUNIOR/SENIOR STANDING. Permission Required.

Aircraft Maintenance Engineering (AME)

AMEP102 Basic Electricity (3)
Basic principles of electricity; power in electrical circuits; energy sources; circuit diagrams; applications to aviation electrical and avionics systems.

AMEP103 Nondestructive Inspection (2)
Classroom and laboratory studies directed toward understanding the methods for determining durability and service life to aircraft. Methods include ultrasonics, magnetic particle, liquid penetrants and eddy current testing.

AMEP104 Federal Aviation Regulations (2)
Selected Federal Aviation Regulations covered; controls exercised by Federal Aviation Administration (FAA) over the production, operation and maintenance of aircraft; mechanics of compliance with regulations.

AMEP105 Engineering/Computer Graphics (3)
This course prepares the student to read blueprints and to prepare manual and computer generated drawings of structures and machine parts. The use of spreadsheets for basic laboratory data processing and presentation is also covered. An introduction to word processing is provided with the focus on producing laboratory reports which incorporate spread sheets, graphs and computer generated drawings. Additionally, this course provides an introduction to Computer Numerically Controlled (CNC) fundamentals.

AMEP115 Powerplant, Piston (3)
Basic theory, introduction to computer reciprocating engines and required facilities, equipment and procedures to overhaul and evaluate performance after reconditioning.

AMEP201 Concepts in Aerodynamics (3)
Prerequisites: MT-A112, MT-A113 (or equivalent) and PH-P135. Aircraft types, theory of flight, aerodynamics of the airplane, aircraft performance, effects of atmospheric conditions upon serviceability, the effect of loads on aircraft structure. Prerequisite: MT-A112, MT-A113 (or equivalent) and PH-P135.

AMEP207 Metallic Structures (4)
Application of drawing techniques, tools, materials and principles of operation to construction and maintenance of aircraft metallic structures.

AMEP208 Machine Tools (3)
Principles of construction, operation, use and care of machine tools; covers use of lathes, shapers, milling machines, drill presses, and grinders; use of hand tools, precision measuring tools, coolants, lubricants, abrasives; projects involve working from engineering drawings to layout, turn, drill, knurl, thread, taper cut, shape and finish, using general production procedures.

AMEP209 Aircraft Electrical Systems (4)
Transition from principles of electricity and magnetism to design theory; operation, maintenance and overhaul of aircraft electrical systems and units; power generation (AC and DC), voltage control, power control, circuit breakers, starter systems, lighting systems, trouble shooting and testing. Prerequisite: AME Majors: AVN-P201, AVN-P202, Others: AME-P102.

AMEP210 Airframe Systems, Basic (4)
Theory, analysis, maintenance factors and procedures of mechanical systems of control for rotor and fixed wing aircraft; structural alignment and rigging; weight and balance analysis and procedures; cabin atmosphere system analysis, theory and maintenance.

AMEP214 Powerplant Accessories (4)
Theory, principles of operation, maintenance and inspection of reciprocating engines; fuel metering systems, general fuel systems, external lubrication systems, induction systems, supercharging systems, cooling systems and exhaust systems; turbojet aircraft general fuel systems; practice in use of tools and assembly procedures. Prerequisite: AME-P115.

AMEP218 Airframe Analysis (3)
Basic theory, construction and design principles of powerplant components, systems, maintenance; inspection and servicing. For non-aviation maintenance majors.

AMEP219 Powerplant Analysis (3)
Basic theory, construction and design principles of reciprocating and gas turbine aircraft; components, systems, maintenance and servicing. For non-aviation maintenance majors.

AMEP228 Composites/wood (2)
Structural assembly and repair procedures; use of tools, machinery, and FAA procedures in airframe construction, inspection, and repair for composite and wood structures.

AMEP229 Fabric/Dope/Welding (2)
FAA procedures in airframe construction, inspection, application and testing of fabric covering techniques of various methods of welding to aircraft fabrication and repair.

AMEP275 Co-op with Industry (0)
A full-time supervised work experience with an agency, firm, or organization that employs persons in this degree field. This course is used for the first experiential learning session. Grading system is determined by department offering course. Prerequisite: Sophomore standing. Offered every semester.

AMEP293 Helicopter Maintenance (3)
Basic fundamentals of helicopter maintenance. Theory of operation and systems description and operation.

AMEP301 Advanced Propulsion (3)
A second level course in gas turbine powerplants emphasizing specific operating techniques, malfunction detection and identification, and automatic diagnostic and condition monitoring systems. Prerequisite: AME-P116.

AMEP311 Instruments and Avionics (4)
Basic principles of instrumentation; application to aircraft instrument systems; applications of basic electronic principles to aircraft control and navigation systems including radio and radar aids, shop testing, calibration and adjustment of aircraft instruments and avionics equipment. Prerequisite: AME Majors: AVN-P201, AVN-P202, AME-P209; Others: AME-P102, AEP209.

AMEP313 Airframe Systems, Advanced (4)
Theory, analysis, maintenance factors and procedures of fluid power systems; mechanics of fluids related to aircraft hydraulic and pneumatic systems; fluid lines, filters and components of landing gear and control systems; fire protection system analysis, theory, and maintenance; ice and rain protection system theory, analysis, and maintenance.

AMEP316 Powerplants, Gas Turbine (4)
Theory and construction, both in principle and practice, of aircraft gas turbine engines; turbojet and turboshaft engines controls, maintenance, inspection and servicing. Prerequisite: AEE Majors: PH-P101; Others PH-P115.

AMEP317 Propellers and Trouble Analysis (3)
Theory, design, construction, operation and repair of aircraft propellers and components installed on reciprocating engines, procedures and equipment applied to diagnose, analyze and correct operational problems in reciprocating engines. Prerequisite: AME-P115, AEP209, AEP214.
as of 5/9/02

AMEP375 Co-op with Industry (0)
A full-time supervised work experience with an agency, firm or organization that employs persons in this degree field. This course is used for the second experiential learning session. Grading system is determined by department offering course. Prerequisite: AMEP376. Offered every semester.

AMEP376 Internship with Industry (0-3)
A work experience with an agency, firm or organization that employs persons in this degree field. This experience may be full time or part-time as required by the industry sponsor. This course is used for the first experiential learning session. Grading system is determined by department offering course. Prerequisite: Junior standing. Offered every semester.

AMEP397 Internship (0, 1, 2, 3)
Aircraft Maintenance Engineering (AME) - Upper Division Course All AME courses are offered each semester.

AMEP398 Co-Op (0)
Aircraft Maintenance Engineering (AME) - Upper Division Course All AME courses are offered each semester.

AMEP401 Flight Line Maintenance (4)
Study and application of maintenance techniques to aircraft in service. Emphasis is placed on scope and performance of required inspections and daily maintenance of live aircraft. Tools and procedures used to determine airworthiness are implemented. Prerequisite: AMEP317.

AMEP403 Capstone in Aerospace Technology (1)
General review of all subject matter covered in Airframe and Powerplant courses. Prerequisite or Corequisite: all other courses required by the FAA for A&P Certification.

AMEP475 Co-op with Industry (0)
A full-time supervised work experience with an agency, firm or organization that employs persons in this degree field. This course is used for the third experiential learning session. Grading system is determined by department offering course. Prerequisite: AMEP327. Offered every semester.

AMEP476 Internship with Industry (0-3)
Prerequisite: AMEP375 or senior standing. A work experience with an agency, firm or organization that employs persons in this degree field. This experience may be full time or part-time as required by the industry sponsor. Grading system is determined by department offering course. Offered every semester.

AMEP498 Special Topics in Aircraft Maintenance Engineering
Credit to be arranged.

AN G100 Basic Human Anatomy (3)
Gross and microscopic structure of human body; emphasis on anatomical concepts, terminology, and correlation of structure and function.

AN G300 Anatomy for AHP (6)
This course is a regional oriented study of the structure and function of the human body with emphasis on anatomical concepts and relationships relevant to physician assistants. Cadaver prossection and dissection, and clinical case studies are included.

American Studies (AST)

ASTA110 Introduction to American Studies (3)
This course is designed to examine various components of American culture and the disciplinary and interdisciplinary ways by which those components may be approached, e.g., historical, literary, political, sociological, etc. It explores the American experience from the Puritans to the 90s, focusing on specific formational ideas, concerns, and problem areas that have evolved in successive historical periods, taking note also of the discipline’s own history.

ASTA301 American Experience (3)
This course will focus on different important themes in American life and thought and on the methods and materials for determining those themes and their significance.

ASTA400 Maastrict Study Abroad (12)
The student will spend a semester abroad in Maastrict, The Netherlands. Upon completion of the semester, course hours will be reassigned to the appropriate course listings. Please visit the American Studies Office for more details.

ASTA420 Ethnic Groups in the United States (3)
The purpose of this course is to explore the ethnic diversity that has from the beginning been the material of American society, and to examine the implications of this diversity.

ASTA425 American Mosaic: Literature of American Diversity (3)
The goal of this course will be an expanded appreciation of the multi-cultural make-up of American society through reading and discussion of Asian-American, African-American, Hispanic American, and Native American novels, short stories, poetry, and essays. The works will be examined for both their regional emphasis and cross-cultural components. Art work, slides, and other media will be utilized to provide further identity and reflection.

ASTA427 U.S. Anti-Black Racism (3)
This course deals with the history of black Americans from their arrival in North America in 1619 to the end of the 20th century, with the focus on the racism that they have endured through slavery, Jim Crow and segregation, and repression in the midst of legal desegregation.

ASTA428 History of Anti-Semitism (3)
This course seeks to acquaint the student with the history of anti-Semitism through a study of the phenomenon from its origins in early Christianity through the pogroms of the Middle Ages, and on through the secularization process in the West which changes anti-Semitism from a religious phenomenon to a pseudo-racial one. The anti-Jewish myths of the High Middle Ages and their continuations down to the present are also examined. The course ends with a study of the Holocaust and its grounding in German history.

ASTA479 American Autobiography (3)
Because the autobiographical act itself is essentially an interdisciplinary one, to examine American autobiographies from the past several centuries can be an especially intimate way to get inside the ongoing reality of American culture. Contemporary theories of autobiography will be examined and used wherever helpful.

ASTA482 American Studies Senior Inquiry Seminar (3)
This required seminar is an effort to help senior students in the Program to integrate their varied studies of aspects of American culture and to demonstrate their grasp of intellectual methodology. Students will undertake an individual research project and will share the results with their colleagues in the course. This course is taken in the final semester of senior year.

Art History (ARH)

ARHA100 Approaching the Arts: Art History (3)
An introduction to the arts of painting, sculpture, architecture and film. Courses focus on appreciation of form and content through analysis of slides/film Arts and Sciences Core Requirement for Non-majors.

ARHA101 History of Art (3)
Acquaints beginning students with fundamental principles of artistic design to further aesthetic knowledge of works of art and present the central cultural values as revealed in examples of painting, sculpture and architecture from the major periods of art history.

ARHA102 Eccentric Spaces (3)
Architecture is space, and the spaces created are as expressive of an individuals thought and culture as a written document. This course will examine various normal and eccentric architectural spaces ranging from pre-historical town planning to Renaissance villas to Modern Architecture.

ARHA111 HISTORY OF ART (3)
Acquaints beginning students with fundamental principles of artistic design to further aesthetic enjoyment of works of art, and presents the central cultural values as revealed in examples of painting, sculpture, and architecture from the major periods of art history.

ARHA230 Ancient Art Survey (3)

ARHA240 Medieval Art Survey (3)

ARHA250 Renaissance Art Survey (3)

ARHA260 Baroque and Rococo Art Survey (3)

ARHA270 Nineteenth Century Art Survey (3)

ARHA271 American Art Survey (3)

ARHA280 Modern Art Survey (3)

ARHA293 Special Topics (3)

ARHA298 Independent Study
Prerequisite: Permission of instructor required.

ARHA301 Women in Art (3)
The role of women in art as symbol/image, artist, or patron from the ancient world to the present. Examples drawn from architecture, painting, sculpture, and film and television, in a discussion of images created by women that are both positive and negative.

ARHA305 Religious Experience in the Visual Arts (3)
The role of imagination and symbol in spirituality; a survey of various ways in which faith has been artistically expressed in relation to sacred text, sacred spaces, sacred time and the individual believer.

ARHA308 Art of the Worlds Religions (3)
The course will examine art words of various religions such as Hinduism, Buddhism, Judaism and others.

ARHA313 Pre-Columbian Art (3)
Major developments in Central and South American cultures in architecture, sculpture, painting, ceramics and pottery, especially of Mexico and Peru where ancient civilizations reached their highest cultural level.

ARHA314 Islamic Art and Society (3)
A survey of the major architectural monuments and traditions, schools of painting and principle media and techniques employed in the decorative arts of the Islamic World from about 700 to 1700. This course includes visits to the Islamic Collections of the Saint Louis Art Museum.
ARHA320  History of Spanish Art I (3)
Taught at Saint Louis University in Spain.

ARHA321  History of Spanish Art II (3)
Taught at Saint Louis University in Spain.

ARHA330  Classical Art: Greece and Rome (3)
An emphasis on the Greek experience from the Classical Moment of the Parthenon to the dissolution of the Hellenistic experiment with Rome presented as the transmitter of Greek culture, art, and architecture. Emphasis will also be given to Roman sculpture and architecture from the 2nd Century B.C. to the 4th Century A.D.

ARHA340  Romanesque Art (3)
An examination of paintings, sculpture and architecture of the 8th through 10th centuries, especially in western Europe. The focus will be upon the rise of monasticism and the spread of Christianity.

ARHA341  Gothic Art (3)
The age of the great cathedrals and castles will be examined within the cultural context of major wars, Christianity and the royal courts.

ARHA350  Early Renaissance Art and Culture (3)
Sources of the Renaissance in the thirteenth and fourteenth century art and thought; Italy in the fifteenth century. Architecture, sculpture and painting emphasize Giotto, Duccio, Masaccio, Donatello, Brunelleschi and Alberti.

ARHA351  High/Late Renaissance Art and Culture (3)
Sixteenth century Italy; the high Renaissance style in Florence and Rome with Leonardo da Vinci, Raphael, Michelangelo and Bramante. Emphasis will be placed on studying the arts within a cultural context.

ARHA352  Northern Renaissance Art (3)
The end of the Gothic through the mid-Renaissance, covering Robert Campin, Jan Van Eyck, Rogier van der Weyden, Dieric Bouts, Hugo van der Goes, Hans Memling, Gerard David, Hieronymous Bosch, Albrecht Durer and others.

ARHA360  Italian Baroque Art (3)
Creation and development of the Baroque style in Italy will be presented with special emphasis on Caravaggio, Bernini and their patrons.

ARHA365  Northern Baroque Art (3)
Painting, sculpture and architecture of northern Europe with special emphasis on Rubens and Rembrandt.

ARHA370  American Art: Colonial to WW II (3)

ARHA371  American Art: WW II to Present (3)
A study of the painting and sculpture since World War II. The origins and influences on our cultural environment reflected in the development of modern art movements and trends.

ARHA380  Twentieth Century Art (3)
An examination of the major trends and stylistic innovations occurring in the art of the 20th century such as Cubism, Fauvism, Expressionism, and Surrealism.

ARHA393  Special Topics (3)
ARHA400  Internships (1-6)
FINA AND PERFORMING ARTS Art History (ARH) - Upper Division Course Prerequisite: Permission of Chairperson required.

ARHA401  Christian Iconography (3)
An evaluation of the sign, symbols and content of religious art from the early Christian period into Modern times. Additional emphasis will be on the traditions and how they emerged.

ARHA430  Greek Art (3)
An examination of the art of Greece including the pre-Greek culture of the Minoans and the early Greeks, the Mycenaeans.

ARHA440  Illuminated Manuscripts (3)
ARHA441  Medieval Women and Art (3)
ARHA450  The Popacy and Art (3)
An examination of the role of art in the service of the papacy with particular attention on the popes and patrons, especially in Rome after the return from Avignon.

ARHA451  Bosch and Brueghel (3)
ARHA470  19th Century French Art (3)
A study of French art with emphasis on the major artists such as David, Gericaud, Manet, Monet and Van Gogh.

ARHA480  Contemporary Art (3)
A study of art from the 1960s to the present.

ARHA485  Religious Dimensions in Modern Art (3)
An examination of the works of those modern and contemporary artist who have made the religious dimension of reality a major concern in their art. Some reflect particular religious traditions and others have integrated images, devotions, and rituals from several sources in their work.

ARHA490  Research Methods (3)
An introduction to the research methodology employed in art history scholarship such as patronage and iconography. Procedures for conducting research/field work in this discipline. Students will utilize methods and procedures by ARHA490 applying them to a work of art and presenting the results in a research paper.

ARHA491  Special Topics: Medieval (3)
ARHA492  Special Topics: Renaissance (3)
ARHA493  Special Topics: General (3)
ARHA494  Special Topics: Modern (3)
ARHA498  Independent Study (1-6)

ARHX100  Approaching the Arts(3)
IR18 ACC program only.

ARHX101  History of Art (3)
IR18 ACC program only

**Art Studio (ARS)**

ARS A30 Advanced Drawing for the Designer (3)
Cross-listed with THR A305

ARS A200 Drawing I (3)
An introduction to the basic elements in drawing. Line and mass as a means to explore objective and spatial concepts in various media. A lab fee is required.

ARS A205 Drawing for the Designer (3)
Cross-listed with THR A205

ARS A210 Design (3)
An introduction of the basic formal concepts in the two-dimensional arts; line, shape, value, color, texture, and balance as interdependent units. A lab fee is required.

ARS A220 Painting I (3)
An introduction to the basic elements in painting: color, shape, and spatial relationships; materials related to painting in oil and the development of traditional techniques. A lab fee is required.

ARS A230 Printmaking: Etching (3)
An introduction to the technical and procedural concepts employed in the etching process; reversed images, printing multiples in an edition.

ARS A240 Sculpture (3)
An introduction to three-dimensional form construction using clay and other materials. A lab fee is required.

ARS A250 Computer Art I (3)
Introduces the student to the computer as an artistic medium. Students develop skill and fluency with graphic software as well as explore the distinct aesthetics of computers. Lectures and research will strengthen students aesthetic vocabulary and deepen their understanding of the political and cultural implications of electronic art.

ARS A298 Independent Study (1-3)
Permission of studio faculty required. Prerequisite: Permission of studio faculty required.

ARS A300 Drawing Studio (3)
A continued exploration of the principles and concepts of drawing. Students are encouraged to develop and sustain their own ideas through group and individual projects. A lab fee is required. Prerequisite: ARS A200, ARS A210 and ARS A220.

ARS A301 Drawing Studio (3)
A continuation of ARS A500. A lab fee is required. Prerequisite: ARS A300.

ARS A305 Advanced Drawing for the Designer (3)
Cross-listed with THR A305

ARS A320 Painting Studio (3)
A continued exploration of the principles and concepts of painting. Students are encouraged to develop and sustain their own ideas through group and individual projects. A lab fee is required. Prerequisite: ARS A200, ARS A210, ARS A220.

ARS A321 Painting Studio (3)
A continuation of ARS A320. A lab fee is required. Prerequisite: ARS A320.

ARS A330 Etching Studio (3)
A continued exploration of the etching process. Students are encouraged to address a broader range of aesthetic issues. A lab fee is required. Prerequisite: ARS A210, ARS A220, ARS A300.

ARS A335 Monoprints (3)
An exploration of various procedures and techniques associated with printing single images on paper. A lab fee is required. Prerequisite: ARS A230, ARS A300, ARS A320.
Course Descriptions - 167

Aviation Science (AS)

AS P100  Aviation Orientation (2)
This is a broad-based course designed to familiarize the student with the field of aviation. Students will be introduced to aviation from the historical and regulatory perspective. Various aviation career fields will be reviewed along with an overview of each aviation degree programs offered at Parks College.

AS P101  Introduction to the Air Traffic Control System (2)
This course provides instruction in basic air traffic control procedures and phraseology used by personnel providing air traffic control services. Students will become familiar with FAA handbooks and regulations that pertain to the operational responsibilities of an air traffic controller. Students will receive "hands-on" training on air traffic control radar simulators.

AS P150  Aviation Human Factors and Safety (3)
This course will introduce the student to the concept of aviation human factors and safety. Particular emphasis will be placed on strategies for improving aviation safety, and judgment and decision-making strategies. Corequisite: PP-P150.

AS P201  Seminar in Aviation Safety (2)
Aviation Science (AS) - Lower Division Course
All required AS-P courses are offered each semester.

AS P205  Seminar in General Aviation (2)
Selected readings and topics on current problems related to general aviation. The seminar method of instruction is used. An important part of this course is contact with executives currently working in the various areas of general aviation. Included in the course material is consideration of general aviation equipment, the divisions (or types) of general aviation, the "use" of general aviation as a business tool and the relation of business (or general) aviation to commercial aviation. The organization and management of fixed base operation as a career field is also considered.

AS P210  Introduction to Air Safety Investigation (3)
An introduction to aircraft accident investigation and its use as a tool in hazard identification, risk analysis and mishap prevention. Students will apply theory and practical skills developed in the classroom to an actual aircraft accident during the field work portion of the course. Prerequisite: 3 hours of Algebra, 3 hours of General Physics.

AS P240  Advanced Aircraft Systems (3)
Study of systems in a turbine powered aircraft in use in commercial aviation. Course will examine the mechanics of the aircraft systems as well as how to properly and effectively operate them in both normal and emergency procedures in accordance with the aircraft flight manual. Prerequisite or corequisite: AM-P218 and AME-P219.

AS P275  Co-op with Industry (0)
A full-time supervised work experience with an agency, firm or organization that employs persons in this degree field. This course is used for the first experiential learning session. Grading system is determined by department offering course. Offered every semester.

AS P298  Special Topics in Aviation Science (Credit to be arranged.)
Prerequisites Approval of the Department Chair.

AS P299  Thesis (3)
Demonstrate mastery of basic principles of Aviation Science; ability to apply principles in the investigation and solution of problems in Aviation Science. Prerequisite: Approval of the Department Chair.

AS P300  Air Carrier Systems - Turboprop (3)
This course includes an introduction to a typical turboprop airplane currently used in commercial aviation. The systems will be covered from a pilot's perspective. Normal and emergency operating procedures will be covered as presented by the aircraft flight manual. Prerequisite: AME-P218, AME-P219, PP-P250.

AS P320  Fundamentals of Air Traffic Control (3)
A study of the history and function of the ATC system. Theory of ATC taught in the classroom will be reinforced by 10 hours of "hands-on" instruction on the ATC radar simulators. Prerequisite: PP-P217.

AS P350  Air Carrier Systems-Jet (3)
This course includes an introduction to a typical jet aircraft currently used in commercial aviation. The systems will be covered from a pilot's perspective. Normal and emergency operating procedures will be covered as presented by the aircraft flight manual. Prerequisite: AME-P218, AME-P219, PP-P250.

AS P376  Internship (3)
Prerequisite: Senior standing and permission of the Department Chair. Seniors in the Department of Aviation Science are afforded the opportunity of working in a commercial airline or a corporate flight department environment for a semester. Students compete for limited spaces.

Aviation Management (AM)

AM P275 Co-op with Industry (0)
Prerequisite: Sophomore standing. A full-time supervised work experience with an agency, firm or organization that employs persons in this degree field. This course is used for the first experiential learning session. Grading system is determined by department offering course. Offered every semester.

AM P350  Internship with Industry (3)
Prerequisite: Approval of the Department Chair. A full-time supervised work experience with an agency, firm or organization that employs persons in this degree field. This course is used for the first experiential learning session. Grading system is determined by department offering course. Prerequisite: AS-P275. Offered every semester.

AM P375  Co-op with Industry (0)
A full-time supervised work experience with an agency, firm or organization that employs persons in this degree field. This course is used for the first experiential learning session. Grading system is determined by department. Prerequisite: Junior standing. Offered every semester.

AM P405  Aviation Law (3)
Basic principles of law which impinge on the use of the air; history of air law; principles and rules governing use of air space by aircraft; multilateral conventions relating to the use of air space among nations; aviation security procedures; product liability. Prerequisite: MGT-B300.

AM P440  Economics of Air Transportation (3)
A detailed study of present and future air carrier operations including organization, operating costs and revenues, aircraft utilization and scheduled operations, equipment analysis, aircraft performance in relation to efficient and economic operation, passenger service and cargo operations as they are integrated with the overall economics of efficient air operation. Prerequisite: ECN-B190, AM-P405. Prereq or Coreq: AP-M405.

AM P450  Seminar in Air Carrier Management (3)
This course is the capstone experience for the Aviation Management degree and is taken along with an internship with an air carrier. This seminar will provide an opportunity for students to study and present information on important and current air carrier management issues. Topics may include, but not be limited to: History of Air Carriers, Government Regulations, Safety, Leadership Issues, Marketing and Finance. Prerequisite: AM-P440. Corequisite: AP-P476.

AM P476  Internship with Industry (0-3)
A work experience with an agency, firm or organization that employs persons in this degree field. This course is used for the first experiential learning session. Grading system is determined by department. The internship is determined by department. Prerequisite: AM-P350 or senior standing. Offered every semester.

AM P497 Practicum (3)
Prerequisite: Senior standing and permission of the Department Chair. A full-time supervised work experience with an agency, firm or organization that employs persons in this degree field. This course is used for the first experiential learning session. Grading system is determined by department.

AM P498 Research Problems (1-3)
Prerequisite: Senior standing and permission of the Department Chair. This course requires the practical use of the methods of organizing theoretical and experimental research, formulation of problems, project planning, research proposal preparation, and submission of a final research report. Prerequisite: Senior standing and permission of the Department Chair.

ARSA400 Studio Project (3)
Students will determine individual projects in consultation with the studio faculty. Studio majors only. Prerequisite: Senior status and permission of studio faculty required.

ARSA401 Studio Project (3)
A continuation of ARSA-400. Prerequisite: ARSA-400.

ARSX100 Drawing I (3)
1818 ACC program only. An introduction to the basic elements in drawing. Line and mass as a means to explore objective and spatial concepts in various media.

ARSX110 Design (3)
1818 ACC program only. An introduction to the basic formal concepts in the two-dimensional arts: line, shape, value, color, texture and balance as interdependent units.

ARSX120 Painting I (3)
1818 ACC program only. An introduction to the basic elements in painting: shape, color, and spatial relationships; materials and techniques are explored in course projects.

ARSX120 Painting I (3)
1818 ACC program only. An introduction to the basic elements in painting: shape, color, and spatial relationships; materials and techniques are explored in course projects.
AVP397 Internship (3)

Avionics (AVN)

AVNP100 Introduction to Avionics. (1)
An introductory course to familiarize the freshman student with the Avionics field. Fall semester. Prerequisite: Admission to the Avionics program.

AVNP103 Digital Technology Familiarization (3)
An introduction to modern concepts of technology in the cockpit. Digital fundamentals, microprocessors, data bases, modern glass cockpit, B-767 systems familiarization. For non-avionics majors. Fall and spring semesters.

AVNP105 Fundamental Circuits Analysis I (3)
Basic concepts of DC circuits; units and notation; current and voltage; resistance; Ohm’s law; power and energy; series and parallel circuits; Kirchoff’s laws; series-parallel networks; methods of analysis; network theorems; capacitors, magnetic circuits; inductors; Faraday’s Law; DC instruments. Fall semester. Prerequisite: MT-P117 (with a minimum grade of C).

AVNP106 Electrical Circuits Analysis I Laboratory (1)
Laboratory experiments to emphasize material covered in lectures of AVN-P105. Fall semester. Prerequisite: Concurrent registration: AVN-P105.

AVNP131 Electricity and Electronics (5)
DC and AC circuits; solid state electronic devices and circuits; power supplies; oscillators; digital fundamentals; measuring instruments; audio and RF amplifiers; basic transceivers. Summer semester. Prerequisite: AIE-P102 or AVP-P201, MT-A114 and MT-A115 (or equivalent), PH-P135.

AVNP132 Electricity and Electronics Lab (3)
Laboratory experiments to emphasize material covered in lectures of AVN-P131. Summer semester. Corequisite: concurrent enrollment in AVN-P131.

AVNP133 Electronic Communications and Avionics (5)
AM and FM, antennas; two-way communications; microwaves; radar; aircraft batteries; aircraft ignition and electrical power supply; avionics fundamentals; General Radiotelephone Operator License review. Summer semester. Prerequisite: AVN-P131 and AVN-P132.

AVNP144 Electronic Communications and Avionics Lab (3)
Laboratory experiments to emphasize material covered in lectures of AVN-P133. Summer semester. Corequisite: concurrent enrollment in AVN-P133.

AVNP155 Circuit Layout, Fabrication and Installation (1)
Layout and fabrication of printed wiring boards, and chassis assemblies, wiring harness and cables, multi-pin and coaxial connectors and associated hardware. Spring semester. Prerequisite: AVP-P294 or AVP-P292.

AVNP201 Electrical Circuits (3)
D.C. networks: basic elements and laws; circuit analysis and theorems; circuits with inductors and capacitors. A.C. networks: waveform analysis; phasors; alternating current parallel A.C. circuits; network theorems; filters; transformers. Fall semester. Prerequisite: PH-P161 and MT-P152.

AVNP202 Electrical Circuits Laboratory I (1)
Laboratory experiments to emphasize material covered in lectures of AVN-P201. Fall semester. Corequisite: Concurrent registration: AVN-P201.

AVNP205 Fundamental Circuits Analysis II (3)
Sinusoidal alternating current; phasors; series and parallel circuits; series-parallel A.C. networks; methods of analysis; A.C. network theorems; A.C. power; resonance; polyphase systems; AC meters; non-sinusoidal circuits; transformers; two-port networks; and computer analysis. Spring semester. Prerequisite: AVNP-P105.

AVNP206 Fundamental Circuits Analysis II Laboratory (1)
Laboratory experiments to emphasize material covered in lectures of AVN-P205. Spring semester. Corequisite: AVNP-P205.

AVNP275 Co-op with Industry (0)
A full-time supervised work experience with an agency, firm or organization that employs persons in this degree field. This course is used for the first experiential learning session. Grading system is determined by department offering course. Prerequisite: Sophomore standing. Offered every semester.

AVNP293 Electronic Devices I (3)
The course covers diode theory and circuits, bipolar transistors, field-effect transistors (FET), JFETs, MOSFETs, circuits and applications. Fall semester. Prerequisite: AVNP-P205, MT-P152.

AVNP294 Electronic Devices I Lab (1)
Laboratory experiments to emphasize material covered in lectures of AVNP-P205. Fall semester. Prerequisite: AVNP-P206 and concurrent registration in AVNP-P205.

AVNP295 Electronic Devices II (3)
The course covers bipolar transistors, field-effect transistors (FET), JFETs and MOSFETs, operational amplifiers, circuits parameters, and wave shaping circuits. Spring semester. Prerequisite: AVNP-P293 and AVNP-P294.

AVNP296 Electronic Devices II Lab (1)
Laboratory experiments to emphasize material covered in lectures of AVNP-P295. Spring semester. Prerequisite: AVNP-P293, AVNP-P294 and concurrent registration in AVNP-P295.

AVNP297 Internship With Industry. (Credit to be arranged.)
Opportunities to gain experience as offered by interested companies. On demand. Prerequisite: Sophomore status.

AVNP299 Cooperative Education With Industry (0)
Avionics (AVN) - Lower Division Course
Opportunities to gain experience as offered by interested companies. On demand. Prerequisite: Sophomore status.

AVNP301 Electronics (3)
Diodes; bipolar junction transistors; field-effect transistors; silicon controlled rectifiers; electronic circuits; multistage and large-signal amplifiers; operational amplifiers; digital logic; digital circuits. Spring semester. Prerequisite: AVNP-P201.

AVNP302 Electronics Laboratory (1)
Laboratory experiments to emphasize materials covered in lectures of AVNP-P301. Spring semester. Corequisite: Concurrent registration: AVNP-P301.

AVNP305 Digital Circuits/State Machine Design (3)
Number systems, logic gates, Boolean algebra, multivibrators, counters and registers, multiplexers and memories, and state machine design. Fall semester. Prerequisite: AVNP-P295.

AVNP306 Digital Circuits/State Machine Design Laboratory (1)
Laboratory experiments to emphasize material covered in lectures of AVNP-P305. Fall semester. Prerequisite: AVNP-P294, and concurrent registration: AVNP-P306.

AVNP307 Microprocessors/Microcontrollers (3)
Number systems, microprocessor basics, computer arithmetic, programming, microprocessor architecture, timing, microcomputer interfacing and applications. Spring semester. Prerequisite: AVNP-P305.

AVNP308 Microprocessors/Microcontroller Laboratory (1)
Prerequisite: AVNP-P306 and concurrent registration: AVNP-P307. Laboratory experiments to emphasize material covered in lectures of AVNP-P307. Spring semester. Prerequisite: AVNP-P306 and concurrent registration: AVNP-P307.

AVNP351 Electronic Communications (3)
Prerequisites: or Corequisites: AVNP-P205. Principles of electronic communications, noise considerations, frequency synthesis modulation and demodulation. Fall semester. Prerequisite: Prerequisites or COREQUISITE: AVNP-P305 and MT-P152.

AVNP352 Electronic Communications Laboratory (1)
Corequisite: Concurrent registration: AVNP-P351. Laboratory experiments to emphasize material covered in AVNP-P51. Fall semester. Corequisite: Concurrent registration: AVNP-P351.
Course Descriptions - 169

BL A104 Principles of Biology I (4)
Lecture three hours, laboratory three hours per week. First semester of a two- semester course covering the basic principles of biology. Course emphasizes origin and definition of life: cells, their organization, chemical composition and metabolic activity; the basis of heredity; evolution

BL A106 Principles of Biology II (4)
Lecture three hours per week, laboratory three hours per week. A continuation of BL A104. Course emphasizes plant and animal development, ecology, behavior, structure and function of organ systems, and phylogeny.

BL A109 Biodiversity and Conservation (4)
Introduces to aspects of conservation of natural and managed ecosystems, as well as human environments. Foundations and applications of the genetics and ecology of populations. Population growth and demographics, with special emphasis on human population, and the implications of the sustainable use and management of resources and ecosystems. A continuation of BL A104 for Conservation Biology students.

BL A209 Our Living Environment (3)
Environmental problems treated within the framework of fundamental ecological principles. For non-science majors. Satisfies Arts and Sciences Core Science requirement.

BL A215 Genetics and Human Diversity (3)
Genetics and evolution; emphasis on human populations and forces acting to change the genetic structure of human populations; mutation and natural selection. Satisfies Arts and Sciences Core Science requirement.

BL A236 Concepts of Biology (3)
A one-semester course covering scientific methodology and the basic concepts of biology ranging from the chemical to the ecological levels of organization. Satisfies Arts and Sciences Core Science requirement.

BL A240 Biology of Health and Disease (3)
Topics include: nature of life; chemical basis of life; basic foodstuffs, vitamins, diseases caused by microbes, plants, and animals, drugs and the mind, and biology and the future of humanity. Satisfies Arts and Sciences Core Science requirement.

BL A250 Zoo Biology and Conservation (3)
The course is designed to acquaint non-biology majors with the plight of many vertebrate species and the role of zoos in preserving the genetic diversity and ensuring survival of these species. Lectures given by St. Louis Zoo curators and staff.

BL A270 Plants and Cultural Diversity (3)
Use of plants as sources of food, clothing, shelter, stimulation, medicine and as a source of recreation. This course will permit students to compare and contrast the role and derivation of plant products in different cultures, both Western and non-Western, ranging from Africa, Asia, Amerindian and Hispanic to European. Satisfies Arts and Sciences Core Science requirement.

BL A280 Biology For Education Majors (3)
This course is offered for elementary education majors. A variety of teaching methods will be used so that students with different learning styles may master the material. Curiosity and creativity are encouraged.

BL A301 Evolutionary Biology (3)
Basic evolutionary mechanisms involved in race formation and speciation. Roles of mutation, selection and other factors.

BL A303 Principles of Genetics (3)
This course will cover the basic concepts of the transmission and function of genes at the population, organismal and molecular levels. Recombinant DNA technology and its utility in research and industry will also be covered. Prerequisite: CH A340 and CH A341 concurrent.

BL A305 Cell Structure and Function (3)
Prerequisite: Completion of or concurrent enrollment in CH A342. If BL A305 is taken in the Fall, then concurrent enrollment in the Lab, BLA-306, is required. Cellular organization and function at the molecular level; the structural building blocks of the cell (lipids, nucleic acids, amino acids, carbohydrates) and their functional integration into macromolecules and organelle compartments. Detailed topics include membrane structure/function, mitochondrial and chloroplast energy transduction and cellular thermodynamics, nuclear-cytoplasm information flow, protein sorting and modification in the ER and Golgi, the cytoskeletal framework, cell-cell signaling, cell cycle control, and the extra-cellular matrix and cell adhesion. Prerequisite: Introductory chemistry.

BL A306 Cell Structure and Function Lab* (2)
Prerequisite: Concurrent or prior enrollment in BL A305. Basic concepts in cell biology stressed in a laboratory setting. Protein and lipid components of biological membranes, DNA comparison of prokaryotic and eukaryotic organisms, principles of protein synthesis, establishment of primary cell cultures, analysis of the cytoskeleton and the extracellular matrix. Techniques stressed will include microscopy (light/fluorescence), SDS-PAGE electrophoresis and protein determination, thin layer chromatography, receptor analysis and the application of sterile culture to the study of cells. Fall semester.
BL A307 Biological Chemistry (3)
One semester course in the biochemistry of living systems. Topics include the major biorgonomic molecules, enzyme structure and function, coenzymes, aerobic and anaerobic metabolism, pentose phosphate pathway, fatty acid, amino acid, and nucleotide metabolism and aspects of plant metabolism, including photosynthesis. Prerequisite: CH-A542 and CH-A543.

BL A310 Experiments in Genetics (2)**
Advanced experiments in classical and molecular genetics will be conducted by the students. Data will be collected, analyzed, and reported. Prerequisite: Prior completion of BL-A355, or its equivalent.

BL A322 Biology of Inveterbrates (4)
The invertebrate phylogeny, emphasis on evolution, comparative morphology life cycles, physiology, and ecology.

BL A326 Biology of Plants and Fungi (4)
Lecture three hours, lab four hours per week. A systematic introduction to the Kingdoms Prokaryota, Protista, Fungi and Plantae comparing life cycles (alternation of generation) and functional anatomy/morphology. Half of the course emphasizes the four stages in the life of seed plants, germination, establishment, secondary growth and reproduction.

BL A328 Ethnobotany (3)
This course explores how different cultures have reacted to the discovery and use of plants as sources of food, clothing, shelter, medicine, stimulation, and as a source of recreation. Plant communities, structure, development and distribution. The interaction of climate and geography creates different plant communities, which in turn create different forms of life. Similar plant communities in different parts of the world may contain similar or different species and animals. The interaction of plant and animal communities is a dynamic process. Prerequisite: Concurrent or prior enrollment in BL-A340. Students from overseas may take this course and be granted credit for it. The course is a Prerequisite for other advanced ecology courses.

BL A340 General Ecology (4)
Introductory course to the science of ecology. Study of general theories, models, and problems in population, community and ecosystem levels. This course is a Prerequisite for other advanced ecology courses.

BL A342 Comparative Anatomy (4)
Lecture two hours, laboratory five hours per week. Evolution of chordate morphology. Laboratory consists of the study of the structures of each major group of chordates, emphasis on the dogfish shark and the cat. A systematic introduction to the study of invertebrates, emphasizing the major phyla, with emphasis on evolution and adaptation. Prerequisite: Advanced standing.

BL A343 Embryology (5)
Development of the vertebrate embryo from a single cell into a multicellular organism. Topics include: fertilization, changes in shape and form, increase in complexity and diversity, organ formation, processes by which cells with the same genetic endowment become different from one another. Prerequisite: Sophomore standing.

BL A346 General Physiology (3)
Lecture three hours per week. Organic chemistry recommended. Principles and mechanisms of function of organ systems in animals, emphasis on mammalian system.

BL A347 General Physiology Lab** (2)
Concurrent or prior enrollment in BL-A346 required. A spectrum of physiological experiments, emphasis on instrumentation and analysis of data. Prerequisite: Concurrent or prior enrollment in BL-A346 required.

BL A349 Plant Physiology (4)
Lecture three hours, laboratory four hours per week. Principles of plant physiology, growth, phytohormones, flowering, photosynthesis, water relations, mineral nutrition, translocation in higher plants.

BL A404 Polllination Biology (3)
Morphology and development of flowers and pollen, evolution of flowers, coevolution of flowers and their pollinators and the genetics and biochemistry of pollination. Prerequisite: BL-A326.

BL A406 Structure and Function of Ecosystems (3)
Lecture three hours per week. Principles of ecology developed through an understanding of the nature and properties of ecosystems.

BL A407 Structure and Function of Ecosystems Lab** (2)
One four-hour laboratory or field trip per week, several Saturday trips. Prerequisite: Concurrent or prior enrollment in BL-A406.

BL A409 Plant Ecology (3)
Principles of plant ecology and synergology. The nature and properties of plant communities, structure, development and distribution. The interaction of the individual plant with its environment.

BL A410 Natural History of Vertebrates (4)
Principles of evolution and taxonomy. The nature and properties of vertebrate populations, structure, development and distribution. The interaction of the individual animal with its environment. Special emphasis on vertebrate behavior, evolution, and systematics. Laboratory includes field trips to the St. Louis Zoo, Missouri Botanical Garden, and other birding areas.

BL A411 Natural History* (1)
An extended field trip to study the ecology of vertebrates. Permission of instructor required. These courses do not fulfill B.S. area requirements as they are.

BL A415 Nervous System Learning and Behavior (3)
Concurrent or prior enrollment in BL-A340. This course is a Prerequisite for other advanced psychology courses. The theory of electronic microscopic and related techniques will be covered in lectures and the labs will provide the practical skills required for tissue preparation, sectioning, microscopy operation and photography.
BL A450 Introductory Endocrinology (3)
General principles of vertebrate endocrinology, including biochemistry, metabolism, cellular activity, and organizational and behavioral effect of systemic hormones and neurotransmitters.

BL A451 Behavioral Endocrinology (3)
The effects of hormones and neurotransmitters on reproductive, parental, aggressive and social behavior, as well as on homeostasis, biological rhythms, learning, and mood. Introductory Endocrinology and Animal Behavior recommended but not required.

BL A455 Biology of Aging (3)
Review of the theories associated with aging. Survey of mechanisms of aging. Discussion of age-related changes in animals and humans.

BL A460 Developmental Biology (3)
This course explores the development of multicellular organisms from fertilization to the establishment of the adult body form. Topics include the key processes of animal embryogenesis, as well as the molecular and cellular mechanisms that control these developmental processes. Selected topics in plant development will also be considered. Textbook reading assignments will be supplemented by selected articles from the scientific literature. Prerequisite: BL-A305 or BL-A305.

BL A463 Foundations of Immunobiology (3)
The cellular and molecular basis of immune function. Topics include receptors on T and B cells, antigen-presenting cells, cytokine networking, complement function, major histocompatibility complex, hyper-sensitivity of the immune system, and infection by HIV.

BL A464 General Microbiology (3)
Structure, metabolism, and ecology of nonpathogenic and pathogenic bacteria and viruses.

BL A465 Microbiology Lab (2)**
Basic techniques in handling bacteria, identifying microorganisms and investigating microbial growth and metabolism.

BL A468 Landscape Ecology (3)
This course will concentrate on the ecology and management of landscapes. Topics will include the formation of spatial patterns, flux of materials and organisms across space, natural and human-mediated disturbance, as well as the relevance of scale in identifying patterns and how it relates to management decisions. Case studies with relevance to state and federal lands will be covered. Prerequisite: BL-A340.

BL A470 Molecular Biology (3)
Biological phenomena at the molecular level: nucleic acid functions, mutation, recombination, complementation, suppression and the control of gene action as well as extranuclear hereditary systems such as plasids, viruses and plasmids will be discussed. Protein structure and interaction with nucleic acids will also be examined. Special emphasis on methods to study these problems in lab research. Prerequisite: BL-A305 or BL-A305 or permission of instructor.

BL A476 Plant Biochemistry (4)
A comparative survey of higher plant anabolic and catabolic processes. Topics include: carbohydrates, lipids, proteins, polyketides, terpenoids, aromatics, tetrapyrroles and alkaloids. Prerequisite: Organic chemistry and BL-A307 or equivalent. Introducory Biochemistry course is required.

BL A480 Internship in Conservation (3)
Students will work with professional conservation/environmental biologists to get practical experience. Students may work with conservation biologists associated with the EPA, Missouri Conservation Department, Corps of Engineers, or private environmental consulting firms. BL-A299 Our Living Environment (3) Environmental problems treated within the framework of fundamental ecological principles. For non-science majors. Satisfies Arts and Sciences Core Science requirement. Prerequisite: BL-A307.

BL A484 Senior Inquiry: Library Project and Thesis (1-3)
Permission of Instructor required.

BL A485 Senior Inquiry: Graduate Level Course (0)
Permission of Instructor; Chair, Dean of the College of Arts and Sciences, and the Graduate Dean required for registration in the graduate course. Prerequisite: Permission of Instructor; Chair, Dean of the College of Arts and Sciences, and the Graduate Dean required for registration in the graduate course.

BL A488 Senior Inquiry: Research Project (1-3)
Permission of Instructor required.

BL A489 Senior Inquiry: Comprehensive Examination (0)
Required of all graduating seniors.

BL A495 Senior Residency (0)
Required of all graduating seniors.

BL A498 Advanced Independent Study (1-4)
Individual study and research. Permission of instructor required.

BL X104 Principles of Biology (4)
1818 ACC program only. Lecture: three hours, laboratory three hours per week. Two-semester course covering the basic principles of biology. Course will emphasize origin and definition of life; cells, their organization, chemical composition and metabolic activity; the basis of heredity; plant and animal phylogeny. Students register in the Spring.
BMEP435 Tissue Engineering (3)
Protein-surface interactions, regeneration substrates, fluid shear stress effects on cell function, mass transfer in tissue microenvironment, materials for 5-50 micron size. Application to liver kidney, striate muscle, cartilage, nerve tissue, bone marrow. Prerequisite: BMEP420.

BMEP440 Medical Imaging (3)
Creating images of internal structure and function using x-rays, ultrasound, magnetic resonance, nuclear medicine, positron emission tomography, impedance tomography. Physical principles exploited to make images. Visualization of data. Prerequisite: BMEP405.

BMEP475 Co-op with Industry (0)
A full-time supervised work experience with an agency, firm or organization that employs persons in this degree field. This course is used for the third experiential learning session. Grading system is determined by department offering course. Prerequisite: BMEP375 Offered every semester.

BMEP476 Internship with Industry (0-3)
A work experience with an agency, firm or organization that employs persons in this degree field. This experience may be full time or part time as required by the industry sponsor. Grading system is determined by department offering course. Prerequisite: BMEP376 or Senior standing. Offered every semester.

BMEP493 Special Topics in Biomedical Engineering (1-3)
Experimental or one-time courses of special interest. Course must be approved by BME faculty prior to offering. Prerequisite: Approval of instructor.

BMEP495 Senior Project I (3)
Final undergraduate project or senior thesis. Project may be individual or in teams. Prerequisite: Senior status.

BMEP496 Senior Project II (3)
Continuation of first semester project, including written and oral reports. Prerequisite: BMEP495.

BMEP498 Special Topics in Biomedical Engineering (1-3)
Individual or small group investigation of a topic. Prerequisite: Approval by BME Chair.

Catholic Studies (MP)

MP A200 Foundations for Catholic Studies (3)
This course provides the background knowledge and categories necessary for further course work in the Manresa Certificate Program: the basics of Catholic belief, Catholic spiritual practices, the history and cultural influence of Catholicism in selected areas of art, culture and society. This is normally the prerequisite for all further Manresa Program courses. One semester per year. Prerequisite: TH A100.

MP A490 Manresa Capstone Course (3)
Prerequisite: 15 hours in the Manresa Program. In order to synthesize the interdisciplinary Manresa program, students do an independent study, research paper or practicum in conjunction with seminar meetings (the seminar is contingent on the number of capstone participants). Every semester.

Chemistry (CH)

CH A100 Chemistry and the Citizen (3)
Introduction to the basic principles of chemistry and their application in discussion of selected topics which pertain to areas affecting all citizens: Chemical environmental issues of current concern, future problems and suggested solutions are considered. For nonscience majors. Fall semester.

CH A101 Basic Chemistry (3)
Designed for students who intend to take CHA161 but do not have the background or mathematical skills required to enter directly into CHA161. Topics include nomenclature, the scientific method as applied in chemistry, basic atomic theory, gas laws, equilibrium and chemical calculations and important classes of chemical reactions. Fall semester.

CH A151 Engineering Chemistry (3)
Prerequisite: CHA101 or one year of high school chemistry. COREQUISITE, unless taken earlier. MTA117 or equivalent. COREQUISITE: CHA152. For Parks College students, others need special permission. Fundamental chemical concepts; atomic theory; nomenclature; stoichiometry; thermodynamics and thermochemistry; gases, liquids, solids, phase diagrams and solutions; chemical equilibrium; bonding in ionic, covalent, and organic compounds and in plastics, polymers and composite materials; kinetics. Fall and Spring semesters.

CH A152 Engineering Chemistry Laboratory (1)
Prerequisite: CHA101 or one year of high school chemistry. COREQUISITE, unless taken earlier. MTA117 or equivalent. COREQUISITE: CHA151. For Parks College students, others need special permission. Laboratory experiments to illustrate and supplement material in CHA151. Fall and Spring semesters.

CH A153 Principles of Chemistry I (4)
Lecture three hours, laboratory three hours per week. Fundamental concepts and principles of inorganic chemistry. For students in the Schools of Nursing and Allied Health Professions only Fall semester.

CH A154 Principles of Chemistry II (4)
Lecture three hours, laboratory three hours per week. Fundamentals of organic chemistry including topics with medical or biological significance. For students in the Schools of Nursing and Allied Health Professions only Spring semester.

CH A161 Introduction to Chemistry I (4)
Lecture three hours, laboratory three hours per week. The fundamental principles of chemistry, correlated laboratory work, important laws and theories basic to the science of chemistry. Fall, Spring and Summer. Also offered at Saint Louis University in Madrid.

CH A162 Introduction to Chemistry II (4)
Lecture three hours, laboratory three hours per week. A continuation of CHA-161. Fall, Spring and Summer. Also offered at Saint Louis University in Madrid. Prerequisite: A “C” or better in CHA161 or the equivalent. Prerequisite: CH A161.

CH A163 Introduction to Chemistry I - Lecture Only (3)
The lecture portion of CHA161. Recommended only for students who do not need the laboratory portion of the course. Fall, Spring, and Summer.

CH A164 Introduction to Chemistry II - Lecture Only (3)
The lecture portion of CHA162. Recommended only for students who do not need the laboratory portion of the course. Fall, Spring, and Summer.

CH A165 Introduction to Chemistry I - Laboratory Only (1)
The laboratory portion of CHA161. Recommended only for students who have completed an adequate lecture course equivalent to CHA161. Fall, Spring, and Summer.

CH A166 Introduction to Chemistry II - Laboratory Only (1)
The laboratory portion of CHA162. Recommended only for students who have completed adequate lecture courses equivalent to CHA161 and CHA162. Fall, Spring, and Summer.

CH A178 General Chemistry for the Advanced Student (2)
Registration is by invitation of the Department. Prerequisite: CHA161 or the equivalent. Lecture two hours per week. A continuation of general principles including coordination chemistry, concepts of chemical equilibria, acid-base equilibria, thermodynamics, electrochemistry, nuclear chemistry and selected topics in inorganic descriptive chemistry. Fall semester.

CH A208 Introduction to Research Methods in Chemistry (2)
Laboratory three hours per week, lecture one hour per week. Introduction to modern instrumentation methods used in chemical research, including nuclear magnetic resonance (NMR), ultraviolet-visible (UV-VIS), infrared (FIR), and mass spectroscopy (GC-MS). Synthesis and spectroscopic characterization of chemical compounds will be emphasized. Spring semester. Prerequisite: Concurrent registration in CH A178 is required.

CH A320 Analytical Chemistry I (4)
Laboratory two hours, lecture five hours per week. Introductory gravimetric and volumetric analysis. Calibration and use of quantitative apparatus, theories underlying analytical procedures, calculations involved in analysis. Fall and Spring. Prerequisite: CH A162 or CH A178 with a minimum grade of C, MT A120.

CH A333 Physical Chemistry I (3)
Topics include kinetic theory, chemical thermodynamics and equilibria. Fall semester. Prerequisite: CH A520, MT A143.

CH A334 Physical Chemistry II (3)
Topics include chemical kinetics, quantum chemistry and spectroscopy. Spring semester. Prerequisite: CH A520, MT A143.

CH A335 Physical Chemistry Laboratory (2)
Laboratory six hours per week. For B.S. in Chemistry students. Fall semester. Prerequisite: CH A355 and CH A354.

CH A342 Principles of Organic Chemistry I (3)
Lecture three hours per week. Modern organic chemistry of aliphatic and aromatic compounds. Offered for students in the biological sciences and preprofessional health studies. Chemistry majors who are also in Preprofessional Health Studies should take CHA346. Fall and Summer. Prerequisite: A minimum grade of C in CH A162 or the equivalent or CH A178.

CH A343 Principles of Organic Chemistry II (3)
Chemistry (CH) - Upper Division Course. Lecture three hours per week. A continuation of CH A342. Spring and Summer.

CH A344 Organic Chemistry Laboratory I (1)
Laboratory three hours per week. An introduction to organic laboratory techniques. For chemistry majors in the B.A. program and students in the biological sciences and preprofessional health studies. Fall and Summer.

CH A345 Organic Chemistry Laboratory II (1)
Laboratory three hours per week. A continuation of CH A344 with an emphasis on the synthesis and reactions of organic compounds. For chemistry majors in the B.A. program and students in the biological sciences and preprofessional health studies. Spring and Summer.

CH A346 Organic Chemistry I (3)
Lecture three hours per week. Introduction to the organic chemistry of aliphatic and aromatic compounds, correlating structural theory and reactivity using a mechanistic approach. Offered for Chemistry majors in the B.S. and B.A. programs. Concurrent registration in CH A344 is required for B.A. majors. Fall semester. Prerequisite: A minimum grade of C in CH A162 or the equivalent or CH A178.
as of 5/9/02

Course Descriptions - 173


CH A348 Organic Laboratory Techniques (2) Laboratory six hours per week. This course introduces the student to the basic operational techniques used in the organic chemistry laboratory. In addition, students will carry out selected experiments aimed at reinforcing the study of the major organic functional groups. Required of students in the B.S. in Chemistry program. Other students may be admitted with permission of the instructor. Spring semester. Prerequisite: Completion of CH-A346 or the equivalent.

CH A349 Organic Spectroscopy (2) This lecture/laboratory course meets six hours per week and consists of a practical, hands-on approach to the use of various spectroscopic techniques for structure determination of organic molecules. The course will include high field NMR spectroscopy and mass spectroscopy with the emphasis on the former technique. Required of students in the B.S. in chemistry program. Other students may be admitted with permission of the instructor. Fall semester. Prerequisite: Completion of CH-A346/547 and CH-A348 or the equivalent.

CH A391 Introduction to Chemical Literature (1) Introduction to chemical literature and related informational retrieval techniques. Students will utilize available resources to prepare one or more oral seminar presentations. Fall semester. Prerequisite: Junior or Senior standing or permission of the instructor.

CH A397 Undergraduate Research (0-3) Chemical research under the direction of a faculty member of the department. Required for students in the B.S. in Chemistry program. Fall, Spring, and Summer.

CH A413 Inorganic Chemistry (3) The development and foundation of the periodic classification of the elements and an introduction to the systematic study of the properties of the elements and their compounds. Fall semester. Prerequisite: CH-A333.

CH A414 Inorganic Chemistry Laboratory (1) Laboratory three hours per week. Inorganic preparations, advanced laboratory methods. Spring semester. Prerequisite: CH-A413.

CH A420 Analytical Chemistry II (3) Lecture: 3 hours per week. Topics to be covered include an introduction to computer-based instrumentation, data acquisition methods, statistical evaluation of data. Also included are lectures on instrumental techniques such as optical spectroscopy, electrochemical measurements, and separation methods. Prerequisite: CH-A320, CH-A335/334, CH-A346/347/348 or equivalent. Spring semester.

CH A422 Analytical Chemistry III (1) Arranged laboratory, 3 hours per week. Experiments to be covered include UV-Vis spectrophotometry, fluorescence spectrometry, gas chromatography, liquid chromatography, potentiometric methods, atomic absorption, an introduction to computer-based instrumentation, and miniaturized instrumentation. Spring semester. Prerequisite: CH-A320, CH-A335/334, CH-A346/347/348 or equivalent.

CH A432 Mathematical Techniques in Chemistry (3) Includes introduction to differential equations, group theory, matrix algebra, and vector analysis as applied to chemistry. Fall semester. Prerequisite: MT-A143.

CH A435 Environmental Chemistry (3) This course is concerned with the impact of human activities on our natural surroundings and will focus on the chemical processes that occur in bodies of water and in the atmosphere. Pollutant removal and health hazards to humans will also be discussed. Prerequisites: CH-A346/547, or the equivalent, CH-A320.

CH A444 Biochemistry (3) Prerequisites: One year of organic chemistry. This course is designed to bridge chemistry and biology by studying the underlying mechanisms of living processes. It will emphasize chemistry, and systematically establish the relationship between chemical processes and biological structure. Discussions of biomolecules will be followed by descriptions of their roles in metabolism. Spring semester.

CH A445 Principles of Medicinal Chemistry (3) This course examines the relationship between chemical structure and biological activity with an emphasis on drug design and modification. Specific drug classes which will be used as illustrative of this relationship include cardiovascular drugs, anti-inflammatory agents, steroid hormones, and chemotherapeutic agents (antibiotics), among others. Fall semester. Prerequisite: Completion of CH-A342/343 or the equivalent.

CH A495 Senior Residency (0) Required for graduating seniors.

CH A498 Advanced Independent Studies (0-3) Prior permission of sponsoring professor and chairperson required.

CH P151 Engineering Chemistry (3) Chemistry (CH) - Lower Division Course Fundamentals of chemical concepts; atomic theory; nomenclature; stoichiometry; thermodynamics and thermochemistry; gases, liquids, solids, phase diagrams and solutions; chemical equilibrium; bonding in ionic, covalent, and organic compounds and in plastics, polymers and composite materials. Kinetics. Fall and spring semesters. Prerequisite: CH-A101 or one year of high school chemistry. Prerequisite: Corequisite: MT-A117 or equivalent.

CH P152 Engineering Chemistry Laboratory (1) Chemistry (CH) - Lower Division Course Laboratory experiments to illustrate and supplement material in CH-P151. Fall and spring semesters. Prerequisite: CH-A101 or one year of high school chemistry. Prerequisite or Corequisite: MT-A117 or equivalent. Corequisite: CH-P151. For Parks College students; others need special permission.

CH X161 Introduction to Chemistry I (4) 1818 ACC program only. The fundamental principles of chemistry and related laboratory work; important laws and theories basic to the science of chemistry.

CH X162 Introduction to Chemistry II (4) Prerequisite: CH X161. 1818 ACC program only. Lecture three hours, laboratory three hours. A continuation of CH X161.

Criminal Justice Organization (CJ)

CJ K380 Deviance and Social Control (3) Prerequisite: CJ K300. Social psychological theories leading to punishment vs. rehabilitation debate; suggestions of workable alternatives based on behavior modification and defensible space; scientific method, system analysis, creative problem-solving.

CJ K465 Administration and Management of Criminal Justice Organizations (3) Prerequisites: CJ K300, CJ K350, CJ K355, CJ K375 and Senior status. Principles of organization and management theories applicable to law enforcement agencies will be discussed. Aspects of concept planning, basic components and objectives of the planning process, and organizational development programs related to law enforcement will be reviewed.

Classical Humanities (CLH)

CLHA120 Greek Literature in Translation (3) Fall semester.

CLHA121 Latin Literature in Translation (3) Spring semester.

CLHA429 Introduction to Classical Mythology (3) Greek and Roman Mythology. Special attention to use of mythology in later literature.

CLHA431 Greek Tragedy: Origin and Form (3)

CLHA463 Greek Culture and Civilization (3)

CLHA464 Roman Culture and Civilization (3)

CLHA488 Senior Inquiry: Research Project (0-6)

CLHA489 Senior Inquiry: Comprehensive Exam (0)

CLHA493 Special Topics (1-3)

CLHA495 Senior Residency (0)

CLHA498 Advanced Independent Study (0-3) Prior permission of sponsoring professor and program director required.

CLHA499 Honors Tutorial Course (0-3) For Honors Program Students only.

Clinical Laboratory Science (CLS)

CLSH 36 Introduction to Clinical Laboratory Medicine (4) Presented in multiple formats including traditional lectures, labs, self-study modules and case studies, this course introduces the student to the importance of clinical laboratory medicine in the delivery of health care. In addition to basic theoretical course focuses on selection, collection and handling of samples for testing. Emphasis is placed on the interpretation and clinical application of common diagnostic laboratory studies. Topics include blood banking, chemistry, coagulation, hematology, immunology, microbiology and urinalysis.

CLSH100 Introduction to Clinical Laboratory Science (2) Orientation to the profession of clinical laboratory science, its functions, specialties and responsibilities as a unit of the health-care team. Taught by lecture, demonstrations, discussion, visits to actual laboratories and practical experience.

CLSH301 Hematology and Body Fluids (3) Content emphasizes the physiology of the blood forming organs and the maturation and function of their cellular products. Discussions will include the pathophysiology, evaluation and diagnosis of blood dyscrasias using laboratory test results. Body fluid formation, function, analysis and evaluation will also be discussed. Prerequisite: BL-A104 and CH-A162 or equivalent.
CLSH302 Hematology and Body Fluids Laboratory (1)
Performance, interpretation and troubleshooting of basic hematology procedures using clinical specimens. Cell counts, differentials and other procedures will be performed on blood and body fluids. An emphasis will be placed on the principles and reactions involved in the testing procedure. Students will also obtain experience in basic phlebotomy.

CLSH303 Immunohematology (3)
An introduction to the basic immunologic and genetic principles governing blood groups and blood transfusion practice. Prerequisite: BL-A104 and CLS-H550 or equivalent.

CLSH304 Immunohematology Laboratory (1)
Practice in routine testing procedures utilized in the blood bank such as blood typing, antibody identification, and crossmatching, including a review of techni ques and theoretical principles.

CLSH305 Urinalysis (2)
A lecture/laboratory course studying the basic physiology of the kidney and a discussion of the mechanism of urine formation. Content will focus on the principles and clinical significance of the various procedures used in testing urine and their role in disease diagnosis. Prerequisite: BL-A104 and CH-A162 or equivalent.

CLSH306 Hemostasis and Thrombosis (3)
Principles and laboratory analysis of normal hemostasis will be presented. Discussions will include the diagnosis of bleeding and thrombotic disorders using laboratory results. The physiology and laboratory monitoring of anticoagulant therapy will be discussed. Prerequisite: BL-A104 and CH-A162 or equivalent.

CLSH330 Clinical Biochemistry (4)
Lecture four hours per week. Biochemical principles applied to clinical in vestigation of disease: Topics include: protein structure and function; enzyme kinetics; carbohydrate, lipid and protein metabolism and other physiological facets of water, electrolyte, and acid-base balance. Prerequisite: BL-A104 and CH-A342/543 or equivalent.

CLSH331 Analytical Instrumentation (2)
Prerequisite: CH-A320 or CH-A345/545 or equivalent; majors only or permission of department chairperson. Lecture/laboratory 4 hours per week. Provides an introduction to chemical reactions and analytical instrumentation as used in laboratory diagnosis. Topics include: basic concepts of instrument selection and evaluation, quality control, electricity and electronics, photometry, electrochemistry, chromatography and automation. Analysis of human body fluid specimens demonstrates selected instrumentation principles. Prerequisite: CH-A320 or equivalent.

CLSH350 Medical Immunology (3)
A lecture/laboratory course studying the theories of innate, humoral and cellular immunity, functions of t-cells and b-cells, the antibody response, the genetics of antibody diversity, hypersensitivity, MCH, HLA, transplantation and tumor immunology. Course also involves case study discussions and performance of basic serological tests. Prerequisite: BL-A104 or equivalent.

CLSH352 Medical Microbiology (4)
Lecture presentation of the molecular biology of prokaryotic microorganisms. Includes structure, genetics, metabolism, regulatory mechanisms and growth/repllication. Pathogenicity, epidemiology, diagnosis and laboratory identification of important groups of human pathogenic bacteria emphasized. Modes of action of selected antibiotics and chemotherapeutic agents also discussed. Prerequisite: BL-A104 and CH-A342/543 or equivalent.

CLSH353 Medical Microbiology Laboratory (2)
Laboratory course designed to give the student experience in the isolation, identification and susceptibility testing of microorganisms, as well as an introduction to chemical reactions and analytical instrumentation used in laboratory diagnosis. Topics include: basic concepts of instrument selection and evaluation, quality control, electricity and electronics, photometry, electrochemistry, chromatography and automation. Analysis of human body fluid specimens demonstrates selected instrumentation principles. Prerequisite: CH-A320 or equivalent.

CLSH360 Introduction to Clinical Laboratory Medicine (4)
Presented in multiple formats including traditional lectures, labs, self-study modules and case studies, this course introduces the student to the importance of clinical laboratory medicine in the delivery of health care. In addition to basic theory, the course focuses on selection, collection and handling of samples for testing. Emphasis is placed on the interpretation and clinical application of common diagnostic laboratory studies. Topics include blood banking, chemistry, coagulation, hematology, immunology, microbiology and urinalysis.

CLSH420 Medical Parasitology (2)
A lecture/laboratory course studying the clinically relevant parasites and the diseases they produce in man. Aspects of epidemiology, modes of transmission, pathogenesis, morphology and life cycles, specimen processing and techniques of laboratory identification are covered. Prerequisite: BL-A104 or equivalent.

CLSH421 Medical Mycology (2)
A lecture/laboratory course studying mycotic diseases of man. Terminology, taxonomy, pathogenesis, specimen processing and techniques of laboratory identification are covered. Prerequisite: BL-A104 and CLS-H353 or equivalent.

CLSH422 Clinical Urinalysis and Hemostasis (1)
The testing of urine and interpretation of test results is performed in the clinical setting. A wide array of both routine and diagnostic hemostasis testing will be performed and interpreted for the purpose of diagnosing bleeding and thrombotic disorders. Prerequisite: CLS-H305 and CLS-H301 or equivalent.

CLSH423 Clinical Microbiology (5)
Clinical laboratory course applying principles and procedures used in the isolation, identification and susceptibility testing of microorganisms in a clinical setting. Prerequisite: CLS-H552 and CLS-H353 or equivalent.

CLSH424 Clinical Hematology and Phlebotomy (3)
The application of the principles and theories of hematology and body fluid analysis in a clinical setting. Students will learn the performance of laboratory testing to qualitatively and quantitatively evaluate blood cells for disease. Laboratory procedures will also be performed on blood, bone marrow and body fluids. Students will also obtain experience in basic phlebotomy. Prerequisite: CLS-H552 and CLS-H353 or equivalent.

CLSH425 Clinical Immunohematology (3)
Clinical laboratory experience in routine and specialized blood bank techniques such as antibody identification, crossmatching, and component preparation. Prerequisite: CLS-H305 and CLS-H304 or equivalent.

CLSH426 Research (3)
Experience in the basic principles of research design, data collection, data analysis and hypothesis testing. Completion of an Institutional Review Board proposal and a research paper to develop skills and appreciation of techniques in scientific investigation and writing. As an alternative to a wet research project, students may also choose to develop an educational module or perform a thorough literature review on a related scientific topic.

CLSH427 Clinical Chemistry (4)
A lecture/laboratory course studying the theories of innate, humoral and cellular immunity, functions of t-cells and b-cells, the antibody response, the genetics of antibody diversity, hypersensitivity, MCH, HLA, transplantation and tumor immunology. Course also involves case study discussions and performance of basic serological tests. Prerequisite: BL-A104 or equivalent.

CLSH428 Senior Seminar (5)
Lecture series designed to introduce senior Clinical Laboratory Science students to advanced topics and specialty areas in the clinical laboratory. Theory and practice utilized in the clinical rotations are supplemented and reinforced through lectures, discussions, and student presentations.

CLSH429 Principles of Laboratory Management and Education (3)
Basic principles of management, education, and techniques in scientific research are discussed. Supervision and an introduction to computer applications in the clinical laboratory are also discussed. Students complete a capstone project utilizing these principles in a team approach.

CLSH430 Clinical Experience (0)
Prerequisite: Permission of Department Chairperson. Studies in the clinical areas applying principles and procedures of laboratory testing.

CLSH431 Clinical Practicum (6-15)
Studies in the clinical areas applying principles and procedures of laboratory testing. Reserved for students with selectively adapted clinical experiences. Prerequisite: Permission of Department Chairperson.

CLSH432 Special Studies (1-4)
Qualified students interested in doing special work in some field of clinical laboratory science or who wish to amplify their knowledge base may pursue an individualized course of study. Departmental approval is required. Prerequisite: TO BE DETERMINED INDIVIDUALLY.

CLSH450 Seminar: Topics in Body Fluids (1)
Lecture series designed to introduce clinical laboratory science certificate students to advanced topics in body fluids. Theory and practice utilized in the clinical rotations are supplemented and reinforced through lecture, discussion, student presentations.

CLSH451 Seminar: Topics in Clinical Chemistry (2)
Lecture series designed to introduce clinical laboratory science certificate students to advanced topics in clinical chemistry. Theory and practice utilized in the clinical rotations are supplemented and reinforced through lecture, discussion, student presentations.

CLSH452 Seminar: Topics in Hematology (2)
Lecture series designed to introduce clinical laboratory science certificate students to advanced topics in hematology. Theory and practice utilized in the clinical rotations are supplemented and reinforced through lecture, discussion, student presentations.

CLSH453 Seminar: Topics in Microbiology (2)
Lecture series designed to introduce clinical laboratory science certificate students to advanced topics in microbiology. Theory and practice utilized in the clinical rotations are supplemented and reinforced through lecture, discussion, student presentations.

CLSH454 Seminar: Topics in Immunology/Flow/HLA (2)
Lecture series designed to introduce clinical laboratory science certificate students to advanced topics in immunology. Theory and practice utilized in the clinical rotations are supplemented and reinforced through lecture, discussion, student presentations.

CLSH455 Special Studies: Immunology/Flow/HLA (2)
Lecture course targeting principles of laboratory immunology, flow cytometry and HLA testing. Laboratory techniques and principles will be discussed and correlated to patient conditions and disease diagnosis.
CLSH460  Clinical Chemistry Practicum (6)  
Biochemical investigation of body fluids in a clinical laboratory setting using advanced techniques and state-of-the-art computer integrated instruments. Quality control, reaction principles, instrument operation and evaluation of results emphasized. For certificate students only. Prerequisite: CLS-H530 and CL-H531 or equivalent.

CLSH461  Clinical Hematology Practicum (6)  
The application of the principles and theories of hematology and phlebotomy in a clinical setting. Students will learn the technique of blood collection and the performance of laboratory testing to qualitatively and quantitatively evaluate blood cells for disease. Laboratory procedures will be performed on blood, bone marrow and body fluids. For certificate students only. Prerequisite: CLSH-H552 and CLSH-H553 or equivalent.

CLSH462  Clinical Microbiology Practicum (6)  
Clinical laboratory course applying principles and procedures used in the isolation, identification and susceptibility testing of microorganisms in the clinical setting. For certificate students only. Prerequisite: CLSH-H552 and CLSH-H553 or equivalent.

CLSH463  Clinical Immunology Practicum (2)  
Students will rotate a clinical setting observing and performing routine immunological procedures to include: various immunoassays and serological procedures, cold agglutinin tests, protein electrophoresis, immunofluorescence and hemoglobin electrophoresis. For certificate students only.

CLSH464  Clinical Practicum Flow Cytometry (3)  
Students will complete a core flow cytometry rotation at a clinical affiliate observing and performing flow cytometric procedures to include: instrument set-up, maintenance, quality control, gating, specimen handling techniques and procedures, DNA analysis and various cancer protocols (i.e. leukemias, lymphomas and solid tumors). For certificate students only.

CLSH465  Clinical HLA Testing Practicum (3)  
Students will rotate in a clinical HLA laboratory. Students will observe and perform procedures designed to determine histocompatibility between tissue donors and transplant recipients. Such procedures include lymphotoxicity testing and DNA analysis using PCR and dot blotting techniques. For certificate students only.

Communication (CMM)

CMMA100  Introduction to Human Communication (3)  
An introduction to the field of human communication. Basic concepts, theories, and strategies are explained as they relate to interpersonal, small group, and mass communication processes. Satisfies social science requirement for non-majors.

CMMA120  Public Speaking (3)  
Students are introduced to principles of effective public speaking and provided with opportunities to develop public speaking skills. In addition, standards of evaluation for public communication are established for the use in evaluating their own and other’s public speaking performances.

CMMA140  Film Criticism (3)  
Viewing and discussion of some short and several feature films; text reading and exams; written reviews and responses to film discussion; refining of film as an art. Satisfies fine arts requirement. Prerequisite: CMMA100.

CMMA200  Communication Theory (3)  
Examines the problems that communication researchers attempt to solve by theorizing effectively. Topics include the relation of theory to research and practice; different ways of theorizing, such as covering laws, systems, and social constructionist approaches. Satisfies social science requirement for non-majors. Prerequisite: CMMA100.

CMMA210  Journalism: Newswriting (3)  
Prerequisite: ENG-A190 or ESLK-A190. Introduces basic techniques of gathering, writing, and editing news; discusses news room operations, decision making, and ethics; includes frequent in-class and out-of-class writing assignments.

CMMA253  Computer-Based Design (3)  
An introduction to media production and presentation. Includes computer graphics, desktop publishing, desktop presentation and other emerging presentation technologies.

CMMA255  Photographic Imaging and Digital Manipulation (3)  
An introductory photography course for the student interested in creating good pictures. Includes technical, aesthetic and professional aspects of non-darkroom photography. Introduces digital imaging and manipulation in context of the history of photography.

CMMA256  Principles of Graphic Design (3)  
Introduces visual communication theory and practice, including the elements and principles of perception, typographic design, and symbol logic. Emphasizes functional and aesthetic use of parts forms, color and typography, and strategic thinking that leads to effective visual communication.

CMMA280  Communication Research (3)  
Introduces principles of empirical research in communication and trains students to become critical consumers of research used and produced by communication professionals. Topics covered include formulating research questions, conducting literature reviews, understanding problems of observation, measurement, validity, and reliability; and critiquing research designs. Satisfies social science requirement for non-majors. Prerequisite: CMMA100.

CMMA300  Interpersonal Communication (3)  
Theory, research, and practical exercises in dyadic interaction. Examines mutual influence, communication patterns, relationship characteristics, interaction goals, and contextual factors. Prerequisite: CMMA100, 200, 280.

CMMA301  Language and Linguistics (3)  
Crosslisted with LGS-A111, FR-411, GR-A111, BI-A141, SP-A111.

CMMA305  Argumentation and Debate (3)  
Basic concepts and practical application of the role of argument in day-to-day communication. Students learn to identify, analyze and criticize arguments, and will gain experience in creating, presenting, defending, and refuting arguments in oral and written form. Prerequisite: CMMA200.

CMMA311  Feature Writing (3)  
Prerequisite: CMMA210. Analysis of contemporary newspaper and magazine feature writing techniques. Required assignments in common feature genres, such as seasonal stories, profiles, how-to and service articles. Prerequisite: CMMA210.

CMMA312  Audio Visual Script Writing (3)  
Teaches techniques for writing scripts for slide shows, radio ads, and video. Topics covered include analyzing purpose and audience; coordinating voices, music, and special effects; and telling a story with sounds and images. Prerequisite: CMMA210.

CMMA313  Editorial and Opinion Writing (3)  
Prerequisite: CMMA210. Analysis of newspaper and magazine columns and articles. Emphasis on basic techniques for writing opinion columns, how to write an opinion article, writing columns about issues and news events. Includes reading and writing about topical and controversial national and international issues. Prerequisite: CMMA210.

CMMA314  Essay Writing (3)  
Prerequisite: CMMA210. Analysis of contemporary newspaper and magazine article writing techniques. Required assignments in common feature genres, such as decision-making, feedback, conflict management, diversity, and technology in light of those theoretical approaches. Prerequisite: CMMA200, 280.

CMMA320  Organizational Communication (3)  
Analyzes the basic theories and concepts related to the study of communication in organizations. Considers a variety of theoretical approaches to the study of organizational settings, as well as specific organizational communication issues such as decision-making, feedback, conflict management, diversity, and changing eloquent literary effects. Prerequisite: CMMA210.

CMMA323  Business and Professional Communication (3)  
Prerequisite: CMMA210. Analyzes the role of communication in business and professional organizations. Considers a variety of theoretical approaches to the study of communication in organizations. Considers a variety of theoretical approaches to the study of communication in organizations. Considers a variety of theoretical approaches to the study of communication in organizations. Considers a variety of theoretical approaches to the study of communication in organizations.

CMMA320  Organizational Communication (3)  
Prerequisite: CMMA210. Analysis of contemporary newspaper and magazine article writing techniques. Required assignments in common feature genres, such as decision-making, feedback, conflict management, diversity, and technology in light of those theoretical approaches. Prerequisite: CMMA200, 280.

CMMA330  Intercultural Communication (3)  
Prerequisite: CMMA210, 280.

CMMA334  Media Ethics (3)  
Prerequisite: CMMA210, 280.

CMMA335  Multimedia Design and Production (3)  
Prerequisite: CMMA256. Principles of effective visual communication applied to the planning, design, and production of publications such as newsletters and magazines.

CMMA360  Public Relations Principles and Practices (3)  
Prerequisite: CMMA256. Principles of effective visual communication applied to the planning, design, and production of publications such as newsletters and magazines.
CMMA361 Writing for Public Relations (3)
Covers forms of professional writing practiced in corporate, nonprofit, and go
vernment public relations. Requires writing of informative and persuasive mes-
gages, press releases, PSAs, feature profiles, and backdrops, and preparation of press kits. Prerequisite: CMMA210, 360.

CMMA370 Advertising Principles and Practices (3)
Prerequisite: CMMA200. Explains and demonstrates the important role of advertising in the marketing process. Outside professionals make presentations and are questioned and critiqued by students. Course maintains a balance of persuasive theory and technique.

CMMA371 Advertising Writing and Production (3)
Teaches students to use their creative skills to write and produce effective ads, commercials, and advertising campaigns. Students learn to think strategically as well as imaginatively, working in small groups to brainstorm and think outside the lines. Students also start preparing portfolios for presentation. Prerequisite: CMMA200, 210, 370.

CMMA377 Advertising Media Buying (3)
Students will develop an understanding of media strategy and grasp the key issues that determine media strategy, including definition of consumer groups, the nature of message dispersion and identification of qualitative values to be acquired from the advertising. Students use actual reference sources in their evaluation of media. Prerequisite: CMMA280, 370.

CMMA380 Interviewing and Listening (3)
The use of direct and immediate communication to obtain information from or understand another person. Topics include the development of listening skills, problems of planning interviews, and differences between interviews for journalism, research, oral history, and employment. Prerequisite: CMMA200, 280.

CMMA383 Methods of Rhetorical Analysis (3)
Discusses the rhetorical methods used in the critical analysis of public commun-
ication. Course offers practice in the application of a variety of rhetorical methods. Prerequisite: CMMA200, 280.

CMMA384 Analysis of Popular Culture (3)
Discusses methodologies used to study popular symbols, rituals, and artifacts in everyday culture, such as those in television, radio, film, print, and sport, and the social practices by which such artifacts are produced and consumed. The readings draw on the theoretical literature in rhetorical criticism, critical studies, and cultural studies. Prerequisite: CMMA200, 280.

CMMA385 Qualitative Research Methods in Communication (3)
Prerequisite: CMMA200. Introduces students to the methods used by qualita-
tive/naturalistic researchers. Topics covered include strengths and limitations of qualitative research, problems of studying interaction in public settings, procedures for collecting, analyzing, and writing up qualitative data, and techniques for managing relationships between subjects and researcher.

CMMA400 Dialogue and Community in Public Life (3)
Explores the personal and political dilemmas of enacting dialogue in the public sphere. Emphasizes interpersonal skills and communication ideas, but focuses on social problems such as multiculturalism, listening across differences, public journalism, political correctness, and educational policy. Prerequisite: CMMA-A200.

CMMA409 Theories of Persuasion (3)
Focuses on contemporary persuasion theory and research. Covers a variety of perspectives on the subject, such as motivation theory, social judgment, social movements, and advertising campaigns. The approach helps demonstrate how theories of persuasion can help guide the practice of human communication. Prerequisite: CMMA-A200, 280.

CMMA415 Nonfiction Writers Workshop (3)
Capstone writing course, designed to provide near-professional experience for advanced writers. Course conducted as a group workshop. Prerequisite: At least 6 hours of college writing courses beyond ENG-A190, and permission of instructor.

CMMA416 Editing (3)
Teaches skills required for editing and proofing news, magazine, or book copy. Topics covered include close reading of manuscripts for grammar, style, structure, and word choice; writing of appropriate headlines; and trimming copy to fit space. Prerequisite: CMMA-A210 and another 300- or 400-level writing course.

CMMA420 Problem Solving in Small Groups (3)
Discusses major research and theories about small group communication. Topics include roles of participants in the small group process; ways to improve conflict management skills; goal setting, planning and presentation skills, and techniques for understanding, analyzing, evaluating, and improving small group/team communication skills. Prerequisite: CMMA-A250.

CMMA421 Organizational Culture (3)
Introduces the theory and philosophy of cultural approaches to organizational communication. Course would include the nature and significance of sense-making activities in a modern organization, the interplay of organizational structure and culture, the methods researchers use to investigate and write about issues of organizational culture. Prerequisite: CMMA-A320.

CMMA422 Conflict Mediation, Negotiation, and Bargaining (3)
Examines the communication patterns people use when trying to work through conflicts. Discusses the positive uses of conflict in relations and organi-
izations as well as successful methods for negotiating conflicts. Course includes case studies of conflicts in different contexts, as well as specific knowledge about organizational negotiation and bargaining. Prerequisite: CMMA-A200.

CMMA425 Report Writing for Communication Professions (3)
Teaches techniques for researching, writing and presenting effective reports. Topics covered include adapting documents to multiple audiences and purposes; using reference books and the Internet for research, organizing long docu-
ments for readability, writing abstracts and executive summaries, and integrating text and illustrations, charts, and tables. Prerequisite: CMMA-A210.

CMMA430 Gender and Communication (3)
Explores the ways in which communication in families, schools, media, and society creates and perpetuates gender roles. Discusses how men and women enact gender differences in public and private, and how such experiences affect success, satisfaction, and self-esteem. Prerequisite: CMMA-A200.

CMMA432 Communicating Across Racial Divisions (3)
Focuses on the communication process that occurs in interactions between races in the United States, with an emphasis on the relationship between Blacks and Whites. Examines how issues such as class structure, power and the history of race relations create barriers to effective communication and explores solutions to increase understanding. Prerequisite: CMMA-A200.

CMMA435 Stereotyping and Bias in the Mass Media (3)
Examines debates over stereotyping and bias in the mass media. Considers the types of materials that have aroused charges of bias, and surveys the historical, cultural, political and sociological perspectives that help explain stereotyping as a cultural practice. Prerequisite: CMMA-A200.

CMMA440 Mass Communication and Society (3)
Analyzes the significance of the mass media as a social institution. Topics cov-
ered include the role of the mass media in shaping group identity, public con-
flict, media form and content; the cultural consequences of concentrated ownership, and the nature of media criticism. Prerequisite: CMMA-A200.

CMMA442 Theory of Free Expression (3)
Introduces free expression issues from philosophical and case law perspec-
tives. Examines the theoretical basis for free expression and its manifestation in the legal system. Topics include libel, commercial speech, pornography, privacy, and broadcast regulation, but with an eye toward jurisprudence and the under-
lining free expression rationale for the courts position. Prerequisite: CMMA-A200.

CMMA443 Culture, Technology and Communication
Analyzes the interrelation of culture, technology, and communication in con-
temporary societies. Topics covered include the historical evolution of commu-
nication technology; the reorganization of social and psychic time and space, and recent debates about virtual reality. Prerequisite: CMMA-A200.

CMMA444 History of Journalism (3)
Explores the role of the press in American society from the Revolution to the present, with an emphasis on the evolution of journalism as a political institution. Prerequisite: CMMA-A200.

CMMA447 Rhetoric of Political Campaigns (3)
Introduces principles of communication in political campaigns. Course address-
es both theoretical and practical dimensions of campaign communication, including advertising, image making and issue management. Prerequisite: CMMA-A200.

CMMA453 Multimedia Scripting and Design (3)
Prerequisite: CMMA-A255. Focuses on the use of Macromedia Director to create digital multimedia presentations. The course covers both the scripting of multi-
media presentations and the design of attractive, practical interfaces.

CMMA460 Integrated Communication Campaigns (3)
Explores techniques for researching, designing, presenting, and evaluating com-
munication campaigns. Course emphasizes integration of public relations and advertising strategies in a comprehensive plan. Prerequisite: CMMA-A280, 360.

CMMA464 Public Relations Case Studies (3)
Prerequisite: CMMA-A560. Analyzes a wide range of public relations situations that actual organizations have confronted. Students read about and critique real-life cases, devise alternative strategies, and compare solutions. Course emphasizes strategic thinking and problem solving.

CMMA465 International Public Relations (3)
Prerequisite: CMMA-A560. Explores the effect of cultural differences on the prac-
tice of international public relations. Readings discuss the significance for pub-
lic relations practitioners, of differences in language, gender roles, time and space orientations, ethical norms, symbolic rituals, and institutional structures.

CMMA470 Advertising Research and Strategic Planning (3)
Discusses use of primary and secondary research to develop objectives and strategies for an integrated advertising and promotion plan. Research methods include use focus groups, observation, structured interviews, mall inter-
cepts, and tested questionnaires. Prerequisite: CMMA-A470. For participation in the spring AAF competition. Prerequisite: CMMA-A280, 370.

CMMA472 AAF Competition (3)
Students participate in annual American Advertising Federation competition. They work as an advertising agency preparing research, media, creative, public relations and event marketing plans, and preparing plans book and making client presentation for national competition. Prerequisite: CMMA-A470 and permission of instructor.
CMMKA480 Evaluation Methods in Organizations (3)
Applies principles of social science to evaluation practices of organizations.
Topics covered include evaluation of motivation, communication competence, performance appraisal, job satisfaction, and communication networks.
Prerequisite: CMM-A200, 280 or 281.

CMMKA491 Internship (3)
Work experience with local business or non-profit organizations in the student area of communication interest. Prior permission of department intern supervisor required. Prerequisite: May be repeated once for general elective credit.

CMMKA493 Special Topics (1-3)
Required for graduating seniors.

CMMKA495 Senior Residency (0)
Required for graduating seniors.

CMMKA498 Advanced Independent Study (1-3)
Prior permission of sponsoring professor and department chairperson required.

Communication (CMMK)

CMMK100 INTRO TO HUMAN COMMUNICATION (3)
This course offers comprehensive coverage of the fundamentals of human communication including perception, listening, self, and verbal and nonverbal messages. An interpersonal setting is used. The course is designed to familiarize students with the basics of interpersonal communication, small group communication, including interviewing; and mass communication. Research and theory in classical and contemporary approaches will be covered. The knowledge and skills learned will be applied across the entire curriculum.

CMMK121 PUBLIC SPEAKING IN ORGANIZATIONAL LIFE (3)
This course promotes principles of effective public speaking and provides opportunities for the development of speaking skills. The course will examine standards for evaluating personal performance and the performances of others; speeches and presentations required in modern organizations; speaking clearly and persuasively; and effective audience interaction. Students will become familiar with presentation technologies. The knowledge and skills learned will be applied across the entire curriculum.

CMMK323 Business and Professional Communication (oral) (3)
Prerequisites: CMM 100 and 121, ENG 190 and PSY 101. This course extends the content and skills of CMM 100 and 121. Practical instruction and experience in developing professional communication skills for conferences, reports, sales, media and other professional speaking situations will be covered. Students will be required to demonstrate presentational skills in a variety of business and professional presentations including crisis briefings, proposals, sales, and technical presentations.

CMMK360 Public Relations Principles and Practices (3)
Prerequisites: CMM 100 and 121, ENG 190 and PSY 101. This course surveys the basic concepts and principles in the multifaceted field of public relations. Students will attain knowledge and understanding of the role and functions of public relations in society, the role of the public relations professional as a liaison between all stakeholders, internal and external. The course is designed to focus on public relations, career opportunities in the field, and professional, ethical, and legal responsibilities will be discussed. Learning will be reinforced through case study analysis and development, written papers, interactive discussions, and oral presentations.

CMMK370 Advertising Principles and Practices (3)
Prerequisites: CMM 100 and 121, ENG 190, and PSY 101 and 205. This course explores the numerous dimensions of advertising - as a business, a creative communication process, a social phenomenon, and a fundamental ingredient of the free enterprise system. Students will have the opportunity to analyze advertising perspectives; develop marketing and advertising strategies; integrate advertising with other elements of the communications mix; and create advertisements and commercials. Ethics and social responsibility will be emphasized throughout the course. Learning will be facilitated through interactive discussions, case analysis, written assignments, oral presentations, and the critical analysis of an advertising campaign.

CMMK409 THEORIES OF PERSUASION (3)
Prerequisites: CMM 100 and 121, ENG 190, PSY 101 and 205. This course provides an overview of the study of persuasion. In addition to the traditional study of public persuasion, students will gain a solid grounding in the principles of social influence and compliance gaining as they apply to daily interpersonal interaction. Students will become familiar with theory and research in the field and apply strategies and techniques of persuasion across communication contexts. Learning will be demonstrated through interactive discussions, research papers, group projects and professional presentations.

Computer Science (CS)

Lower Division Courses

CS A120 Computer Science I (3)
Prerequisite: four years of high school mathematics or the equivalent. Introduction to computer science using the C programming language. Sequential, selection and repetition control structures; structured programming concepts; subprograms and parameters; simple data structures and pointers. Credit will not be given for both CS-A120 and either CS-P125, or CS-P210. Fall and Spring Semesters.

CS A157 Statistics and Computers (3)
Introduction to data analysis and hypothesis testing. Distributions, sampling, estimation, confidence intervals, t-tests, analysis of variance, correlation and regression. Crosstabulations and chi-square. Use of a statistical package such as SAS, the Statistical Analysis System. Spring Semester. Prerequisite: MT-A120 or the equivalent.

CS A220 Computer Science II (3)
Prerequisite: CS-A120 or the equivalent. Data structures and concepts of object-oriented programming. The C programming language. User defined data types, data abstraction and ADTs (abstract data types). Lists, stacks, queues, trees, and their implementation. Fall and Spring Semesters.

CS A231. Logic Design (3)
Digital logic design; boolean functions, encoding, logic gates, combinatorial circuits, sequential circuits, memory, flip-flops. Design of registers and register transfer hardware. Hardware and software tradeoffs. Design of a central processing unit and microcomputer organization. Fall semester. Prerequisite: CS-A120.

CS A240 Computer Science III (3)
Prerequisite: CS-A220. Advanced data structures and object-oriented design. Advanced topics in searching and sorting and on trees, heaps, graphs. Algorithm and complexity analysis. Advanced file processing and principles of database. Fall and Spring Semesters.

CS A293 Special Topics (1-4)
Prerequisite: CMMK409.

CS A298 Independent Study (0-3)
Prior approval of sponsoring professor and chair required.

Lower Division Courses

CS A311 Programming Languages (3)
Overview of programming languages: procedural and functional languages. Exposure to functional languages. Analysis of solution strategies to variable binding and function call. Problem solving paradigms and linguistic issues. Offered occasionally. Prerequisite: Prerequisite: CS-A220.

CS A321. Computer Architecture (3)
Computer organization design using Reduced Instruction Set Computing (RISC) instruction set architecture, organization of memory, datapath and control. Enhancing performance with memory hierarchy and pipelining. Alternate architectures. Spring Semester. Prerequisite: CS-A231.

CS A341 Databases (3)
Prerequisite: CS-A220. Fundamentals of Database systems: the relational model, file organization and indexes, relational algebra, structured query language, the entity relationship model, normalization, object databases. The course will include development in a major commercial client-server database. Fall semester.

CS A351 Compilers (3)
Prerequisite: CS-A220. Introduction to the theory and techniques of compiler design: lexical analysis, finite state automata, context-free grammars, top-down and bottom-up parsing, syntax analysis, code generation. Other important issues such as optimization, type-checking, and garbage collection will be discussed. Offered occasionally.

CS A361. Microprocessing (3)
Prerequisite: CS-A120. Organization and architecture of a microprocessor. One hour weekly lecture. Many machine language programs are worked on in laboratory portion of course. Interfacing with peripheral devices. Spring Semester. Prerequisite: CS-P120.

CS A451 Operating Systems (3)
Theory and practice of operating systems, with emphasis on one of the UNIX family of operating systems. File organization and database systems. Focus on a multi-user system in the client-server model. Hands-on experience. Offered Occasionally. Prerequisite: CS-A240.

CS A461 Software Engineering (3)
Theory and practice of software engineering. Design and implementation of software systems. Levels of abstraction as a technique in program design. Organized around major group programming projects. Spring Semester. Prerequisite: CS-A240.

CS A471 Algorithms (3)

CS A482 Automata (3)

CS A483 Applied Combinatorics (3)

CS A487 Numerical Analysis (3)
CS P111. Introduction to Computer Programming with Fortran 90 (3)  
Use of computers as problem solvers. Preliminary programming introduction to specific programming languages for programmers experienced in another language of the same type. Fall and Spring semesters. Prerequisite: MT-A120 or equivalent.

CS P115. Discrete Structures (2)  
A theoretical introduction to the logical structure of computer programs. Sets; functions, relations, recursion; graphs and digraphs; symbolic logic; number systems; basic counting, finite state machines, and algorithms. Fall and Spring semesters.

CS P200. Programming Practicum (1)  
Prerequisite: CS-A120 or equivalent. Basic programming techniques; hands-on experience with editors, word processors, spreadsheets and database software; networking; hands-on experience with the Internet, including e-mail, file transfers, telnet, and web searches. Fall and Spring semesters. Corequisite: MT-A114 or equivalent.

CS P210. Introduction to Computer Programming with BASIC (3)  
Computer Science (CS) Parks College Lower Division Course  
Introduction to information systems; microcomputer hardware; operating systems; hands-on experience with editors, word processors, spreadsheets and database software; networking; hands-on experience with the Internet, including e-mail, file transfers, telnet, and web searches. Fall and Spring semesters. Corequisite: MT-A114 or equivalent.

CS P211. Advanced Discrete Structures (3)  
Prerequisite: MT-A120 or equivalent. Fundamental theoretical concepts of computer science. Set theory, graphs and digraphs, symbolic logic, number systems, basic counting, finite state machines, and algorithms. Fall and Spring semesters.

CS P213. Visual BASIC Programming (procedural) (1)  
Computer Science (CS) Parks College Lower Division Course  
Introduction to programming languages; Visual Basic. Fall and Spring semesters. Prerequisite: MT-A114 or equivalent.

CS P214. Ada Programming (procedural) (1)  
Computer Science (CS) Parks College Lower Division Course  
Introduction to programming languages; the Ada programming language. Fall and Spring semesters. Prerequisite: MT-A114 or equivalent.

CS P215. Advanced Discrete Structures (3)  
Prerequisite: CS-P115. Advanced theoretical concepts of computer science. Set theory, graphs and digraphs, symbolic logic, number systems, basic counting, finite state machines, and algorithms. Fall and Spring semesters.

CS P216. Java Programming (object-oriented) (1)  
Computer Science (CS) Parks College Lower Division Course  
Introduction to programming languages; the Java programming language. Fall and Spring semesters. Prerequisite: MT-A114 or equivalent.

CS P217. C++ Programming (object-oriented) (1)  
Computer Science (CS) Parks College Lower Division Course  
Introduction to programming languages; the C++ programming language. Fall and Spring semesters. Prerequisite: MT-A114 or equivalent.

CS P218. Advanced Discrete Structures (3)  
Prerequisite: CS-P215. Advanced theoretical concepts of computer science. Set theory, graphs and digraphs, symbolic logic, number systems, basic counting, finite state machines, and algorithms. Fall and Spring semesters.

CS P219. Advanced Discrete Structures (3)  
Prerequisite: CS-P215. Advanced theoretical concepts of computer science. Set theory, graphs and digraphs, symbolic logic, number systems, basic counting, finite state machines, and algorithms. Fall and Spring semesters.

CS P225. Data Structures (3)  
Prerequisite: CS-P215, or CS-A120 and CS-P200. Data structures, algorithmic analysis, and object-oriented programming. The C++ programming language; user-defined data types, data abstraction and abstract data types; lists, stacks, queues, trees, and their implementations. Fall and Spring semesters.

CS P226. Object-Oriented Design (3)  
Prerequisite: CS-P215 or equivalent. Classes and methods, messages, instances, initialization, inheritance, static and dynamic binding, polymorphism. Spring semesters.

CS P230. Software Engineering (3)  
Prerequisite: CS-P225 and CS-P215. Representation of data and control information-gates, Boolean algebra and basic digital logic circuits, latches, flip-flops, registers, memory organization, and the central processing unit; memory addressing, byte ordering, system buses and caches; input/output mechanisms; assembly language programming. Spring semesters. Prerequisite: CS-A220.

CS P235. Software Architecture and Organization I (3)  
Prerequisite: CS-P225 and CS-P215. Representation of data and control information-gates, Boolean algebra and basic digital logic circuits, latches, flip-flops, registers, memory organization, and the central processing unit; memory addressing, byte ordering, system buses and caches; input/output mechanisms; assembly language programming. Spring semesters. Prerequisite: CS-A220.

CS P245. Advanced Data Structures and Algorithms (3)  
Prerequisite: CS-P225. Advanced data structures and object-oriented design. Advanced topics in searching and sorting; trees, heaps, graphs, algorithms and complexity analysis; advanced file handling and principles of object-oriented programming. Fall semesters.

CS P270. Software Engineering (3)  
Prerequisite: CS-P225. Software engineering goals, principles, and methodologies; software project life cycles; impact of the computer language on software development; software development; feasibility analysis; process-oriented object-oriented methodologies; human interface design; organizational issues. Spring semesters.

CS P275. Co-op with Industry (0)  
Prerequisite: Sophomore standing. A full-time supervised work experience with an agency, firm or organization that employs persons in this degree field. This course is used for the first experiential learning session. Grading system is determined by department offering course. Offered every semester.
CS P293 Special Topics (1-4). Offered occasionally.

Upper Division Courses

CS P310 Theory of Programming Languages (3) Prerequisites: CS-P293 and CS-P215. Issues in designing languages, including binding and language paradigms; language translation issues; formal grammars, regular expressions; finite-state and push-down automata and parsing; data types and abstract data types; run-time storage management; sequence and data control; examples of programming paradigms; subprogram control; parallel programming. Spring semesters.

CS P315 Design and Analysis of Algorithms (3) Prerequisites: CS-P215. Operation counts and analysis of algorithms; design methods: divide-and-conquer; branch-and-bound; and heuristics; parallel algorithms; and their complexity; intractable problems and NP completeness. Fall or Spring semesters.

CS P320 Numerical Methods (3) Prerequisite: MTP153 and CS-P125. Review of calculus.; finite-precision arithmetic and round-off; rootfinding, direct and iterative solution of linear systems of equations, interpolation and approximation; numerical differentiation and integration. Fall or Spring semesters.

CS P325 Combinatorial Algorithms (3) Prerequisite: CS-P225 and CS-P215. Combinatorial algorithms and complexity, presented via a sampling of problems such as network capacity and routing, resource scheduling, and gaming; computer science illustrations of the need for counting formulas; dynamic programming, and graph theory; data encryption techniques. Fall or Spring semesters.

CS P330 Computer Architecture and Organization II (3) Prerequisite: CS-P230 co-requisite: CS-P245. The microprogramming level of a computer; advanced computer architectures; differences between RISC and CISC computers; introduction to operating systems; operating system structure; process management and scheduling; memory management, virtual memory management. Fall semesters.

CS P335 Data Communications and Networking (3) Prerequisite: CS-P225 Transmission media; packets, frames and error-detection; LAN and WAN technologies; routing; Internet architecture and protocols; network performance; host computers; routers; protocol layers; internet protocol addresses; datagram encapsulation; fragmentation; reassembly; Internet Control Message Protocol, network security and legal issues. Fall semesters.

CS P340 Database Systems (3) Prerequisite: CS-P245. Components of a database system; entropy relationship, semantic-object and other database models; relational model and normalization; commercial database management systems; database manipulation using relational algebra and structured query language; database implementation with hierarchical and network models; database administration and security; client-server systems; distributed databases. Fall semesters.

CS P350 Compiler Design (3) Computer Science (CS) Parks College Upper Division Course Lexical analysis, syntactic analysis, type checking; code generation; code optimization; efficient parsing strategies; syntax directed editors, interpreters. Spring semesters. Prerequisite: CS-P310 and CS-P350.

CS P360 Software Analysis and Design (3) Prerequisite: CS-P270. Software analysis and design fundamentals; data-oriented and object-oriented analysis and design; use of CASE tools; functional attributes of a real-time system; user interface analysis and design; quality assurance mechanisms. Fall semesters.

CS P365 Software Quality (3) Prerequisite: CS-P270. Need for standards and procedures for program layout; error handling and defensive programming; legal, non-technical, and technical aspects of software documentation and reuse; formal technical reviews; verification by decomposition of program modules; factors affecting software quality; software testing fundamentals and levels; software maintenance; CASE tools for verification and maintenance; configuration management. Spring semesters.

CS P370 Software Project Management (3) Prerequisite: CS-P270. Realities of software development related to estimating the activities, risks, and costs of a project; planning the allocation and acquisition of resources; using prototypes to manage risk; tracking, reviewing and reporting project development; cost and quality assurance. Fall semesters.

CS P375 Co-op with Industry (0) Prerequisite: CS-P275. A full-time supervised work experience with an agency, firm, or organization that employs persons in this degree field. This course is used for the second experiential learning session. Grading system is determined by department offering course. Offered every semester.

CS P376 Internship with Industry (0-3) Prerequisite: Junior standing. A work experience with an agency, firm or organization that employs persons in this degree field. This experience may be full time or part time as required by the industry sponsor. This course is used for the first experiential learning session. Grading system is determined by department offering course. Offered every semester.

CS P410 Compiler Design (3) Prerequisite: CS-P310; co-requisite: CS-P350. Lexical analysis; syntactic analysis; type checking; code generation; code optimization; efficient parsing strategies; syntax directed editors, interpreters. Spring semesters.

CS P430 Network Management and Applications (3) Client/server interaction; socket interfaces; Domain Name Systems; e-mail repre-sentation and transfer; file transfer and remote file access; security and legal aspects of network management; web-servers and technologies. Fall semesters. Prerequisite: CS-P335.

CS P435 Network Applications (3) Computer Science (CS) Parks College Upper Division Course Client-server interactions; socket interfaces; Domain Name Services; e-mail representation and transfer; file transfer and remote file access; HTML pages and browsing; CGI and Java technologies for web documents. Spring semesters. Prerequisite: CS-P430.

CS P440 Artificial Intelligence (3) Prerequisite: CS-P245. Techniques of knowledge representation, including artificial neural networks and object-attribute-value triples; methods of inference; pattern matching techniques; inexact reasoning and fuzzy logic techniques; introduction to expert systems; advanced search techniques; individual AI projects. Fall or Spring semesters.

CS P450 Advanced Operating Systems (3) Prerequisite: CS-P350. Operating systems; process problems; linear address space and tree structured space of objects; resource allocation, queuing and network control policies; system balancing and thrashing; job activation and process scheduling; multiprogramming systems; protection mechanisms for accessing jobs; pipelining and parallelism, distributed systems. Fall or Spring semesters.

CS P455 Machine-Level Software Engineering (3) Computer Science (CS) Parks College Upper Division Course Software engineering methodologies for microcomputer chips, life-cycles for feasibility, software system analysis and design; processes and design, team projects in assembly language. Credit will not be given for both CS-P455 and CS-P470. Spring semesters. Prerequisite: CS-P340.

CS P460 Software Analysis and Design (3) Computer Science (CS) Parks College Upper Division Course Software engineering and design fundamentals; data-oriented and object-oriented analysis and design; use of CASE tools; functional attributes of a real time system; user interface analysis and design; quality assurance mechanisms. Fall semesters. Prerequisite: CS-P370.

CS P465 Software Verification and Maintenance (3) Computer Science (CS) Parks College Upper Division Course Need for standards and procedures for program layout, error handling and defensive programming; legal, non-technical and technical aspects of software documentation and reuse; formal technical reviews; verification by decomposition of program modules; factors affecting software quality; software quality assurance; software testing fundamentals and levels; software maintenance; CASE tools for verification and maintenance; configuration management. Spring semesters. Prerequisite: CS-P460.

CS P470 Software Project Management and Economics (3) Computer Science (CS) Parks College Upper Division Course Realities of software development related to estimating the activities, risks and costs of a project; planning the allocation and acquisition of resources; using prototypes to manage risk; tracking, reviewing and reporting project development; cost and quality assurance. Fall semesters. Prerequisite: MGTB500, CS-P370, and MT-P403.

CS P475 Co-op with Industry (0) Prerequisite: CS-P375. A full-time supervised work experience with an agency, firm or organization that employs persons in this degree field. This course is used for the third experiential learning session. Grading system is determined by department offering course. Offered every semester.

CS P476 Internship with Industry (0-3) Prerequisite: CS-P376 or Senior standing A work experience with an agency, firm or organization that employs persons in this degree field. This experience may be full time or part time as required by the industry sponsor. Grading system is determined by department offering course. Offered every semester.

CS P480 Discrete Event Simulation (3) Systems, models, and computer simulation; modeling paradigms; queuing; generation of simulation flow charts; simulation programming techniques; computer-aided simulation software; output analysis; input modeling; generating uniform pseudorandom numbers; random variation generation, designing experiments. Spring semesters. Prerequisite: CS-A245 and MT-P403.

CS P490 Software Design Project (3) Prerequisite: Senior Standing in Applied Computer Science or Computer Science Systems. Senior design project in computer software design projects by teams selected I cover as many areas of computer science as possible; documentation and formal presentation are required. Spring semesters.

CS P498 Independent Study (1-4). Offered occasionally.
180 - Course Descriptions

Communication Sciences and Disorders (CSD)

CSDI100 Introduction to Communication Disorders (3)
An introduction to the areas of study and the disciplines involved in communicative disorders. Offered each Fall and Spring.

CSDI254 Linguistics (2)
Linguistic theories of language development and clinical applications. Offered each Spring.

CSDI300 Phonetics (2)
The sounds of American speech; analysis of formation and transcription into the international phonetic alphabet. Offered each Fall.

CSDI320 Articulation/Phonology (3)
Prerequisite: CSD-I300. Study of development of speech sound production and factors affecting development: assessment and modification of typical phonological articulation patterns. Offered each Spring.

CSDI326 Anatomy and Physiology of the Speech Mechanism (5)
Lecture demonstration on the structure and function of the systems involved in respiration, phonation and articulation. Laboratory required. Offered each Fall.

CSDI328 Speech Science (3)
A basic understanding of the physiological components underlying propagation of the speech signal (involving respiration, phonation, articulation, resonance), the acoustics of the signal, and how the speech signal is perceived by the listener. Offered each Spring.

CSDI329 Hearing Science (2)
Scientific aspects of hearing and its measurement; topics include basic acoustics, anatomy and physiology of the ear, psychoacoustics, laboratory equipment and miscellaneous topics. Offered each Spring.

CSDI335 Clinical Methods (3)
Principles and practices in diagnosis and treatment common to communication disorders. Offered each Spring.

CSDI342 Beginning Sign Language (1)
Manual alphabet and basic signs used in communicating with the deaf. Open to non-majors. Offered each Fall.

CSDI343 Advanced Sign Language (1)
Prerequisite: CSD-I342. Offered each Spring.

CSDI401 Clinical Practicum (1-3)
Prerequisite: CSD-I420 and CSD-I435. Permission of instructor required. Offered each Fall, Spring and Summer.

CSDI410 Language Development and Disorders (4)
Prerequisite: CSD-I424 or permission from instructor. Language development in typically developing children as well as an introduction to language disorders in children. Offered each Fall.

CSDI440 Audiology: Basic Audiometry (3)
Prerequisite: CSD-I426 or permission from instructor. Techniques for administration and interpretation of audiologic test results. Offered each Fall.

CSDI441 Aural Rehabilitation (3)
Prerequisite: CSD-I440 or permission from instructor. Study of hearing aids and other amplification systems, cochlear implants, speechreading and auditory training. Habilitative and rehabilitation strategies for hearing-impaired children and adults are discussed. Offered each Spring.

CSDI460 Fluency Disorders (3)
Nature, etiology, physiological and psychological aspects and ramifications of stuttering. Offered each Spring.

CSDI470 Characteristics of Multicultural Populations (3)
The correlation between linguistic structures and sociological variables among multicultural populations. Offered each Fall and Summer.

CSDI493 Special Topics (1-3)
CSDI495 Senior Residency (0)
CSDI496 Counseling (2)
Study and practicum in interviewing, counseling procedures and techniques. Offered each Spring.

CSDI498 Independent Study (1-3)
Permission of instructor and chair.

Computer Science Technology (CST)

CST-K110 Data Processing (3)
Computer Science Technology (CSTK) School for Professional Studies Only. Lower Division course techniques for using windows workstation, log-on and editing procedures for UNIX and DEC. basic programming techniques. Also, beginning HTML programming and designing of web pages are emphasized.

CST-K160 INTRODUCTION TO PROGRAMMING (3)
Prerequisites: Grade of “C” or better in MT 120. This course will introduce s students to the foundation concepts of computer programming. The student will learn how to enter, compile, link, and run a computer program using the C. Structured programming will be introduced through techniques designed to solve business and scientific problems. Laboratory exercises will provide practice in writing programs that will reinforce basic programming concepts, logic flow and structured design.

CST-K250 Programming Logic and Design (3)
Prerequisite: Grade of “C” or better in MT 120. This course will prepare students for analysis and application of logic techniques used in computer programming. The course covers a range of topics, including truth tables, hierarchy charts, data representation, table dimensions, tabulation handling, computer logic, comparing and branching conditions, and interactive logic. Pseudocode and hierarchy charts will be used to help students appreciate logic as a living enterprise.

CST-K260 COBOL PROGRAMMING (3)
Prerequisite: Grade of “C” or better in CSTK 250 or concurrent enrollment. This course will provide students with the foundation knowledge needed for programming in a business oriented language. Student instruction concentrates on developing the programming logic and syntax needed to solve basic business problems. Design tools, such as flowcharts and pseudocode, are introduced and used as a basis for developing programs. The student will be exposed to: handling, table and array processing, report generation, arithmetic statements, sorting procedures, data types, and conditional statements.

CST-K280 Discrete Structures I (3)
Prerequisite: Grade of “C” or better in CSTK 160 or concurrent enrollment. This course is the first in a two-term sequence which will introduce the mathematical tools necessary for an understanding of computer science applications. Topics covered include: sets, relations, functions, basic counting techniques, permutations, combinations, graphs, recurrence relations, simple analysis, algorithms, O-notations, Boolean algebra, and number systems. Prerequisite: CS 150 and MT 120.

CST-K290 DISCRETE STRUCTURES II (3)
Prerequisite: Grade of “C” or better in CSTK 280. This course is the second course in a two-term sequence which will introduce the: mathematical tools necessary for an understanding of computer science applications. Topics covered include: logic, proofs, counting, probability, matrices, finite state machines, graph algorithms, formal languages, sequential and parallel algorithms, complexity.

CST-K293 SPECIAL TOPICS (1-4)
Prior approval of sponsoring professor and Program Director required.

CST-K298 INDEPENDENT STUDY (1-4)
Prior approval of sponsoring professor and Program Director.

CST-K300 Principles of Software engineering (3)
Prerequisites: Grade of “C” of better in CSTK 250 and CSTK 280. This course provides an introduction to the analysis and design of computer/information systems. Exercises in the analysis, design, implementation, testing and maintenance of a modular application will provide the student with the foundation knowledge needed in today’s computer technology field. Topics include the software engineering goals, object oriented methodologies, human interface design, organizational issues. Prerequisite: grade of “C” or better in Foundation courses.

CST-K305 Advanced Programming Concepts (3)
Prerequisites: Grade of “C” or better in CSTK 250 and CSTK 280. This course covers advanced concepts in programming using the C language within the UNIX environment. The course begins by exploring the fundamentals framework of the UNIX operating system covering file management, shell and editing, basic UNIX commands. The emphasis of the course will be on developing programming solutions that are effective, reliable, and user-oriented in the C programming language. Topics include program layouts, variables, constants, loops, if-else statements, functions, arrays, strings, data types, operators, expressions, compound statements, pointers, structures, and I/O.

CST-K310 Principles of object Oriented Programming (3)
Prerequisites: Grade of “C” of better in CSTK 250 and CSTK 280. This course introduces the fundamental principles and technology of object-oriented programming, with emphasis on the Java programming language. Topics include data abstraction, information hiding, encapsulation, inheritance, polymorphism, templates, exceptions, and object-oriented considerations for software design and reuse.

CST-K320 Principles of Event Driven Programming (3)
Prerequisites: Grade of “C” or better in CSTK 250 and CSTK 280. This course introduces the necessary skills and methodologies needed to program in the Visual Basic language. The student will design, develop, and code Windows applications that solve computer/information technology based business problems. Topics include controls, objects, events, variables, multiple forms, procedures, functions, arrays, file I/O, error handling, menus, and database access.

CST-K330 Concepts of Database Analysis and Design (3)
Prerequisites: Grade of “C” of better in CSTK 250 and CSTK 280. This course introduces the fundamental concepts of database analysis, design, and implementation with emphasis on the relational model. The course will cover databases used in today’s networked client-server applications. Topics include ANSI SQL, data normalization, tables, queries, reports, forms, security, replication, data layout, and backup/recovery.
CST-K350 Fundamentals of Operating Systems (3)
Prerequisites: Grade of 'C' or better in CSTK305. This course provides students with a sound foundation in the key mechanisms of operating systems. The course will address design issues highlighting the tradeoffs and decisions involved in operating systems design. Building on the fundamental principles, this course will include recent developments such as threads, real-time systems, multiprocessor scheduling, process migration, and security. Windows NT, UNIX, and IBM MVS will be referenced as running illustrative examples of operating systems. Distributed operating systems concepts will be introduced—reflecting on current trends in the computer science technology field.

CST-K360 Networking and Telecommunications I (3)
Prerequisites: Grade of 'C' or better in CSTK250 and CSTK280. This course introduces students to computer networks and telecommunications for today's computer/information technology professional. The course will cover basic network terminology, the different types of networks, and the components that comprise a network. Specific topics include the OSI model, network protocols, network operating systems, network hardware, and network topologies. Additionally, this course will examine telecommunications and the role it plays in information exchange. Topics include program layout, variables, constants, loops, if/else statements, functions, arrays, strings, data types, operators, expressions, compound statements, pointers, structures, and I/O.

CST-K401 Data Structures and Algorithms (3)
Prerequisites: Grade of 'C' or better in CSTK305. This course provides advanced study of techniques and algorithms for representing and manipulating data structures. The course will expose students to methods used by the business and scientific community in building efficient and optimized computer technology solutions. Topics include advanced language features, data abstraction, object-oriented programming, classes, dynamic storage allocation, garbage collection, compaction, sorting, searching, merging, hashing, recursion, stacks, queues, linked lists, trees, and graphs.

CST-K405 Computer Science Technology Project Management (3)
Prerequisite: Grade of 'C' or better in CSTK250 and CSTK280. This course introduces students to the process involved with managing a complex computer/information technology project from its inception through implementation and ongoing maintenance. The course will cover current project management methodologies, quality control, and administration. In addition, the student will develop and review action plans for reengineering the computer/information technology project with the goal of building, sustaining, and expanding a competitive advantage within the business industry. Students will complete a comprehensive culminating examination for the Computer Science Technology degree.

CST-K420 Client Server Automation (3)
Prerequisites: Grade of 'C' or better in CSTK320 and CSTK310. This course provides a practical introduction to client/server application development and deployment. The student will learn how to plan for, build, and streamline computer applications that successfully meet the challenge of today's information technology business environment. The course will include topics in business process reengineering, client/server migration, data warehousing, system and network management, middleware, and CASE tool usage. Exercises will reinforce how to develop, upgrade, support, test, and secure applications in an object-oriented client/server environment.

CST-K460 Networking and Telecommunications II (3)
Prerequisites: Grade of 'C' or better in CSTK360. This course provides advanced study in the areas of networking and telecommunications in the corporate, business, and scientific environments. The course will focus on the skills needed for today's computer/information technology administrator and/or engineer. The student will learn how to design, develop, and support networks in today's client/server environment. Network architecture and administration issues will be highlighted and experienced through the use of LAN/WAN environments. Additional topics will include Intranet, data transmission, network security, and telephony.

CST-K470 Advanced Database Analysis and Design (3)
Prerequisites: Grade of 'C' or better in CSTK320 and CSTK350. This course provides advanced study in how to develop and implement a business oriented, database information system. Students will design, construct, test, and install a database system using fourth generation event-driven languages and/or other data access tools.

CST-K472 Advanced Object-Oriented Programming (3)
Prerequisites: Grade of 'C' or better in CSTK310. This course builds upon the foundation knowledge of object-oriented programming. The focus will be on developing real-world business/scientific applications and developing programming solutions that are effective, reliable, and user-oriented. Students will design, code, and document programs in the C++ or similar language using object-oriented analysis and design. The primary concepts covered include: classes, objects, encapsulation, constructors, overloading, polymorphism, and inheritance.

CST-K475 Advanced COBOL Programming (3)
Prerequisites: Grade of 'C' or better in CSTK250, CSTK260 and CSTK280. This course will expose the student to the techniques and complexities of business-oriented problems. Modular and efficient program design is stressed along with documenting, testing, and debugging techniques. Advanced programming topics will include multiple file processing, direct, random, and indexed file processing, subprogram development, advanced string manipulation, and multiple level arrays/table processing.

CST-K493 Advanced Special Topics (1-4)
Prior approval of sponsoring professor and Program Director required.

CST-K498 Advanced Independent Study (1-4)
Prior approval of sponsoring professor and Program Director required.

Decision Sciences (DSC)

DSCB207 Introductory Business Statistics (3)
Introduction to descriptive statistics for displaying and summarizing business data, and use of probability and random variables in business decision-making. Probability distribution, statistical inference as a decision-making tool. Sampling of business data, simple linear regression and correlation, time series analysis and use of index numbers in economic data. Prerequisite: MT A120.

DSCB305 Introduction to Management Sciences & Production Systems (3)
The objectives of this course are to 1) acquaint the student with the overall operations research/management science process, 2) expose the student to several most widely utilized operations research/management science and production planning models, along with the solution techniques, 3) familiarize the student with the use of computers in facilitating managerial decisions. Prerequisite: MT A112 and DSCB207.

DSCB455 Advanced Operations Research for Management (3)
Continued exploration of operations research techniques used in solving business problems at an advanced level. Topics: advanced linear programming for solving various production problems including duality analysis and computer applications, assignment and transportation problems, PERT/CPM, Markov analysis, game theory, queuing theory, simulation and other related optimization problems. Prerequisite: DSCB207, and DSCB305.

DSCB460 Intermediate Business Statistics (3)
Continued exploration of statistical methods at advanced levels of business applications emphasizing management of large and complex data sets. Topics include: Bayesian and classical inference, utility theory, nonparametric methods, time series analysis, multiple regression, the analysis of variance, and multivariate techniques. Statistical packages SPSS, BMDP, and SAS will be used. Prerequisite: DSCB207.

DSCB462 Introduction to Modeling, Analysis & Design of Managerial Systems (3)
Introduction to modeling, quantitative systems concepts and managerial systems analysis. Analytic techniques are used to introduce business problems analyzed as systems. The course is based upon abstraction of managerial systems introducing various scientific approaches to management. Topics include: modeling techniques, systems design, managerial dynamics, charting techniques, reliability of business systems, and growth and decay processes. Prerequisite: DSCB505.

DSCB463 Production and Operations Management (3)
Applications of management science methods and techniques to production and operations problems for managerial decision-making. Topics: production planning, resource allocation and scheduling, forecasting, work measurement, inventory control, preventive maintenance, quality control, and operations simulation. Students work in small groups to research and apply techniques to operational problems. Prerequisite: DSCB505.

DSCB467 Mathematical Programming for Management (3)
Advanced study of linear goal programming, integer programming, nonlinear programming and dynamic programming techniques as applied to the solution of problems of production and business management. For students with area of concentration in decision sciences. Prerequisite: DSCB455.

DSCB480 Decision Sciences Internship (3)
This course can be used as elective credit but not as concentration credit. Participants will have the opportunity to develop new skills through experiential learning under the direction of a skilled practitioner. The arrangements for the working relationship must be established prior to the assignment. Prerequisite: Requires permission of the department chair, and junior or senior standing.

DSCB498 Special Study (1-3)
Prerequisite: Requires permission of the department chair.

Earth and Atmospheric Sciences (EAS)

EASA101 Earth Systems I - The Solid Earth (3)
Lecture: 5 hours per week. Provides an introduction to all aspects of the solid Earth: Origin and interior structure, plate tectonics, earthquakes, volcanoes, crustal evolution, rocks and minerals, ice and snow, surface and groundwater hydrodynamics, erosion and deposition and Earth resources. Fulfills three hours of science requirement. Fall and Spring semesters.

EASA102 Earth Systems II - The Atmosphere (3)
Lecture: 5 hours per week. Provides an introduction to classification and identification of minerals, rocks, ores, and sedimentary and geologic and geological maps. Fulfills one hour of science requirement. Fall and Spring semesters. Prerequisite: OR COREQUISITE EASA101.
EASA103 Earth Systems II - The Atmosphere and Ocean (3)
Can be taken before EASA101. Lecture three hours per week. Provides an introduction to all aspects of Earth's oceans and atmosphere: physical properties of the oceans, ocean circulation, ocean currents and climatic influences; atmosphere, composition and structure, radiation, heat, pressure and humidity, winds, planetary circulation, air-sea interaction, weather analyses and forecasting, air pollution, world climate and global change. Fulfills three hours of science requirement. Spring semester.

EASA104 Earth Systems II Lab (1)
Pre-requisite or Corequisite: EASA103 This lab-based course meets two hours per week. It provides an opportunity to measure some atmospheric variables, analyze and discuss the fields and examine through atmospheric and oceanographic examples how the land-atmosphere and ocean-atmosphere systems mutually interact. Field trips illustrating remote and direct measurement of some meteorological variables are planned. Class is limited to 19. Fulfills one hour of science requirement. Spring semester.

EASA105 Introduction to Oceanography (3)
Lecture three hours per week. Provides an introduction to ocean basin formation, chemical and physical properties of sea water, water waves, currents, tidal forces and tides, interaction of land and ocean in coastal environments, marine biology and ocean resources. Fulfills three hours of science requirement. Spring semester, alternate years.

EASA107 Understanding the Weather (3)
Lecture three hours per week. A nonmathematical description of the processes that effect the weather are provided. Topics include solar radiation, horizontal and vertical structure of the atmosphere, atmospheric motions, and climate. Fulfills three hours of science requirement. Fall and Spring semesters.

EASA108 Introduction to Environmental Science (3)
Lecture three hours per week. Examination of natural and man-made hazards in the environment, including earthquakes, volcanoes, storms, tsunamis, erosion and pollution. Fulfills three hours of science requirements. Fall semester.

EASA109 Climate and Humankind in History (3)
Lecture three hours per week. Treatment of the interaction of early people with the atmospheric environment on the basis of existing paleoclimatological evidence. Interplay between climate and civilization; recent historical events as related to contemporaneous climates. Course developed around the notions of weather systems and climates of various scales. Fulfills three hours of science requirements. Fall semester.

EASA114 Earth History (Historical Geology) (3)
Lecture three hours per week. Provides an introduction to the geologic origin and development of the earth, plant and animal life, and landscapes. Fulfills three hours of science requirement. Fall semester.

EASA117 Physical Geography (3)
Lecture three hours per week. Provides an introduction to the origin of land forms, earth resources, climate and weather; implications of human use of natural resources. (Satisfies Missouri Teaching Certification requirement.) Fulfills three hours of science requirement. Fall semester.

EASA118 Physical Geography Lab (1)
Two hours laboratory per week. Provides experience in using planimetric maps, topographic maps and nautical charts and an introduction to the underlying principles of map making and map reading. Fulfills 1 hour of science credit. Usually offered in the Fall semester. Pre-requisite or Corequisite: EASA117.

EASA130 Seismology of Nuclear Explosions (3)
This inquiry-based course will emphasize the scientific questions involved in the detection of underground nuclear explosions using seismology. Many other related issues will also be raised and discussed, e.g. the interplay of science and public policy, how political decisions are made, the ratification of Test Ban treaties, and the detection of underground nuclear explosions by seismology. Spring or Fall semester. Prerequisite: EASA220.

EASA131 WATER-OUR PRECIOUS RESOURCE (3)
This inquiry-based course will investigate the properties and distribution of water on earth, society's needs for clean water, and the causes for and consequences of flooding, drought, pollution, and potential future meltdown of ice caps. Two in class lectures and class discussions per week, with approximately five 3-hr field trips during the semester. Fulfills three hours of science credit.

EASA132 Natural Disasters (3)
This inquiry-based course examines geologic process that are sometimes hazardous to humans, including earthquakes, volcanic eruptions, and landslides. Each section of the course will include an analysis of the geologic processes, and will end by discussing specific examples of where, when and how each type of geologic process has proven hazardous, or resulted in a natural disaster. Lecture and discussion, 3 hours per week. Fulfills 3 hours of science credit.

EASA133 Drifting Continents (3)
This inquiry-based course introduces students to the theory of continental drift and plate tectonics, covers the general character of science, the history behind plate tectonics, how the theory explains the great features and phenomena near the Earth's surface, and current debates around plate tectonics. Lectures and discussion, 3 hours per week. Fulfills 3 hours of science credit.

EASA137 Meteorological Aspects of Emergency Response (3)
Two 75 minute periods per week. The first period will be devoted to lecture topics. The last 50 minutes of the second period will involve a case study. Field trips to the St. Louis Forecast Office of the National Weather Service and to an Emergency Operations Center are required. 75% of situations involving federal, state and local emergency responders and agencies are directly caused by weather phenomena. Some of these are obvious, such as tornadoes, hurricanes and flooding; while others, like a heat wave or extreme cold, may not be obvious. Additional phenomena include infrastructure failures, chemical spills and releases, and air pollution incidents require weather information and forecasts.

EASA193 Introduction to Earthquakes (3)
Lecture three hours per week. Provides an introduction to the science of earthquakes. Discussions include the general character of science, plate tectonics, geologic time, seismic hazards, faults and faulting, earthquake prediction, seismic waves, and Earth structure and composition. Fulfills three hours of science requirement. Fall semester.

EASA208 Introduction to Environmental Science (3)
Lecture 3 hours per week. Examination of natural and man-made environmental hazards, their causes and possible solutions. Fulfills three hours of science requirement. Fall semester. Prerequisite: EASA101/102 and MTA141. Corequisite: CHA161.

EASA211 Map and Chart Analysis (3)
Weather maps and diagrams plotted and analyzed; decoding of surface observation and numerical model codes. Basic concepts of meteorology examined qualitatively, requiring only a cursory knowledge of mathematics. Fall semester.

EASA220 Mineralogy (3)
Lecture three hours per week. Crystallography, physical, chemical, and descriptive mineralogy. Prerequisite: EASA101/102, MTA141, Corequisite: EASA221, CHA161.

EASA221 Mineralogy Laboratory (1)
Must be taken concurrently with EASA220. Identification of rock-forming and ore minerals through physical and optical properties. Will include field trips. Meets 5 hours once a week.

EASA240 Field Techniques in Geology (2)
Lecture and discussion, 3 hours per week. Field trips and the general methodology of field work. Students will learn to use a compass, maps and other geological aids, orienteer, describe basic geologic features, keep a field notebook and map simple geologic structures. Most of the course will be conducted in the field. Fall Semester. Prerequisite: EASA101/102.

EASA242 Computer Applications in Earth Science (1)
Restricted to students in Earth and Atmospheric Sciences. Laboratory two hours per week. Students gain experience in the use of word processors, spreadsheet and graphing packages for tabulating, analyzing and reporting scientific data in the geosciences. Spring semester.

EASA253 Physical Climatology (3)
Basic causes of climate and microclimate; meteorological interpretations of existing climates; methods of climate classification; emphasis on the physical processes of climate changes. Spring semester. Prerequisite: Calculus I.

EASA305 Geomorphology (3)
Lecture and discussion, 3 hours per week. Deposition and surficial deposits, and the erosional and depositional processes responsible for landform genesis. Long-term landscape development and aspects of larger scale geomorphology. Lecture three hours per week, occasional field trips. Spring or Fall semester. Prerequisite: EASA101/102.

EASA310 Sedimentology and Stratigraphy (3)
Earth and Atmospheric Sciences (EAS) - Upper Division Course Lecture three hours, laboratory two hours per week. Principles of sediment erosion, transport, deposition and lithification. Relationship of strata to depositional history, correlation, facies and an overview of the Stratigraphic Code. Spring or Fall semester. Prerequisite: EASA220.

EASA315 Broadcast Meteorology I (3)
5.5 hours. Combining lectures and hands-on experience: The principles of broadcast meteorology will be introduced. Students will develop the skills necessary to communicate scientific information, with emphasis on weather forecasts. The campus radio station will be used by the students to present weather forecasts on a daily basis. Prerequisite: EASA102 and EASA211.

EASA325 Global Change (3)
Lecture three hours, laboratory two hours per week. Classification, anatomical structure and geological history of invertebrate fossils. Prerequisite: EASA101 and EASA114.

EASA335 Surface Water Hydrology (3)
Fundamentals of surface water resources. Prerequisites: EASA101, EASA105 and EASA424 or consent of instructor.
EASA350  Computational Methods in Meteorology (3)  
Prerequisite: CS-A366. Computational techniques in meteorology is designed to introduce students to computational tools and techniques. This course will be a deconstruct of specific, meteorological problems in mind. The course will center on the benefits and drawbacks of the different numerical forecast methods and how they affect the interpretation of the results. During this course, the student will write a simple barotropic model. Each assignment will illustrate a numerical technique. This course assumes a background in Fortran and the use of a workstation. Prerequisite: CS-A366.

EASA370  Mesoanalysis and Severe Storms (3)  
The structure, dynamics and climatology of severe local storms are studied. Forecasting techniques for severe local storms are carried out. The tropical cyclogenesis is studied with respect to its climatology, structure and forecasting techniques. Fall semester Prerequisite: EAS-A335, A444.

EASA403  Elements of Air Pollution (3)  
Basic concepts in air pollution meteorology are discussed including sources of air pollution, atmospheric chemistry, air pollution inventories, Gaussian air pollution model, pollutant control strategies and air pollution legislation. Current topics include acid rain, ozone depletion, and global change. Alternate Spring semesters Prerequisite: Calculus I and consent of instructor.

EASA405  Petrology (3)  
Origin, occurrence, characterization and classification of igneous and metamorphic rocks. Lecture three hours per week. Spring or Fall semester. Prerequisite: EAS-A220/221; Corequisite: EAS-A242.

EASA406  Petrology Laboratory (1)  
Three hours laboratory per week. An introduction to the description, classification, and analysis of igneous and metamorphic rocks in hand specimens and under the microscope. A brief introduction to optical mineralogy is included. Spring or Fall semester. Prerequisite: EASA405 or concurrent registration.

EASA410  Sedimentology and Stratigraphy (3)  
Prerequisite: EAS-A220/221 or consent of instructor. Study of the principles of sedimentary processes. Origin, transport, deposition and preservation of sediments; analysis and interpretation of textures, sedimentary structures, and composition of sedimentary rocks. Facies analysis and depositional environments. Principles of stratigraphy and methods of stratigraphic analysis. Lecture three hours per week. Spring or Fall semester.

EASA411  Sedimentology and Stratigraphy Laboratory (1)  
Prerequisite: EAS-A110 or concurrent registration, EAS-A220. Three hours of laboratory per week. The course will include the description and interpretation of sedimentary textures and structures; the examination and classification of the various sedimentary rock types in hand specimen, thin section, and outcrop; the use of stratigraphic maps and correlation; and the paleogeographic analysis of stratigraphic successions. Extensive field work is required. Spring or Fall semester.

EASA415  Instrumentation and Remote Sensing (3)  
Prerequisite: Calculus II. Meteorological instruments will be studied from the viewpoint of performance characteristics, sensitivity, dynamical error, and sinusoidal and step response. Statistical treatment of output data; digital measurement systems; computerized data processing and retrieval as it applies to the synoptic laboratory and climatology. Spring semester Prerequisite: Calculus II.

EASA420  Synoptic Meteorology I (3)  
Laboratory study of the structure and process of the atmosphere including the equations of motion and thermodynamics, Norwegian cyclone theory and the quasigeostrophic theory. Diagnostics and prognostic meteorological charts will be used. Fall semester Prerequisite: Calculus III and concurrent registration in EAS-A444.

EASA422  Synoptic Meteorology II (3)  
Those in the BS program should concurrently register for EAS-A445. Topics include: Isentropic diagnostic analysis techniques, mesoscale meteorology and severe weather forecasting and numerical weather prediction (NMG, Eta models) including statistical products. Emphasis is placed on real-time map discussions and forecasts. Students must achieve a grade of C or better in EAS-A420 (Synoptic Meteorology I) to take this course. Spring semester.

EASA423  Micrometeorology (3)  
Physical relations between profiles of temperature, moisture and wind in the atmospheric boundary layer; influence of local atmospheric turbulence, diffusion, and heat transfer processes on the boundary layer. Spring semester Prerequisite: Calculus III.

EASA425  Project in Environmental Science (0-6)  
This course will be lecture, field and laboratory based. The goal will be to discuss local and global environmental issues important to society and allow students to acquire first-hand knowledge of such issues in the laboratory and in the field. Lectures will emphasize the methods of scientific analysis, data collection, library research, identification of environmental problems and possible solutions, report writing, and presentation of results. Several case studies will be reviewed in detail as needed.

EASA426  Environmental Geophysics (3)  
Lecture three hours per week. Geophysical techniques for exploration and characterization of shallow structure and media in the geosciences. Includes gravity, magnetic, seismic, electrical, borehole and ground-penetrating radar methods. Alternate Spring semesters. Prerequisite: EAS-A240, EAS-A242, MT-A142 and PH-A151/152.

EASA428  Environmental Geochemistry (3)  
Lecture three hours per week. Application of geochemical principles towards the understanding of chemical processes occurring at or near the Earth's surface. Prerequisite: EAS-A210, EAS-A212, MTA142 and CH-A161.

EASA430  Structural Geology (3)  
Lecture three hours per week. Description of structures in sedimentary, igneous and metamorphic rocks at scales ranging from atomic to continental. Introduction to stress, strain, deformation mechanisms, and techniques of kinematic and dynamic analyses. Alternate Spring semesters. Prerequisite: EAS-A220/221, EAS-A210, EAS-A212, MTA142, and PH-A151/152.

EASA431  Structural Geology Laboratory (1)  
Concurrent registration in EAS-A430 is required. Laboratory focuses on map interpretation, collection of structural data, and geometrical techniques for solving structural problems. Half-day and weekend field trips are an integral part of the laboratory.

EASA432  Physical Meteorology I (3)  
Physical principles underlying atmospheric processes: thermodynamics of dry and moist air, various thermodynamic diagrams, and formation of clouds and precipitation. Fall semester. Prerequisite: Prerequisite or Corequisite: Calculus III.

EASA433  Physical Meteorology II (3)  
Prerequisite: OR Corequisite: Calculus III. Principles of radiative transfer in the atmosphere; solar and terrestrial radiation; absorption and emission of radiation; theory and characteristics of Black Body Radiation. Energy transfer processes near the earth's surface; vertical fluxes of momentum, heat and water vapor in the boundary layer and energy budget at the earth-atmosphere interface. Refraction by water drops, and rainbow and atmospheric signal phenomena. Students must achieve a grade of C or better in EAS-A434 EAS-A433 (Physical Meteorology I) to take this course. Spring semester. Prerequisite: Prerequisite or Corequisite: Calculus III.

EASA435  Groundwater Hydrology (3)  
Lecture 2 hours, laboratory two hours per week. Introductory course in hydrogeology. Describes relations between surface water and groundwater, principles of groundwater flow, relations between groundwater and geology, and problems related to groundwater pollution. Numerous experiments and simulations are used in the course. Alternate Fall semesters. Prerequisite: EAS-A101/102, EAS-A242, MTA142 and MTA103 (recommended).

EASA437  Earth Dynamics (3)  
Lecture three hours per week. The relation between plate tectonics and properties of Earth's interior including heat flow, the hydrosphere and geophysical observations. Emphasis will be on the relation of Earth's surface features to processes at depth. Spring or Fall semester. Prerequisite: PH-A131/312 or PH-A151/152 Corequisites: EAS-A405/406 and EAS-A430.

EASA440 Advanced Field Methods (2)  
Earth and Atmospheric Sciences (EAS) - Upper Division Course Instruction in advanced methods of field work. Students will map igneous, metamorphic and sedimentary rocks, soils and structures such as folds and faults. Most of the course will be conducted in the field. Spring or Fall semester. Prerequisite: EAS-A240, at least one upper level EAS geoscience course.

EASA444 Principles of Dynamic Meteorology I (3)  
Dynamic principles underlying large scale atmospheric motion development of the general circulation equations, horizontal approximations, thermal wind concept coordinate system transformations, kinematics, circulation theorem, and flow in the planetary boundary layer. Fall semester. Prerequisite: Calculus III and concurrent registration in EAS-A120.

EASA445 Principles of Dynamic Meteorology II (3)  
Introduction to numerical weather prediction, atmospheric inertial and gravity waves, and barotropic and baroclinic instabilities. Students must achieve a grade of C or better in EAS-A444 (Principles of Dynamic Meteorology I) to take this course. Spring semester. Corequisite: MT-A351.

EASA447 Elementary Tropical Meteorology (3)  
Tropical Meteorology; Convergence Zones and Weather Systems; Trade Winds; El Niño and Southern Oscillation; Hurricanes; Formation; Theories and Prediction; Monsoons; Global Tropical Forecasting; and Satellite Estimation of Precipitation. Every fall semester. Prerequisite: EAS-A433, A444.

EASA450 Scientific Communications (2)  
Restricted to students in Earth and Atmospheric Sciences. Lecture two hours per week. Principles of effective writing for a scientific audience; the structure of reports, papers and communications; techniques for the organization and delivery of results for oral, written and poster presentations. Spring or Fall semester.

EASA451 Principles of Seismic Exploration (2)  
It is also recommended that EAS-A452 be taken concurrently. Exploration for natural resources using seismic waves; refraction and reflection methods and interpretation; elementary seismic data processing. Spring or Fall semester. Prerequisite: General Physics, MT-A142, EAS-A430 recommended.

EASA452 Seismic Exploration Laboratory (1)  
Laboratory and field problems, two hours per week. Collection and interpretation of seismic data; applications of the computer to data interpretation. Fall or Spring semester. Prerequisite: EAS-A451 or concurrent registration.
EASA453 Principles of Electrical Exploration (3)
Electrical properties of earth materials, natural electrical fields, electrical fields in layered media, electrical methods of exploration. Spring or Fall semester. Prerequisite: General Physics, PH-A121 or concurrent registration.

EASA455 Principles of Gravity and Magnetic Exploration (4)
Earth's gravity and magnetic fields, density and magnetic properties of rocks, gravity and magnetic methods of exploration. Spring or Fall semester. Prerequisite: MT-A571 and PH-A421.

EASA460 Introduction to the Physics of the Solid Earth (3)
Physical properties and processes in the earth's interior structure, composition, heat flow, rheological processes, and evolution. Spring or Fall semester. Prerequisite: General Physics, MT-A244.

EASA462 Introduction to Earthquake Seismology (3)
Lecture two hours, laboratory two hours per week. Causes and effects of earthquakes, parameters of seismic data, seismograph recordings, seismic geography and structure of the earth inferred from seismic data. Laboratory exercises with problems of record interpretation. Spring or Fall semester.

EASA465 Weather Forecasting (3)
Students study and practice weather briefing techniques. Short term (48 hours) weather forecasts are prepared for St. Louis and two distant sites where students must depend on the department data base. Aviation forecasts are prepared for both low flying small aircraft flights and for long distance high altitude jet flights. Number of lecture hours per week is 1 and number of laboratory hours per week is 4. Fall or Spring semesters. Prerequisite: Prerequisite or Corequisite: EAS-A120, EAS-A444.

EASA470 Theory of Vibrating Systems (3)
Single and multiple degree of freedom oscillators Theoretical and practical study of ground vibrations caused by earthquakes, machinery, quarry blasts, and other disturbances; effects of these vibrations on buildings and other structures. Spring or Fall semester. Prerequisite: MT-A351, PH-A511 recommended.

EASA472 Seismological Instrumentation (3)
Lecture two hours, laboratory one hour per week. Physical principles underlying design and operation of the seismograph. Selection of the seismograph for specific problems, calibration, and response characteristics. Laboratory practice in assembly, installation and calibration of modern seismographs. Spring or Fall semester. Prerequisite: MT-A351 and EAS-A170 recommended.

EASA478 COMET Modules (1-3)
This is a self study, self-paced course which utilizes the computer-based learning (CBL) modules on the laser video disk and CD-ROM, purchased from the Cooperative Program for Operational Meteorology, Education and Training (COMET). Credits earned are based upon the number of modules chosen. The modules vary in length and include frequent quizzes and lab exercises which are computer evaluated. The student will contract to finish a certain number of modules during the term, and complete them on the department PC which runs the modules. The completion of the modules will be monitored by the students advising office or Spring semesters. Prerequisite: EASA-A120, A444, and A422, or concurrent enrollment.

EASA480 Meteorology Internship (0-6)

EASA488 Senior Inquiry Research Project (0-6)

EASA493 Special Topics (1-4)

EASA495 Senior Residency (0)

EASA498 Advanced Independent Study (0-6)
Prior permission of sponsoring professor and chair required.

Economics (ECN)

ECNB100 Principles of Economics (3)
Analysis of how individuals, firms, and nations make choices given limited resources. Determinants of decision making in market economies. The political economy of income, employment, and inflation in the aggregate. The role of government and the Federal Reserve. MT-A120 highly recommended.

ECNB299 Honors Tutorial Course in Economics (3)
For Honors students only.

ECNB312 Intermediate Macroeconomics (3)

ECNB314 Intermediate Microeconomics (3)
The maximizing behavior of households (consumers) as constrained by income and prices. Business firm behavior in price and output decisions and in factor markets. Comparisons of the organization of markets under competitive and imperfectly competitive conditions; welfare implications of marketplace performance. Prerequisite: ECNB-190. It is recommended that MT-A132 be taken prior to ECNB-314.

ECNB379 Economic, Political, and Social Development in Latin America (3)
(Crosslisted with IBS-B321) Historical and institutional analysis of the economies of Latin America. The impact of economic ideology in the modern development experience. Case studies include: Brazil, Chile, Mexico, Peru, Central America. Prerequisite: ECN-B190.

ECNB408 Industrial Organization and Public Policy (3)
Economic theory, case studies and law are utilized to explore the causes of monopoly power, its effects on rivals and social consequences. Role and effect of anti-trust policy in curbing abuses of monopoly power are also explored. Prerequisite: ECNB-312 and ECNB-314 or consent of department chair.

ECNB410 Urban and Regional Economics (3)
Urban housing, transportation, employment, growth, government. Emphasis on public policies such as those dealing with unemployment, poverty and the fiscal plight of central cities. Prerequisite: ECNB-512 and ECNB-514 or consent of department chair.

ECNB416 History of Economic Analysis (3)
(Crosslisted with IBS-B427) Origins and development of modern economic thought, from ancient time, through the 19th century. Prerequisite: ECNB-312 and ECNB-314 or consent of department chair.

ECNB420 Money and Banking (3)
Impact of the U. S. Treasury, the Federal Reserve System, commercial banks and other financial institutions on economic variables such as employment, prices and the balance of payments. Prerequisite: ECNB-512 and ECNB-514 or consent of department chair.

ECNB430 International Economics (3)
(Crosslisted with IBS-B425) Basic international economic principles and goals as they relate to industrial policy and the determinants of trade deficits, and the short run and long run determinants of nominal and real exchange rates, particularly the effects of government spending, money and productivity on the exchange rate. This course examines international finance theory and applies it to a nation's economic circumstances. It is designed to ask and answer important questions of current international macroeconomic issues. Prerequisite: ECNB-312 and ECNB-314 or consent of department chair.

ECNB440 Labor Economics (3)
Labor markets, determinants of labor supply, labor demand and wages (both as cost and income); institutions affecting labor, including trade unionism and labor law; work/leisure trade-offs, the work ethic as it affects work hours and productivity. Prerequisite: ECNB-312 and ECNB-314 or consent of department chair.

ECNB456 Economic Development (3)
(Crosslisted with IBS-B425) The political economy of the Third World. Review of comparative historical and theoretical approaches to growth and development. An analysis of population change, migration, education, the role of private and public capital, and international linkages. Prerequisite: ECNB-512 and ECNB-514 or consent of department chair.

ECNB460 Economics of the Government Sector (3)
Allocation, distribution, stabilization functions of government. Government expenditures and alternative means of financing: taxation, borrowing, intergovernmental aid, sale of governmental services. Prerequisite: ECNB-312 and ECNB-314 or consent of department chair.

ECNB477 Introduction to Econometrics (3)
Theory of Economic statistics, development of statistical models applied to economic data. Probability theory, statistical criteria, hypothesis testing, correlation analysis, identification, multicolinearity and serial correlation. Prerequisite: DSC-B207, ECNB-312 and ECNB-314 or consent of department chair.

ECNB480 Economics Internship (1-3)
This course can be used as elective credit but not as concentration credit. Participants will have the opportunity to develop new skills through experiential learning under the direction of a skilled practitioner. The arrangements for the working relationship must be established prior to the assignment. Prerequisite: ECNB-312 and ECNB-314. Requires permission of the department chair; and Prerequisite: junior or senior standing.

ECNB495 Senior Residency (0)
Prerequisite: ECNB-312 and ECNB-314 or consent of department chair are

ECNB497 Senior Synthesis (0-3)
Prerequisite: ECNB-312 and ECNB-314 or consent of department chair.

ECNB498 Special Study (1-3)
Prerequisite: ECNB-312 and ECNB-314. Requires permission of the department chair.
Education Administration (EDA)

EDA1301 School Law for Teachers (1)
A study of cases, statutes, regulations, and practices dealing with teacher and student rights and responsibilities, academic freedom and classroom management. Every semester.

Education: Foundations (EFD)

EFDI304 School as a Social System (2)
A systematic analysis of how social issues have impacted on schools forcing continual change, especially the urban school. Each part of the educational system will be analyzed: the organization, its environment, inputs/output, and feedback. Field experiments are required and every effort is made to coordinate clinical experiences with the pre-teaching course. Every semester.

EFDI305 Toward a Philosophy of Teaching (2)
Identification and discussion of those principles of education which would result in an enlightened, humane, and truly educational teaching/learning situation. Offered occasionally.

EFDI398 Independent Study (1-3)

EFDI423 Psychology of Teaching and Learning (3)
A study of the principles of psychology as they relate to education; an examination of teaching models; an investigation of theory and practice; decision-making for teaching in areas such as socialization, learning, motivation, intelligence, individual differences, etc. Every semester.

EFDI470 Human Growth and Development (3)
This course provides a broad survey of human development. It includes an examination of the major developmental topics within the periods of infancy, childhood, adolescence, and adulthood. It follows a chronological course of physical, cognitive, social, and personality development throughout the various age periods; and it interrelates these major areas of development to the whole person. Every semester.

EFDI471 Development of the Young Child (3)
An examination of the basic theories, principles and research relating to growth and development from a physical, intellectual, social and emotional perspective. Covers development from prenatal period through age five. Review of characteristics of major conditions (including developmental disabilities and giftedness) impacting on development. Field experience with infants/toddlers.

EFDI480 Institute in Educational Psychology (1)
The course is periodically offered on various topics and issues, in areas of educational psychology. As needed.

EFDI498 Independent Study (1-3)

Education: Instruction (EDI)

EDI149 Senior Residency (0)
Every semester. Satisfactory/Unsatisfactory.

EDI201 Pre-Teaching Laboratory: Elementary School (1-2)
An examination of the educational process through structured field assignments and observations with a special emphasis on elementary education. Students explore techniques and principles of elementary education by assuming various responsibilities and duties in the classroom. The course is designed to provide an overview of elementary education. Includes Field Experience. Every semester.

EDI202 Pre-Teaching Laboratory: Secondary School (1-2)
An examination of the educational process through structured field assignments and observations with a special emphasis on secondary education. Students explore techniques and principles of working with adolescents in an educational setting by assuming various responsibilities and duties in the classroom. The course is designed to provide an overview of elementary education. Includes Field Experience. Every semester.

EDI203 Pre-Teaching Laboratory: Special Education (1-2)
An examination of the educational process through structured field assignments and observations with a special emphasis on special education. Students explore principles and techniques of working with students in special classes by assuming various responsibilities and duties in the classroom. The course is designed to provide an overview of elementary/special education. Includes Field Experience Every semester.

EDI204 Pre-Teaching Laboratory: Early Childhood (1-2)
An examination of the educational process through structured field assignments and observations with a special emphasis on preschool education. Students explore techniques and principles of working with preschool children by assuming various responsibilities and duties in the classroom. The course is designed to provide an overview of early childhood education and to provide a background for student teaching. Includes Field Experience. Every semester.

EDI205 Pre-Teaching Laboratory: Middle School (1-2)
An examination of the educational process through structured field assignments and observations with a special emphasis on middle school education and junior high. Students explore principles and techniques of working with pre-adolescents in an educational setting by assuming various responsibilities and duties in the classroom. The course is designed to provide an overview of middle school education. Includes Field Experience Every semester.

EDI225 Introduction to Teaching (1)
Education: Instruction (EDI) To prepare students with basic information and experiences that will be needed in future education courses. Students in this course will prepare a portfolio to be used for their education teaching major/certification program. Prepare an academic (4 year) plan. Assist students in developing group projects, data base, and desk top publishing skills as they pertain to Education. Every semester.

EDI290 Intercultural Seminar & Practicum with International Students (1-3)
Prerequisite: Upper-level sophomore status. Theoretical and practical introduction to intercultural awareness. Discussion of readings and issues in weekly seminars. Consideration of cultural conditioning, values, and assumptions of participants and of international students in student-led conversation groups and extracurricular activities. Meets new core curricular requirement in cultural diversity. Prerequisite: Upper-level sophomore status.

EDI300 Elementary School Methods of Teaching Reading (2)
Instructional techniques and classroom materials suitable at the elementary school level. May Include Practicum Experience. Various approaches to teaching reading. Every semester.

EDI301 Elementary School Methods of Teaching Mathematics (2-3)
Instructional techniques and learning materials, including manipulatives and multisensory materials suitable for elementary school mathematics. Major emphasis on the NCTM Standards and their application to elementary and early childhood mathematics. Includes Practicum Experience. Spring semester.

EDI302 Elementary School Methods of Creative Arts & Movement (2)
This course will focus on music and physical education curriculum for early childhood and elementary classrooms. Students will develop techniques for instruction in each area as well as an awareness of developmental expectations for children. Integration of the arts into other content areas will be included. May Include Practicum Experience. Fall semester.

EDI303 Emergent Literacy (3)
Instructional techniques, classroom materials and strategies appropriate for use with the beginning reader. This course will emphasize the role of immersing children in language through the use of a balanced literacy program during reading to children, with children and by children. Prerequisite: EDFI452.

EDI306 Elementary School Methods of Teaching Social Studies & Science (3)
This course focuses on an introduction to the methods used in teaching elementary social studies and science. The class combines theory with practical experiences. In addition, students will develop skills for integrating technology and developing curriculum. Includes Practicum Experience. Fall semester.

EDI309 Elementary School Methods of Teaching Language Arts (2)
Focus on the elements in a language arts program. Includes development of children's language and thinking skills, written communication and grammar, listening and speaking skills, spelling and handwriting. Emphasis is on the process of developing effective communication skills and integrating content areas. Includes Practicum Experience. Spring semester.

EDI310 Secondary School Methods and Practicum: Teaching English (3)
A study of the scope and sequence of English in the high school curriculum with an emphasis on the sequence and organization of instruction and evaluation. Includes Practicum Experience. Fall semester.

EDI311 Secondary Methods and Practicum: Teaching Science (3)
Methods and materials for teaching science to students in secondary schools. May include practicum experience. Fall semester.

EDI312 Secondary Methods and Practicum: Teaching Mathematics (3)
Methods and materials for teaching mathematics to students in secondary schools. Emphasis on the NCTM Standards. Includes practicum experience. Fall semester.

EDI314 Secondary Methods and Practicum: Teaching Social Studies (3)
Methods and materials teaching social studies to secondary students. Includes Practicum Experience. Fall semester.

EDI315 Secondary Methods and Practicum: Teaching Foreign Language (3)
Techniques of teaching a foreign language to secondary school students. Analysis of learning and teaching approaches. Includes practicum experience. Fall semester.

EDI316 Secondary School Methods of Teaching Music (3)
Education: Instruction (EDI) Course focuses on methods and materials for teaching music at the secondary level. Fall semester.

EDI317 Secondary School Methods of Teaching Art (3)
Courses focus on methods of teaching art at the secondary level; general techniques and approaches, methods and learning materials, analysis of learning and teaching problems. Includes Practicum Experience. Fall semester.
EDII320 Reading and Writing in the Content Field (3)
Teaching reading and writing in the content fields in Middle and Secondary schools. Developmental reading for average and above average students as well as remedial techniques for poor readers will be explored. Improving reading rate, motivation, critical reading, reading in special content areas, writing across the curriculum. Includes practicum. Fall semester.

EDII321 Elementary School Methods of Teaching Childrens Literature (2)

EDII324 Early Childhood Mathematics (3)
Methods and materials for the young child learning in mathematics. The major emphasis is on the use of manipulative and multisensory materials. NCTM Standards are explored. Includes Practicum Experience. Spring semester.

EDII327 Language Arts and Literature for the Young Child (3)
Survey and analysis of the techniques of presenting literature to young children. Emphasis on selection of literature appropriate for integration into the curriculum. Emphasis on various responses to literature through all language modalities. Includes Field Work

EDII351 Middle School Methods and Practicum: Language Arts (1)
Methods and materials for teaching language arts to students in grades 5-9. Includes practicum. Fall semester.

EDII352 Middle School Methods and Practicum: Mathematics (1)
Methods and materials for teaching mathematics to students in grades 5-9. Emphasis on the NCTM standards. Includes practicum. Fall semester.

EDII353 Middle School Methods and Practicum: Science (1)
Methods and materials for teaching science to students in grades 5-9. Emphasis on NSTA Standards. Includes practicum Fall semester.

EDII354 Middle School Methods and Practicum: Social Studies (1)
Methods and materials for teaching social studies to students in grades 5-9. Includes practicum. Fall semester.

EDII368 Observation and Student Teaching: Middle School/Junior High (9-10)
Involves ten weeks of full-time student teaching under the direction of an experienced teacher and a University supervisor. Student initially observes, then gradually assumes responsibility for all classroom activities. Every semester.

EDII370 Observation and Student Teaching: Elementary School (8-10)
Involves ten weeks of full-time student teaching under the direction of an experienced teacher and a University supervisor. Student initially observes, then gradually assumes responsibility for all classroom activities. Every semester.

EDII373 Observation and Student Teaching: Secondary School (8-10)
Involves ten weeks of full-time student teaching under the direction of an experienced teacher and a University supervisor. Student initially observes, then gradually assumes responsibility for all classroom activities. Every semester.

EDII380 Observation and Student Teaching: Early Childhood (8-10)
Involves ten weeks of full-time student teaching under the direction of an experienced teacher and a University supervisor. Student initially observes, then gradually assumes responsibility for all classroom activities. Every semester.

EDII390 Observation and Student Teaching (1-3)
Restricted to students requiring additional certification areas. Offered occasionally.

EDII398 Independent Study (1-3)
Every semester.

EDII412 Instructional Technology (2)
Focuses on the use of technology with students in early childhood, elementary, middle, secondary and special education. Topics will include technology concepts and terminology, as well as the use of microcomputer hardware and software, word processing, database, spreadsheet, computer-generated graphics, CD-ROM, multimedia, internet and assistive devices. Emphasis is on appropriate applications of technology in the classroom. Every semester.

EDII412 Seminar: Innovations in Teaching Social Studies (2)
Underlying philosophies of instruction, supportive materials and methods, relevant research and problems of scope and sequence. K-12 Offered occasionally.

EDII423 Seminar: Innovations in Teaching Science (2)
Underlying philosophies of instruction, supportive materials and methods, relevant research and problems of scope and sequence. K-12 Offered occasionally.

EDII424 Seminar: Innovations in Teaching Elem. School Mathematics (2)
Underlying philosophies of instruction, supportive materials and methods, relevant research, problems of scope and sequence within the elementary school. Spring semester.

EDII425 School Curriculum and Instruction: Pre K-6 (2-3)
Emphasis on curriculum content and development of skills for integration of curriculum areas. Alternative instructional techniques for diverse learners will be included. Practicum in elementary setting is required. Fall semester.

EDII426 Middle School Curriculum and Instruction (2-3)
This course focuses on instructional strategies technology and curriculum relevant to the middle schools. Practicum in middle school setting is required. Fall semester.

EDII427 Secondary School Curriculum and Instruction (2-3)
This course focuses on instructional strategies, technology and curriculum relevant to the secondary schools. Practicum in a secondary school setting is required. Fall semester.

EDII429 Methods in Remedial Mathematics (3)
Materials and methods suitable for teaching children experiencing difficulty in learning mathematics. Includes practicum experience. Fall semester.

EDII430 Methods in Remedial Reading (3)
Basic principles of reading applied to remedial reading instruction with an emphasis on classroom adaptation, diagnosis and correction of classroom reading problems. Includes an introduction to techniques of remedial reading used by teachers. A one hour practicum is included. Spring semester.

EDII433 Methods in Advanced Reading (3)
The psychology of reading, recent trends and developments in reading research. Reading in the content areas. Incorporation of whole language novel units. One hour practicum included. Comprehension, evaluation, and critical reading. Fall semester.

EDII440 Developmental Reading Problems in Young Children (2)
Developmental foundations and techniques in reading readiness and reading in early childhood. Offered occasionally.

EDII443 Early Childhood General Health, Nutrition, and Safety (2)
This course will investigate effective techniques for dealing with health, safety, and nutrition in early childhood education. Special attention will be given to the impact of healthy/unhealthy development on the social, emotional, and intellectual characteristics of young children and classroom techniques for keeping children safe and healthy. As needed.

EDII444 Assessment in Early Childhood (3-4)
Includes use of developmental screening and diagnostic measures and translation of the results into appropriate practice. Focus on informed and formal measures and the incorporation of observation into the assessment process for children with and without disabilities. Includes family involvement, ethical considerations, and development of individual plans. Incorporates field experience.

EDII445 Perceptual Motor Development (2)
Students examine the range of variations in perceptual motor abilities among children; develop diagnostic and assessment skills; design instructional materials which can be used in working with children who have motor-skill differences. Every third semester.

EDII448 Integrated Early Childhood Curriculum I (3)
Crosslisted with EDI-I452. Basic methods for curriculum development for young children (Birth - Grade 3) with emphasis on developmentally appropriate practice. Includes learning strategies, selection of materials, development of daily programs, and organization of environment. Focus on integration of language/literacy, mathematics, art, music, drama and movement. Includes Field Work. Prerequisite: EDI-I452.

EDII449 Integrated Early Childhood Curriculum II (3)
Advanced methods for curriculum development for young children (Birth - Grade 3) with emphasis on developmentally appropriate practice. Focuses on planning, implementation and evaluation of integrated curriculum with special emphasis on language/literacy, science, social studies, safety, nutrition and health. Incorporates application of research. Includes field work. Prerequisite: EDI-I448.

EDII450 Curriculum, Methods and Materials in Early Childhood Educ. (3)
Basics and sequence of early childhood curricula with emphasis on developmentally appropriate practice; includes strategies, selection of materials, development of daily programs and organization of the learning environment. Fall semester. Prerequisite: EDI-I445.

EDII451 Counseling in Early Childhood (3)
Focus on approaches to working with young children and their families in the home and community. Exploration of theories and methods which enhance positive relations with children and families. Emphasis on a family system approach. Prerequisite: EDI-I452.

EDII452 Principles of Early Childhood Education (2)
Exploration of theories and strategies for teaching the young child. Includes an examination of theories and applications relevant to the learning environment. Emphasis on diversity and meeting the needs of all children. Includes Field Work. Spring semester.

EDII454 Field Experience: Early Childhood (2-4)
Classroom experience under guidance of master teacher in an early childhood setting (Birth - Grade 5). Incorporates application of theories in the learning environment. Opportunities for development and implementation of appropriate activities with individuals, small, and large groups.

EDII455 Practicum: Elementary Education (4)
Classroom experience under the guidance of a master teacher in an elementary setting (Grades 1-6). Opportunities for development and implementation of appropriate activities with individuals, small, and large groups.
EDSI441 Education and Psychology of the Exceptional Individual (3)
Survey of the historical development of Special Education; introduction to current issues. Psychological, medical, and sociological aspects related to development of the exceptional individual in classroom learning environments. Alternative instructional strategies, special education resources, family programs, multi-cultural issues introduced. Every semester.

EDSI442 Principles and Methodology in Mentally Handicapping Education: Special Education (EDS) (2)
An introduction to educational and psychological characteristics (cognitive, emotional, and social) of students with mental handicaps and the implications which these characteristics have for practice. Problems of definition, screening, diagnosis, classification systems, classroom management and multi-cultural issues. Every third semester.

EDSI443 Principles and Methodology in Learning Disabilities (2)
An introduction to dimensions of learning disabilities identification, characteristics, development, habilitation. Historical and current thinking relevant to the various concepts and practices in the identification and treatment of learning disabilities is discussed. Teaching techniques, instructional material modifications, classroom management. Introduction to multi-cultural issues. Every third semester.

EDSI444 Principles and Methodology in Behavior Disorders (2)

EDSI435 Supervised Practicum in Mental Handicaps: Practice Teaching (6-10)
Involves full time student teaching in a classroom for students with mental handicaps under the direction of an experienced teacher and a University Supervisor. Enrollment limited to seniors who have completed methods courses. As needed. Prerequisite: EDS445 and admission to Teacher Certification Program.

EDSI436 Supervised Practicum in Learning Disabilities: Practice Teaching (6-10)
Involves full time student teaching in a classroom for students with learning disabilities under the direction of an experienced teacher and a University Supervisor. Enrollment limited to seniors who have completed methods courses. As needed. Prerequisite: EDS445 and admission to Teacher Certification Program.

EDSI437 Supervised Practicum in Behavior Disorders: Practice Teaching (6-10)
Involves full time student teaching in a classroom for students with behavior disorders under the direction of an experienced teacher and a University Supervisor. Enrollment limited to seniors who have completed methods courses. As needed. Prerequisite: EDS445 and admission to Teacher Certification Program.

EDSI438 Supervised Practicum in Early Childhood Special Education: Practice Involves full time student teaching in a classroom for special needs under the direction of an experienced teacher and a University Supervisor. As needed. Prerequisite: EDS445 and admission to Teacher Certification Program.

EDSI439 Institute in Special Education (1)
Offered periodically on various topics and issues in the areas of mentally handicapping conditions, learning disabilities, and behavior disorders. On demand.

EDSI440 Speech and Language Development of the Exceptional Child (2-4)
A study of language and speech acquisition development, structure and function in non-disabled and exceptional children, preschool through adolescence. Spring semester.

EDSI441 Diagnostic and Prescriptive Procedures (1, 2 or 3)
Introduction to beliefs and practices in evaluation procedures in education and special education (preschool through adolescence). Introduction to securing case histories and test administration and interpretation in basic developmental and skill areas. Offered according to certification area. Fall semester.

EDSI442 Perception: Theories and Techniques (2)
A study of theories concerning perceptual and visual-motor problems with emphasis on principles, methods and techniques for teaching the exceptional child. On demand.

EDSI443 Principles and Methodology in Mental Handicaps (4)
Course includes both introductory principles related to the educational and psychological characteristics (cognitive, emotional, and social) of students with mental handicaps and the implications that these characteristics have for practice. Course also includes information useful for selecting and developing intervention programs, discussion of problems of definition, screening, diagnosis, classification systems, classroom management and multi-cultural issues and the study of instructional approaches emphasizing specific methods and materials including cognitive, social/adaptive, perceptual/motor, mathematical, and language development. Overview of research in the field is also addressed. Every third semester. Prerequisite: EDS442.

EDSI444 Advanced Principles and Methodology in Learning Disabilities (2)
Study of instructional approaches for educating students with learning disabilities, emphasizing specific methods and materials for teaching academics, elementary through secondary levels. Methodology for development of perceptual, cognitive and social skills, development of written and mathematical language skills. Introduction to basic research in the field. Review of multi-cultural issues. Every third semester. Prerequisite: EDS443.
EduS445 Counseling in Special Education (2)
Prerequisite: Completion of Advanced Special Education Methods Course.
Course presents approaches to working with exceptional individuals and their parents in the school, home and community. Exploration of theories and methods which enhance positive relations with students and parents. Investigation of transitional programs and vocational options for students with disabilities. Fall semester. Prerequisite: Completion of Advanced Special Education Methods Course.

EduS451 Special Education Education (2)
Prerequisite: Completion of Advanced Special Education Methods Course.
Course focuses on the inclusion of all students in the general education class-room. Emphasis will be on the development of intervention strategies, differentiation of instruction for all students, facilitation of social acceptance, participation in the IEP process and collaboration with other professionals. Includes strategies for gifted students and students with disabilities. Includes field work. Prerequisite: EDS414.

EduS452 Career Development for the Exceptional Child (2)
Prerequisite: EDS453.
Course presents strategies for gifted students and students with disabilities. Emphasis will be placed on the problems of curriculum, teaching, administration, and guidance. Literature in areas of creativity, critical thinking, and societal role. Emphasis will be placed on the problems of curriculum, teaching, administration, and guidance. Literature in areas of creativity, critical thinking, and societal role. Emphasis will be placed on the problems of curriculum, teaching, administration, and guidance. Literature in areas of creativity, critical thinking, and societal role.

EduS453 Curriculum - Methods and Materials in Early Childhood Special Education (2)
Prerequisite: EDS452.
An introduction to the characteristics of young children with special needs and the implications these characteristics have for early intervention. Focus on ide-entification, assessment, service delivery options and program design. Every third semester. Prerequisite: EDS445 or permission of the instructor.

EduS455 Individualized Education Program (2)
Prerequisite: Completion of Advanced Special Education Methods Course.
Course presents options for the development of individualized education programs, preschool through secondary. Analysis of purpose, federal, state, and local requirements, screening and assessment, placement decisions, instructional planning and evaluation procedures. Practical experience in development of IEPs including preparation of computerized IEPs. Fall semester. Prerequisite: Completion of Introductory Special Education Methods Course.

EduS456 Special Education Process (2)
Focus on the process involved in special education assessment, diagnosis, placement and intervention. Analysis of federal, state and local requirements. Emphasis on development of IEPs/IFSPs. Strategies for parent involvement are included. Prerequisite: EDS453.

EduS460 Medical Implications in Special Education (2)
Prerequisite: Completion of Advanced Special Education Methods Course.
Course designed to provide theoretical and practical information about physical and health related problems related to the exceptional child. Emphasis on developmental, medical and genetic modification, characteristics related to the field of special education. Every third semester. Prerequisite: Completion of Advanced Special Education Methods Course.

EduS464 Seminar in Early Childhood Special Education (3)
A seminar to examine issues related to early childhood special education. Topics include theoretical perspectives, family issues, infant programming, environmental and personal strategies for self management, transdisciplinary practices, collaborative consultation and current trends. Prerequisite: EDS453.

EduS465 Education of the Gifted (3)
Study of the dimensions of giftedness-identification, characteristics, development, and societal role. Emphasis will be placed on the problems of curricu-lum, teaching, administration, and guidance. Literature in areas of creativity, criti-cal thinking, and motivation will be reviewed as it applies to the development of gifted children. As needed.

EduS488 Senior Inquiry in Special Education.
Every semester.

EduS493 Career Development for the Exceptional Child (2)
Exploration of the concepts, need, and organization of career development for the exceptional individual. Investigation of service-delivery models. Fall semester.

EduS498 Independent Study (1-3)
Every semester.
EE P305 Microprocessors (3)
Review of number systems. Microprocessors/microcomputer EE P405 structure, input/output. Signals and devices. Computer arithmetic, programming, interfacing and data acquisition. Fall semester. Prerequisite: EE P305.

EE P306 Microprocessors Laboratory (1)
Concurrent registration with EE P305. Laboratory experiments to emphasize materials covered in EE P305. Fall semester.

EE P307 Electric Energy Conversion (3)

EE P309 Electronic Circuit Design (3)
Introduction to semiconductor materials and their electronic properties and applications to electronic devices. Introduction to PN junction (diodes), bipolar junction transistors (BJTs), field effect transistors (FET). Analysis and design of analog circuits using diodes and transistors. Spring semester. Prerequisite: EE P405.

EE P310 Electronics Laboratory (1)
Laboratory experiments to emphasize materials covered in EE P309. Spring semester. Prerequisite: Prerequisite or Corequisite: EE P409.

EE P311 Computer Systems Design (3)
Organization and design considerations of the computer; performance and cost analysis, representation of data and instructions; register transfer operations, instruction set format and design and its effect on the internal microprogram, computer arithmetic, hardware implementation of processors and ALUs, hardware and microprogrammed control design, comparative architectures. Corequisite or Prerequisite: EE P312, EE P205 and EE P206. On demand.

EE P312 Computer Systems Design Laboratory (1)
Laboratory investigation of microcomputing systems covering the material in EE P311. Practical aspects of computer design and implementation. Design, construction, microprogramming, programming, and testing of significant digital subsystems using computer simulators, hardware description languages, and software development tools. Corequisite or Prerequisite: EE P311, EE P205 and EE P206. On demand.

EE P375 Co-op with Industry (0-3)
Prerequisite: EE P275. A full-time supervised work experience with an agency, firm or organization that employs persons in this degree field. This course is used for the second experiential learning session. Gradation system is determined by department offering course. Offered every semester.

EE P376 Internship with Industry (0-3)
Prerequisite: Junior standing. A work experience with an agency, firm or organization that employs persons in this degree field. This experience may be full time or part-time as required by the industry sponsor. This course is used for the first experiential learning session. Gradation system is determined by department offering course. Offered every semester.

EE P401 Spacecraft Communications (3)
Overview of satellite systems. Orbits and launching methods. The space segment and the earth segment. Baseband signals and modulation, the space link. Satellite access: single access, precanned FDMA, demand-assigned FDMA, space system, TDMA, CDMA. On demand. Prerequisite: Instructor's permission.

EE P402 Filter Design (3)

EE P403 Communication Systems (3)

EE P404 Automatic Control Systems (3)

EE P405 Microprocessors (3)

EE P406 Microprocessors Laboratory (1)
Electrical Engineering (EE) - Upper Division Course. Concurrent registration with EE P405. Laboratory experiments to emphasize materials covered in EE P405. Spring semester.

EE P407 Transmission Lines and Waveguides (3)

EE P408 Antenna Engineering (3)

EE P409 Radar Systems (3)
Nature of radar, basic elements of the radar systems. Radar waveforms and applications. Tracking radar techniques and applications. Radar electronic countermeasures (ECCM). On demand. Prerequisite: Instructor’s permission or EE P403.

EE P410 Microwave Theory and Techniques (3)

EE P415 Digital Signal Processing (3)
Filtering, convolution, and Fourier transform of digital signals. Analysis, design and implementation of FIR and IIR filters. Quantization, round-off and scaling effects. DFT and circular convolution. FFT algorithms and implementation. On demand. Prerequisite: EE P401.

EE P416 Modern Control Theory (3)

EE P417 Computer-Based System Design (3)
Study of 16-bit microprocessors architecture, programming, and interfacing. On demand. Prerequisite: EE P405.

EE P418 Physical Electronics (3)
Introduction to the physics of solids via quantum mechanics. Physical principles of existing semiconducting devices such as diodes, bipolar and field effect transistors. On demand. Prerequisite: CH P152, PH P163, or equivalent, EE P211, and MT P554.

EE P419 Digital IC Design (3)

EE P420 Advanced Filter Design (3)

EE P421 Image Processing (3)

EE P425 Computer Systems Organization (3)
Review of organization and design considerations of a computing system; data path and control design, microprogramming; pipelining and pipelined systems; pipeline hazards, memory hierarchy, design of caches, main and virtual memories; storage systems; I/O devices, buses, and peripherals interfacing; parallel and vector architectures; multiprocessing; system design issues in high-performance computers, case studies. Prerequisite: EE P311 and EE P312. On demand.

EE P427 Advanced Digital Systems Design (3)
Design with Programmable Logic Devices (PLDs) and Field Programmable Gate Arrays (FPGAs). ASIC alternatives; design entry methods and logic simulation; logic, block architectures and technologies; routing for FPGAs; rapid prototyping; commercial boards; dynamic architectures using FPGAs; reconfigurable computing. Prerequisite: EE P205 and EE P206. On demand.

EE P429 Systems Performance Evaluation (3)
Methodologies for performance evaluation of various computer systems through measurement, analytic modeling and simulation techniques. Topics include performance metrics, workload characterization, evaluation tools, statistical modeling; hybrid techniques; and case studies. Prerequisite: EE P425 and MTA 403.

EE P431 Parallel Processing and Architectures (3)
This course surveys the field of parallel computing, covering parallel systems hardware design and architecture, interconnection networks, and parallel algorithms. Topics include concurrency fundamentals and computing paradigms; parallel and multiprocessor architectures; interprocessor communication costs; load balance; task scheduling; parallelization; and case studies. Prerequisite: EE P425. On demand.

EE P433 Computer Networks Design (3)
Introduction to modern communication networks. Topics include point to point communication links and transmission of digital information; packet switching, multiplexing and concentrator design, multiaccess and broadband Local Area Networks, Wide Area Networks, ATM Networks, and SDN; architectures and protocols for computer networks; the concept of the OSI reference model; discussion of the OSI seven layers; physical interfaces and protocols; dat link control layer; network layer; design issues and modeling techniques, case studies. Corequisite or Prerequisite: EE P434, EE P311 and EE P5120n demand.
EE P43S VLSI Principles (3)
A first course in VLSI design with NMOS and CMOS technologies. Introduction to MOS technology and the operation of the CMOS inverter. Design rules and layout diagrams, system design and layout: switch (pass transistor and transmission gate) logic; gate (restoring) logic; structured (combinational) logic; and clocked sequential circuits. VLSI design methodologies, including the relevant CAD tools and suit for design manufacturability and testability. Corequisite or Prerequisite: EE P456 and EE P419. On demand.

EE P475 Co-op with Industry (0)
A full-time supervised work experience with an agency, firm or organization that employs persons in this degree field. This course is used for the third, experiential learning session. Grading system is determined by department offering course. Prerequisite: EE P475. Offered every semester.

EE P476 Internship with Industry (0-3)
A work experience with an agency, firm or organization that employs persons in this degree field. This experience may be full time or part-time as required by the industry sponsoring. Grading system is determined by department offering course. Prerequisite: EE P476, or senior standing. Offered every semester.

EE P490 Electrical Engineering Design I (3)
Principles of engineering experimentation and design. Development of engineering design proposal. Every semester. Prerequisite: Senior EE standing.

EE P491. Electrical Engineering Design II (3)
Development and analysis of a concept and design in electrical engineering, completion of a project under faculty supervision. Project results are presented in a formal report. Every semester. Prerequisite: EE P490.

EE P493 Special Lectures in Electrical Engineering (3).
Selected topics of special interest to electrical engineering majors. On demand. Prerequisite: Senior EE standing.

EE P498 Special Topics in Electrical Engineering (1-3).
Independent study on any electrical engineering topic under the direction of a faculty member. On demand. Prerequisite: Senior EE standing.

English (ENG)

ENGA090 Introduction of Writing (3)
Prep course designed to assist in the development of the basics of written expression and reading. Structured for individualized instruction. Grammar, sentence, and paragraph structure; thesis formulation and development; initial introduction to the complexities of expository works. The course is offered only on a Pass/No Pass basis. Credit earned does not apply toward any degree.

ENGA100 Introductory Writing (3)
Course to remedy deficiencies in the basics of written expression and reading. Structured for individualized instruction. Grammar, sentence, and paragraph structure; thesis formulation and development; initial introduction to the complexities of expository works. The course is offered only on a Pass/No Pass basis. Credit earned does not apply toward any degree. If the student does not so advance, he/she will be required to take ENG A150 in the second semester of freshman year Fall Semester.

ENGA150 The Process of Composition (3)
The course develops skills in writing effective personal and expository prose. The course achieves this by instructing students in methods of invention, organization, audience analysis, and style. The emphasis in ENG A150 is on the compositional process; significant attention is given to the generating, shaping, and editing of the written work in its preliminary stages. The course also seeks to integrate the personal experience of students with the academic knowledge they gain throughout a college curriculum.

ENGA190 Advanced Strategies of Rhetoric and Research (3)
Studies the more complex structures of language with respect to its logical and persuasive possibilities. This course emphasizes the development of the skills of analytical reading and critical thinking, and research methodology. The course seeks to help students to integrate their own reasoned opinions with the fruits of reading and research in order to produce coherent, persuasive essays. Prerequisite: ENG A150 or equivalent.

ENGA192 Advanced Writing for Professionals (3)
Prerequisite: ENG A150, or equivalent proficiency in written English, restricted to students at Parks College. ENG A192 offers advanced instruction in expository and argumentative writing, with special emphasis on issues and approaches relevant to majors at Parks. Stress methods of research, argumentation, organization, and documentation. Not equivalent to ENG A190. Prerequisite: ENG A150, or equivalent proficiency in written English. Restricted to students at Parks College.

ENGA193 Special Topics (1-3)

ENGA195 Advanced Writing about Urban and Social Problems (3)
Mica House Program only. Prerequisite: ENGA 190 or equivalent. CO-REQUITE: Mica House section of PSYA 101. Continues the development of skills in analytical reading, critical thinking, persuasive argument, and research stressed in ENGA 190. Students employ both field investigation and library research to examine the personal and psychological processes involved in major breakdowns in social order.

ENGA202 Introduction to Literary Study (3)
ENG A202, ENG A210, ENG A220, ENG A230, ENG A240, or ENG A260, may be taken as the first in the six-hour Core literature requirement. Each stresses theoretical and methodological approaches to literary texts. Through critical reading, class discussion, and written analysis of a wide diversity of imaginative works, these courses seek to develop a mature understanding of appreciation of literary language and structure.

ENGA210 Literary Studies: Methods of Inquiry and Response (3)
ENG A202, ENG A210, ENG A220, ENG A230, ENG A240, ENG A250, or ENG A260, may be taken as the first in the six-hour Core literature requirement. Each stresses theoretical and methodological approaches to literary texts. Through critical reading, class discussion, and written analysis of a wide diversity of imaginative works, these courses seek to develop a mature understanding of appreciation for the rich significance of literary language and structure.

ENGA220 Introduction to Poetry (3)
ENG A202, ENG A210, ENG A220, ENG A230, ENG A240, or ENG A250, or ENG A260, may be taken as the first in the six-hour Core literature requirement. Each stresses theoretical and methodological approaches to literary texts. Through critical reading, class discussion, and written analysis of a wide diversity of imaginative works, these courses seek to develop a mature understanding of appreciation of literary language and structure.

ENGA230 Introduction to the Novel (3)
ENG A202, ENG A210, ENG A220, ENG A230, ENG A240, ENG A250, or ENG A260, may be taken as the first in the six-hour Core literature requirement. Each stresses theoretical and methodological approaches to literary texts. Through critical reading, class discussion, and written analysis of a wide diversity of imaginative works, these courses seek to develop a mature understanding of appreciation of literary language and structure.

ENGA240 Introduction to Drama (3)
ENG A202, ENG A210, ENG A220, ENG A230, ENG A240, or ENG A250, or ENG A260, may be taken as the first in the six-hour Core literature requirement. Each stresses theoretical and methodological approaches to literary texts. Through critical reading, class discussion, and written analysis of a wide diversity of imaginative works, these courses seek to develop a mature understanding of appreciation of literary language and structure.

ENGA250 Introduction to the Essay (3)
ENG A202, ENG A210, ENG A220, ENG A230, ENG A240, or ENG A250, or ENG A260, may be taken as the first in the six-hour Core literature requirement. Each stresses theoretical and methodological approaches to literary texts. Through critical reading, class discussion, and written analysis of a wide diversity of imaginative works, these courses seek to develop a mature understanding of appreciation of literary language and structure.

ENGA260 Introduction to Short Fiction (3)
ENG A202, ENG A210, ENG A220, ENG A230, ENG A240, or ENG A250, may be taken as the first in the six-hour Core literature requirement. Each stresses theoretical and methodological approaches to literary texts. Through critical reading, class discussion, and written analysis of a wide diversity of imaginative works, these courses seek to develop a mature understanding of appreciation of literary language and structure.

ENGA303 Creative Writing: Prose Nonfiction (3)
English (ENG) - Upper Division Course. These are courses that build on and develop the student's writing and reading skills in a variety of areas, and include: Courses that, through reading and writing, expose students to different modes of prose nonfiction, e.g., journal writing, the personal essay, and the development of individual style.

ENGA304 Creative Writing: Fiction (3)
An introduction through reading and writing to the fundamentals of short story writing, with some attention to the problems of longer narrative forms.

ENGA305 Creative Writing: Poetry (3)
An introduction through reading and writing to common poetic forms.

ENGA306 Creative Writing: Literature and Translation (3)
A study through reading and writing of the problems involved in literature and translation. Specific techniques will be introduced through translation exercises. Emphasis may be on poetry, fiction or drama.

ENGA307 Creative Writing: Special Topics (3 hours each)

ENGA310 Childrens Literature (3)
A study of a variety of authors who focus on children, including Charles Lamb, Lewis Carroll, Christina Rossetti, and Mark Twain.

ENGA311 Fantasy and Literature (3)
A study of literature about imaginary beings and worlds, including chivalric romance, fairy tales, and ghost stories.

ENGA312 Literature of Ridicule and Satire (3)
A study of the literatures of ridicule and satire from the comedic and anti-philosopher of the contemporary American novel, provides a focus of this course.

ENGA313 Literature of Mystery and Intrigue (3)
A survey of representative detective and international spy literature.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGA315</td>
<td>Science Fiction (3)</td>
<td>A survey of futuristic fantasies that emphasize science and technology.</td>
</tr>
<tr>
<td>ENGA320</td>
<td>Cultural and Interdisciplinary Studies (3)</td>
<td>These are courses that focus on literature as seen from special viewpoints and perspectives. Some of these are:</td>
</tr>
<tr>
<td>ENGA322</td>
<td>Women in Literature (3)</td>
<td>Reading and analysis of works authored by and about women; studied from a feminist perspective.</td>
</tr>
<tr>
<td>ENGA325</td>
<td>Literature and the Return to Nature (3)</td>
<td>A study of literary works reflective of the world of nature and the environment.</td>
</tr>
<tr>
<td>ENGA327</td>
<td>Special Topics (3)</td>
<td>This course will focus on literature as seen from special viewpoints and perspectives. These courses, currently being developed by the English Department, study literature in the light of allied media. Some of these are:</td>
</tr>
<tr>
<td>ENGA328</td>
<td>Special Topics (3)</td>
<td>This course will focus on literature as seen from special viewpoints and perspectives.</td>
</tr>
<tr>
<td>ENGA329</td>
<td>Special Topics (3)</td>
<td>English (ENG) - Upper Division Course</td>
</tr>
<tr>
<td>ENGA330</td>
<td>English (ENG) - Upper Division Course</td>
<td>This course will focus on literature as seen from special viewpoints and perspectives.</td>
</tr>
<tr>
<td>ENGA331</td>
<td>Literature and Media:</td>
<td>These courses, currently being developed by the English Department, study literature in the light of allied media. Some of these are:</td>
</tr>
<tr>
<td>ENGA340</td>
<td>Masterpieces of World Literature (3)</td>
<td>A survey of selected works from the ancient world through the Renaissance.</td>
</tr>
<tr>
<td>ENGA341</td>
<td>Masterpieces of World Literature (3)</td>
<td>Intended as a continuation of ENGA340, this course is a survey of selected works from the seventeenth-century through the twentieth-century.</td>
</tr>
<tr>
<td>ENGA342</td>
<td>World Literature: Fiction (3)</td>
<td>A study of selected fiction from a diverse range of authors.</td>
</tr>
<tr>
<td>ENGA343</td>
<td>World Literature: Post-Colonial Drama (3)</td>
<td>A study of selected drama from a diverse range of authors.</td>
</tr>
<tr>
<td>ENGA350</td>
<td>British Literary Tradition to 1800 (3)</td>
<td>Examines representative works in light of major literary, historical, and cultural developments in medieval, renaissance, restoration, and eighteenth-century British literature. Texts and themes vary from term to term. Gives special attention to students writing about literature.</td>
</tr>
<tr>
<td>ENGA351</td>
<td>British Literary Tradition after 1800 (3)</td>
<td>Examines representative works of nineteenth and twentieth century British literature in light of major literary, historical, and cultural developments. Texts and themes vary. Gives special attention to students writing about literature.</td>
</tr>
<tr>
<td>ENGA354</td>
<td>Shakespeare for Non-Majors (3)</td>
<td>Intended for the student who wants to find out more about Shakespeare, this course introduces a selection of his major works with a focus on his appeal as a popular author as well as his achievement as a major poet and craftsman.</td>
</tr>
<tr>
<td>ENGA359</td>
<td>Special Topics (3 hours each)</td>
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<tr>
<td>ENGA360</td>
<td>American Literary Tradition (3)</td>
<td>Examines representative works and the major literary, historical, and cultural developments in American literature. Texts and themes vary from term to term. Gives special attention to students writing about literature.</td>
</tr>
<tr>
<td>ENGA362</td>
<td>Nineteenth-Century American Literature (3)</td>
<td>An examination of the way in which major poets and novelists of the century depicted American experience.</td>
</tr>
<tr>
<td>ENGA363</td>
<td>Twentieth-Century American Novel (3)</td>
<td>An examination of the way in which novelists of the century depicted American experience.</td>
</tr>
<tr>
<td>ENGA365</td>
<td>American Short Story (3)</td>
<td>A study of selected short stories by nineteenth and twentieth-century authors, to show the unity and diversity of the form from the beginning to the present.</td>
</tr>
<tr>
<td>ENGA369</td>
<td>Special Topics (3 hours each)</td>
<td></td>
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<tr>
<td>ENGA370</td>
<td>Modern Literature:</td>
<td>These courses, currently being developed by the English Department, study the variety and range of modern and contemporary literature. Some of these are:</td>
</tr>
<tr>
<td>ENGA372</td>
<td>English as a World Literature (3)</td>
<td>A study of selected novels from several of the worlds English language literatures outside of England and the United States (e.g., Australia, the Caribbean, India, Nigeria, Canada, etc.)</td>
</tr>
<tr>
<td>ENGA384</td>
<td>Special Topics (3 hours each)</td>
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</tr>
<tr>
<td>ENGA385</td>
<td>Post-Colonial Literary Traditions (3)</td>
<td>Examines representative works and major literary, historical, and cultural developments in the post-colonial literature of Asia, Africa and the Caribbean. Gives special attention to students writing about literature.</td>
</tr>
<tr>
<td>ENGA386</td>
<td>Eastern European Literature (3)</td>
<td>A study of literary reactions to and treatments of some of the most sweeping changes in Europe.</td>
</tr>
<tr>
<td>ENGA389</td>
<td>Special Topics (3 hours each)</td>
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</tr>
<tr>
<td>ENGA390</td>
<td>The Critical Essay: Theory and Practice (3)</td>
<td>Explores ways to write effectively about literature, stressing methods of reading and skills in analysis, argumentation, and incorporation of material by other writers.</td>
</tr>
<tr>
<td>ENGA391</td>
<td>Approaches to Writing Pedagogy (For Secondary Education)</td>
<td>An examination of the rhetorical traditions that began in ancient Greece and have influenced present day communication practices.</td>
</tr>
<tr>
<td>ENGA392</td>
<td>Rhetorical Theory: Its History and Tradition (3)</td>
<td>An examination of the rhetorical traditions that began in ancient Greece and have influenced present day communication practices.</td>
</tr>
<tr>
<td>ENGA393</td>
<td>Special Topics (1-3 hours)</td>
<td>Permission of chair required.</td>
</tr>
<tr>
<td>ENGA395</td>
<td>British Culture and Travel (3)</td>
<td>A course combining the study of selected literary works, along with travel to London (during the Spring break). The works will be studied with particular emphasis on the importance of place, to tie in with the travel portion of the course. (Given only in the Spring, and requiring a $1500 travel fee for the nine-day trip.)</td>
</tr>
<tr>
<td>ENGA398</td>
<td>Independent Study (1-3 hours)</td>
<td>Permission of chair required.</td>
</tr>
<tr>
<td>ENGA400</td>
<td>Business and Professional Writing (3)</td>
<td>An introduction to principles of effective writing in business, science, and other professions through letters, memos and reports.</td>
</tr>
<tr>
<td>ENGA401</td>
<td>Advanced Expository Writing (3)</td>
<td>A course focusing on the rhetorical strategies and writing techniques particularly useful in technical and report writing.</td>
</tr>
<tr>
<td>ENGA402</td>
<td>Rhetorical Theory: Approaches to Writing Pedagogy (For Secondary Education)</td>
<td>An examination of the basic issues in rhetorical theory and writing pedagogy as they apply to secondary education in English.</td>
</tr>
<tr>
<td>ENGA403</td>
<td>Rhetorical Theory: Its History and Tradition (3)</td>
<td>An examination of the rhetorical traditions that began in ancient Greece and have influenced present day communication practices.</td>
</tr>
<tr>
<td>ENGA404</td>
<td>Problems in Rhetoric (3)</td>
<td>An examination of various aspects of language, literature, culture and communication, through the use of rhetorical theory as a critical apparatus.</td>
</tr>
<tr>
<td>ENGA405</td>
<td>Creative Writing: Poetry (3)</td>
<td>Weekly poetry writing assignments based on weekly poetry reading assignments.</td>
</tr>
<tr>
<td>ENGA406</td>
<td>Creative Writing: Fiction (3)</td>
<td>Reading and writing of fiction in a workshop setting in which ones own writing and the writing of other participants are shared and discussed.</td>
</tr>
<tr>
<td>ENGA407</td>
<td>Creative Writing: Drama (3)</td>
<td>A writers workshop focusing on skills and procedures for beginning playwriting in an attempt to build from short sketch to one-actors towards a full-length drama.</td>
</tr>
<tr>
<td>ENGA408</td>
<td>Creative Writing: Nonfiction (3)</td>
<td>An attempt to define the essay operationally and performatively, by writing it. Essays will be read by established authors; class work will be shared through workshopping and group editing.</td>
</tr>
<tr>
<td>ENGA409</td>
<td>Creative Writing: Special Topics (3)</td>
<td></td>
</tr>
<tr>
<td>ENGA410</td>
<td>History of the English Language (3)</td>
<td>A survey of the main features of Old, Middle and Modern English.</td>
</tr>
<tr>
<td>ENGA411</td>
<td>Linguistics (3)</td>
<td>A survey of how the nature and structure of human language, focusing on English, are studied.</td>
</tr>
<tr>
<td>ENGA412</td>
<td>Special Topics (3)</td>
<td></td>
</tr>
<tr>
<td>ENGA413</td>
<td>Interpretation of Prose (3)</td>
<td>The development of English prose style as it relates to the development of the essay.</td>
</tr>
</tbody>
</table>
ENGA414 Interpretation of Poetry (3)
A focus on analysis and judgement of particular poems with attention to contending theories.

ENGA415 Interpretation of Drama (3)
A close reading of representative plays, with some attention to the role of performance.

ENGA416 Special Topics (3)

ENGA417 Literary Themes (3 hours each)
The study of thematic concerns in selected authors and works.

ENGA418 Literary Themes (3)

ENGA420 Interdisciplinary Studies (3 hours each)
The study of pertinent writings from an interdisciplinary focus relating literature to other media and other literature.

ENGA421 Medieval Literature (3)
An introduction to representative authors and genres of the period.

ENGA422 Middle English Literature (3)
Non-Chaucerian texts are read in the original Middle English.

ENGA423 Chaucer (3)
The most popular of The Canterbury Tales, drawn from such medieval genres as fabliaux, exemplum, lai and romance, are read.

ENGA424 Medieval Drama (3)
A reading of the major types - mystery plays, morality plays and interludes, with attention to backgrounds and later developments.

ENGA429 Studies in Medieval Literature (3 hours each)
Courses that focus on selected topics and areas in the period, e.g., ENGA427 Arthurian Literature.

ENGA430 Age of Elizabeth (3)
Non-dramatic prose and poetry from 1558 to 1603, including works by Marlowe, Spenser, Shakespeare, the Sidneys, Spenser and Donne.

ENGA431 Early Shakespeare (3)
A selection of Shakespeare's plays written during the sixteenth century with attention to their variety and development.

ENGA432 Later Shakespeare (3)
Shakespeare's plays written in the early seventeenth century, focusing on the great tragedies.

ENGA433 Renaissance Drama (3)
An introduction to plays by Shakespeare's contemporaries, among them Kyd, Marlowe, Jonson, Webster, Middleton and Ford.

ENGA434 Renaissance Poetry and Prose (3)
Selected issues, writers and writing exemplifying the literary concerns of the Renaissance.

ENGA435 The Seventeenth Century (3)
Examines selected writers and writing from the early seventeenth-century to the Restoration with particular attention to literary development and historical context.

ENGA436 Milton (3)
An introduction to the major poems and selected prose, with special attention to Paradise Lost.

ENGA439 Studies in Renaissance Literature (3 hours each)
Courses that focus on selected topics and areas in the period.

ENGA440 Restoration Literature (3)
Non-dramatic poetry and prose from 1660 to 1730 with particular attention to the rise of the couplet and the emergence of the middle style in prose.

ENGA441 Dryden, Pope, and Swift (3)
Focus on major works by three central figures in English neo-classicism with attention to social, political and aesthetic backgrounds.

ENGA442 Age of Johnson (3)
Non-dramatic poetry and prose from 1750 to 1790, with special attention to the dominance of prose, the rise of pre-romanticism and the continuation of the heroic couplet.

ENGA443 Restoration and Eighteenth-Century Poetry (3)
A reading of the major kinds of poetry of the period, to include minor authors.

ENGA444 Restoration and Eighteenth-Century Novel (3)
The rise and development of the novel with attention to sociocultural contexts as well as aesthetic backgrounds.

ENGA445 Restoration and Eighteenth-Century Prose (3)
A survey of the prose of the period, to include the development of the periodical essay, the rise of journalism and letter-writing, as well as the formal stylists of the late century.

ENGA446 Restoration and Eighteenth-Century Drama (3)
A survey of major types in the drama of the period: the new heroic drama in couplets; the shift to blank verse tragedy; the rise and development of the comedy of wit and manners; and the emergence of sentimental tragedy and comedy.

ENGA449 Studies in Restoration and Eighteenth Century (3 hours each)
Courses that focus on special topics and areas in the period.

ENGA450 The Age of Romanticism (3)
Studies the thought and character of the Romantic Movement in England in the early part of the century through the examination of representative authors and works.

ENGA451 The Victorian Period (3)
Studies the thought and character of the period 1857 to 1903 through the examination of representative authors and works.

ENGA452 Romantic Poetry (3)
A close examination of the poetry of major and minor authors of the Romantic Movement in England.

ENGA453 Victorian Prose and Poetry (3)
Surveys the panorama of literary products in the Victorian era in an effort to understand the vast changes brought about by this rapidly modernizing civilization.

ENGA454 The Nineteenth-Century Novel (3)
From Jane Austen to Thomas Hardy, this course examines the major novelists of the century.

ENGA455 Nineteenth-Century Essay (3)
A study of the major prose essayists of the century, whose thought contributed much to the poetry and fiction of the period.

ENGA456 Nineteenth-Century Drama (3)
Surveys the regression and development of the drama of the century from the closet drama early in the century, to the melodramas of the Victorians, to the plays of Wilde, Pinero and the early Shaw.

ENGA459 Studies in Nineteenth-Century Literature (3 hours each)
Courses that focus on special topics and areas in the period.

ENGA460 British Literature to 1945 (3)
A study of the fiction, drama and poetry of the first half of the century with special attention to Conrad, Woolf, Joyce and Eliot, in an effort to assess the modernism of the period.

ENGA461 British Literature from 1945-Present (3)
A study of contemporary British fiction, drama and poetry of the last half of the century through appropriate readings in postmodern theory.

ENGA462 Modern Irish Literature (3)
A study of the diversity and achievement of Irish authors of the past century, with special attention to Shaw, Yeats, Wilde, Joyce, Synge and O'Casey.

ENGA463 Modern British Drama (3)
Studies the modernism of the drama at the turn of the century, developments in Irish drama, and the British dramatic renaissance of the post-WWII years.

ENGA464 Studies in Twentieth-Century British Literature (3)
A focus on special topics and areas in the period.

ENGA465 American Literary Tradition to 1855 (3)
Surveys the development and evolution of American literature from the colonial, through the revolutionary, federal, and romantic periods.

ENGA466 American Literary Tradition from 1855-Present (3)
Surveys selected authors from mid-century to Civil War period, through modern, post-modern and contemporary periods.

ENGA467 American Literary Tradition 1945-Present (3)
The study of significant figures and trends that have shaped the post WWII era to the present.

ENGA468 Nineteenth-Century American Poetry (3)
Surveys the traditionalism of poets early in the century through the mid-century renaissance, to the beginnings of a modern American poetry.

ENGA469 Twentieth-Century American Poetry (3)
A survey of major trends and developments, from the Imagists and the 20th Century traditionalists to the major modernists (e.g., Pound, Eliot, & Williams), to the beats and confessionalists of the later century.

ENGA470 Nineteenth-Century American Novel (3)
A study of representative novels expressive of the centuries romanticism, realism and naturalism, from Brokden Brown to Dreiser.

ENGA471 Twentieth-Century American Novel (3)
A study of representative novels from the period between the wars, from Anderson to Steinbeck.

ENGA472 Contemporary American Novel (3)
A study of novels since WWII that express the movement from modernism to postmodernism.
ENGA473 American Drama (3)
A survey of major dramatists to include O'Neill, Williams, Miller and Shepherd, with attention to the rise in women's theatre and the emergence of African-American dramatists.

ENGA474 American Short Story (3)
A survey of representative examples and major practitioners of the short story form from the nineteenth and twentieth centuries.

ENGA475 Studies in American Literature (3 hours each)
Courses that focus on special topics and areas.

ENGA476 Studies in American Literature (3)
Courses that focus on special topics and areas.

ENGA477 The Adolescent in American Literature (3)
A study of literature which has adolescents and/or an ethnic minority as main characters, and which focuses on growing through adolescence into maturity. (The course satisfies the Secondary Education certification requirement.)

ENGA478 American Literature: Reading Jazz (3)
Explores the relationship of an African-American vernacular discourse-jazz-to works of African-American literature. This course concentrates on seminal links between vernacular theory, jazz autobiographies, and at least two novels.

ENGA479 American Literature: The Machine Age (3)
Focuses on the relationship of industrial and post-industrial technologies to the literature and culture of America, from the late nineteenth century to the present. The course examines both literary works and films as it explores the social and economic consequences of these technologies.

ENGA484 Studies in Contemporary Culture (3 hours each)
Courses that study pertinent issues and developments that characterize and shape contemporary culture and literary art, e.g., ENG-A181 History of American Film.

ENGA489 Alternate Literary Traditions (3 hours each)
Courses that study selected writers from an interdisciplinary focus, or as practitioners of non-canonical literature.

ENGA487 Imagining Race in the Contemporary American Novel
Examines how American novels of the post-1945 period have both helped to form and also contested prevailing notions of what race entails and implies as a cultural category in America. The course will simultaneously explore the ways in which racial difference is often implicated in other societal issues, including the relations between men and women, class politics, religion, and sexuality. This course satisfies the Cultural Diversity component of the Arts & Sciences Core.

ENGA490 Senior Inquiry Seminar (3 hours)
Intensive in reading and research, this course, given each semester on a variety of topics and issues, requires short reports and one long report (oral and written) from the student. Required for all English majors, and open only to senior English majors.

ENGA492 Comparative Literature/World Literature (3)
Studies of writers, works, genres and issues from a comparative focus that situates literature of the English Language in the context of developments in world literature. (Offered occasionally)

ENGA493 Special Topics (3 hours)
Courses that study selected writers from an interdisciplinary focus, or as practitioners of non-canonical literature.

ENGA495 Senior Residency
Required of all graduating seniors.

ENGA498 Advanced Independent Study
May vary from one to three hours credit; permission of chair required.

ENGX-29 Modes of Literary Inquiry (3)
Prerequisite: ENG X280. An advanced course in the methods of reading and responding to literature. Taught only through Saint Louis University's 1818 Program, this course provides the equivalent of a 300-level literature course.

ENGX150 The Process of Composition (3)
1818 ACC program only. This course develops skills in writing effective personal and expository prose. The course achieves this by instructing students in methods of invention, organization, audience analysis, and style. The emphasis is on the compositional process; significant attention is given to the generating, shaping, and editing of the written word in its preliminary stages. The course seeks to integrate the personal experience of students with the academic knowledge they gain throughout a college curriculum.

ENGX190 Advanced Strategies of Rhetoric and Research (3)
1818 ACC program only. Prerequisite: ENG X150 or its equivalent. For the advanced student who has mastered the skills taught in ENG X150. ENG X190 studies the more complex structures of language with respect to its logical and persuasive possibilities. This course emphasizes the development of the skills of analytical reading, critical thinking, and research methodology. This course seeks to help students integrate their own reasoned opinions with the fruits of reading and research, in order to produce coherent, persuasive essays. [Note: Honors Advanced Composition is listed under the Honors Program as HR-A211, but it is taught through the English Department.] Prerequisite: ENG X150 or its equivalent.

ENGX280 Introduction to Literature (3)
Taught only through Saint Louis University's 1818 ACC Program, this course provides the equivalent of a sophomore 200-level literature course as listed above. Prerequisite: ENG X190.

ENGX290 Appreciation of Literature (3)
English (ENG) - Lower Division Course
Introduction to Literary Study and Methodology. 1818 ACC program only. An advanced course in the methods of reading and responding to literature. Modes of Literary Inquiry: English (ENG) - Upper Division Course Introduction to Literary Study and Methodology. A variety of different, three-hour courses under the following categories will be offered each semester. These courses provide a second, more advanced core course in literature also required of all students. Prerequisite: ENG X280. Prerequisite: successful completion of a 200-level literature course

Engineering Studies (ES)

ES P101 Freshman Engineering I (1-3-2) Cr. 2
An introduction to the philosophy of engineering and engineering design. Introduction to the various laboratory and computing facilities on campus. Topics in engineering design and problem solving and team projects.

ES P102 Freshman Engineering II (1-3-2) Cr. 2
Prerequisite: ES-P101. Further topics in the philosophy of engineering and engineering design. Further topics in skills and tools used in engineering. Multi-disciplinary engineering design, problem solving and team projects utilizing skills introduced in Freshman Engineering I.

ES P200 Engineering Mechanics (4)
Prerequisite: MTA-A153 (or concurrent registration), PH-A151 or PH-P161. Vectors/force, moments, couples, equilibrium of particles and rigid bodies, trusses, frames, machines, friction, centroids, moments of inertia of areas, shear and moment diagrams, kinematics and kinetics of particles and rigid bodies.

ES P210 Statics (3)
Prerequisite: PH-P161 (or concurrent registration); or PH-A151. Study of force systems acting on particles and rigid bodies, 2-D and 3-D equilibrium, trusses, frames machines, shear and moment diagrams, friction, centroids, area moment of inertia. Prerequisite: PH-P211 (or concurrent registration); or PH-P151.

ES P211 Dynamics (3)
Prerequisite: ES-P210 and MTA-A153. Particle kinematics and kinetics in rectangu lar, cylindrical and normal-tangential coordinates; projectiles; relative motion using translating axes; work; conservative forces; conservation of energy; linear and angular impulse and momentum, conservation of momentum, rigid body kinematics and kinetics.

ES P220 Thermodynamics (3)
Prerequisite: ES-P210. Fluid statics; kinematics of fluid flow; energy equation for steady flow of any fluid; viscosity; flow of incompressible and compressible fluids in pipes; fluid measuring instruments; momentum relations for steady flow; resistance of immersed bodies; dynamic lift and propulsion; flow of liquids in open channels; pumps, turbines.

ES P310 Mechanics of Solids (3)
Stress and deformation due to axial load, torsion, bending and shear; properties of materials; statically indeterminate problems; analysis of plane stress and strain; combined loading; pressure vessels; beam deflections. Prerequisite: ES-P200 or ES-P210 and MTA-A254.

ES P311 Mechanics of Solids Laboratory (1)
Concurrent Registration: ES-P310. Laboratory experiments to emphasize material covered in lectures of ES-P310.

ES P320 Thermodynamics (3)
Engineering Sciences (ES) - Upper Division Course
Prerequisites: characteristics and fundamental equations of gases, application of first and second laws of thermodynamics in evaluation of engines, cycles and processes.

ES P303 Fluid Mechanics (3)
Prerequisite: ES-P210. Fluid statics; kinematics of fluid flow; energy equation for steady flow of any fluid; viscosity; flow of incompressible and compressible fluids in pipes; fluid measuring instruments; momentum relations for steady flow; resistance of immersed bodies; dynamic lift and propulsion; flow of liquids in open channels; pumps, turbines.

ES P310 Mechanics of Solids (3)
Stress and deformation due to axial load, torsion, bending and shear; properties of materials; statically indeterminate problems; analysis of plane stress and strain; combined loading; pressure vessels; beam deflections. Prerequisite: ES-P200 or ES-P210 and MTA-A254.

ES P311 Mechanics of Solids Laboratory (1)
Concurrent Registration: ES-P310. Laboratory experiments to emphasize material covered in lectures of ES-P310.

ES P320 Thermodynamics (3)
Engineering Sciences (ES) - Upper Division Course
Prerequisites: characteristics and fundamental equations of gases, application of first and second laws of thermodynamics in evaluation of basic heat engines, gas flows.

ES P322 Fluid Dynamics (3)
Fluid mechanics, conservation of mass, momentum and energy, stream function; dimensional analysis and similarity; application to problems of inviscid and viscous flows, drag, flow measurements.

ES P330 Linear Vibrations (3)
Single and two degrees-of-freedom with and without damping, vibration dampers and absorbers; model properties of vibrating systems; vibration of lumped parameter and continuous systems; approximate numerical methods and digital computation. Review of test equipment and methods.

ES P420 Heat Transfer (3)
Engineering Sciences (ES) - Upper Division Course
Heat Transfer by conduction, convection and radiation and combinations of these modes.
English as a Second Language (ESL)

ESLK115 Semi-Intensive English for Foreign Students (3)
Students placed according to individual needs.

ESLK120 Advanced Conversation & Pronunciation for Foreign Students (1)
Prerequisite: ESLK190 "C" or above. Course to improve proficiency in written expression. Intensive practice in paragraph and expository essay writing; study of rhetorical principles and techniques, including cross-cultural comparisons of patterns of rhetoric. Equivalent to ENGA150. Offered Fall and Spring semesters.

ESLK150 The Process of College Composition for Foreign Students (3)
Prerequisite: English Placement Exam. Course to improve proficiency in written expression. Intensive practice in paragraph and expository essay writing; study of rhetorical principles and techniques, including cross-cultural comparisons of patterns of rhetoric. Equivalent to ENGA150. Offered Fall, Spring, and Summer semesters.

ESLK190 Advanced Strategies of Rhetoric and Research for Foreign Students (3)
Prerequisite: ESLK190 "C" or above. Course designed to develop foreign students' skills in expository writing, and the ability to read and analyze expository essays. Study of principles and techniques of argumentation and persuasion through analysis of assigned readings; writing of organized essays based on reading selections, and writing of research paper using appropriate methodology. Equivalent to ENGA190. Offered Fall and Spring semesters.

ESLK211 Introduction to Literature for Foreign Students (3)
Prerequisite: ESLK211. Introduction to literary techniques: short story, essay, poetry, novel forms, cross-cultural interpretation of values and life styles. Equivalent to one 200-level English Literature course. (For A&S students, other literature course(s) must be taken with English department.) Offered Fall and Spring semesters.

ESLK490 Composition, Research Paper Writing for International Graduate Students (3)
Prerequisite: Testing by ESL faculty. Study of U.S. research skills: assessing research topics, incorporating and organizing material, using required citation formats and recognizing different types of papers. Students proceed from short essays to a longer research paper. Regular individual conferences.

ESLK491 Research Paper Writing for International Graduate Students (1)
Prerequisite: Testing by ESL faculty. Students will practice library research skills, note-taking techniques, and citation formats in order to write an arguementative research paper appropriate for a U.S. graduate school.

Finance (FIN)

FINB301 Principles of Finance (3)
Basic financial management of business firms involving procurement, allocation and control of funds according to profitability and liquidity objectives. Emphasis on concepts of business finance, legal form, financial structure, flow of funds, security and credit instruments, analysis of investment and profit performance. The financial system and major institutions including international finance. Prerequisite: ACC B220, DMC B207, EGN B190, and Corequisite ACC B222.

FINB312 Personal Finance (3)
This course may not be taken for credit by Finance majors. Principles of managing the individuals income, expenditures and savings. Study of concepts of income and occupational goals, budgeting expenses, investment of savings, savings institutions and securities markets, life and property insurance purchases, residential real estate or home ownership borrowing, taxation.

FINB314 Insurance (3)
Survey of the nature of risk, insurance contracts, property and casualty coverage, life and health insurance, insurance carriers and markets, governmental regulations. Functions of underwriting, sales, rate-making and financial operation of carriers, risk exposure, loss prevention, combating of risks, insurance administration.

FINB316 Real Estate (3)
Study of real estate concepts, practices, institutions. Specific attention given to legal aspects, appraisal, market analysis, mortgage financing, realty investment, property development and marketing, government influences and programs, housing and urban problems.

FINB323 Financial Management (3)
Study of principles of corporate finance and application of those principles to a variety of financial management problems. Applications include capital budgeting, working capital management, capital acquisition and other aspects of financial management. Prerequisite: FINB301.

FINB333 Financial Institutions (3)
Study of financial institutions, systems and markets of the United States. Internal management and functions of commercial and savings banks, savings and loan associations, credit unions, mutual investment companies, insurance companies and others. Objectives, investment returns, revenues, costs, liquidity, portfolio analysis and control, claim obligations of financial institutions studied in detail. Prerequisite: FINB301.

FINB343 Credit Management (3)
Study of consumer and commercial credit functions, administrative organizations and establishment of credit criteria, practices, underwriting, accounting and decision-making, techniques of retailers, wholesalers, manufacturers, banks, finance companies, credit card organizations and others. Prerequisite: FINB301.

FINB353 International Financial Management (3)
(Crosslisted with IIBS B351) Study of international finance with emphasis on international financial management for foreign firms, international financial institutions and markets, international finance systems, and foreign investments and securities. Prerequisite: FINB301.

FINB363 Investments (3)

FINB365 Derivative Securities (3)
The course examines the various types of derivative securities that exist, their uses in investment and risk management, the market in which they are traded, and the arbitrage models used to estimate their market values. Strong math skills are required. Prerequisite: FINB301.

FINB373 Commercial Banking (3)
Study of both the banking system and bank management, with particular emphasis on the latter. Encompasses management of bank assistance, bank lending, and investment practices and policies, trust services, bank equity and profitability, and international banking. Prerequisite: FINB301.

FINB423 Financial Statement Analysis (3)
Interpretation, analysis, evaluation of financial reports from viewpoints of creditors, owners, investment firms and others concerned with business strengths or weaknesses. The impact of general business and specific industry situations, behavior of financial markets, credit or lending criteria, equity investment standards are related to financial statements to determine present and future financial condition. Prerequisite: FINB301.

FINB433 Financial Analysis and Modeling (3)
This course will develop a solid understanding of financial analysis using electronic spreadsheets, and the ability to integrate an electronic spreadsheet in the identification, analysis, and solution stages of a financial problem. This course will focus on the electronic spreadsheet skills needed to aid in the solution of financial problems, as well as practical financial applications using Microsoft Excel. Prerequisite: FINB325.

FINB453 Advanced Financial Management (3)
In-depth study of finance topics applicable to the firm. Attention to financial decision-making affecting the firm's investment, financing, market strategies, and dividend policies. Areas of emphasis will be financial objectives of the firm, shareholder value, capital budgeting, risk and uncertainty, cost of capital, optimum capital structures and fund flows. Prerequisite: FINB325.

FINB480 Finance Internship (0-3)
This course can be used as electve credit or as concentration credit. Participants will have the opportunity to develop new skills through experiential learning under the direction of a skilled practitioner. The arrangements for the working relationship must be established prior to the assignment. Prerequisite: Requires permission of the department chair, junior or senior standing.

FINB498 Special Study in Finance (3)
Requires permission of department chair.

French (FR)

Lower Division Courses

FR A110 Communicating in French I (3)
Introduction to French language and culture: reading, writing, speaking, listening. The course emphasizes the acquisition of communicative skills.

FR A115 Communicating in French II (3)
Prerequisite: FR A110 or placement. Continuation of FR A110. Expansion of oral and written communication skills in areas of immediate needs, personal interests and daily life. Prerequisite: FR A110 or placement.

FR A210 Intermediate French Language and Culture (3)
Prerequisite: FR A115 or placement. Continued practice in development of all language skills, enabling the student to function in an increased number of areas. Materials and discussion relating to French culture. Prerequisite: FR A115 or placement.
FR 222 French Culture and Civilization (3)

FR 225 Literature of French-Speaking Africa and the Caribbean (3)

An overview of the literature of different French-speaking African and Caribbean nations. Focus on the effects of colonization on creating an African or Caribbean identity. Taught in English. No prerequisite.

FR 293 Special Topics (1-3)

Spring and Fall semesters.

FR 298 Independent Study (0-3)

Prior approval required of sponsoring professor and department chairperson. Spring and Fall semesters. Prerequisite: Prior approval required of sponsoring professor and department chairperson.

Upper Division Courses

FR 305 French for the Professional (3)

For students interested in developing the proficiency needed in business-oriented activities.

FR 310 Oral Proficiency in French I (3)

Development of fluent oral expression through communicative activities stressing listening comprehension, structural accuracy and systematic approach to vocabulary through reading, listening and viewing varied authentic language models. Prerequisite: FR-A210 or placement.

FR 315 Written Proficiency in French I (3)

Development of written expression in French by applying internalized syntactic structures to new situations and systematic vocabulary development. Extensive written practice based on reading and analysis of authentic language samples. Can be taken concurrently with French 310. Prerequisite: FR-A210 or placement.

FR 325 Contemporary French Culture (3)

With permission of the instructor, this course may be taken concurrently with FR-A315. The study of trends in society, work, politics, education, the arts, and notions of leisure as they relate to the multi-cultural environment in France and to France's place within the European Community. Prerequisite: FR-A310, FR-A315, or the equivalent.

FR 410 Oral Proficiency in French II (3)

Accuracy and fluency in both form and message of oral expression. Effective and accurate oral expression developed through extensive use of video, both as model and as monitor. Prerequisite: FR-A310 or placement.

FR 411 Language and Linguistics (3)

Crosslisted with GR-A411, RU-A411 and SPA-A411. An introduction to the basic concepts and application of linguistic studies. Presentation and discussion of three main aspects of language: linguistic structure, language as a social dimension, and language as a mirror of cognitive processes.

FR 415 Written Proficiency in French II (3)

Description and exposition of topics of particular interest and special fields of competence. Correct form and clarity of message will be emphasized. Can be taken concurrently with French 410. Prerequisite: FR-A315 or placement.

FR 431 Contemporary Women Writers in France and Quebec (3)


FR 432 French Short Story (3)

The study of themes, techniques and perspectives as seen in a diversity of French short stories. Texts may include selections from as early as the Medieval fabliau through contemporary writings by Michel Tournier and J.M.G. Le Clezio.

FR 433 Studies in French Prose: Rabelais through 17th Century (3)

Humanism, preciosity, classicism, Montaigne, Rabelais, Descartes, Pascal, Sevigne, Lafayette, and LaBouygue. In French.

FR 434 Studies in 18th-Century French Prose (3)

A course on society, literature, art and revolution in 18th-century France. A focus on how the concepts of society and social change are articulated in the novels and essays of writers such as Montesquieu, Voltaire, Rousseau, Diderot, Olype de Gouges, Condorcet.

FR 435 Studies in 19th-Century Novel (3)

The development of the novel in 19th-century France, as seen in representative works of the period from Romanticism to Naturalism. Authors studied may include: Chateaubriand, Hugo, Mstislav, Balzac, Flaubert, Zola.

FR 436 Paris in 19th-Century Literature (3)

Paris in the 19th century was a city in transition - politically, economically, culturally. This course deals with some of the great writers of the period who, as visionaries of their time, were able to grasp the true meaning underlying the ever-changing Parisian panorama. Texts include works by Hugo, Balzac, Gautier, Murger.

FR 439 Studies in 20th-Century French Prose (3)

Examines the new directions taken by French fiction in the 20th century. Beginning with Proust, through the Existentialists and the post-war nouveau roman, ending with an evaluation of recent literary trends in the light of the concepts of modernity and post-modernity.
**GR A115 Communicating in German II (3)**
Continuation of GR-A110. Expansion of all language skills, enabling the student to function in simple situations related to immediate needs, personal interests and daily life. Prerequisite: GR-A110 or placement.

**GR A210 Intermediate German: Language and Culture (3)**
Continued practice in and development of all language skills, enabling the student to function in an increased number of areas. Materials and discussion relating to German culture. Prerequisite: GR-A115 or placement.

**GR A220 German Literature in Translation (3)**
Analysis and discussion of representative works of prominent authors from Austria, Germany, and Switzerland in terms of their aesthetic dimensions, and as cultural documents reflecting the socio-historical conditions, ideological attitudes, and elements of the national identity of the three nations which share the German language.

**GR A221 German Literature in Translation: 19th and 20th Century (3)**
See GR-A220 above.

**GR A222 German Culture and Civilization (3)**
See GR-A430 below.

**GR A225 Berlin! Berlin! (3)**
Excursions into the cultural development of Berlin from its very beginnings in the 13th century up to the present day. Focus on the period after 1871. Berlin as a microcosm for the cultural, socio-historical and ideological development of Germany as a whole. Taught in English.

**GR A230 Cross Sections of German and American Culture**
This course focuses on the many encounters between German and American culture in the 20th century. In order to emphasize culture as an ongoing process, not final product, this course emphasizes how modern cultures forge increasingly diverse traditions and meanings into a heterogeneous configuration. Tracing the interfaces between things German and things American in the 20th century, the seminar explores, among others, issues such as Americanization, urbanization, gender relations, racism, and the emergence of mass culture. Special attention is given to the way in which both German and American culture have tried to work through the darkest chapter of German history, the Nazi period and the Holocaust. Taught in English. This course fulfills the College of Arts and Sciences Cultural Diversity component of the Core curriculum.

**GR A298 Independent Study (1-3)**

**GR A310 Oral and Written Proficiency in German I (4)**
Builds on acquired knowledge of German language and culture. Review and refinement of grammar skills, development of written and oral communication skills and strategies. Reading and discussion of authentic language materials (articles, videos, recordings, etc.) Prerequisite: GR-A210 or placement.

**GR A315 Oral and Written Proficiency in German II (4)**
Continuation of GR-A310. Further development of oral and written expression leading to the ability to handle with confidence a wide variety of social situations and writing needs. Prerequisite: GR-A210 or placement.

**GR A320 Introduction to German Literature (3)**
Chronological excursion through and discussion of German literature from the Hildebrand to modern times. Examples from all genres. Taught in German. Prerequisite: GR-A310 and 315 or placement.

**GR A325 German Civilization (3)**
Survey of the development of German civilization from Karl der Grosse (Charlemagne) to the fall of the Wall and beyond. Taught in German. Prerequisite: GR-A310 and GR-A315 or placement.

**GR A410 Fluency in German (3)**
Use of authentic language materials in German culture. Special fields and in topics of particular interest to enable the student to achieve oral and written accuracy and fluency. Prerequisite: GR-A301 and GR-A315 or placement.

**GR A411 Language and Linguistics (3)**
Crosslisted with FRA-A111. Introduction to the basic concepts and application of linguistic studies. Presentation and discussion of three main aspects of language: linguistic structures, language as a social dimension, and language as a mirror of cognitive processes Taught in English.

**GR A415 Berlin (3)**
Excursions into the cultural development of Berlin from its very beginnings in the 13th century up to the present day. Focus on the period after 1871. Berlin as a microcosm for the cultural, socio-historical and ideological development of Germany as a whole. Taught in German. Prerequisite: GR-A320, GR-A325 or placement.

**GR A420 Modern German Prose (3)**
Analysis and discussion of modern German prose by such authors as Max Frisch, Heinrich Bll, Gater Grass, Martin Walser, Christa Wolf among others. Taught in German. Prerequisite: GR-A320 or placement.

**GR A425 Business German (3)**
Development of advanced language skills (reading, writing, listening comprehension and speaking) pertaining to business and economy. Taught in German. Prerequisite: GR-A410 or placement.

**GR A430 History of Germany Since 1815 (3)**
Crosslisted with HSA-A333. Traces Germany’s struggle for democracy and a nation state, its emergence as an ambitious European power under the Hohenzollern monarchy, the failure of the Weimer Republic, the origins and the world-historic impact of the Third Reich, the rebuilding of a new country after 1945, and the divergent courses of the two German States until their reunification in 1990. Taught in English.

**GR A435 German Film (3)**
An introduction to film theory, film analysis and cinema history within the German cultural context. Taught in German. Prerequisite: GR-A320 or GR-A325 or placement.

**GR A488 Senior Inquiry: Research Project (3)**

**GR A493 Special Topics (1-3)**
Check with instructor for Prerequisite. Special topics might include: The German Experience of the New World, Introduction to the Literature of the German Democratic Republic, Translation of Technical German, German Phonetics, German Drama. Taught in German. Prerequisite: Check with instructor for Prerequisite.

**GR A495 Senior Residency (0)**
Required for graduating senior.

**GR A496 Study Abroad**

**GR X115 Communicating in German II (3)**
Prerequisite: Two years high school German or placement. 1818 ACC program only. Expansion of all language skills, enabling the student to function in simple situations related to immediate needs, personal interests and daily life. If offered across two semesters in the same academic year, students will register in the spring to earn 4 credits. Prerequisite: Two years high school German or placement.

**GR X210 Intermediate German: Language and Culture (3)**
Prerequisite: GR-X115. 1818 ACC program only. Continued practice in and development of all language skills, enabling the student to function in an increased number of areas. Materials and discussion relating to German culture. If offered across two semesters in the same academic year, students will register in the spring to earn 4 credits. Prerequisite: GR-X115.

**GR X211 German Culture and Civilization I (3)**
Prerequisite: GR-X210. 1818 ACC program only. Content-based language course with an emphasis on German culture and civilization. Course taught mainly in German. Prerequisite: GR-X210.

**GR X212 German Culture and Civilization II (3)**
Prerequisite: GR-X211. 1818 ACC program only. Continuation of GR-X211.

**Greek (GK)**

**GK A110 Reading Greek I (3)**
Pronunciation, vocabulary, morphology, syntax, and practice in reading.

**GK A115 Reading Greek II (3)**
Review of first semester material: Vocabulary, morphology, syntax, and practice in reading. Easier Greek authors introduced. Prerequisite: GK-A110 or placement.

**GK A120 Greek Literature in Translation (3)**
Review of material learned during the first two semesters: vocabulary, intermediate grammar; more extensive reading in easier authors; selections from more difficult ancient authors. Prerequisite: GK-A115 or placement.

**GK A298 Independent Study (0-3)**
Prior approval required of sponsoring professor and department chairperson.

**GK A401 Readings: Scriptural - Koine - Greek (3)**

**GK A402 Greek Fathers (3)**

**GK A431 Herodotus (3)**

**GK A435 Thucydides (3)**

**GK A436 Xenophon (3)**

**GK A441 Greek Lyric Poetry (3)**

**GK A445 Homer: Iliad (3)**

**GK A446 Homer: Odyssey (3)**

**GK A452 Sophocles (3)**

**GK A456 Euripides (3)**

**GK A460 Readings in Plato (3)**

**GK A461 The Greek Orators (3)**

**GK A463 Studies: Greek Historians (3)**

**GK A470 Readings in Byzantine Greek (3)**

**GK A488 Senior Inquiry: Research Project (0-6)**
HIMH452 Professional Practice I (3)
A 160-hour experience in approved health care facilities and/or related site, projects are structured to process, design, implement, and evaluate patient-related information system needs and departmental or other operations and services.

HIMH453 Professional Practice II (3)
A 160-hour experience in approved health care facilities and/or related site, projects are structured to process, design, implement, and evaluate patient-related information system needs and departmental or other operations and services.

HIMH455 Developing Human Resources (3)
Analysis of health care jobs data, selection of learning experiences to support traditional and continuing education strategies, design and development of relevant instructional modules, evaluation techniques and the application of media to reinforce the learning process as part of an instructional design exercise.

HIMH456 Health Information Systems (3)
This course will allow students to apply computer technology and information concepts to the decision-making process in the health care environment. Acquisition of systems, systems analysis, implementation and evaluation will be explored along with issues relating to system security. Health information systems found in health information departments will be reviewed. Present problems, limitations and future trends will be discussed. Throughout the course, the role of the health information manager in the analysis, development and implementation of systems will be emphasized. Prerequisite: HIMH400.

HIMH470 Fundamentals of Clinical Medicine (3)
The nature, cause, treatment, and management of clinical disease processes. Prerequisite: AN G100, PY G254.

HIMH498 Senior Seminar (3)
This course is designed to synthesize the information students have obtained in previous coursework through the use of case studies and project work.

HIMH499 Special Studies (3)
A concentrated area of study in the field of health information management as agreed upon by the student and advisor.

HIMH Information Management (HIM)

HIMH300 Introduction to Health Information (3)
The origin, uses, content and format of health records; accreditation, certification, and licensure standards applicable to health records; the qualitative and quantitative analysis of health records; the content, format, maintenance, and retrieval requirements of the Master Patient Index (MPI); storage and retrieval systems security and control techniques for health records; and numbering and filing systems.

HIMH310 Medico-Legal Aspects (3)
Legal terminology and procedures; the court system; liability of health care facilities and providers, health care legislation and regulation, including confidentiality, policies and procedures for the control and use of personal health information.

HIMH320 Health Data Management (3)
Descriptive and vital statistics; reporting requirements, definitions and formulas for computing hospital and public health statistics; data abstracting and display techniques. Case mix classification and analysis; techniques of sampling and weighted averages.

HIMH330 Classification Systems I (3)
Lecture two hours, laboratory two hours per week. Principles and purposes of medical nomenclature and classification systems which include the coding and classifying of diagnosis and procedures for purposes of standardization, retrieval and statistical analysis. Prerequisite: AN G100, PY G254, HIMH470.

HIMH350 Management for the Health Care Professional (3)
Corporate and administrative structures of health providers; structure and function of departments; functional approaches to management of people, material resources and time; strategic and operational planning; organizational communication.

HIMH370 Medical Terminology (3)
The basic language related to medical science and the allied health professions is covered including word analysis; construction, pronunciation, spelling, definition, and use of terms. There is a brief introduction to transcription and automatic data collection. Prerequisite: Keyboard Skills.

HIMH415 Quality Improvement (3)
Process for reviewing, monitoring and evaluating health care services; assessment through the selection of quality indicators, monitoring opportunities for improvement, evaluation of effectiveness; risk management; utilization review; critical paths; tracking/profiling; tools of QI; JCAHO standards for performance improvement. Prerequisite: HIMH300.

HIMH430 Classification Systems II (3)
Lecture two hours, laboratory two hours per week. Coding health records in the laboratory and/or health care setting; developing coding policies and procedures; performing coding quality assessment and establishing data management principles. Prerequisite: HIMH330.

HIMH450 Management of Human Resources (3)
Focus on job descriptions; staffing and scheduling; performance appraisals; counseling; training needs; wage and salary administration; interviewing techniques; laws related to human resources; and labor organizations in health care. Prerequisite: HIMH350 or consent of instructor.

HIMH451 Health Care Financial Management (3)
Cost categories, product costing and cost allocation as it relates to health care; development and application of budget procedures and controls; productivity standards; development; third party billing and reimbursement; legislation related to reimbursements; interpretation of financial data. Prerequisite: HIMH500 or permission of adviser.

HIMH452 Professional Practice I (3)
A 160-hour experience in approved health care facilities and/or related sites consisting of two modules: I - Technical experiences processing information to support patient-related information system function and departmental operations and services; II - Coding and quality management.

History (HS)

Lower Division Courses
HS A111 Origins of the Modern World to 1600 (3)
A developmental and conceptual approach to Europe as the confluence of classical and oriental civilizations. The course will cover ancient civilizations of the Mediterranean and the Near East; Greece; Rome, Islam, Byzantium, and Germanic tribal society; the contributions of each to the European Middle Ages, Renaissance, European Expansion, Scientific Revolution, and Reformation.

HS A112 Origins of the Modern World, 1600 to the Present (3)
A developmental and conceptual approach emphasizing increasing European awareness of and contact with the rest of the world. The course will cover transatlantic encounters, the Protestant and Catholic Reformations, the Scientific Revolution, Absolutism, the Enlightenment, the Age of Revolution, Romanticism, Modernism, the Holocaust, and postmodernism.

HS A260 History of the United States to 1865 (3)
This survey course examines the development of the United States from its pre-Columbian origins through the Civil War. Required for majors.

HS A261 History of the United States Since 1865 (3)
This survey course examines the United States from Reconstruction through the present. Required for majors.

Upper Division Courses
HS A300 Ancient Greece (3)
The history of the Greeks from the earliest times to the coming of the Romans.

HS A301 Roman Republic
The political, social, and cultural history of Rome from the beginning to the time of Julius Caesar.

HS A302 The Roman Empire (3)
History (HS) - Upper Division Course
The political, social, and cultural history of Rome from Augustus to Odovacar.

HS A303 The Byzantine Empire (3)
This course examines the waning years of the Roman Empire in the West and the subsequent millennium of its history in the East. We will examine Byzantine politics, culture, and society as well as Byzantine interactions with the Islamic East and Catholic West.

HS A304 The Middle Ages to 1100 (3)
Political, ecclesiastical, and cultural developments in Europe from the collapse of Rome in the West to the struggle of empire and papacy.

HS A305 The Middle Ages 1100 to 1450 (3)
The High and Late Middle Ages from the rise of Universities to the fall of Constantinople.

HS A306 The Crusades (3)
Why did pious Christians bring fire and sword to the home of the Prince of Peace? This is just one question that this course explores. Along the way we will examine the Islamic response to the crusades, the Crusader States, and the effects of the movement on Byzantium.
HS A307 Catholic Traditions to 1540 (3)
Theology, spirituality, church organization, religious art from the time of the Apostles to the Counter Reformation. Readings from classics.

HS A308 Catholic Tradition Since 1540 (3)
Theology, spirituality, church organization, religious art from the Council of Trent to the Second Vatican Council and its effects.

HS A309 The Age of the Renaissance (3)
The political, social, and cultural influences which brought the medieval period to a close and prepared the way for a new European society.

HS A310 The Roman Republic (3)
The political, social, and cultural history of Rome to the time of Julius Caesar.

HS A311 The Age of Absolutism (3)
The rise and fall of dynasties; the Scientific Revolution and Age of Reason; beginnings of industrialization, 1600-1789.

HS A312 French Revolution and Napoleon, 1789-1815 (3)
The origins and history of the French Revolution; social, economic, intellectual, institutional, and constitutional changes; European War, the Napolonic empire and its collapse.

HS A313 The Age of Industrialism and Democracy, 1815-1914 (3)
The history of Europe from the Congress of Vienna to the First World War.

HS A314 Twentieth Century Europe: Era of World Wars, 1914-1945 (3)
Background and events of World War I; the inter-war period and the rise of Fascism and Nazism; the origins and events of World War II.

HS A315 History of the Orthodox and Eastern Churches (3)
The history of the institutional, theological, and political development of the Orthodox and other Eastern Churches from Chalcedon (A.D. 451) to the present. Includes Greek, Russian, Ukrainian, Serbian, Bulgarian, Romanian, and Near Eastern (Armenian, Coptic, etc.) and other traditions both in the past and in the contemporary world.

HS A316 History of Eastern Europe (3)
Survey of the lands and peoples between Germany and Russia, the Baltic to the Black Seas from the fall of Rome to the present. Emphasizes religious, cultural, political, and economic elements which have shaped Eastern Europe today; including the impact of outside forces such as the Byzantine, Ottoman, Habsburg, and Soviet Russian Empires.

HS A317 History of Colonial Latin America (3)
A survey of the history of Ibero-America from the pre-Columbian period to the Wars for Independence.

HS A318 History of Modern Latin America (3)
A survey from the Wars for Independence to contemporary Ibero-America.

HS A319 History of Mexico (3)
Political, cultural and economic survey from pre-Columbian times to the present.

HS A320 History of China to 1644 (3)
From the embryo of the Middle Kingdom to the first confrontation with the west.

HS A321 History of China Since 1644 (3)
From Manchu to Mao Tse Tung.

HS A322 Jesuits in Asia (3)
A study of the work of the Jesuit Missionaries in India, China and Japan from the mid-sixteenth through the mid-eighteenth centuries, concentrating on the confrontation of different cultures.

HS A323 The History of Africa to 1884 (3)
Population movement and interaction; development of institutions and ideas in African civilization; varying types of politics and revolutionary changes; slavery and the Atlantic encounter; impact of Christianity and Islam.

HS A324 The History of Africa since 1884 (3)
Political, Economic and social developments in Africa since 1884. Includes European scramble for and partition of Africa; African initiatives and reaction to imposition of colonial rule; the colonial state and history of colonial rule; independence movements; Nationalism and nation building.

HS A325 The World In Conflict Since 1945 (3)
Crises of the period after 1945 caused by the weakening of European influence in the world; the decline of Europe and the Cold War; terrorism in the west; the various mid-east crises, the legacy of imperialism in Africa and Asia.

HS A326 Modern France: 1815 - present (3)
History of France from the restoration of the Bourbons to the organization of the European Community, with special emphasis on the development of and the struggle over French national identity.

HS A327 History of Russia to 1905 (3)
Survey of Kiev, Muscovite and Imperial periods with major emphasis on Peter the Great and his successors, foreign and domestic politics, economic and social changes, westernization, religious and cultural developments.

HS A328 History of Russia Since 1905 (3)
Causes and effects of the revolutions of 1905 and 1917; Foreign and domestic evolution of the Soviet state from its origins to its demise; the post-Soviet era - Lenin, Stalin, Khrouschchev, Gorbachev, Yeltsin, Putin.

HS A329 History of Russia Since 1905 (3)
Causes and effects of the revolutions of 1905 and 1917. Foreign and domestic evolution of the Soviet state from its origins to its demise; the post-Soviet era - Lenin, Stalin, Khrouschchev, Gorbachev, Yeltsin, Putin.

HS A330 Modern European Diplomatic History from 1815-1914 (3)
Metternich, Cavour, Bismarck, Disraeli, Salisbury; William II, Grey; European diplomacy in the century before World War I.

HS A331 Modern European Diplomatic History, 1914-present (3)
How the destruction of World War I incurred the democracies vis a vi totalitarianism, Nazism, and Communism; World War II and its aftermath.

HS A332 The Spanish Civil War (3)
The history of Spain as seen through its most important upheaval in modern times. The War is used as a focal point to concentrate on the various themes, trends and issues of modern Spanish history.

HS A333 Periods in English History: The Tudors 1485-1603 (3)
A political, social, cultural and religious survey of the period.

HS A334 Periods in English History: The Stuarts, 1603-1714 (3)
A political, social, cultural and religious survey of the period.

HS A335 Periods in English History: The Victorian Age, 1837-1914 (3)
A political, social, cultural and religious survey of the period.

HS A336 Periods in English History: The Industrial Revolution, 1765-1880 (3)
A study of the economic, social and political circumstances which made England the world's first industrial nation.

HS A337 Periods in English History: The Age of Industrialism and Democracy, 1815-1914 (3)
The history of Europe from the Congress of Vienna to the First World War.

HS A338 Periods in English History: the Victorian Age, 1837-1914 (3)
The history of Europe from the Congress of Vienna to the First World War.

HS A339 History of English Law (3)
Introduction to fundamentals of English law - terminology, concepts, and historical development.

HS A340 History of Italy: 900-1860 (3)
The history of Italy as seen through its most important upheaval in modern times. The War is used as a focal point to concentrate on the various themes, trends and issues of modern Spanish history.

HS A341 History of Italy: 1860-present (3)
The history of Italy from Unification to the European Community. The history of the House of Savoy, the First World War, Mussolini and Fascism, D'Annunzio, Gramsci and Croce, Italy and the Holocaust, Christian Democracy, Italian Film, and Red Brigades.

HS A342 Economic History (3)
Surveys the varied heritage of African economies as well as performance from the pre-colonial period to the present. Includes agriculture, trade, urbanization, mining and industrialization. Impact of these economic activities on population and environment will be examined.

HS A343 Imperialism & Nationalism (3)
A developmental and conceptual approach emphasizing the origins of new imperialism and its manifestations in the 19th and 20th centuries. Includes the rise of North Atlantic powers; imperial control in Africa and Asia; Decolonization; Post-colonial economies.

HS A344 Foundations of the American Republic, 1763-1816 (3)
The American Revolution, the Constitution and the early years of the Republic.

HS A345 Foundations of the American Republic, 1763-1816 (3)
The American Revolution, the Constitution and the early years of the Republic.

HS A346 Foundations of the American Republic, 1763-1816 (3)
The American Revolution, the Constitution and the early years of the Republic.

HS A347 U.S. Diplomatic History from 1900 to 1945 (3)
Aftermath of the War of 1812; the age of Jackson; slavery; reform movement; the coming of the Civil War.

HS A348 U.S. Civil War and Reconstruction, 1850-1877 (3)
Causes of the war; personalities; factors in the Northern victory; the war on the home front; reconstruction; experience of the freedmen.

HS A349 The Gilded Age, 1865-1890 (3)
The rise of industrialism in the United States and the response of various institutions.

HS A350 Reform and World Power, 1890-1920 (3)
A survey of political, social, economic and cultural developments as American society transformed from a rural-agrarian society to an urban-industrial power and from isolationism to a major force in world affairs.

HS A351 Prosperity, Depression, and War, 1920-1945 (3)
The 1920s, the New Deal and World War II.

HS A352 Contemporary America, 1945-present (3)
The Cold War, civil rights, Vietnam, Watergate, the technological revolution and modern society.

HS A353 U.S. Diplomatic History to 1900 (3)
An examination of the principles and foundations of American foreign policy to the time of the Spanish-American War.

HS A354 U.S. Diplomatic History from 1900 to 1945 (3)
The rise of America from its early isolation to the status of a great power at the end of World War II.
HS A355 U.S. Diplomatic History Since 1945 (3)
An analysis of foreign policy beginning with the Cold War, focusing on the historical roots of the present status of American diplomacy.

HS A356 U.S. Social and Intellectual History to 1861 (3)
Underlying ideas of American society during settlement of the Colonies, through the Eighteenth Century. Includes leading thinkers of the age and a consideration of the development of Colonial social structures.

HS A357 U.S. Social and Intellectual History Since 1861 (3)
Underlying ideas of American society; the impact of immigration, agrarianism, urbanization, industrialization, technological development and reform movements on nineteenth century United States.

HS A358 American Slavery (3)
American slavery as a social, political, and economic institution. Themes include the introduction and institutionalization of slavery in America; the slave experience(s); evolving perceptions of slavery; how events changed perceptions and how perceptions influenced events; and slavery as the ultimate cause of the Civil War.

HS A359 History of American Women (3)
Surveys the position of women from the United States colonial beginnings to the present. Deals with women's role in the family and society, with women's movement for change, the education of women, the suffrage movement, and women in the working world.

HS A360 History of Film and Theater in the U.S. (3)
Survey of Broadway and Hollywood and their influence on the development of the stage and the movies in the U.S. in this century. Stress on the institutional history of these industries.

HS A362 History of Public Policy Since 1945 (3)
This course examines the history of American public policy since 1945. Among topics discussed include the development of the welfare state; civil rights; social policy; drug control policy; and urban policy.

HS A363 History of the Saint Louis Region (3)
Examines the rich and varied heritage of St. Louis; its social, cultural, and intellectual dominance of the American Heartland, its contributions in business, religion, politics and the arts.

HS A364 History of the American Frontier (3)
A survey of the trans-Mississippi frontier, covering the mining, cattle, and farm frontiers, the cause for the great migration, and the society and culture of the frontier, and the frontier in American myth.

HS A367 U.S. Economic History to 1865 (3)
This course examines economic history of United States from the colonial times through the civil war. Among topics to be discussed include mercantilism, economic causes of the American revolution, slavery, and the Civil War.

HS A368 U.S. Economic History since 1865 (3)
This course examines U.S. economic history since the Civil War to the present. Among the topics to be covered include the second industrial revolution; the rise of the corporation; the Great Depression; government-business relations in the post-war period; the rise of organized labor; government economic policy.

HS A369 American Military History (3)
This course will examine American military and naval history from the earliest times to Vietnam and Iraq.

HS A370 Constitutional and Legal History of the U. S (3)
This course examines the origins, drafting, and ratification of the U.S Constitution and its subsequent history as revealed in landmark Supreme Court decisions and in constitutional crises from Nullification to Watergate. Attention will also be given to the growth of American law and the development of the legal profession.

HS A371 The Counter-Reformation (3)
This course examines a major transition in the history of the Catholic Church (1500-1700) as church reformers sought to correct abuses in the church, provide greater pastoral care, and confront Protestantism. Will also explore the impact of Catholicism on social life, intellectual thought, and political development.

HS A372 Cultural Encounters 1500-1750 (3)
This course explores the cultural interaction between Europeans and indigenous peoples in Asia, Africa, and the Americas from the time of exploration through colonization. Focus on missionary endeavors and the socio-economic impact of European conquests.

HS A373 Daily Life in Modern Europe (3)
Examination into the social life and daily routines of ordinary people in Europe from 1500 to 1800. Course focuses on material life; popular religion, gender relations, urban and rural labor, and community construction.

HS A380 Autobiography and History (3)
The autobiographical genre from St. Augustine’s Confessions to contemporary autobiography as literature and its relation to history.

HS A490 Seminar: European History (3)
A limited enrollment seminar exploring a specific topic in European history. Discussion format based on close reading of primary sources.

HS A491 Seminar: American History (3)
A limited enrollment seminar exploring a specific topic in American history. Discussion format based on close reading of primary sources.
HR A498 Independent Study (1-3)
Prerequisite: ACC-B220; ECN-B190
pany organization, managerial functions and operations around the world.

A broadly based introduction to the field of international business. Consists of (1) corporate and institutional management, (2) international competition and strategies in relation to the varied social, cultural, political legal and economic aspects of the host foreign countries. Prerequisite: MKT-B300

IBSB302 Latin American Business
The focus of the course is on the cultural, historical, economic, social, political, and business environments in Latin America and on the activities of multinational corporations in Latin America. Prerequisite: IBS-B300

IBSB311 International Accounting (3)
(Crosslisted with ACC-B316) Study of four major areas including financial accounting and managerial accounting for multinational corporations, international tax and comparative accounting systems. Prerequisite: ACC-B220 and ACC-B222

IBSB321, Economic, Political, and Social Development in Latin America (3)
(Crosslisted with ECN-B379) Historical and institutional analysis of the economies of Latin America. The impact of economic ideology in the modern development experience. Case studies include: Brazil, Chile, Mexico, Peru and Central America. Prerequisite: ECN-B190

IBSB331 International Financial Management (3)
(Crosslisted with FIN-B353) Study of international finance with emphasis in international management for the firm, international financial institutions and markets, international finance systems, and foreign investments and securities. Prerequisite: FIN-B301

IBSB423 International Economics (3)
(Crosslisted with ECN-B430) Economic determinants of trade between nations and regions. Efficiency and distributive effect of trade; theory of tariffs and other impediments to international transactions. Balance of payments analysis, domestic international income interactions, international economic adjustment under different foreign exchange rate systems. Prerequisite: ECN-B312 and ECN-B314 or permission of department chair.

IBSB424 Exchange Rates and the Global Economy (3)
(Crosslisted with ECN-B451) Basic international economic principles and goals as they relate to industrial policy and the determinants of trade deficits. The short-run and long-run determinants of nominal and real exchange rates, particularly the effects of government spending, money and productivity on the exchange rate. This course examines international finance theory and applies it to a nation's economic circumstances. It is designed to ask and answer important questions of current international macroeconomic issues. Prerequisite: ECN-B312 and ECN-B314 or permission of department chair.

IBSB425 International Human Resources Management (3)
(Crosslisted with MGT-B426) Focus is on the HR function in international and global organizations. Specific topics include strategic planning for human resources needs, global staffing plans, selecting and training managers for overseas assignments and returns, family issues for expatriates, compensation of global managers, and managing a culturally diverse workforce.

IBSB427 History of Economic Analysis (3)
(Crosslisted with ECN-B416) Origins and development of modern economic thought from ancient times through the 19th century. Prerequisite: ECN-B312 or permission of department chair.

IBSB311 International Accounting (3)
(Crosslisted with ACC-B316) Study of four major areas including financial accounting and managerial accounting for multinational corporations, international tax and comparative accounting systems. Prerequisite: ACC-B220 and ACC-B222

IBSB450 International Marketing (3)
(Crosslisted with MKT-B455) Environmental systems approach, the domestic firm involved in exporting and those firms which assemble, license and/or produce in foreign markets. Multinational corporate structure of marketing strategies in relation to the varied social, cultural, political legal and economic aspects of the host foreign countries. Prerequisite: MKT-B300

IBSB480 International Business Internship (3)
This course can be used as elective credit or as concentration credit. Participation will have the opportunity to develop new skills through experiential learning under the direction of a skilled practitioner. The arrangements for the working relationship must be established prior to the assignment. Prerequisite: Requires permission of department chair, and junior or senior standing.

International Studies (IS)

IS A110 Introduction to International Studies
This is an introduction to the literature and themes of International Studies. It emphasizes intercultural awareness, cultural interaction, and problem solving in an international context. Offered every semester.

IS A491 Internship in International Studies
This course places emphasis on the integration of academic studies with professional practice oriented toward specific career goals. Students are responsible for setting up the internship under the direction of the advisor. Offered every semester.

Italian (IT)

IT A110 Communicating in Italian I (3)
Introduction to Italian language and culture. Emphasis on acquiring communicative skills.
IT A115 Communicating in Italian II (3)
Expansion of oral and written communication skills in areas of daily life and personal interest. Prerequisites: IT A110 or instructor's consent.

IT A210 Intermediate Italian: Language & Culture (3)
Continued practice in all skills, enabling students. Reading in and discussion of Italian culture. Prerequisites: IT A115, or Instructor's consent.

IT A220 Intermediate Italian: Language & Culture (3)
Continued practice in and development of all language skills, enabling students to function in more areas. Materials relating to Italian culture.

Linguistics (LG)

Lower Division Courses
LG A293 Special Topics (3)

Upper Division Courses
LG A405 Greek for Scientific Terminology (3)
LG A406 Latin for Scientific Terminology (3)
LG A411 Language and Linguistics (3)
An introduction to the basic concepts and application of linguistic studies. Presentation and discussion of three main aspects of language: linguistic structures, language as a social dimension, and language as a mirror of cognitive processes.
LG A493 Special Topics (3)
LG A498 Advanced Independent Study (0-6) Prior permission of sponsoring professor and chairperson required. Every semester. Prerequisite: Prior permission of sponsoring professor and chairperson required.

LS K350 Concepts and Theories of Leadership (3)
Leadership (LS) - School for Professional Studies Upper Division Course
Analysis of historical concepts and contemporary theories of leadership; emphasis on the application of leadership concepts to leadership situations at all levels within the organization.
LS K380 Leading Teams and Groups (3)
Leadership (LS) - School for Professional Studies Upper Division Course
Group theory, concepts, research, principles and applications; exploration of how teams and groups are developed and function; study and practice of skills for leading and working effectively with teams and groups; exercises, simulations and experiential learning. Prerequisite: LS K 350.
LS K420 Topics in Leadership I (3)
Leadership (LS) - School for Professional Studies Upper Division Course
The study of selected topics and applications including ethics, values and leadership; leadership situations; decision-making; negotiating; conflict management and problem solving; leadership in informal organizations; leadership and motivation; leadership in non-Western culture. Prerequisite: LS K-350.
LS K420 Topics in Leadership II (3)
This is the second course on the topic of leadership. The study of selected topics and applications including ethics, values and leadership; leadership situations; decision-making; negotiating; conflict management and problem solving; leadership in informal organizations; leadership and motivation; leadership in non-Western culture. Prerequisite: LS K-350.

Latin (LT)

LT A110 Reading Latin I (3)
Pronunciation, vocabulary, morphology, syntax, and practice in reading. Material includes the first through the fourth decensions; the indicative forms of sum and of the regular verbs; some demonstrative, interrogative, personal, reflexive, possessive, relative, and intensive pronouns.

LT A115 Reading Latin II (3)
Review of first semester material Vocabulary, morphology, syntax, and practice in reading. New material includes the regular verb, some irregular verbs, the fifth declension, the comparison of adjectives, the formation and comparison of adverbs, numerals, constructions of time and place; subordinate clauses, and uses of the subjunctive. Prerequisite: LT A-110 or placement.

LT A120 Latin Literature in Translation (3)

LT A210 Intermediate Latin: Language and Literature (3)
Review of material learned during the first two semesters and coverage of remaining grammar; further vocabulary-extension; extensive practice in reading continuous Latin prose. Prerequisite: LT A-115 or placement.

LT A298 Independent Study (0-3)
Prior approval required of sponsoring professor and department chairperson.

LT A301 Advanced Latin Readings (3)

LT A400 Composition and Sight Translation (3)

LT A401 Latin Fathers (3)

LT A402 Roman Letter Writers (3)

LT A410 Intro to Post-Classical Latin (3)
Prerequisite: the equivalent of the introductory sequence LT A110-115-210. A general review of grammar and varied selections of post-classical Latin prose.

LT A411 Medieval Latin Readings 1 (3)
Prerequisite: the equivalent of the introductory sequence LT A110-115-210. Readings of selections of medieval prose and poetry from Late Antiquity to about the time of Charlemagne. Usually offered in the spring, in sequence with 412 and 413.

LT A411 Medieval Latin Readings 2 (3)
Prerequisite: the equivalent of the introductory sequence LT A110-115-210. Readings of selections of medieval prose and poetry from about the time of Charlemagne to the Ottoman Renaissance. Usually offered in the spring, in sequence with 411 and 415.

LT A411 Medieval Latin Readings 3 (3)
Prerequisite: the equivalent of the introductory sequence LT A110-115-210. Readings of selections of medieval prose and poetry from about 1100-1300 A.D. Usually offered in the spring, in sequence with 411 and 412.

LT A423 Cicero as Essayist (3)

LT A428 Readings in Saint Augustine (3)

LT A432 Readings in Tacitus (3)

LT A433 Readings in Select Historians (3)

LT A434 Readings in Livy (3)

LT A440 Readings in Ovid (3)

LT A443 Literary Study of Horaces Odes (3)

LT A444 Readings in Vergil (3)

LT A447 Roman Satire (3)

LT A448 The Elegiac Poets (3)

LT A451 Roman Comedy (3)

LT A462 Readings in Lucanetus (3)

LT A463 Introduction to Paleography (3)

LT A465 Latin Literature I (3)
History of Latin literature from its beginning to the end of the Golden Age.

LT A466 Latin Literature II (3)
History of Latin literature of the Early Empire.

LT A488 Senior Inquiry: Research Project (0-6)

LT A489 Senior Inquiry: Comprehensive Examination (0)

LT A493 Special Topics (1-3)

LT A495 Senior Residency (0)
Latin majors must enroll in LT/495 during their final semester of study.

LT A498 Advanced Independent Study (0-6)
Prior permission of sponsoring professor and chairperson required.

LT A499 Honors Tutorial Course in Latin (1-3)
Reserved for Honors Students.

LT X110 Reading Latin I (3)
1818 ACC program only. Pronunciation, vocabulary, morphology, syntax, and practice in reading. Material includes the first through the fourth decensions; the indicative forms of sum and of the regular verbs; some demonstrative, interrogative, personal, reflexive, possessive, relative, and intensive pronouns.

LT X115 Reading Latin II (3)
1818 ACC program only. Review of first semester material Vocabulary, morphology, syntax, and practice in reading. New material includes the regular verb, some irregular verbs, the fifth declension, the comparison of adjectives, the formation and comparison of adverbs, numerals, constructions of time and place; subordinate clauses, and uses of the subjunctive. Prerequisite: LT X-110.

LT X210 Intermediate Latin: Language and Literature (3)
1818 ACC program only. Review of material learned during the first two semesters, vocabulary, more extensive reading of easier authors, selections from more difficult ancient authors. Prerequisite: Prerequisite: LT X-115.

LT X211 Latin Readings (3)
Offered in 1818 ACC program Only. A selection of Latin Autors read in the original with attention to meaning, context, style, morphology, grammar, and vocabulary. Prerequisite: LTX210 or placement.
Management (MG)

MG TB218 Legal Environment of Business I (3)
Introduction to the U.S. legal system and to specific areas of the law such as torts, contracts, the law of evidence, and of business organizations. The course also covers American public law affecting businesses, including securities regulations, antitrust law, consumer protection, employment and environmental law. Global and ethical issues are considered throughout.

MG TB300 Management Theory and Practice (3).
Studies management using both classical as well as modern theories of organization. The functions of management, external and/or environmental aspects bearing on managerial responsibility, development of practical management policy as guides to managerial decision-making, and human aspects of management including motivation, workplace equity, and demographic diversity.

Prerequisite: Sophomore standing.

MG TB310 Management of Human Resources (3)
Overview of contemporary HR problems and practices as they relate to the management of individual firms. Major topics: employee selection; training and development; personnel appraisal; organizational morale and discipline; compensation administration; employee benefits and services; organizational communication.

Prerequisite: MGTB300.

MG TB312 Organization Behavior (3)
A study of interpersonal relations between individuals and groups in an organizational setting. The social environment of the work situation, along with the need of understanding and working with this environment, is emphasized. Problems arising from such relations are analyzed and evaluated.

Prerequisite: MGTB300.

MG TB320 Entrepreneurship (3)
Identification, development, and growth of the entrepreneur and the firm within the free enterprise system. Exploration of small business in terms of risk, difficulties, achievement, orientation, rewards, and satisfaction. Operating problems within specified business opportunity at varying stages of growth and development. Interaction between students and entrepreneurs in the classroom and in the actual work environment.

Prerequisite: MGTB300.

MG TB400 Strategic Management and Policy (3)
Capstone course to the business program. Analysis of cases drawn from companies at different stages of the life cycle of economic activities. Students develop approaches to corporate management functions and policy formulation at the top management level. Application of the concepts of management, human relations, accounting, marketing, production, economics, and financial analysis to real case situations. Prerequisite: Completion of the business core and senior standing.

MG TB410 Employment, Placement and Personnel Planning (3)
Addresses human resource planning, recruitment policies and practices at all organization levels, pre-employment selections, interviewing, and testing techniques and tools, appraisal, and development of employee resources, internal personnel administration and equal employment opportunity/affirmative action programs.

Prerequisite: MGTB310 or its equivalent.

MG TB413 Compensation (3)
The purpose of compensation administration is the attraction of competent employees, retention of these employees, provision of incentives for effective employment and the modern theory of employment according to merit and accomplishment. Presentation of the principles and concepts essential to establishing and maintaining adequate and equitable compensation for employees.

Prerequisite: MGTB310.

MG TB414 Training and Development (3)
Objectives include knowledge of human resource development including its history and future with examples of training and education which foster human resource development. Responsibilities of human resource development managers, including budgeting and strategic planning, are highlighted. Trends in human resource development in other countries will be compared.

Prerequisite: MGTB310 or its equivalent.

MG TB415 Current Problems in Management (3)
In-depth analysis and exposure to current problems facing today's manager. Subject matter will vary from semester to semester.

Prerequisite: MGTB300.

MG TB418 Employment Law: Concepts and Applications (3)
A detailed analysis of the application of law in the employment relationship. Overall, issues will be grouped into three functional areas: recruitment and selection, management and termination. Specific topical areas will include: the employment relationship in union and non-union settings, discrimination in employment, and health and safety issues.

Prerequisite: MGTB218 and MGTB310.

MG TB421 Business Plan Development (3)
Involves new business planning and analysis applied to developing and presenting financial and operating plans for new businesses. Topics include competitive analysis, strategic and managerial analyses, securing start-up financing, and professional presentation methods. The class also provides interaction with entrepreneurs and local entrepreneurship professionals. A one-hour lab required with the course focuses on entrepreneurial financial analyses and computer applications in new business development and operation.

Prerequisite: MGTB320.

MG TB422 Introduction to Family Business (3)
Explores family business topics such as growth and expansion, professionalization, succession and family dynamics, conflicts, and relationships relative to the business. Also provides an overview of families who own businesses and most of those businesses relative to the stages of business activity.

Prerequisite: MGTB320.

MG TB426 International Human Resources Management (3)
(Crosslisted with IBS-B426.) Focus is on the HR function in international and global organizations. Specific topics include strategic planning for human resources needs, global staffing plans, selecting and training managers for overseas assignments and returns, family issues for expatriates, compensation of global managers, and managing a culturally diverse workforce.

Prerequisite: MGTB300, IBS-B200.

MG TB428 Legal Environment of Business II (3)
A seminar course for students desiring to expand their knowledge of the legal and ethical environment of business and of issues in business law or (2) preparing to take the CPA examination. Topics covered include negotiable instruments, secured transactions, debtor-creditor relationships, property law, trusts and estates, business development, and the operation of selected issues such as accountants liability and international legal problems.

Prerequisite: MGTB218.

MG TB438 Cyberlaw (3)
This course will focus on the legal and ethical environment relevant to the Internet and E-Commerce. Recent developments, court decisions, federal and state statutes, administrative rulings and the legal literature will be explained and analyzed.

Prerequisite: MGTB218.

MG TB440 Management Internship (0-3)
This course can be used as elective credit or as concentration credit. Participants will have the opportunity to develop new skills through experiential learning under the direction of a skilled practitioner. The arrangements for the working relationship must be established prior to the assignment.

Prerequisite: Requires permission of department chair, and junior or senior standing.

MG TB448 Special Study (1-3)
Requires permission of the department chair.

Management Information Systems (MIS)

MIS B200 Introduction to Management Information Systems (3)
The course introduces the student to the nature, role, and implementation of information systems in the organization. It is for both the MIS and non-MIS professional. Major topics include information technology concepts, business information systems, systems development, the application of information technology for competitive advantage and telecommunications. Themes throughout the course are discussed while considering the ethical use of technology, the global environment of computing, and the use of computer resources as a tool for problem solving.

MIS B310 Program Development Techniques (3)
This course is aimed at providing the student with an understanding of how to approach programming for business from a structural viewpoint. This is accomplished through the use of a programming language such as Java. Further, it serves as a foundation course for more advanced topics that follow including object-oriented systems.

Prerequisite: MIS B200.

MIS B315 Introduction to Transaction Processing (3)
Students will learn the COBOL language as they learn about building traditional business computing systems. As newer technologies emerge there continues to be a need to be familiar with the traditional third generation systems. Migration from the traditional to the newer systems requires MIS personnel with the ability to work with the traditional systems as well as the newer systems. This course provides the students with an orientation that characterizes the traditional mainframe-type systems.

Prerequisite: MIS B200.

MIS B320 Introduction to Object-Oriented Programming (3)
Object-oriented programming focuses on the organization of software as a collection of discrete objects that incorporate both data structures and the operations performed on those structures. This course teaches the basics of object-oriented programming as it applies to business, including class, inheritance, and encapsulation, through the use of a language such as Java.

Prerequisite: MIS B310.

MIS B345 Advanced Internet Technologies (3)
This course enables the student to rapidly develop and deploy solutions to corporate intranets, extranets, and the Internet. Students will utilize visual development tools for hypertext markup language (html) and Java to aid in rapid application development. Students will learn how to connect internet technologies to existing corporate databases using connectivity packages like JDBC. New internet technologies as well as technologies on the horizon will be examined along with their impact on the corporation.

Prerequisite: MIS B310.

MIS B410 Systems Analysis and Design (3)
Systems analysis and design provides a general understanding of the systems development life cycle as well as other techniques including prototyping. Students will develop the analytical skills required to thoroughly understand a problem and formulate the optimal solution. Projects will require the student to use process modeling techniques to assist in the analysis and design process.

Prerequisite: MIS B310.
MISB415 Client Server Computing (3)
This course will focus on an area of distributed processing known as client server computing. Client server computing is emerging as the next common platform for business computing systems. The tools and techniques used in the design, development and deployment of client server systems will be an integral part of the course. Prerequisite: MIS-B320

MISB420 Artificial Intelligence (3)
This course provides an understanding of how artificial intelligence (AI) tools can be used to address business problems. Several areas of AI are examined, including artificial neural networks, expert systems, and intelligent agents. Data warehousing and data mining are also explored. A web site of AI information is developed. Prerequisite: MIS-B410

MISB430 Database Management Systems (3)
This course provides an overall understanding of database techniques, beginning with a study of the characteristics of relational database management systems and continuing with structured query language (SQL), entity-relationship diagrams, dependencies and normalization, and multi user systems. Evolving approaches to database management, such as object-oriented databases, will also be examined. Projects will require the student to develop a database design from the analysis stages to the final implementation by utilizing various design tools and a major DBMS package such as Oracle. Prerequisite: MIS-B410

MISB435 Data Communications & Networking (3)
This course looks at the types of information used in the business environment and the implications in terms of communications along with the trend toward digital integration of historically stand alone analog and digital technologies. It examines the process of converting voice, data, image, and video information into integrated electromagnetic signals for transmission via various media. Coverage includes communications techniques, transmission efficiency methods, wide area networks (WANs), local area networks (LANs), high-speed trends in networking, and communications architectures and subsequent internetworking issues. Prerequisite: MIS-B510

MISB440 Multimedia (3)
Multimedia focuses on capabilities in the newer software tools that allow for the use of additional media types. The traditional forms of information maintained in information systems include text, tables and charts. With the advent of multimedia capable systems, additional media types that include pictures, audio, animation and video represent newer forms of computer-based information that can be created, stored, manipulated and used to present a more complete information package. MISB440 Multimedia requires additional considerations with regard to systems planning. The key software and hardware considerations for planning purposes will be a part of this course. Prerequisite: MIS-B320

MISB480 MIS Internship (1-3)
Note: This course can be used as elective credit but not as concentration credit. Participants will have the opportunity to develop new skills through experiential learning under the direction of a skilled practitioner. The arrangements for the working relationship must be established prior to the assignments. Prerequisite: Requires permission of the department chair, junior or senior standing. Prerequisite: Requires permission of the department chair.

Marketing (MKT)

MKTB300 Introduction to Marketing Management (3)
Introduction to the concept of marketing and its application to domestic and foreign markets, and to consumer, producer, institutional, and service markets. Analysis of marketing mix, including product, price, promotion/advertising, and distribution policies. Overview of career opportunities in the marketing field. Prerequisite: ECON-B190 and junior standing.

MKTB330 Marketing Channels and Distribution Systems (3)
Institutional structures and distribution processes viewed as a subsystem of marketing strategy. Channel structure, promotion, pricing, product assortment considerations, physical logistics to achieve channel policies. Social, governmental, economic and competitive aspects affecting channels. Prerequisite: MKT-B500.

MKTB340 Promotional Strategy (3)
Advertising efforts, public relations efforts, and coordinating and integrating promotional strategy efforts. Situation analysis, determination of objectives and budgets; media strategies; sales promotion and public relations. Prerequisite: MKT-B500.

MKTB350 Product and Price Management (3)
In-depth analysis of product planning and development and life cycle management. Analytical techniques for product development and positioning and for price determination and implementation. Prerequisite: DSC-B207, MKT-B500

MKTB360 Marketing Research (3)
Problem-solving in marketing through assimilation and interpretation of information. Secondary sources and techniques of surveying and experimentation examined; statistical tools applied to research design and interpretation. Prerequisite: DSC-B207, MKT-B500.

MKTB430 Retail Management (3)
Retailing operations within the marketing system; the management, organization and control of retail establishments; retail buying practices, pricing, control of inventories, personnel, publicity, advertising, store location. Prerequisite: MKT-B500

MKTB435 Business Marketing Management (3)
Managerial decision-making in both marketing and procurement; how customers buy; how supplies sell; user/supplier relations; competitive bidding and negotiation; organizing the industrial marketing function. Identification of target markets and sources of supply; pricing strategies of buyers and sellers, influence of overall corporate policies. Prerequisite: MKT-B300

MKTB440 Buyer Behavior (3)
Concepts and theories explaining the cognitive, behavioral, and experiential aspects of individual and group purchasing of goods and services. Analysis of a broad range of purchase and consumption situations. Development of appropriate target market strategies. Prerequisite: MKT-B500.

MKTB444 Personal Selling (3)
The course content revolves around the personal selling process. Role playing and sales presentations are used to improve oral communication skills, enhance self-confidence, and home selling skills. Persuasive writing skills are also practiced. Prerequisite: MKT-B500

MKTB445 Sales Management (3)
Environment of sales management, forecasting sales; budgeting; structuring a sales force; selecting, training, compensating salespeople; motivating and evaluating salespeople; and the personal selling process. Prerequisite: MKT-B500.

MKTB455 International Marketing (3)
(Crosslisted as IBS-B451) Environmental systems approach, examining socio-cultural aspects and the economic and political infrastructure of foreign markets. Analysis of multiple modes of market entry, market segmentation, and marketing strategy development, appropriate to various sizes and types of companies in the U.S. and abroad. Prerequisite: MKT-B300.

MKTB465 Marketing Decision Models (3)
A quantitative approach to effective marketing decision-making. Includes decision models relating to segmentation, positioning, new product design, as well as advertising and promotion. Also covers pricing models and the implications of marketing decisions to costs, revenue, and profits. Corequisite: MKT-B560

MKTB480 Marketing Internship (1-3)
Note: This course can be used as elective credit or as concentration credit. Participants will have the opportunity to develop new skills through experiential learning under the direction of a skilled practitioner. The arrangements for the working relationship must be established prior to the assignment. Prerequisite: Requires permission of department chair, junior or senior standing.

MKTB490 Marketing Policy (3)
Capstone marketing course, to be taken in the final semester of study; using case approach. Emphasis on strategic and executional issues connected with marketing policy. Examine managing marketing mix decisions with special attention given to communication (personal and mass), price practices, channels of distribution, and product policy. Corequisite: MKT-B560, MKT-B465

MKTB498 Special Study (1-3)
Prerequisite: Permission of department chair required.

Mathematics (MT)

MT A112 Introduction to Elementary Algebra I (2)
MT A112 and MT A113 together cover the same material as MT A114, but in two semesters. Credit not given for both MT A112 and MT A114. Fall semester

MT A113 Elementary Algebra II (2)
MT A112 and MT A113 together cover the same material as MT A114, but in two semesters. Credit not given for both MT A113 and MT A114 Fall and Spring semesters.

MT A114 Intermediate Algebra (3)
Radicals, exponents, first degree equations, simultaneous equations, quadratic equations, functions, graphs, logarithms, polynomials. Credit not given for both MT A114 and any of the following: MT A112, MT A115. Fall and Spring semesters.

MT A115 Trigonometry (3)
Prerequisite: MT A114 or equivalent. Right triangles; trigonometric and circular functions and their graphs; trigonometric identities and equations; inverse trigonometric functions; laws of sines and cosines; vectors; complex numbers; exponential and logarithmic functions. Credit not given for both MT A115 and MT A117. For students in Allied Health Professions and Parks College only.

MT A120 College Algebra (3)
Prerequisite: MT A114 or 2 years of high school algebra. Polynomials, rational functions, exponential and logarithmic functions, conic sections, systems of equations, and inequalities. Intended for students needing more preparation before taking MT A152, MT641, or MT A181. Credit not given for both MT A120 and MT A117. Fall, Spring, and Summer.

MT A122 Finite Mathematics (3)
Prerequisite: Two years high school algebra, or MT A114. Linear equations and straight lines, matrices, sets and counting, probability and statistics, the mathematics of finance, and logic. Offered Occasionally. Prerequisite: Two years high school algebra, or MT A114.
MT A124 Mathematics and the Art of M.C. Escher (3)

A SLU freshman seminar. Prerequisite: Three years high school mathematics or MFA 120 College Algebra. (An understanding beyond MFA114 is needed.) In this course we will discover how M.C. Escher created some of his artwork. The art of M.C. Escher will be used to explore such topics as: polygons, transformations, tessellations, and wallpaper patterns. Taught in a computer classroom. Fall and Spring semesters.

MT A125 Math Thinking in the Real World (3)

A SLU freshman seminar prerequisite: Three years high school mathematics or MFA 120 College Algebra. (An understanding beyond MFA114 is needed.) In this course, aimed at students in the humanities and social sciences, we study some of the greatest ideas of mathematics that are often hidden from view in lower division courses. Topics selected from number theory, the infinite, geometry, topology, chaos and fractals, and probability. Taught in a computer classroom. Fall and Spring semesters.

MT A132 Survey of Calculus (3)

Prerequisite: MT A120 or at least a C in MT A120. Trigonometric functions, graphing, identities, solving triangles, inverse trigonometric functions, polar coordinates, complex numbers, and analytic geometry. Credit not given for both MT A141 and MT A117. Fall and Spring semesters.

MT A141 Pre-Calculus (3)

Prerequisite: Three and one-half years of high school math or at least a C in MT A120. Trigonometric functions, graphing, identities, solving triangles, inverse trigonometric functions, polar coordinates, complex numbers, and analytic geometry. Credit not given for both MT A141 and MT A117. Fall and Spring semesters.

MT A142 Calculus I (4)

Elementary functions; differentiation and integration from geometric and symbolic viewpoints; limits, continuity, applications. Credit not given for both MT A142 and MT A152. Fall and Spring semesters. Prerequisite: At least a C in MT A141.

MT A143 Calculus II (4)

Symbolic and numerical techniques of integration, indeterminate forms, infinite series, power series. Taylor series, differential equations, polar coordinates, applications. Credit not given for both MT A143 and MT A153. Fall and Spring semesters. Prerequisite: At least a C in MT A142 or MT X142.

MT A152 Engineering Calculus I (4)

Prerequisite: MT A117 with minimum grade of C, or MT A141 with minimum grade of C, or equivalent. Functions; limits and continuity; differentiation; applications of the derivative; integration. Credit not given for both MT A142 and MT A152. Fall and Spring semesters.

MT A153 Engineering Calculus II (4)

Prerequisite: MT A152 with minimum grade of C. Definite integral and its applications; methods of integration; improper integrals; derivatives and integrals involving hyperbolic functions; sequences, infinite series, power series; polar coordinates and parametric forms. Credit not given for both MT A153 and MT A155. Fall and Spring semesters.

MT A167 Statistics and Computers (3)

Introduction to data analysis and hypothesis testing; distributions, sampling, estimation, confidence intervals; test, analysis of variance, correlation, and regression; crosstabulations and chi-square; use of a statistical package such as SAS, the Statistical Analysis System. Spring semester. Prerequisite: MT A120 or the equivalent.

MT A181 Informal Geometry (3)

An informal introduction to geometry for Education majors. Does not satisfy the Arts and Sciences requirement in mathematics. Spring semester. Prerequisite: MT A120.

MT A199 Honors Course in Mathematics (1-3)

Offered occasionally.

MT A244 Calculus III (4)

Three-dimensional analytic geometry, vector-valued functions, partial differentiation, multiple integration, and line integrals. Credit not given for both MT A244 and MT A254. Fall and Spring semesters. Prerequisite: At least a C in MT A143.

MT A254 Engineering Calculus III (4)

Prerequisite: MT A153. Vectors in the plane and in space; vector calculus; partial differentiation; multiple integration; applications. Credit not given for both MT A244 and MT A254. Fall and Spring semesters.

MT A266 Principles of Mathematics (3)

Introduction to the basic techniques of writing proofs and to fundamental ideas used throughout mathematics. Topics covered include formal logic, proof by contradiction, set theory, mathematical induction and recursion, relations and congruence, functions. Fall and Spring semesters. Prerequisite: MT A142 or MT A152.

MT A293 Special Topics (1-4)

MT A298 Independent Study (0-3)

Prior approval of sponsoring professor and chair required.

MT A299 Honors Course in Mathematics (1-3)

MT A311 Linear Algebra for Engineers (3)

Prerequisite: MT A153 and knowledge of vectors. Systems of linear equations, matrices, linear programming, determinants, vector spaces, inner product spaces, eigenvalues and eigenvectors, linear transformations, and numerical methods. Credit not given for both MT A311 and MT A315. Spring semester.

MT A315 Introduction to Linear Algebra (3)

Matrices, row operations with matrices, determinants, systems of linear equations, vector spaces, linear transformations, inner products, eigenvalues and eigenvectors. Credit not given for both MT A315 and MT A311. Fall and Spring semesters. Prerequisite: MT A244, and either MT A242 or MT A254.

MT A321 Differential Equations (3)

Solution of ordinary differential equations, solution in series with reference to Fourier series and harmonic analysis. Credit not given for both MT A351 and MT A354. Fall semester. Prerequisite: MT A244 or MT A254.

MT A354 Differential Equations for Engineers (3)

Prerequisite: MT A254 or MT A244. Solution of ordinary differential equations; first order equations; linear differential equations with constant coefficients; variation of parameters; Laplace transform techniques; numerical solutions of initial value problems. Credit not given for both MT A351 and MT A354. Fall and Spring semesters.

MT A355 Differential Equations II (3)

This course is a continuation of MT A351. Topics covered include Laplace transform methods, systems of linear differential equations, power series, boundary value problems. Spring semester. Prerequisite: MT A351.

MT A370 Advanced Mathematics for Engineers (3)

Prerequisite: MT A554 or MT A552. Vector algebra; matrix algebra; systems of linear equations; eigenvalues and eigenvectors; systems of differential equations; vector differential calculus; divergence, gradient and curl; vector integral calculus; integral theorems; Fourier series with applications to partial differential equations. Fall and Spring semesters.

MT A371 Vector Analysis (3)

Vector algebra, differential and integral calculus of vector functions, linear vector functions and dyadics, applications to geometry, particle and fluid mechanics, theory of vector fields. Offered occasionally. Prerequisite: MT A244 or MT A254.

MT A401 Elementary Theory of Probability (3)

Counting theory; axiomatic probability, random variables, expectation, limit theorems. Applications of the theory of probability to a variety of practical problems. Credit not given for both MT A401 and MT A403. Fall semester. Prerequisite: MT A244 or MT A254.

MT A402 Introductory Mathematical Statistics (3)

Probability and random sampling, distributions of various statistics; statistical procedures, such as estimation of parameters, hypothesis testing, and simple linear regression. Credit not given for both MT A402 and MT A403. Spring semester. Prerequisite: MT A401.

MT A403 Probability and Statistics for Engineers (3)

Analyzing and producing data; probability; random variables; probability distributions; expectation; sampling distributions; confidence intervals; hypothesis testing; experimental design; regression and correlation analysis. Credit not given for both MT A403 and either of MT A401 or MT A402. Prerequisite: MT A254 or MT A244. Fall and spring semesters.

MT A405 History of Mathematics (3)

Prerequisite: MT A143 or MT A153. The development of several important branches of mathematics, including numeration and computation, algebra, non-Euclidean geometry, and calculus. Offered occasionally. Prerequisite: MT A143 or MT A153.

MT A411 Introduction to Abstract Algebra (3)

Elementary properties of the integers, sets and mappings, groups, rings, integral domains, division rings and fields. Fall semester. Prerequisite: MT A155.

MT A412 Linear Algebra (3)

Advanced linear algebra, including linear transformations and duality, elements of linear algebra, abstract vector spaces, eigenvalues, eigenvectors, and other topics. Prerequisite: MT A244 or MT A254.

MT A421 Introduction to Analysis (3)

Real number system, functions, sequences, limits, continuity, differentiation, integration, and series. Fall semester. Prerequisite: MT A155, and either MT A244 or MT A254.

MT A422 Metric Spaces (3)

Set theory, metric space completeness, compactness, connected sets, category. Spring semester. Prerequisite: MT A421.

MT A425 Theory of Numbers (3)

Fundamental concepts in number theory, with applications to solutions of diophantine equations of the first and second degree. Offered occasionally. Prerequisite: MT A244 or MT A254.

MT A441 Foundations of Geometry (3)

Historical background of the study of Euclidean geometry, development of two-dimensional Euclidean geometry from a selected set of postulates. Offered occasionally. Prerequisite: MT A142 or MT A152.
**Course Descriptions - 205**

**Mathematics (MT K)**

**MT K092 Basic Arithmetic (3)**
Prerequisite: Math assessment. Prep course designed to expose students to s
dsigned numbers, common fractions, decimals, percentages, ratio and propor-
tion; areas and volumes; powers and roots; algebraic expressions and opera-
tions; linear equations; basic trigonometric functions; factoring polynomials.
Credit not applicable toward any degree requirements.

**MT K093 Introduction to Elementary Algebra (3)**
Prerequisite: MT K092 or Math Assessment. Prep course designed to expose stu-
dents to sets and integers; common fractions; scientific notation; significant dig-
its; signed numbers; order of operations; algebraic expressions and operations;
linear equations and inequalities; laws of exponents; laws of radicals; factoring;
polynomials; quadratic equations; the quadratic formula; graphs of lines; parab-
olas and circles; perimeters, areas and volumes. Credit not applicable toward any
degree requirements.

**MT X142 Calculus I (4)**
1818 ACC only: Prerequisite: MT 141 or equivalent (numbers, sets, polynomials,
functions, trigonometric functions, systems of equations, and inequali-
ties). Functions, limits, continuity, derivatives, Newtons method, indif-
finite and definite integrals, applications. Option to offer this course in one
semester or across two semesters in the same academic year. If offered across
two semesters, students will register in the Spring.

**MT X143 Calculus II (4)**
1818 ACC only: Prerequisite: At least a C in MT X142. Transcendental functions,
techniques of integration, indeterminate forms, infinite series, power series,
Taylor's formula, polar coordinates and parametric equations, applications.
Option to offer this course in one semester or across two semesters in the
same academic year. If offered across two semesters, students will register in
the Spring.

**Mechanical Engineering (ME)**

**Lower Division Courses**

**ME P200 Foundation to Engineering Design (3-0) Cr. 3**
Prerequisite: ES P102. Introduction to engineering, design philosophy, design
methodology, design process, human factors, ethics, and economics. Various
case studies will be presented to understand the principles of engineering. This
course would prepare a student to think creatively in other engineering cour-
ess. Prerequisite: PH P161 Engineering Physics I.

**ME P275 Co-op with Industry (0)**
Prerequisite: Sophomore standing. A full-time supervised work experience with
an agency, firm or organization that employs persons in this degree field. This
course is used for the first experimental learning session. Grading system is
determined by department offering course. Offered every semester.

**ME P297 Co-op in Mechanical Engineering (0)**
Prerequisite: ES P310. Design methodology, optimization, design of various machine elements includ-
ing shafts, springs, belts, gears, and bearing. Design for strength and rigidity,
fatigue and fracture. Prerequisite: ME P357 Kinematics (or co-requisite).

**Upper Division Courses**

**ME P335 Applied Thermodynamics (3-0) Cr. 3**
This course is an extension of the course on Thermodynamics. A detailed study
on cycle analysis is included. Applications to compressors, turbines, heat pump,
refigeration and air-conditioning are emphasized. A design, comparison and
evaluation of several design cycles is included. Prerequisite: ES P520
Thermodynamics.

**ME P337 Kinematics (3-0) Cr. 3**
A study of linkages and their motion, velocity and acceleration analysis, dynam-
ics of mechanical systems. An emphasis is given to design and numerical meth-
ods with computer applications. Prerequisite: ES P211 Dynamics.

**ME P339 Measurements (3-0) Cr. 3**
A study of various measurement techniques in engineering and statistical analy-
sis of experimental data. Applications to the measurement of strain, force, pres-
sure, temperature, and fluid flow. An emphasis is given to design of an experi-
ment and error analysis using statistical data analysis. Prerequisite: EE P201
Electrical Engineering (or co-requisite).

**ME P345 Machine Design (3-0) Cr. 3**
Prerequisite: ME P200, ES P510. Design methodology, optimization, design of
various machine elements including shafts, springs, belts, gears, and bearing.
Design for strength and rigidity, fatigue and fracture.

**ME P351 Material Science (3-0) Cr. 3**
Corequisite: ES P510. A study of the material properties, atomic structure and
bonding, mechanical failure theory, dislocation, phase diagrams, polymer struc-
ture, and ceramics. Prerequisite: CH P115 Engineering Chemistry II.

**ME P355 Heat Transfer (3-0) Cr. 3**
Prerequisites: ES P220, ES P322. CSA P120. Heat Transfer by convection, convec-
tion and radiation and combinations of these modes.

**ME P375 Co-op with Industry (0)**
Prerequisite: ME P351. A study of manufacturing processes for metals, powder
metallurgy, machine tools, and plant manufacturing. An emphasis is given to
workshop experience in various machine tools and comprehensive lay-
up for laminates. Prerequisite: ME P351. Material Science (or co-requisite).

**ME P425 Manufacturing Processes (2-2) Cr. 3**
Prerequisite: ME P351. A study of manufacturing processes for metals, powder
metallurgy, machine tools, and plant manufacturing. An emphasis is given to
workshop experience in various machine tools and comprehensive lay-
up for laminates. Prerequisite: ME P351. Material Science (or co-requisite).

**ME P430 Tribology (3-0) Cr. 3**
Prerequisite: ES P220, ES P 322, MT A 370; Corequisite: ES P 420. A study of wear
and lubrication. It includes viscosimetry, thrust and journal bearing, rolling con-
tact bearing, dry bearing, and thermal effects.

**ME P431 Thermal Design (3-0) Cr. 3**
Prerequisite: ME P355. A study of the modeling and design of thermal systems.
These systems include pumps, fans, compressors, turbines, and heat exchang-
ers. An emphasis is given to optimization, system control, and cost analysis.

**ME P433 Composite Materials for Structure and Design (3)**
(Cross listed with AE P433) Prerequisite: ES P310 and MT A370. Fiber and resin
systems. Composite material properties and characterization; laminates:
Laminates, macro and micro- mechanics Analysis and design of lamina and lami-
nates.

**ME P434 Experimental Mechanics (3-0) Cr. 3**
An experimental study of stress and strain, electrical measurement of strain,
optical methods of stress analysis including photoelasticity and Moiré methods.
An emphasis is also given to photoelastic coating, brittle coating and error
analysis of data. Prerequisite: ME - P339 Measurements.

**ME P435 Computational Mechanics (3-0) Cr. 3**
Applications of matrix methods to the study of both statics and dynamics. An
emphasis is given to the mechanics of rigid body as well as elastic body. The
application of finite element method for static problems and eigen solution
methods for dynamics problems are discussed. Prerequisite: ES P510, MT P570
ME P439 Environmental Control (3-0) Cr. 3
Theory and application of principles of heating, ventilating, and air-conditioning equipment and systems. An emphasis is given to design problems. Prerequisite: ME P335 Applied Thermodynamics.

ME P441 Optimal Design (3-0) Cr. 3
Development of mathematics for optimal design of engineered systems. Development and use of algorithms for optimization. Linear and non-linear programming. Prerequisite: MT P370 Advanced Math for Engineers.

ME P444 Mechanical Engineering Laboratory (0-2) Cr. 2
An experimental study of fluid flow in pipes, subsonic and supersonic air flows, different flow meters, stress and strain on structures, deflection of beams, vibration of beams, combined bending and torsion, refrigeration and air conditioning, temperature measurements, rolling, impact properties and hardness testing. An emphasis is given to the design of new experiment with available equipment. Prerequisite: ME P439 Measurements or co-requisite.

ME P445 Principles of Mechatronics (3-0) Cr. 3
Introduction to basic components: sensors, transducers, microprocessor-based systems and PLC’s. Applications in motion control (AC/DC motors & stepper motors). A major project in electro-mechanical system design and development. Corequisite: ES P450.  

ME P450 Design I (1-6) Cr. 3
Preliminary design of a mechanical system with emphasis on concurrent engineering, human factors, cost analysis, and material selection. The design project may be sponsored by industry or department. Also an emphasis is given to writing the design proposal and presenting it to a committee from the department. Prerequisite: ME P445.

ME P451 Design II (1-6) Cr. 3
An experimental study of fluid flow in pipes, subsonic and supersonic air flows, different flow meters, stress and strain on structures, deflection of beams, vibration of beams, combined bending and torsion, refrigeration and air conditioning, temperature measurements, rolling, impact properties and hardness testing. An emphasis is given to the design of new experiment with available equipment. Prerequisite: ME P439 Measurements or co-requisite.

ME P475 Co-op with Industry (0)
Prerequisite: ME P375 A full-time supervised work experience with an agency, firm or organization that employs persons in this degree field. This course is used for the third experience learning session. Grading system is determined by department offering course. Offered every semester.

ME P476 Internship with Industry (0-3)
Prerequisite: ME P376 or Senior standing. A work experience with an agency, firm or organization that employs persons in this degree field. This experience may be full time or part-time as required by the industry sponsor. Grading system is determined by department offering course. Offered every semester.

ME P496 Topics in Energy (3-0) Cr. 3
A study of energy related topic of current interest solar energy, nuclear energy, energy storage, energy conversion, internal combustion engine, etc.

ME P497 Topics in Mechanical Systems (3-0) Cr. 3
A study of mechanical systems of current interest, multidisciplinary dynamics, advanced dynamics, advanced manufacturing, robot mechanisms, etc.

ME P498 Special Topics in Mechanical Engineering (3)
Credits to be arranged. Independent Study on a topic in Mechanical Engineering under the direction of a Faculty member.

Medieval Studies (MR)

MR A200 Introduction to Medieval Studies (1)
Two introductory lectures by representatives of each of the 6 humanities departments and the Department of Political Science, designed to provide an overview of the medieval world from the perspective of the respective discipline; there will also be one-hour introductions to the Vatican Film Library and the St. Louis Rooms for Book, Collection in the Pius XII Library. This also functions as a stand-alone course serving as a primer for medieval studies and as a vehicle for attracting new students. It is not conceived as a Prerequisite for any other particular course, but would be required of students during the semester in which they declare their intention to pursue the Certificate, if they have not already taken the course.

MR A400 Medieval Synthesis (2)
Capstone course, offered each semester, requiring the Medieval Studies Certificate candidate to write a research paper on a medieval topic approached from an interdisciplinary point of view, written with the guidance of a member of the faculty.

MicaH House Program (MH)

Freshman Year Project

MH A100 Theological Foundations (3)
Integrated with MHA110, the course examines the foundations of Christian Theology by exploring the origins and development of the Jewish and Christian Scriptures. Offers examples and perspectives that lead students to a recognition of God and the human person as connected in a covenant of just relationships. Concludes by integrating Greek and Biblical notions of justice and applying that integration to issues of social injustice in our own time. Cross-listed with THA100. CO-REQUITE: MHA100.

MH A110 Historical Introduction to Greek Philosophy: The Rise of Reason in Ancient Greece
This course, taught with MHA100, focuses primarily on the writings of Plato and Aristotle as central figures in the historical period when Western humanity first began to use reason to develop systematic philosophy. Careful attention is given to texts on the human person and the concept of justice. Concludes, as MHA100 does, by integrating Greek and Biblical notions of justice with application to current issues of social injustice. Cross-listed with PLA105. CO-REQUITE: MHA100.

MH A140 General Psychology (3)
Paired with MHA190, this course provides an overview of the discipline of Psychology as presented in a standard introductory textbook. Class discussion and papers, however, give particular attention to themes of justice and peace. Examines Psychology as a form of folk wisdom, as a branch of philosophy, as a humanistic discipline; as a healing art, and as a social and biological science. Cross-listed with PSYA101. CO-REQUITE: MHA190.

MH A190 Advanced Writing about Urban and Social Problems (3)
Drawing on psychological concepts taught in MHA140, the course engages students in writing about urban problems and about the stages by which ordinary people come to participate in, or to resist, social injustice. Emphasizes skills in analytical reading, critical thinking, persuasive argumentation, and research. Cross-listed with ENG-A190, ENG-A195. CO-REQUITE: MHA140.

Courses in the Companions Project

MH A215 Ethics (3)
Undertakes a systematic analysis of the fundamental problems involved in questioning whether and how moral discourse can be rationally grounded: the utilitarian-deontological debate, questions concerning different levels of moral discourse, competing notions of justice and right, recognizing the role of religion and morality. Students will reflect on moral issues experienced daily in American cities. Cross-listed with PLA205. Prerequisite: PLA105.

MH A285 Fields of Action in Social Work (3)
Provides an overview of the Social Work profession, considering values, history, theory, practice, and issues of social welfare, social justice, and other popula- tions. Explores current controversies, future trends, and career opportuni- ties. Cross-listed with SW-A100.

MH A305 Social Justice (3)
Focuses principally on Catholic social teaching as developed by the popes and the National Bishops Conference. Among other subjects, takes up issues of peace and justice involving minorities and other residents of the American city. Cross-listed with THA365.

MH A345 Urban Sociology (3)
Explores the sociology of the city and the metropolis. Considers processes of change and resistance to change in the urban community, ethnic and racial groupings; and the affects of varying social policies. Includes field experience in the Shaw neighborhood. Cross-listed with SC-A322.

MH A433 Psychology of Oppression (3)
Considers the mechanisms that undermine the appreciation of multiculturalism and other forms of diversity in society. Emphasizes ways in which socially constructed definitions of various groups are used to distinguish sameness and difference among people. Topics include macro- and micro-level theories of oppression, the importance of ideology in oppressive systems, and theories of social change and liberation. Cross-listed with PSYA435.

MH A434 African American Psychology (3)
Reviews some of the theoretical perspectives in the psychological study of African Americans. Examines some of the biases in past research, reviews current research in the field, and applies current theory and research to other areas of psychology (clinical, organizational, etc.) Cross-listed with PSYA434.

MH A490 Senior Practicum (3)
Under supervision of a faculty member, students conduct research on a theoretical or practical issue involving social justice and peace in the American city. Examples include philosophical or theological ideals of social order; psychological, sociological, or political obstacles to attaining such ideals; and practical solutions to such problems in fields such as public policy studies, social work, community service, and the health sciences.

Military Science (MIL)

Lower Division Courses

MILP101 Introduction to ROTC (2)
Make your first new peer group at college one committed to performing well and enjoy the experience. Increase self-confidence through team study and activities in basic drill, physical fitness, rappelling, leadership reaction course, first aid, making presentations and basic marksmanship. Learn fundamental concepts of leadership in a profession in both classroom and outdoor laboratory environments.

MILP102 Introduction to Leadership (2)
Learn/apply principles of effective leading. Reinforce self-confidence through participation in physically and mentally challenging exercises with upper division ROTC students. Develop communication skills to improve individual performance and group interaction. Relate organizational ethical values to the effectiveness of a leader.
MILP201 Self/Team Development (3)
Learn/apply ethics-based leadership skills that develop individual abilities and contribute to the building of effective teams of people. Develop skills in oral presentations, writing concise, planning of events, coordination of group efforts, advanced first aid, land navigation and basic military tactics. Learn fundamentals of ROTC's Leadership Development Program.

MILP202 Individual/Team Military Tactics (3)
Introduction to individual and team aspects of military tactics in small unit operations. Includes use of radio communications, making safety assessments, movement techniques, planning for team safety/security and methods of pre-execution checks. Practical exercises with upper division ROTC students. Learn techniques for training others as an aspect of continued leadership development.

Upper Division Courses

MILP301 Leading Small Organizations I (3)
Series of practical opportunities to lead small groups, receive personal assessments and encouragement, and lead again in situations of increasing complexity. Uses small unit defensive tactics and opportunities to plan and conduct training for lower division students both to develop such skills and as vehicles for practicing leading.

MILP302 Leading Small Organizations II (3)
Continues methodology of MILP 301. Analyze tasks, prepare written or oral guidance for team members to accomplish tasks. Delegate tasks and supervise. Plan for and adapt to the unexpected in organizations under stress. Examine and apply lessons from leadership case studies. Examine importance of ethical decision making in setting a positive climate that enhances team performance.

MILP401 Leadership Challenges and Goal-Setting (3)
Plan, conduct and evaluate activities of the ROTC, cadet organization. Articulate goals, put plans into action to attain them. Assess organizational cohesion and develop strategies to improve it. Develop confidence in skills to lead people and manage resources. Learn/apply various Army policies and programs in this effort.

MILP402 Transition to Lieutenant (3)
Continues methodology from MILP 401. Identify and resolve ethical dilemmas. Refine counseling and motivating techniques. Examine aspects of tradition and law as relate to leading as an officer in the Army. Prepare for a future as a successful Army lieutenant.

Music (MUS)

Lower Division Courses

MUSA100 Approaching the Arts: Music (3)
An introduction to the appreciation and understanding of the basic elements of music. Classical and popular styles will be presented. Arts and Sciences Core Requirement for non-majors.

MUSA126 Class Piano I (2)
A course for novices at the keyboard, open to both music and non-music majors. Beginning keyboard and musicianship skills are learned, including reading, playing in bass and treble clefs, simple rhythm symbols and patterns, major and minor five-finger patterns, major scales and arpeggios, and basic chord progressions. Repertoire includes song arrangements with simple accompaniment patterns and elementary-level piano repertoire. Beginning work in harmonization, sight-reading, and transposition is included. Taught in a small group setting.

MUSA127 Class Piano II (2)
A continuation of MUSA 126. Second course in class piano, for both majors and non-majors at the late-elementary or early-intermediate level of performance. Course work includes minor scales and arpeggios, seventh chords and inversions, more extensive chord progressions, and more advanced repertoire. The study of sight-reading, harmonization, transposition, and collaborative skills is continued.

MUSA140 Lower Division Class Music (2)

MUSA141 Applied Music (1)
Brass, Guitar, Organ, Percussion, Piano, Strings, Voice, Woodwinds. An Applied Music Fee is required.

MUSA226 Music Computer Skills (1)
Hands on instruction in the use of MIDI software and hardware. Programs in Music Notation, Music Sequencing, and Computer Assisted Instruction will be practiced and evaluated.

MUSA227 Music Theory I (3)
Required of music majors. Study of diatonic harmony, scales, and intervals. Prerequisite: MUSA 127.

Upper Division Courses

MUSA250 Independent Study (1-3)
Permission of Instructor required.

Upper Division Courses

MUSA228 Music Theory II (3)
Required of music majors. Study of diatonic harmony, scales, and intervals. Prerequisite: MUSA 127.

MUSA251 Class Piano IV (3)
A continuation of MUSA 250. Class Piano IV is a course at the mid-to-late intermediate level of piano training. It is the last in the series of four class piano levels designed to develop basic skills and techniques at the keyboard. These skills are applicable to all musical styles, including classical, jazz, and popular music, and the series culminates, for the music major, in achievement of the piano proficiency requirement required for the degree in music. However, class activities and assignments are structured to accommodate both music majors and adult amateurs who are learning an instrument for pleasure and enrichment.

MUSA298 Independent Study (0-3)
Permission of Instructor required.

Upper Division Courses

MUSA327 Music Theory III (3)
Required of music majors. Study of traditional chromatic harmony as well as contemporary harmonic usage. Prerequisite: MUSA 227 and MUSA 228.

MUSA328 Counterpoint (3)
Required of theory majors. Study of two-, three-, and four-part writing of common period style and analysis of contrapuntal forms. Prerequisite: MUSA 227.

MUSA329 Music Theory IV (3)
Required of music majors. A continuation of the study of chromatic harmony and contemporary harmonic practice. The scope of this class will also include musical analysis of forms and works from a variety of historical periods. Prerequisite: MUSA 227, MUSA 228 and MUSA 229.

MUSA330 History of Music I (3)
The evolution of music set against the major historic-sociological events in the Western world to 1750.

MUSA331 History of Music II (3)
Continuation of MUSA 330. The Galant and early classical style through the electronic, dodecaphonic, etc. Compositional techniques of today.

MUSA335 Music of Women Composers (3)
A survey course studying representative music written by women composers from the Middle Ages to the present. Keyboard, vocal, and instrumental works will be examined. Writings about specific women composers will be discussed, and recordings and scores will be compared with works from the music history canon. Course work will require reading, listening to specific works, and attendance at concerts.

MUSA341 Applied Music (2)
Brass, Guitar, Organ, Percussion, Piano, String, Voice, Woodwinds. An Applied Music Fee is required.

MUSA342 University Chorale (1-2)
By permission of director only.

MUSA344 University Mastersingers (1-2)
By permission of director only.

MUSA346 Ensembles: String, Brass and Woodwinds (1-2)
By permission of director only.

MUSA427 Music Analysis (3)
Required of theory majors. Study of recent theoretical concepts and application of them to the analysis of musical structures of various periods; emphasis on contemporary composition. Prerequisite: MUSA 327.

MUSA441 Conducting (3)
Theory and practice of conducting vocal and instrumental organizations. Tutorial is required. Permission of Instructor required. Prerequisite: Permission of Instructor required.

MUSA495 Senior Residency (0)

MUSA498 Independent Study (1-6)
Permission of Instructor required.

Nuclear Medicine Technology (NMT)

NMTH333 Nuclear Physics/Instrumentation (4)
A study of atomic structure, radioactive decay modes, mathematics of decay, and interaction of radiation with matter. Use of these principles will be applied to understanding the theory of radiation detection with application to current imaging instrumentation. Students will be introduced to tomographic imaging cameras, including SPECT and PET, with their necessary quality control.
NMTH332 Radiochemistry/Radiopharmacy (3)
A study of basic radiopharmaceutical principles, generators, chemistry of radionuclides and their associated compounds, dosage forms, quality control and regulations.

NMTH333 Radiation Protection/Radiobiology (2)
Radiation units, radiation shielding, permissible exposures to radiation, radiation monitoring and surveying, and principles of radiation protection. Concepts in radiobiology and dosimetry are covered.

NMTH334 Clinical Nuclear Medicine (5)
Applications of radiopharmaceuticals used in diagnosis and therapy, different techniques and procedures utilized including indications for studies and correlation with various disease states.

NMTH335 Advanced Instrumentation (3)
An introduction to the basic hardware and software components of a computer system. Emphasis will be given to understanding basic computer principles with application to data acquisition and processing in nuclear medicine.

NMTH41 Imaging Clinical Practicum (7)
The supervised use of radionuclides for in vivo diagnostic and therapeutic purposes.

NMTH42 Radiopharmacy Clinical Practicum (3)
The supervised use of radionuclides for positron emission computed tomography (PET) and other modalities.

NMTH499 Clinical Practicum (0)

NMTH498 Independent Study (0-2)

Nursing (NR)

Lower Division Courses
NR N110 NURSING AS A PROFESSION
This course introduces the student to nursing as a profession. Various roles and functions of the nurse are explored. Emphasis is placed on the application of the sciences and humanities to nursing education. Open to non-nursing majors with permission of the instructor.

NR N120 INTRODUCTION TO HEALTH CARE
This course introduces the students to the concepts of health and wellness with emphasis on the recipients of health care including individuals, families, groups and communities. Open to non-nursing majors with permission of the instructor.

NR N210 COMMUNICATION IN HEALTH CARE
This course focuses on the development of skills in communication that the health care provider uses in working with clients across the lifespan. Consideration is given to factors affecting the provider-client relationship with the primary focus on understanding human relationships. The seminar component provides the student with the opportunity to practice communication skills. (Open to non-nursing majors with consent of instructor.) Prerequisite: ENG 190

NR N243 Human Development Through the Life Span (3)
Lecture 3 hours per week. Human Development is a theoretical course designed for any student interested in increasing insight into the developing person, including the self. Basic theories and principles of development, influences on the developing person, and norms of development from birth through old age, including physical, mental, emotional, social, moral-spiritual characteristics, and factors associated with growth and development of the child, adolescent and adult of various ages, and issues faced by the age group, are also discussed. Group development tasks and family interaction, as they influence the individual throughout the life span, are considered in each developmental era. Prerequisite: PSY A101 or equivalent.

NR N244 Dimensions of Nursing Practice (4)
This course serves as an introduction to nursing and its place within the health care delivery system. Emphasis is placed on understanding the basic needs of individuals. Consideration is given to factors affecting the nurse-client relationship in health care, including self-awareness and cultural awareness.

Upper Division Courses
NR N330 Pharmacology in Nursing Practice (3)
This course develops the students knowledge of the nurses role and responsibilities in drug therapy based on application of concepts from nursing and pharmacology sciences. Legal, ethical, and life span considerations will be presented as they apply to the nurse role in drug therapy. The student will have the opportunity to study groups of drugs using a structured, systematic approach that includes general principles of drug action, major actions, therapeutic effects, and adverse reactions. The student will learn to apply the nursing process to the care of the patient receiving drugs in a variety of clinical situations.

NR N335 Pharmacology in Nursing Practice I (3)
This course develops the students knowledge of the nurses role and responsibilities in drug therapy. The student will have the opportunity to study groups of drugs using a structured, systematic approach that includes general principles of drug action, major actions, therapeutic effects, and adverse reactions. The student will learn to apply the nursing process to the care of the patient receiving drugs in a variety of clinical situations. Limited to Accelerated option.

NR N336 Pharmacology in Nursing Practice II (2)
Lecture 2 hours per week. This course expands the students knowledge of the nurses role and responsibilities in drug therapy. The student will have the opportunity to study groups of drugs using a structured, systematic approach that includes general principles of drug action, major actions, therapeutic effects, and adverse reactions. The student will learn to apply the nursing process to the care of the patient receiving drugs in a variety of clinical situations. Limited to Accelerated option.

NR N344 Dimensions of Nursing Practice II (4)
Building on concepts learned in the Dimensions of Nursing Practice course, this course provides students with the knowledge foundational to the care of clients across the lifespan, from diverse backgrounds, and in a variety of settings. The roles of the nurse, as a member of the interdisciplinary health care team, are discussed. Factors that promote the delivery of quality care are presented. Stress and crisis are explored in relation to acute and chronic alterations in health and the need for nurses to assist in achieving positive adaptation. Research is introduced as a method of inquiry and as a foundation for the development of the scientific base for nursing practice. The student develops a continuing relationship with a family in a community setting. Prerequisite: NR-N110, NR-N244, NR-N370 Prerequisite or Co-requisites: PL A205, RM 4110

NR N360 Pathophysiology (4)
Lecture 4 hours per week. The focus of the course is on the physiological altered health states as a dynamic science that has application for both well and ill populations of all age groups. The focus is on the physiological responses to altered health states. This course content is based on the health illness continuum, including pathophysiological alteration, and system or organ failure. Considerations are given to selected pathological alterations and their effects on physiological and psychological functions. Limited to Accelerated Option.

NR N370 Health Assessment (3)
This course focuses on the assessment component of the nursing process in the health care of individuals and families across the lifespan. The course integrates assessments of physical health, functional capacity, growth and development, and psychological, socio-cultural, and spiritual health of individuals and families, and immediate communities. The university laboratory experience provides for learning a systematic method of performing health assessments and development of assessment skills. Corequisite: NR-N330, NR-N210, NR-N244

NR N375 Health Assessment (3)
This course focuses on the assessment component of the nursing process in the health care of individuals and families across the lifespan. The course integrates assessments of physical health, functional capacity, growth and development, and psychological, socio-cultural, and spiritual health of individuals and families, and immediate communities. The university laboratory experience provides for learning a systematic method of performing health assessments and development of assessment skills. Limited to Accelerated Option.

NR N380 Conceptual Framework for Practice (3)
Lecture 3 hours per week. This course introduces the Registered Nurse Option student to the Conceptual Framework, nursing theories and the research process as a scientific basis for practice. Health promotion concepts will be incorporated. Students will be assisted in reconstructing and expanding their own theory base for the practice of nursing. Prerequisite: Physical and Behavioral sciences. Limited to RN Option.

NR N385 Health Assessment and Diagnostic Reasoning (3)
This course builds on the Registered Nurse students previous educational and work experiences to focus on the assessment component of the nursing process in the health care of individuals and families across the lifespan. The course integrates assessments of physical health, growth and development and psychological, socio-cultural, and spiritual health of individuals and families and communities. The course provides experiences conduits to students acquisition of a systematic method of performing comprehensive health assessments and the use of diagnostic reasoning in the assessment process. Prerequisite: Physical and Behavioral Sciences. Limited to RN option.

NR N403 Dimension of Nursing Practice III (2)
This course introduces the student to research as a method of inquiry and as a foundation for the development of the scientific base for nursing practice. Emphasis is placed on the critical evaluation of research and the utilization of research findings. Limited to Accelerated Option. Prerequisite: NR N402
NR N421 Care of the Client through the Life Span I (4) Lecture 2 hours, clinical 15 hours per week. Building on concepts learned in previous courses, this course uses a lifespan approach in the study of the health needs of childbearing women. Emphasis is placed on theoretical knowledge and research findings as the basis for nursing strategies to promote adaptation of the childbearing family. The student applies theoretical knowledge in the care of clients in acute care and community settings. Limited to Accelerated Option. Prerequisite: NR N210, NR N401, NR N375. Corequisite: NR N364.

NR N423 Care of the Client through the Life Span II (4) Lecture 2 hours, Clinical 15 hours per week. Building on concepts learned in previous courses, this course uses a lifespan approach in the study of the care of clients experiencing alterations in nutrition, elimination, metabolism or skin integrity. Emphasis is placed on theoretical knowledge and research findings as the basis for nursing strategies to promote adaptation of the individual and family. The student applies theoretical knowledge in the care of clients in acute care and community settings. Limited to Accelerated Option. Prerequisite: NR N364, NR N421 Corequisite: NR N402.

NR N424 Care of the Client through the Life Span III (4) Lecture 2 hours, clinical 15 hours per week. Building on concepts learned in previous courses, this course uses a lifespan approach in the study of the care of clients experiencing alterations in oxygenation. Emphasis is placed on theoretical knowledge and research findings as the basis for nursing strategies to promote adaptation of the individual and family. The student applies theoretical knowledge in the care of clients in acute care and community settings. Limited to Accelerated Option. Prerequisite: NR N402, NR N425.

NR N427 Psychiatric-Mental Health Nursing (4) Lecture 2 hours, clinical 6 hours per week. The concept of adaptation serves as the basis for the promotion, maintenance, and restoration of health in clients across the life span. Emphasis is placed on individuals, families, and groups experiencing alterations in mental health status. The focus of this course is on the application of the nursing process to implement professional relationships based on principles of therapeutic communication and knowledge of psychopathology. As a member of the interdisciplinary health care team, the student will care for psychiatric mental health clients in a variety of settings. Limited to Accelerated Option. Prerequisite: NR N210, NR N355, NR N364, NR N375, NR N401, NR N402, NR N421, NR N425.

NR N428 Public Health Nursing I (2) Lecture 2 hours, clinical 6 hours per week. This course introduces the student to the concepts and principles of public health and the practice of public health nursing. The nursing process is applied to the care of individuals, families, and groups in the community. The theoretical content and clinical practice emphasize the role of the public health nurse in promoting and maintaining the health of the community. Research-based knowledge of public health science is incorporated, health team relationships are broadened, and management of client care is practiced through health teaching, counseling, home visiting, and other nursing interventions. Evaluation of accountability and learning are integrated throughout the course. Legal and ethical issues in public health are examined. Limited to Accelerated Option. Prerequisite: NR N355, NR N364, NR N375, NR N401, NR N402, NR N421, NR N425.

NR N429 Public Health Nursing II (2) Lecture 2 hours, Clinical 6 hours per week. This is a continuation of NR N428 and will expand the students' understanding of public health and public health nursing. Special emphasis will be on population-based approaches to promote and maintain health of community and at-risk populations. Research-based knowledge of public health science and leadership roles in community health planning are integrated. Evaluation of care and fostering of accountability are integrated throughout the course. Ethical policy issues in public health continue to be examined. Limited to Accelerated Option. Prerequisite: NR N428.

NR N431 Psychiatric-Mental Health Nursing Theory and Clinical (4) Lecture 2 hours, clinical 15 hours per week. The concept of adaptation serves as the basis for the promotion, maintenance, and restoration of health in clients across the life span. Emphasis is placed on individuals, families, and groups to implement professional relationships, based on principles of therapeutic communication and knowledge of psychopathology. As a member of the interdisciplinary health care team, the student will care for psychiatric mental health clients in a variety of settings. Prerequisite: NR N350, NR N344, NR N360, NR N370.

NR N432 Public Health Nursing (4) The focus of this course is in the promotion of the student to the concepts and principles of public health and the practice of public health nursing. The nursing process is applied to the care of individuals, families, and groups within the community. The theoretical content and clinical practice emphasize community health measures which promote and maintain the health of the community. Research-based knowledge of public health science is incorporated, health team relationships are broadened, and management of client care is practiced through health teaching, counseling, and referring home visiting and other nursing interventions. Evaluation of care and fostering of accountability are integrated throughout the course. Legal and ethical issues in public health care are examined. Prerequisites: NR N350, NR N344, NR N360, NR N370.

NR N433 Maternal-Child Health Nursing Theory (4) Lecture 4 hours per week. This course uses a family-centered approach to the study of the health care needs of women, infants, children, and adolescents. The use of a family-centered approach in the nursing process is emphasized. Learning experiences are provided in a variety of settings. Prerequisite: NR N330, NR N344, NR N360, NR N370, Co or Prerequisite NR N435.

NR N436 Nursing Management of Clients: Adult and Older Adult, Clinical (4) Lecture 4 hours per week. This course focuses on nursing care of adults and older adults experiencing alterations in health status. The adaptation framework is used to analyze the multidimensional impact of acute and chronic alterations on clients. The nursing process is used to organize the care of clients to promote adaptation across the continuum of care. The course includes legal and ethical issues which affect the delivery of care. Prerequisite: NR N350, NR N344, NR N360, NR N370.

NR N437 Nursing Management of Clients: Adults and Older Adults Clinical (15 hours per week. This course focuses on providing nursing care for adults and older adults in acute care and community-based settings. The student applies knowledge of adaptation, functional approach, and specific health alterations to the nursing process for assigned clients. The student will have opportunities to work collaboratively with members of a health care team. Prerequisite: NR N350, NR N344, NR N360, NR N370.

NR N441 Care of the Client through the Life Span IV (4) Lecture 2 hours, clinical 6 hours per week. Building on concepts learned in previous courses, this course uses a lifespan approach in the study of the care of clients experiencing alterations in oxygenation. Emphasis is placed on theoretical knowledge and research findings as the basis for nursing strategies to promote adaptation of the individual and family. The student applies theoretical knowledge in the care of clients in acute care and community settings. Limited to Accelerated Option. Prerequisite: NR N421, NR N423, NR N424.

NR N455 Leadership and Management (3) Lecture 3 hours per week. See NR N456 for Course Description. Limited to Accelerated Option. Prerequisite: NR N212, NR N243, NR N242, NR N247, NR N428 Corequisite: NR N441, NR N485, NR N492.

NR N456 Leadership and Management (3) Lecture 3 hours per week. This course introduces management, leadership, and organizational theories in the context of nursing and health care. Emphasis is placed on the integration of theoretical constructs into the role socialization of the baccalaureate prepared nurse. Also explored is how nurses can influence policy within the health care delivery system. Senior Standing. Prerequisite: NR N431, NR N432, NR N435, NR N434, NR N364, NR N373.

NR N461 Health Promotion During School Years - Preschool through High School (2) ELECTIVE COURSE FOR EDUCATION MAJORS The focus of the course is on health promotion during the school years. Emphasis is on teachers role in fostering student health. Establishing collaborative relationships with individuals in the community in a variety of agencies is explored as a way to enhance the services and scope of comprehensive school health programs. Health is viewed comprehensively with physical, psychological, sociocultural, and spiritual dimensions. Limited to Education majors.

NR N480 Comprehensive Nursing Practice (4) Clinicals 12 hours per week. This clinical course focuses on the analysis of health care needs of clients and the application of organizational and management theories. Students are expected to demonstrate increased competence in a variety of nursing roles including care giving, teaching, and decision making. Students will manage the nursing care of individuals, families, and groups at various points on the health illness continuum. Prerequisite: NR N431, NR N432, NR N433, NR N434, NR N364, NR N373. Corequisite: NR N456.

NR N485 Comprehensive Nursing Practice (4) Clinicals 12 hours per week. See Course Description for NR N480. Prerequisite: NR N212, NR N243, NR N242, NR N247, NR N428. Corequisite: NR N429, NR N403, NR N441, NR N455, NR N492.

NR N491 Community Project (2) This course is designed to provide the student with an experience of planning with the community to meet its needs. Working from the knowledge and competencies gained in Public Health Nursing and in collaboration with members of the community, students will identify a pertinent issue and provide a service to an agency or population group. Seminar will provide opportunities for students to discuss and reflect on how service activities express the professional obligations to work as change agents or a more just society. Prerequisite: NR N431, NR N432, NR N433, NR N344, NR N364, NR N373. Corequisite: NR N456.

NR N492 Community Project (2) This course is designed to provide the student with an experience of planning with the community to meet its needs. Working from the knowledge and competencies gained in Public Health Nursing and in collaboration with members of the community, students will provide a service to an agency or population group based on community assessment data. Seminars will provide opportunities for students to discuss and reflect on how service activities express the professional obligations to work as change agents or a more just society. Prerequisite: NR N421, NR N425, NR N424, NR N427, NR N428.
Nutrition and Dietetics (DT)

Undergraduate Courses

DT H-10 Intro to Dietetics (2)
Prerequisites: None. Students are introduced to the profession of dietetics and explore opportunities. This course introduces students to the profession of dietetics and explores opportunities. Every Fall semester.

DT H-20 Foundations in Nutrition (3)
Prerequisites: CHA 161, CHA 162. The study of human nutrition, incorporating biochemical and physiological aspects; investigation of the role of food in normal growth, development and maintenance of body functions. Students will learn the components of a healthy diet, as well as the major classes of nutrients and their functions, sources and relationships to health maintenance and disease prevention. Every Fall semester.

DT H-21 Nutrition in the Lifecycle (3)
Prerequisites: DT H 221 or DT H 208 or DT H 380 and BIA 104, AN 104, 245, CH 162. A study of the physiological and psycho-social changes throughout the life cycle that influence the nutritional needs of individuals. Every Spring semester.

DT H-22 Basic Human Nutrition (2)
Prerequisites: None. A study of the basic elements of nutrition and their interrelationships. Students are introduced to the role of food and nutrition in health and disease, as well as current and controversial topics in nutrition. Every Spring semester.

DT H-23 Foundations in Community Nutrition (3)
Prerequisites: DT H 215. This course explores the foundations of public health, as well as current governmental programs, policies and administrative offices which address health, hunger and food safety issues at local, state, and national levels. Priority health issues relating to the promotion of good nutrition and prevention health care for each life stage are examined. Students learn basic skills for designing, implementing, evaluating and marketing nutrition intervention programs. Students visit local community health programs. Every Spring semester.

DT H-30 Nutritional Biochemistry Lab (1)
Prerequisite: Co-requisite: BL A 307. Gives students an exposure to the biochemistry of nutrition in multiple settings. Topics be covered include: carbohydrate, fat and protein metabolism, blood lipids and proteins, vitamins and minerals. These areas will be covered in the context of dietary intake of individuals. Every Spring semester.

DT H-35 Ethnic Meal Mgmt and Food Preparation (4) (includes 2 hr. lab)
Prerequisites: DT H 208. This course introduces food preparation and meal management principles, with an emphasis on the cultural aspects of food and society. Students explore and enjoy a variety of ethnic cuisines while developing food preparation skills and applying food science principles. To enhance appreciation of diverse ethnic cultures, students select one ethnic group for the focus of their meal management project. Every Fall Semester.

DT H-36 Food Science (3) (includes 1 hr. lab)
Prerequisites: CHA 161, CHA 162. A survey of the basic elements of nutrition and their interrelationships. Students are introduced to the profession of dietetics and explore opportunities. This course introduces students to the profession of dietetics and explores opportunities. Every Fall semester.

DT H-37 Quantity Food Procurement/Preparation (4) (includes 2 hr. lab)
Prerequisites: DT H 350, co-requisite: DT H 350. This course is designed to develop quantity foods preparation and managerial skills. Labs are designed to provide preparation skills, equipment familiarity, and exposure to food production design and procurement. Actual foodservice facilities will be used to provide hands-on experience in a real-life environment. Lectures target procurement, managerial skill development, and foster discussion and problem solving of quantity food issues. Recipes and menu development utilizing nutrient analysis software will be included in the course. Every Spring semester.

DT H-38 Research in Nutrition I (1)
Prerequisite: DT H-208. Co-requisite for DT H 385 Assessment and critical review of current research papers in various areas of nutrition and dietetics. Emphasis is on understanding and interpretation of statistical results in a clinical setting. Every Spring semester.

DT H-41 Clinical Practicum Lab (2)
Prerequisites: DT H 410, DT H 411, concurrent with DT H 415. A semester-long course that coordinates clinical and problem-based learning experiences with DT H 415 Medical Nutrition Therapy II, the nutritional management of specific disease states. Every Spring semester.

DT H-43 Food Systems Management II (4)(includes 1 hr. lab)
Prerequisites: DT H 431, MGTB 300, ECNB 190. This course provides advanced skill development in foodservice management. The primary focus will be on management functions involving staffing, directing, and controlling. Emphasis will be placed on management of financial and human resources. A lab and lecture format is used to allow students to gain hands-on experience with foodservice management professionals at various facilities. Projects will vary based on the facility assigned, but exposure to budget preparation, strategic planning, marketing for customer satisfaction, and quality improvement will occur. Every Spring semester.

DT H-44 Nutrition Education (3)
Prerequisites: DT H 350, DT H 410, BIA 330, EDFA 425, DT H 208. Study of principles and practices of nutrition education of groups, including the aspects of public speaking and lesson planning. Every Spring semester.

DT H-45 Nutrition Counseling (3)
Prerequisites: DT H 210, DT H 215, DT H 385. This course incorporates the application of communication skills, interviewing, assessment, and counseling theories to the nutrition counseling of individuals for the reduction of disease risks and/or improvement of current health status. Every Fall semester.

DT H-48 Independent Study (0-3)
Prerequisites: To be determined individually. Qualified students interested in doing special work in some field of dietetics or wishing to amplify their knowledge of dietetics may pursue an individualized course of study. Department approval is required. Every semester.

DT H102 Career Exploration in Dietetics (0)
Students are introduced to the profession of dietetics and explore opportunities for practice. The historical foundation and the professional organization's credentialing and code of ethics are discussed. Guest speakers from the local community share their experiences and demonstrate skills. Every Spring Semester.

DT H33 Nutrition Tutorials for Organic Chem (0)
Co-requisite: CH A 342 and CH A 344. Students will have the opportunity to review principles learned in Organic Chemistry I. Every Fall Semester.

DT H389 Internship Seminar (0-1)
Prerequisites: Junior standing. Students will explore the process of applying to a Dietetic Internship. Students will learn how to prepare a professional, quality, competitive application. Every Spring semester.

DT H427 Culinary and Medicinal Herbs (3)
This class will be divided into three sections. Section one will include techniques for the identification of the most common classifications of herbs, as well as a history of use. The second section will focus on medicinal herbs with an evaluation of the indigenous uses for use, side effects, and drug/herb interactions. The final section will focus on the culinary properties of herbs. (Offered every Fall semester)

Occupational Therapy (OCT)

Lower Division Courses

OCTH100 Professional Seminar for Freshmen Students (1)
Occupational Therapy (OCT) - Lower Division Course
This course introduces freshmen to the profession of occupational therapy and provides them with an in-depth opportunity to explore their choice of occupational therapy as a career.

OCTH101 Introduction to Occupational Therapy (2)
The purpose of this course is to begin the socialization process of new freshman to the Saint Louis University Department of Occupational Therapy. Several topics address the high school to college transition. Students are encouraged to be reflective about their own values, the process of their personal and professional development, and their choice of occupational therapy as a career.

OCTH102 Foundations of Occupational Therapy (2)
This lecture/lab course lays the foundation for understanding the historic and philosophic framework underlying occupational therapy, various practice settings, the skills involved in working with clients and their families, and to become professional behaviors expected of health care providers. Students will learn to distinguish occupational therapy from the contributions made by other health care professions.

OCTH200 Community Practice Seminar I (1)
In this course students are introduced to concepts of community practice and to various screening instruments. This fall course is carried over to the Spring semester.

OCTH201 Characteristics of Helping Relationships (3)
The therapeutic use of self, with an emphasis on communication and interviewing skills, are addressed in this lecture/lab course.

OCTH202 Foundations of Occupational Therapy-Sophomores (1)
This course is designed to introduce sophomore transfer student to concepts presented in OCTH102.

OCTH203 Community Practice Seminar II (1)
This spring course is a continuation of OCTH200 Community Practice Seminar I.

OCTH212 Analysis of Human Occupation (3)
An introduction to factors which influence performance of life tasks of work, play/leisure and self-care. Includes a media lab and incorporates a variety of learning styles to teach selected activities and media.

OCTH220 Occupational Performance (4)
Occupational performance throughout the life span, including the influence of society, culture, family, personal experience and values. Includes the role of the occupational therapist in prevention and wellness programs.
OCTH323 Groups in Occupational Therapy (3)
Occupational Therapy (OCT) - Lower Division Course
This course emphasizes group process and the effects of its various elements on the design and functioning of occupational therapy groups. Students will develop skills in writing group protocols for a variety of settings and client populations.

OCTH240 Medical Terminology (2)
Occupational Therapy (OCT) - Lower Division Course
A combination of self-study and lecture is used to teach the roots, prefixes, and suffixes that form the foundation of medical terminology.

Upper Division Courses
OCTH300 Community Practice Seminar III (1)
This course offered in fall prepares students to appreciate the social, economic, and health services delivery needs in the community and the role that occupational therapy plays in meeting those needs. This course continues into the OCTH303 spring course.

OCTH302 Clinical Reasoning (2)
This course continues introduces students to the concepts and techniques of clinical reasoning. The focus of the course is on observation, interpretation and interactive reasoning.

OCTH303 Community Practice Seminar III (1)
This course is a continuation of OCTH300.

OCTH320 Functional Kinesiology (3)
Study of human motion with emphasis on understanding the clinical application of musculoskeletal evaluation, posture and gait analysis, and exercise.

OCTH330 Applied Neuroscience for Occupational Therapy (2)
Occupational Therapy (OCT) - Upper Division Course
Overview of neurological, congenital and developmental conditions and issues pertinent to the practice of occupational therapy.

OCTH328 Clinical Conditions II (2)
Occupational Therapy (OCT) - Upper Division Course
Overview of neurological, congenital and developmental conditions and issues pertinent to the practice of occupational therapy.

OCTH330 Applied Neuroscience for Occupational Therapy (2)
Occupational Therapy (OCT) - Upper Division Course
This course is taught simultaneously with neuroscience (AN -G 430) to help students apply the fundamentals of neuroscience to functional performance.

OCTH332 Basis of Clinical Practice (3)
The intervention continuum (screening through discharge planning) as it relates to a variety of treatment settings is emphasized in this course. This course also introduces students to the standards of practice and the belief systems of the professions of occupational therapy.

OCTH334 Occupational Therapy Theory and Practice: Psychosocial Assessment
Examines the impact of psychopathology on occupational performance. Major models of psychosocial occupational therapy practice will be utilized for assessment and treatment planning for a variety of psychopathological conditions.

OCTH336 Occupational Therapy Theory and Practice: Assessment and Intervention
Occupational therapy assessments and interventions across a range of physical and developmental conditions and settings.

OCTH338 Groups in Occupational Therapy (3)
This course emphasizes group process and the effects of its various elements on the design and functioning of occupational therapy groups. Students will develop skills in writing group protocols for a variety of settings and client populations.

OCTH398 Geriatric Scholar Independent Study (1-2)
Prior approval of sponsoring professor and Program Director required.

OCTH400 Community Practice Seminar (1)
This course introduces students to the concepts of advocacy and community supports.

OCTH432 Specialty Practice (3)
This course explores advanced treatment techniques in occupational therapy across a range of physical and developmental conditions.

OCTH438 Occupational Therapy Theory and Practice: Neurological Assessment
A continuum of OCTH 336 covering occupational therapy assessments and interventions pertinent to a variety of neurologic conditions and settings.

OCTH442 Senior Inquiry and Research in Occupational Therapy (4)
Overview of research design, methodologies, and statistics applicable to occupational therapy. Students will apply this knowledge to an original research question relevant to occupational therapy.

OCTH450 Administration, Supervision & Public Policy in Occupational Therapy
An introduction to the principles of managing a department of occupational therapy in traditional and non-traditional settings (quality assurance, personnel management, budgeting, documentation, program planning, program evaluation, legal and ethical issues) and analysis of service delivery systems relative to occupational therapy.

OCTH451 Clinical Fieldwork (4-6) Optional
An optional 2-3 month full-time, supervised clinical experience in a psychosocial practice setting. Decision for the student who seeks clinical experience in a specialty area. Students must be recommended by the faculty.

OCTH454 Clinical Fieldwork (5) Full-time
Supervised 12 week clinical experience required to develop entry level skills in occupational therapy.

OCTH456 Clinical Fieldwork (6) Full-time
Supervised 12 week clinical experience required to develop entry level skills in occupational therapy.

OCTH498 Geriatric Scholar Seminar-Independent Study (1-2)
Prior approval of sponsoring professor and Program Director required.

Organizational Studies (OS)
OS K293 Special Topics (1-4)
Prior approval of sponsoring professor and Program Director required.

OS K298 Independent Study (1-4)
Prior approval of sponsoring professor and Program Director required.

OS K300 Organizational Foundations (3)
Prerequisite: ENGA190, CMMK100, PSYA101, and 205. An introduction to organizational theory. This course will cover theory and practice within organizational management and organizational behavior at the individual, interpersonal, team, and organizational levels. A general understanding will also be gained of the areas of accounting, human resources, marketing, law, and leadership. Students will become more familiar with library resources needed for successful completion of the courses in the OS major. The course will be taught using lecture, discussion, and experiential exercises.

OS K310 The Individual in the Organization (3)
Prerequisites: ENGA190, CMMK100, PSYA101. An exploration of ways to maintain and enhance personal health and well-being within the organization. Topics include personal values and ethics, self-management, discipline, work ethic, stress management and motivation, career management, goals, priorities, plans, job satisfaction, learning, regulatory work-life balance, and work-life management, priorities setting, balancing work and personal life.

OS K320 Interpersonal Relations in organizations (3)
Prerequisites: ENGA190, CMMK100, PSYA101 and OS K300. An examination of the knowledge and skill necessary to perform appropriately and effectively in professional relationships. Students will gain a deeper understanding of themselves, other individuals, and of interpersonal relationships in organizations including: how to initiate, develop and maintain relationships; listen empathically; resolve conflict; influence others; and conduct workplace interviews. Students will complete self-assessments and engage in skill-building activities to learn how to effectively manage relationships within organizations.

OS K330 Team Dynamics (3)
Prerequisites: ENGA190, CMMK100, PSYA101 and OS K320. A study and application of team and small group behavior in organizations. Students will gain a deeper understanding of team structure, process, and p performance outcomes including topics like team types and stages, member roles, leadership, and decision-making. Through cooperative learning, self-examination, and experiential exercises, students will complete a team project demonstrating concepts and processes with team dynamics.

OS K393 Advanced Special Topics (1-4)
Prior approval of sponsoring professor and program Director required.

OS K398 Advanced Independent Study (1-4)
Prior approval of sponsoring professor and Program Director required.

OS K410 Concepts and Theories of Leadership (3)
Prerequisites: ENGA190, CMMK100, PSYA101, OS K330 and Senior Status within the OS major. Promotes leadership development through the study of leadership theory and concepts. Students will gain a deeper understanding of organizational culture, structure, communication, and strategic planning processes within the internal and external environment. Current trends will also be discussed. Students will complete cases and engage in experiential exercises to facilitate critical thinking and the application of course content to organizational
Lower Division Courses

PL A105 Historical Introduction to Philosophy: Self and Reality (3)
This course will focus primarily on the writings of Plato and Aristotle as central figures in that historical period when Western humanity began to use and to develop reason systematically as an instrument for understanding the human self in the world and for addressing the great questions that have motivated and haunted the human community from its very beginnings. Students will be introduced to the Greek contributions to logic, metaphysics, and ethics. Every semester.

PL A205 Ethics (3)
This course undertakes a systematic analysis of the fundamental problems and issues involved in questioning whether and how moral discourse can be rationally grounded; the utilization of modern philosophical debate, questions concerning different levels of moral discourse, competing notions of justice and right, the relationship between morality and religion. Every semester. Prerequisite: PL-A105.

Upper Division Courses

PL A320 Philosophy of Being (3)
The real as real, its radical principles and common characteristics. The claims of metaphysics to deal systematically with the nature and structure of all reality. Metaphysical support of philosophical anthropology, philosophy of God, religion and ethics. Critical study of metaphysics by Hume, Kant, recent thinkers. Prerequisite: PL-A105 and PL-A205.

PL A325 Philosophy of God (3)
Critical analysis and evaluation of reasoning about God. Reading and analysis of major texts in Western thought which articulate the personal conviction of belief or unbelief. The course is directed to deepening and broadening one's own understanding of the possibility of human knowledge about God. Every semester. Prerequisite: PL-A105 and PL-A205.

PL A330 Philosophy of Human Nature (3)
Systematic or historico-systematic treatment of main philosophical problems, such as the mind-body problem; the unity of man; survival and immortality; sensation and intelligence; the emotions; their interplay with intelligence and volition; freedom vs. determinism; the person in and with or against society. Every semester. Prerequisite: PL-A105 and PL-A205.

PL A336 Medical Ethics (3)
Ethical problems of medicine, nursing and the life-sciences. Every semester. Prerequisite: PL-A105 and PL-A205.

PL A338 Business Ethics (3)
Reflection on ethical issues relating to contemporary business practices and institutions. Prerequisite: PL-A105 and PL-A205.

PL A340 Ethics and Engineering (3)
Prerequisite: PL-A205. This course examines the moral and social issues that arise in the practice of engineering, e.g., risk assessment, use of proprietary information, whistle-blowing, environmental impact. The course applies moral theories and casuistic analysis to cases. Every fall.

PL A348 Jewish Life and Thought: From the Biblical period to the Middle Ages (3)
Course offers a study of the concept of priesthood during the Biblical period, the response to the rise of Christianity, the destruction of the Second Temple and the use of Rabbinic law and lore. Students will also have the opportunity to experience Jewish life through an understanding of the holiday cycle, the life cycle and attendance at a local synagogue for Sabbath worship. Every fall. Prerequisite: PL-A105 and PL-A205.

PL A349 Jewish Life and Thought: From the Middle Ages to Modern Times (3)
This course offers a study of the Golden Age of Spain, Jewish Mysticism, the Enlightenment, 19th century Nationalism, Zionism, the Holocaust and the rise of Modern Israel. Students will examine how these historical phenomena shaped the modern Jewish concepts of Torah, God, Israel and ritual observance. Jewish philosophers from Maimonides to Martin Buber will be studied and students will have an opportunity to attend a local synagogue to experience Sabbath worship. Every spring. Prerequisite: PL-A105 and PL-A205.

PL A380 Language and Critical Thinking (3)
The aim of this course is to impart awareness of language, its pitfalls, and its importance for sound thinking as well as communication, and to develop some skill in dealing with the problems of language occasions: Illustrative materials drawn from varying disciplines and sources. Fall semester. Prerequisite: PL-A105 and PL-A205.

PL A404 Modern Logic (3)
Methods of symbolic logic. Propositional and quantification theory of relations and identity, structure and properties of formal axiomatic deductive systems, philosophical issues of logic. Spring semester. Prerequisite: PL-A105 and PL-A205.

PL A406 Logic for Pre-Professionals (3)
This course is designed to provide pre-law (and other pre-professional school) students with a comprehensive treatment of modern formal and informal logic both in the area of argumentation and decision-making. Spring semester. Prerequisite: PL-A105 and PL-A205.

PL A415 Philosophy of Physical Science (3)
Basic structure of scientific method and fundamental philosophical problems related to interpreting the physical sciences. Fall semester. Prerequisite: PL-A105 and PL-A205.

PL A418 Philosophy of the Social Sciences (3)
Consideration and evaluation of the analytic, phenomenological, and Marxist approaches to the social sciences. Representative thinkers in each approach will be studied. Problems of scientific laws in social sciences, type-construction, and objectivity in the social sciences. Prerequisite: PL-A105 and PL-A205.

PL A420 Galileo, Science and the Church (3)
This course will focus on Galileo's role in the birth of modern science and on his trial and its significance at that time and in present day culture. Prerequisite: PL-A105 and PL-A205.

PL A424 Freud and Contemporary Thought (3)
A philosophical analysis of Freud's conception of human nature and of the significance of this conception to contemporary humanities understanding of the person. Prerequisite: PL-A105 and PL-A205.

PL A432 Person and Action: The Theological Anthropology and Ethics of John (3)
Prerequisite: PL-A105 and PL-A205. Using the writings of Karol Wojtyla (Pope John Paul II) on the philosophy of human nature (The Acting Person) and special ethical issues (War, Labor, Sexuality, Justice) this course will suggest the outlines for a systematic philosophy based upon Thomism, phenomenology, personism and collectivism. Prerequisite: PL-A105 and PL-A205.

PL A433 Philosophy of Law (3)
A critical survey of the major Western conceptions on the nature of law and on the relationship between law and morality. Prerequisite: PL-A105 and PL-A205.

PL A438 Morality and Modern Warfare (3)
Philosophy (PL) - Upper Division Course
Analysis and evaluation of the just-war and pacifist traditions concerning the morality of modern warfare. Prerequisite: PL-A105 and PL-A205.

PL A440 History of Greek Philosophy (3)
Development of philosophic thought from 600 B.C. to 400 A.D.: Plato, Aristotle, Plotinus. Fall semester. Prerequisite: PL-A105 and PL-A205.

PL A445 Ancient-Medieval Political Thought (3)
Reading and evaluation of texts from ancient and medieval thinkers such as Plato, Aristotle, Cicero, Augustine and Aquinas who have provided intellectual foundations for later Western thought on such issues as the nature of civil society, role of law in this society and laws relation to morality and religion. Prerequisite: PL-A105 and PL-A205.

PL A450 History of Medieval Philosophies (3)
Development of medieval philosophy from Augustine to Duns Scotus. Spring semester. Prerequisite: PL-A105 and PL-A205.

PL A455 Thomistic Philosophy: A Systematic Survey (3)
This course will provide an examination, through the texts of Saint Thomas and through a few contemporary commentators, of a systemic philosophical world view. Epistemology will be briefly considered before a more extensive presentation of and reflection upon Thomistic metaphysics, philosophy of human nature, ethics and nature theology. Prerequisite: PL-A105 and PL-A205.

PL A460 History of Modern Philosophy (3)
This course examines selected writings of those philosophers who contributed to the development of the Rationalist, Empiricist, and Idealistic movements of thought in the West from the seventeenth to the nineteenth centuries: Rationalists: Descartes, Spinoza, and Leibniz. Empiricists: Hobbes, Locke, and Hume. Idealists: Kant and Hegel. Fall semester. Prerequisite: PL-A105 and PL-A205.

PL A465 Renaissance and Modern Political Theories from Machiavelli to Kant (3)
Political and social thought of the period covering transition from feudalism and medieval city states to the growth of capitalism and modern state. Problems of morality and political necessity, contract theory of the state; nature and relationship of sovereignty and freedom, social change and stability. Prerequisite: PL-A105 and PL-A205.

PL A470 Contemporary German Philosophy (3)
Nineteenth and twentieth century philosophical thought in Germany. Prerequisite: PL-A105 and PL-A205.

PL A474 Philosophy of Karl Marx (3)
Themes and structure of the philosophical thought of Karl Marx. Prerequisite: PL-A105 and PL-A205.

PL A475 Latin American Thinkers (3)
Spring semester. Prerequisite: PL-A105 and PL-A205.

PL A476 Spanish Philosophy: Unamuno and Ortega (3)
Systematic analysis of two 20th century Spanish philosophers: Ortega y Gasset and Unamuno. Major themes in Ortega: fundamental reality, perspectivism, vital and historical reason, the I and the world. Major themes in Unamuno: the tragic sense of life, the polarities life vs. death, reason vs. will, and personal immortality. Fall semester. Prerequisite: PL-A105 and PL-A205.

PL A477 Phenomenology: Person and Society (3)
An examination of intersubjectivity and societal problems from the viewpoint of the philosophies of Husserl, Scheler, Sartre, Merleau-Ponty, Levinas, and Schutz. Prerequisite: PL-A105 and PL-A205.
that semester. Guided reflective journaling is included.

PL A478 Catholic Social Teaching (3)

This course focuses on understanding the meaning of social justice as it has developed in the Catholic intellectual tradition, especially as expressed in the social encyclicals of the last 100 years.

PL A480 Topics and Movements in Contemporary Philosophy (3)

Specific theme and focus of course to be determined by instructor Course offered at Departmental discretion. Prerequisite: PL A105 and PL A205.

PL A481 Philosophy of Feminism (3)

A critical examination of the feminist challenge to traditional conceptions of law, morality and epistemology. The philosophical and methodological assumptions underlying the feminist challenge will be explored. Prerequisite: PL A105 and PL A205.

PL A482 Problems and Topics in Epistemology (3)

Examination and analysis of philosophical problems concerning the nature and validity of human knowing. Course offered at Departmental discretion. Prerequisite: PL A105 and PL A205.

PL A485 Topics in Advanced Ethics (3)

Specific issues and topics to be determined by instructor. Course offered at Departmental discretion. Prerequisite: PL A105 and PL A205.

PL A486 Problems in the Philosophy of Religion

Specific themes and problems to be determined by instructor. Course offered at Departmental discretion. Prerequisite: PL A105 and PL A205.

PL A488 Senior Inquiry: Project (0-3)

Every semester.

PL A489 Senior Inquiry Comprehensive Examination (0)

PL A493 Special Topics (1-4)

PL A495 Senior Residency (0)

Required of all undergraduate philosophy majors in the semester during which they plan to graduate.

PL A498 Advanced Independent Study (0-4)

Prior permission of sponsoring professor and chairperson required. Prerequisite: Prior permission of sponsoring professor and chairperson required.

PL J320 Philosophy of Being (3)

A philosophical and systematic study of reality from the viewpoint of existence, dealing with the traditional problems of the nature and ultimate causes of being as being.

PL J482 Epistemology (3)

Examination and analysis of philosophical problems concerning the nature and validity of human knowing.

Physical Therapy (MPT)

Lower Division Courses

MPTH101 Introduction to Physical Therapy I (1)

This course explores the specialties and opportunities for practice in the field of physical therapy. The students participate in laboratory sessions which expose them to very basic skills of physical therapy patient care. The historical foundations of physical therapy and participation on a healthcare team are discussed. Medical terminology is learned in order to orient the student to future studies.

MPTH102 Introduction to Physical Therapy II (1)

The focus of this course is on laying a foundation for the psychosocial, cultural, attitudinal and communication aspects involved in interacting with patients and families.

MPTH108 Student Development (0)

Each semester this course provides information, guidance, and small group discussion to assist the student in maximizing their educational experience at the university. The course is designed to complement the students coursework for that semester. Guided reflective journaling is included.

MPTH110 Student Development (0)

Each semester this course provides information, guidance, and small group discussion to assist the student in maximizing their educational experience at the university. The course is designed to complement the students coursework for that semester. Guided reflective journaling is included.

MPTH208 Student Development (0)

Each semester this course provides information, guidance, and small group discussion to assist the student in maximizing their educational experience at the university. The course is designed to complement the students coursework for that semester. Guided reflective journaling is included.

MPTH210 Student Development (0)

Each semester this course provides information, guidance, and small group discussion to assist the student in maximizing their educational experience at the university. The course is designed to complement the students coursework for that semester. Guided reflective journaling is included.
214 - Course Descriptions

MPTH513 Thermal Agents (2)
This course covers the physical, biological, physiological and psychological rationale for treatment utilizing the thermal physical agents. Students will acquire theoretical and practical knowledge of selection and application of these treatment interventions.

MPTH514 Electrical and Mechanical Agents (3)
This course is concerned with the physical, biological, and physiological rationale for treatment interventions utilizing electrical and mechanical agents. The course covers the theoretical and practical knowledge of specific modalities and the integration of the clinical interventions into the plan of care.

MPTH519 Biomechanical Interventions (3)
The course covers the examination, interventions, and goals for individuals who have undergone amputations or who have disabilities which require orthotic management. The student will study theoretical frameworks upon which prosthesis/orthotic principles are applied and the practical applications for clinical use.

MPTH520 Musculoskeletal Pathology (2)
This course is a broad survey of the medical management for patients with primary musculoskeletal disorders and/or medical disorders which effect the musculoskeletal system. The student will be introduced to the pathology, etiology, and incidence of specific disorders.

MPTH524 Orthopedic Conditions I (4)
This course explores the pathokinematics of selected pathologies of the upper quadrant. Students will become familiar with tests and measures to assist in differential diagnosis and appropriate interventions.

MPTH525 Orthopedic Conditions II (4)
This course explores the pathokinematics of selected pathologies of the upper quadrant. Students will become familiar with tests and measures to assist in differential diagnosis and appropriate interventions.

MPTH526 Neuropathology (2)
This course is a broad survey of the neurologic pathologies. It includes discussion of the etiology, pathology, symptomatology, sequelae, medical management and treatment approaches for selected neuropathological conditions.

MPTH527 Neurological Conditions I (2)
This course provides the student with a comprehensive approach to pediatric patients with neurological conditions. Emphasis will be placed on examination and evaluation skills and alternative approaches to treatment interventions.

MPTH528 Neurological Conditions II (4)
This course provides the student with a comprehensive approach to patients with neurological conditions. Emphasis is placed on examination and evaluation skills and alternative approaches to intervention.

MPTH529 Pulmonary and Cardiovascular Conditions (3)
This course examines the pathogenesis and pathophysiology of cardiovascular and pulmonary disorders. Examination, evaluation, goals, and intervention methodology will be discussed.

MPTH530 Theoretical Issues in Movement Science (2)
Physical Therapy (MPT) - Upper Division Course
This course emphasizes the application of theories of motor control, learning and development of movement skills, and the identification of unsolved problems in motor control and motor learning to physical therapy diagnosis and management of patients with movement dysfunction. It includes the instrumentation used for analysis of movement.

MPTH534 Medical and Surgical Conditions (2)
This course presents the student with a comprehensive approach to patients with medical and/or surgical conditions. Emphasis will be placed on examination, evaluation, interventions, and the information that impacts the selection and implementation of these procedures.

MPTH541 Laboratory Studies for Physical Therapists (1)
This course focuses on the purpose, normal values/results, and side-effects of certain diagnostic procedures to assist the physical therapist in understanding the patients medical condition.

MPTH542 Pharmacology for the Physical Therapists (1)
This course provides a basic overview of drugs commonly used by patients seen in physical therapy. The processes of pharmacokinetics, pharmacodynamics and autonomic pharmacology will be reviewed with an emphasis on age differences. General drug categories, specific actions, adverse reactions, dosage, and PDR use will be discussed.

MPTH560 Departmental Administration (2)
The course covers the basic administrative and management aspects of developing and operating a physical therapy service. Included are discussions of corporate organization, planning and decision making, personnel, fiscal and operations management, marketing, and quality improvement.

MPTH561 Issues in Health Care Delivery (2)
Physical Therapy (MPT) - Upper Division Course
This course involves discussion of the evolution of the health care delivery system and government and non-government responses. Some of the issues covered include access, cost, financing, and quality. The effect on the delivery of physical therapy services and implications for the future are emphasized.

MPTH562 Professional Issues in Physical Therapy (1)
This course presents issues faced by physical therapists in various clinical settings. These issues include ethical dilemmas, interactions with other health professionals, legal aspects of practice, and current professional issues influencing physical therapy practice.

MPTH570 Patient Management I (2)
This course provides the opportunity to integrate the various dimensions of patient care into an organized problem-solving process which covers all aspects of patient management. The primary focus will be clinical decision-making for patients with disabilities. The identification and impact of critical issues related to medical status and patient safety through all aspects of patient care will be emphasized.

MPTH571 Patient Management II (2)
This course builds on the clinical problem-solving process introduced in Patient Management I and further prepares the student for patient management for those with a variety of diagnoses.

MPTH572 Communication Processes in Patient Care (2)
This course covers teaching skills, interviewing skills, and other communication skills needed in the clinical environment. This course also provides an opportunity to apply learning theory, personality theory, and developmental theory to communication.

MPTH580 Clinical Seminar I (2)
Physical Therapy (MPT) - Upper Division Course
This course covers some basic examination, evaluation, and treatment interventions in both theoretical and practical application framework. Examinations and interventions presented include vital signs, selected emergency procedures, patient positioning, patient transport and transfer techniques, and infection control.

MPTH582 Clinical Seminar II (1)
This course covers basic techniques such as gait with assistive devices and home exercise programs. Also included are issues of professional responsibility, the code of ethics, medical records, the Guide to Physical Therapist Practice, and documentation of patient examination and interventions.

MPTH583 Clinical Education (12)
The student is assigned to eighteen weeks of clinical affiliations. The student performs the full range of patient management skills and professional responsibilities under the supervision of a physical therapist.

MPTH590 Methods of Clinical Research (2)
This course introduces the student to the components of scientific writing for case reports. All students will write a literature review and case report. In addition, the course will provide a overview of the various types of research that are pertinent to the field of physical therapy.

MPTH790 Methods of Clinical Research (2)
Physical Therapy (MPT) - Upper Division Course
This course involves the identification of research problems, planning and implementation of research with evaluation and results.

Physician Assistant Education (PAE)
Upper Division Courses

PAEH302 Contemporary Health Care Systems (4)
Physician Assistant Education (PAE) - Upper Division Course
Introduction to relevant concepts, terminology, relationships and contemporary issues in the organization and delivery of health care services in the U.S. Fundamental concepts, facts and relationships that define and influence structure and function of U.S. health services, including roles of various health care professionals. Includes history of PA profession, current and future issues facing the profession.

PAEH304 Dynamics in Health Care (3)
This course introduces the student to the biopsychosocial model of health care and focuses on the psychological, social and family context of health, illness, and health care. A major premise of this course is that in order to adequately meet the health care needs of the patient, the PA must consider not only disease factors, but also psychosocial factors, which affect the disease and are affected by it as well. The influence of various psychosocial factors in the health care setting will be addressed, especially as they impact the role of the PA as a health care provider.

PAEH328 Evaluation I (4)
The tools, techniques, procedures and skills of the diagnostic physical examination are presented in a systems approach as they relate to the systematic performance and documentation of complete and proficient physical examinations. Medical terminology is integrated with each system.

PAEH329 Evaluation II (4)
This course consists of instructional components in communication skills, the medical record and patient evaluation. Basic concepts of communication skills as they relate to the medical interview are emphasized along with the feasibility of the PA in gathering and recording data in the medical record. Students learn to integrate physical findings and data collected in the medical history as they complete history and physical examinations on selected patients.
PAEH330 Introduction to Clinical Laboratory Medicine (4) 
Physician Assistant Education (PAE) - Upper Division Course 
Survey of clinical laboratory medicine to introduce basic theory, selection, an introduction to common diagnostic laboratory studies. Emphasis is placed on the clinical application of laboratory data. Topics include: immunology, microbiology, hematology, urinalysis, blood banking, coagulation, and chemistry.

PAEH400 Seminar (1) 
This multifaceted course spans the entire professional curriculum. It includes instruction in the history and role of the PA, accessing, reading and interpreting the medical literature; health promotion and disease prevention; patient education; lectures in specialty clinical disciplines; clinical correlation case studies; and ACLS instruction for American Heart Association certification.

PAEH420 Pharmacology (2) 
Principles of pharmacology and physiology essential to appropriate medical therapy are presented, with emphasis on the action, absorption, metabolism, excretion and toxicity of the major groups of drugs used in medicine. Pharmacotherapy for common medical problems is emphasized and reviewed in clinical case discussions.

PAEH430 Skills in Patient Care (2) 
Basic surgical principles and techniques are presented, including asepsis fundamentals, OR procedure and conduct, wound care and healing, closure, debridement and dressings. Laboratory sessions include minor surgical techniques and other procedures: Surgical instruments, anesthesia, pre- and post-operative care, common surgical procedures and surgical complications are discussed.

PAEH440 Medicine I (4) 
Six weeks. Students participate in the direct care of hospitalized and ambulatory patients, including complete and focused history and physical examinations, treatment of selected medical problems, patient management, O.R. procedure and conduct, wound care and healing, closure, debridement and dressings. Laboratory sessions include minor surgical techniques and other procedures. Surgical instruments, anesthesia, pre- and post-operative care, common surgical procedures and surgical complications are discussed.

PAEH442 Care (3) 
Four weeks. Practicum provides experience in the recognition and management of common medical and psychosocial problems of the older adult.

PAEH445 Medicine II (3) 
Four weeks. A continuation of PAE 440.

PAEH450 Surgery (3) 
Four weeks. Practicum provides experience in the recognition and management of common medical and psychosocial problems of the older adult.

PAEH460 (3) 
Four weeks. Practical experience in the recognition and management of common medical and psychosocial problems of the older adult.

PAEH465 Geriatrics (2) 
Physician Assistant Education (PAE) - Upper Division Course 
Three weeks. Hospitals, ambulatory settings, and long-term care facilities offer practical experience with the common medical and psychosocial problems of the older adult.

PAEH470 and Behavioral Medicine (3) 
Four weeks. This rotation provides experience in working with patients who have psychiatric, behavioral or substance abuse problems. Emphasis is placed on the recognition and management of these problems in both inpatient and outpatient settings.

PAEH475 and Gynecology (3) 
Four weeks. Fundamentals of obstetrics and gynecology, including the history and examination, pre- and post-natal care, delivery and common gynecologic problems and procedures are presented in ambulatory and hospital settings.

PAEH480 Medicine (3) 
Four weeks. Experience in dealing with various emergent and non-emergent problems seen in most emergency departments, with emphasis on the importance of precise diagnosis as well as appropriate management.

PAEH485 Surgery (3) 
Four weeks. This clinical experience emphasizes the fundamentals of orthopedics, sports medicine and orthopedic referral. Outpatient, pre-operative, operative and post-operative patient care are included.

PAEH488 Care Preceptorship I (4) 
Six weeks. This practical experience integrates previous studies and is served in a primary care area. Preceptorship sites are chosen by the student in most instances.

PAEH489 Care Preceptorship II (4) 
Six weeks. A continuation of PAE 488.

PAEH490 Clinical Elective (3) 
Physician Assistant Education (PAE) - Upper Division Course 
Four weeks. A practitioner in a student selected clinical discipline. Specialty an subspecialty areas in internal medicine, surgery, pediatrics and other areas are open for consideration.

PAEH493 Elective (3) 
Four weeks. Specialty and subspecialty areas in internal medicine, surgery, pediatrics and other areas are open for consideration in this student-selected practicum.

PAEH497 Primary Care Preceptorship I (4) 
Physician Assistant Education (PAE) - Upper Division Course 
Eight weeks. Practical experience integrating previous studies, served in one or more primary care areas. The preceptorship provides the student with an environment in which to expand the knowledge and skills learned in an academic setting, using them in a true primary care practice. Assignment to preceptorship sites is made by the program while considering student preferences.

PAEH498 Primary Care Preceptorship II (4) 
Physician Assistant Education (PAE) - Upper Division Course 
Eight weeks. A continuation of PAE 497. Open to Physician Assistant Education Program students only.

PAEH499 Independent Study (0 - 3) 
This course is designed for Program graduates working on degree requirements.

PAEH500 Psychosocial Dynamics in Health Care (3) 
This course introduces the student to the psychological, social and family content of health, illness and health care. A major premise of this course is that to adequately meet the needs of the patient, the PA must consider not only disease factors, but also psychosocial factors, which affect the disease and are affected by it as well. Issues of family, development from infancy through old age, the family's role in health care, sex and sexuality, death and dying and health care ethics.

PAEH502 PHYSIOLOGY (4) 
This is a comprehensive course that covers all major systems of the human body. Special emphasis is placed on the clinical applications of this knowledge to patient management. It is designed specifically for PA students as they prepare for courses in pathophysiology and clinical medicine. Previous physiology or combined anatomy/physiology is a prerequisite.

PAEH505 PA SEMINAR (1) 
This multifaceted course spans the entire professional curriculum. It includes instruction in the history and role of the PA, accessing, reading and interpreting the medical literature; health promotion and disease prevention; patient education; and clinical correlation case studies.

PAEH506 PHYSICAL DIAGNOSIS (4) 
The tools, techniques, procedures and skills of the diagnostic physical examination are presented in a systems approach as they relate to the systematic performance and documentation of complete and focused physical examinations. Medical terminology is integrated with each system.

PAEH507 PRINCIPLES-MEDICAL INTERVIEW (2) 
This course focuses on the medical interview as a clinical skill. The various components of the medical history are presented along with techniques for effective medical interviewing. Students apply these skills while obtaining histories from selected patients. Guidance is provided with respect to communicating with patients of all cultural backgrounds, ages and personalities.

PAEH508 MEDICAL DOCUMENTATION (2) 
This course focuses on how to record a complete medical history and physical examination in the appropriate format using the problem-oriented medical record system. Students learn to integrate history and physical exam data as they perform histories and physicals on selected patients and then document their findings in the complete write up.

PAEH510 Foundations of Clinical Medicine (6) 
The essentials of human pathophysiology and their relationship to clinical signs and symptoms elicited in the medical history and physical examination are presented. The etiology, epidemiology, pathophysiology, clinical manifestations and diagnostic aspects of the common diseases within each organ system are discussed and correlated. General approaches to medical management of selected problems are also presented. Although an organ-systems approach is utilized, the systems are integrated for discussion of multi-system pathology.

PAEH515 CLINICAL PATHOLOGY (2) 
Principles of pharmacology and physiology essential to appropriate medical therapy are presented, with emphasis on the action, absorption, metabolism, excretion and toxicity of the major groups of drugs used in medicine. Pharmacotherapy for common medical problems is emphasized and reviewed in clinical case discussions.

PAEH517 ESSENTIALS OF SURGERY (2) 
Basic surgical principles and techniques are presented, including aspesis fundamentals, O.R. procedure and conduct, wound care and healing, closure, debridement and dressings. Laboratory sessions include minor surgical techniques and other procedures. Surgical instruments, anesthesia, pre- and post-operative care, common surgical procedures and surgical complications are discussed. BLS and ACLS training are included in this course.

PAEH520 Therapeutics (2) 
This course is a continuation of PAE 420. Clinical Pharmacology, with increased emphasis on clinical therapeutic applications and more intensive review of selected major drug categories. Prerequisite: PAE 420.
216 - Course Descriptions

PH P124 General Physics II (4)
Prerequisite: PH-P122. Lectures, demonstrations and laboratory in electricity, magnetism, wave motion, sound, optics and modern physics. For School of Allied Health Professions students only. Spring semester.

PH P131 Physics I (3)
Prerequisite: High school algebra and trigonometry. Lectures and demonstrations in mechanics and heat. PH-P132 should be taken concurrently with PH-P131. Fall semester.

PH P132 Physics I Laboratory (1)
Should be taken concurrently with PH-P131. Laboratory in mechanics and heat. Fall semester.

PH P133 Physics II (3)
Prerequisite: PH-P151. Lectures and demonstrations in electricity, magnetism, wave motion, sound, optics and modern physics. Spring semester.

PH P135 Aviation Physics (4)
Prerequisite: MFA115 or equivalent. Units and measurement; vectors; force and motion; energy; momentum; gravitation; forces of drag and lift; rotational motion; equilibrium of forces during flight; harmonic motion; selected topics in flight, aerodynamics, fluid mechanics, work and energy, impuement, and electromagnetic induction; linear and wave optics; atmospheric optics; laboratory experiments relating to the topics above. Fall and Spring semesters. Prerequisite: MT-A115 or equivalent.

PH P151 Physics I with Calculus (3)
Prerequisite OR COREQUISITE: MFA142. The calculus approach is used to develop concepts of mechanics, heat and wave motion. PH-P152 must be taken concurrently with PH-P151. Fall semester.

PH P152 Physics II with Calculus Laboratory (1)
Must be taken concurrently with PH-P151. Laboratory experiments illustrating lectures of PH-P151 on mechanics, heat and wave motion. Fall semester.

PH P153 Physics II with Calculus (3)
Prerequisite: PH-P151. The calculus approach is used to develop the concepts of sound, optics, electricity and magnetism. PH-P154 must be taken concurrently with PH-P153. Spring semester.

PH P154 Physics II with Calculus Laboratory (1)
Must be taken concurrently with PH-P153. Laboratory experiments illustrating the lectures of PH-P153 on sound, optics, electricity and magnetism. Spring semester.

PH P161 Engineering Physics I (4)
Prerequisite: MFA152. COREQUISITE: PH-P162. For Parks College students; others need special permission. Calculus and vector approaches to study of kinematics, statics and dynamics, fluid mechanics, work and energy, impuement, and momentum; circular motion and gravity; rotational motion and equilibrium; vibrations, waves and sound; statistical mechanics; solid state physics; nuclear and particle physics; electricity. Fall and Spring semesters. Prerequisite: MT-P152.

PH P162 Engineering Physics I Laboratory (1)
Prerequisite: MFA152. COREQUISITE: PH-P161. For Parks College students; others need special permission. Laboratory experiments to illustrate and supplement material in PH-P161. Fall and Spring semesters.

PH P163 Engineering Physics II (4)
Prerequisite: MFA153, PH-P161 and PH-P162. COREQUISITE: PH-P164. For Parks College students; others need special permission. Laboratory experiments to illustrate and supplement material in PH-P165. Fall and Spring semesters.

PH P164 Engineering Physics II Laboratory (1)
Prerequisite: MFA152, PH-P161 and PH-P162. COREQUISITE: PH-P165. For Parks College students; others need special permission. Laboratory experiments to illustrate and supplement material in PH-P166. Fall and Spring semesters.

PH P261 Modern Physics (3)
Prerequisite: One year General Physics. PRE OR COREQUISITE: MFA143. Lectures three hours per week. At the level of Leiser's Concepts of Modern Physics. Spring semester.

PH P262 Modern Physics Laboratory (1)
Prerequisite: One year General Physics. PRE-OR COREQUISITE: MFA145 & PH-P261. Spring semester.

PH P275 Co-op with Industry (0)
Prerequisite: Sophomore standing. A full-time supervised work experience with an agency, firm or organization that employs persons in this degree field. This course is used for the first experiential learning session. Grading system is determined by department offering course. Offered every semester.

Upper Division Courses

PH P301 Computational Physics (3)
An extensive range of problems taken from classical mechanics, waves, and electricity and magnetism is programmed by the student using C on a personal computer.
PH P311 Classical Mechanics (3)
Prerequisite: MT-A244. The elementary theory of the statics, kinematics and dynamics of particles and rigid bodies. At the level of Symon’s Mechanics.

PH P312 Advanced Classical Mechanics (3)
Prerequisite: PH-P311. Continuation of PH-P311, continuum mechanics and introduction to the analytical methods of Lagrange and Hamilton.

PH P331 Optics (3)
Lectures and demonstrations three hours per week. Physical and geometrical opt

PH P332 Optics Laboratory (1)
The fundamental experiments of modern optics are repeated in this course. Three hours per week. It is to be taken concurrently with PH-P331.

PH P341 Thermodynamics and Statistical Mechanics (3)
PRL: or Corequisite: MT-A244 & MT-A551. At the level of Zemansky’s Heat and Thermodynamics.

PH P351 Analog and Digital Electronics (4)
Lecture-laboratory six hours per week. Fundamentals of digital circuits with applications to computers. Operational amplifiers. Interfacing of computers with experimental equipment for data collection and control.

PH P375 Co-op with Industry (0)
Prerequisite: PH-P75. A full-time supervised work experience with an agency, firm or organization that employs persons in this degree field. This course is used for the second experiential learning session. Grading system is determined by department offering course. Offered every semester.

PH P376 Internship with Industry (0-3)
Prerequisite: Junior standing. A work experience with an agency, firm or organization that employs persons in this degree field. This experience may be full time or part-time as required by the industry sponsor. This course is used for the first experiential learning session. Grading system is determined by department offering course. Offered every semester.

PH P393 Computers in Science (3)
Prerequisite: One year of either General Chemistry or General Biology. Calculus I is highly recommended. Registration only by consent of instructor. This course uses computers and automated data collection in Biology. Chemistry and Physics. The course will concentrate on data collection and visualization with an introduction to automated data collection software, statistical analysis and modeling. Fall semester.

PH P401 Topics in Modern Physics (3)
Prerequisite: MTP-254. Special theory of relativity; quantum theory; wave properties of particles; theory of the atom; introduction to nuclear and particle physics; introduction to solid state physics. Prerequisite: PH-P162 and MT-P234, or equivalent.

PH P421 Electricity and Magnetism I (3)
Prerequisite: MT-A554. Lecture three hours per week. At the level of Lorrain and Corson’s Electromagnetic Fields and Waves. Spring semester.

PH P422 Electricity and Magnetism II (3)
Prerequisite: PH-P421. Lecture three hours per week. Electromagnetic Fields at an advanced level. A continuation of PH-P421. Fall semester.

PH P461 Quantum Mechanics (3)
Prerequisite: PH-P261 and PH-P311. At the level of Park’s Introduction to the Quantum Theory. Fall semester.

PH P462 Application of Quantum Mechanics (3)
Prerequisite: PH-P61. Quantum mechanics applied to topics from particle physics, nuclear physics, low temperature physics, solid state physics and chemistry. Spring semester.

PH P475 Co-op with Industry (0)
Prerequisite: PH-P75. A full-time supervised work experience with an agency, firm or organization that employs persons in this degree field. This course is used for the third experiential learning session. Grading system is determined by department offering course. Offered every semester.

PH P476 Internship with Industry (0-3)
Prerequisite: PH-P76 or Senior standing. A work experience with an agency, firm or organization that employs persons in this degree field. This experience may be full time or part-time as required by the industry sponsor. Grading system is determined by department offering course. Offered every semester.

PH P479 Advanced Undergraduate Laboratory (1)
Experiments in atomic and nuclear physics.

PH P484 Senior Inquiry: Thesis (0)

PH P488 Senior Inquiry: Research Project (0-3)

PH P489 Senior Inquiry: Comprehensive Examination (0)

PH P495 Senior Residency (0)

PH P498 Advanced Independent Study (1-3)
Prior permission of sponsoring professor and chairperson required.

PH P501 Methods of Theoretical Physics (3)
The theory of complex variables with emphasis on series and integration techniques. Asymptotic methods. Conformal mapping. Introduction to Fourier techniques.

PH X141 Physics I (4)
Prerequisite: High School Algebra and Trigonometry. 1818 ACC Program Only. It is equivalent to PH-P131, covering mechanics and heat. With the addition of laboratory work in the high school, four credit hours may be earned. Prerequisite: High School Algebra and Trigonometry.

PH X143 Physics II (4)
Prerequisite: High School Algebra and Trigonometry. 1818 ACC Program Only. It is equivalent to PH-P135, covering electricity, magnetism, wave motion, sound, optics, and modern physics. With the addition of laboratory work in the high school, four credit hours may be earned. Prerequisite: High School Algebra and Trigonometry.

Portuguese (PG)

Lower Division Courses

PG A105 Introductory Brazilian Portuguese (5)
Development of writing, reading, speaking and listening skills. Offered occasionally.

PG A106 Intermediate Brazilian Portuguese (5)
Continuation of PG-A105. Offered occasionally.

Upper Division Courses

PG A493 Special Topics (1-4)

Political Science (POL)

Lower Division Courses

POLA100 Introduction to Politics (3)
Nature of the political process; the state; sovereignty; nationalism; functions of government; ideologies; forms of government; democratic and totalitarian models; constitutionalism; representation; political parties and pressure groups; legislative; executive; administrative; judicial processes; international politics. Fall and Spring semesters.

POLA110 American Politics (3)
Basic principles of American systems of government; relations of citizens to government; structure, organization, powers and procedures of governmental agencies. Fall and Spring semesters.

POLA150 Introduction to Comparative Politics (3)
This course introduces students to the logic, method, and theoretical approaches of the comparative study of political systems and processes. It examines the institutions and processes of government in various kinds of political systems around the world, particularly liberal democratic systems in advanced industrial countries; communist systems and the process of transition out of communism; and developing countries. It also investigates the process of political change, particularly pressures on the welfare state, state building and modernization; democratization, and revolution. Offered every third semester.

POLA160 Introduction to International Politics (3)
Role of power, ethics, law, public opinion, effectiveness of various techniques of international relations; diplomacy, propaganda, subversion. Crucial problems. Proliferation of nuclear weapons, revolutionary warfare, hunger. How should we respond to the challenge? Offered every semester.

POLA170 Foundations of Political Theory (3)
Tracing of the development of a distinctive political realm in the history of Western political thought, from the ancient to the modern era. The class approaches political theories as more-or-less coherent systems of thought that assume often unexplored social underpinnings. The goal is to illuminate the relationship between politics and society in these theories.

POLA210 American Constitutional Law: The Original American Constitution (3)
Historical analysis of the first seven articles of the Constitution of 1789. U.S. Supreme Court judges, their interpretations of the Constitution. Other judges and their views of the law. Fall semester.

POLA211 American Constitutional Law: Civil Liberties (3)
Continuation of POL-A 210. The Bill of Rights and the Fourteenth Amendment; transdisciplinary approach, using theories of law, history, philosophy, sociology, psychology, political science. Spring semester.

POLA213 American Foreign Policy (3)
Assessment of extent of formal and informal influence within the decision-making process exerted by governmental and non-governmental agencies on current U.S. foreign policy. Offered occasionally.

POLA218 American Presidential Elections (3)
Presidential nominating process and campaign; backgrounds of presidential candidates, interplay among candidates, issues, parties, interest groups, media and political strategies; considers presidential election reforms. Offered occasionally.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>POLA220</td>
<td>Introduction to American State and Local Government (3)</td>
</tr>
<tr>
<td>POLA251</td>
<td>West European Politics (3)</td>
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<td>POLA252</td>
<td>Introduction to African Politics (3)</td>
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<td>POLA253</td>
<td>Soviet and Post Soviet Politics (3)</td>
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<td>POLA254</td>
<td>Ethnicity &amp; Internal War (3)</td>
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<td>POLA255</td>
<td>Political Systems of the Sub-Saharan (3)</td>
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<td>POLA256</td>
<td>The Politics of Asia (3)</td>
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<td>POLA257</td>
<td>Introduction to Latin American Politics (3)</td>
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<tr>
<td>POLA261</td>
<td>Introduction to Diplomacy (3)</td>
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<tr>
<td>POLA293</td>
<td>Special Topics (1-4)</td>
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<tr>
<td>POLA300</td>
<td>Methods in Political Science (3)</td>
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<tr>
<td>POLA309</td>
<td>Aldermanic Internship (1-3)</td>
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<tr>
<td>POLA310</td>
<td>Judicial Decision-Making (3)</td>
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<tr>
<td>POLA312</td>
<td>The American Presidency (3)</td>
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<tr>
<td>POLA314</td>
<td>Public Opinion and Mass Communication (3)</td>
</tr>
<tr>
<td>POLA316</td>
<td>Electoral Behavior: Polls, Candidates &amp; the Electorate (3)</td>
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<tr>
<td>POLA317</td>
<td>The Legislative Process (3)</td>
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<tr>
<td>POLA319</td>
<td>Campaign Practicum (1-3)</td>
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<tr>
<td>POLA320</td>
<td>State Legislative Internship (1-3)</td>
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<td>POLA329</td>
<td>Multilateral Diplomacy (3)</td>
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<td>POLA341</td>
<td>Government Decision-Making: Organization Behavior (3)</td>
</tr>
<tr>
<td>POLA342</td>
<td>Introduction to Administrative Law (3)</td>
</tr>
<tr>
<td>POLA350</td>
<td>Russian Political Culture (3)</td>
</tr>
<tr>
<td>POLA351</td>
<td>Rebirth of Democracy (3)</td>
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<tr>
<td>POLA352</td>
<td>Communism (3)</td>
</tr>
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<td>POLA353</td>
<td>Comparative Revolutions (3)</td>
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<td>POLA357</td>
<td>Third World Development (3)</td>
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<td>POLA362</td>
<td>International Organization and the Management of World Problems (3)</td>
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<td>POLA364</td>
<td>International Law (3)</td>
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<td>POLA365</td>
<td>International Relations of Africa (3)</td>
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POLA371 Ancient and Medieval Classics in Political Thought (3)
Development of Western political thought from its beginnings in the Greek city-state to the end of the Middle Ages. Special attention to Plato, Aristotle, Cicero, Roman Law, Church-state controversies, Aquinas and Scholasticism. Alternate years.

POLA372 Renaissance and Modern Political Theories (3)
Political impact of the rise of humanism, individualism and liberalism; changing interpretations of natural law; constitutionalism and checking of absolutism; the Enlightenment. Among writers considered are Hobbes, Locke, Rousseau, Hegel, Marx, Nietzsche and Mill. Alternate years.

POLA373 Contemporary Political Ideologies (3)
Development of modern political ideologies from mid-nineteenth century to mid-twentieth. Emphasis on Marxist and other social movements, anarcho-syndicalism, neo-Hegelianism, expanding role of the state; nationalism, racism and welfare liberalism. Offered occasionally.

POLA375 The Modern Democratic State (3)
Philosophy and theory of democratic government in the context of institutions and processes of nineteenth and twentieth century Western democratic systems; fundamental tenets of popular participation in the decision-making process. Offered occasionally.

POLA393 Special Topics (1-4)

POLA414 Political Parties and Interest Groups (3)
Major political organizations—parties and interest groups or pressure groups—linking public opinion with formal political power agencies. Emphasis on changes and developments of political organizations; party and group cohesion and strength; goals of parties and interest groups; techniques employed; nominating, campaigning, propagandizing, lobbying; attempting to govern; functions of political organizations in the political system. Offered occasionally.

POLA418 Legal Internship (1-6)
Interns work in law firms, or in the legal department of large corporations, or in public agencies involved in the judicial process. In selecting their internships, students are advised to take into account the nature of the agencies involved, the potential for exposure to and understanding of the legal system, and the possible value of the experience in their future careers. They may, for example, work with the legal department of a public agency involved in the judicial process, or in a private law firm. Additional courses might include the study of legal ethics, professional responsibility, and the American legal system. Prerequisite: Sophomore standing. Offered every semester.

POLA419 American Presidency (3)
Studies the executive policy-making process; recruitment processes; Office of the President; bureaucracies, role of presidential and style, responsibility, preference for political policy processes. Offered occasionally.

POLA440 Administration of National Policy: Abuses of Administrative Power (3)
How responsibly public officials perform in implementing public policies. Principles of accountability in democratic government; public interest theory; achievements and failures of bureaucracy; regulatory problems; discretionary power of public administrators; how to check administrative abuses. Offered occasionally.

POLA446 Administrative Internship (1-3)
Interns, with the guidance of Professor of Political Science, are employed by an administrative agency or by a public agency in a government bureau. Students are expected to work at a level of responsibility commensurate with their training and experience. The course is designed to provide practical experience in the field of administrative management. Students must have the consent of the faculty advisor, the Director of Administrative Management, and the agency in which they are employed. The course is offered on a pass/fail basis. Offered occasionally.

POLA465 The Use of Force in International Relations (3)
Role and limitations of military power in international politics. Military power as an instrument of foreign and military policy and its influence on international relations and relations of nations. Alternatives to the continued reliance on the use of military power within the international system. Alternate years.

POLA466 Middle East in International Politics (3)
Analysis of the major issues of Middle East politics and of their effects on the course of international relations. Examination of the foreign policies of all the states of the region in their historical context. Discussion of current trends. Offered every third semester.

POLA468 Foreign Service Internship (1-6)
Interns serve abroad or in Washington in agencies concerned with the conduct of foreign relations. They may also work for nongovernmental organizations (some of them located in St. Louis) concerned with diplomatic relations or foreign policy. Every semester.

POLA470 International Terrorism (3)
Terrorism as a major problem of world affairs; identifies different types of terrorism and analyzes their complex causes; examines policies and techniques used to combat terrorism.

POLA475 American Political Thought (3)
From 1765 to the present. Eighteenth century consensus, nationalism versus sectionalism, nineteenth century reform movements, pragmatism and progressivism, current liberalism and conservatism. Alternate years.

POLA482 Senior Inquiry (3)
Undergraduate seminar which rotates among departmental faculty members. Topics change each semester. Emphasis is placed on a research term paper. Fall and Spring semesters.

POLA483 Senior Inquiry: Research Project (3)

POLA489 Federal Government Internship (1-6)
Interns serve in Federal Agencies (legislative or executive) located in Washington or St. Louis, depending upon availability. The internships provide excellent insight into the functioning of the Federal bureaucracy. Offered every semester.

POLA493 Special Topics (1-4)

POLA495 Senior Residency (0)

POLA498 Advanced Independent Study (0-6)

POLX110 American Politics (3)
1818 ACC program only. Basic principles of American systems of government; relations of citizens to government; structure, organization, powers and procedures of governmental agencies.

POLX160 Introduction to International Politics (3)
1818 ACC program only. Role of power, ethics, law, public opinion; effectiveness of various techniques of international relations; diplomacy, propaganda, subversion. Crucial problems: Proliferation of nuclear weapons, revolutionary warfare, hunger. How should we respond to the challenge?

POLX213 American Foreign Policy (3)
1818 ACC program only. Assessment of extent of formal and informal influence within the decision-making process exerted by governmental and non-governmental agencies on current U.S. foreign policy.

POLX218 American Presidential Elections (3)
1818 ACC program only. Presidential nominating process and campaign; background of presidential candidates, interaction among candidates, issues, parties, interest groups, media and political strategies; considers presidential election reforms.

Pre-Law Scholars Program (PLS)

LSLA290 Mock Trial Practicum (1-2)
This course is a continuation of Introduction to Trial Advocacy and includes the participation in several regional qualifying meets and in the annual Intercolligate Mock Trial Competition in Des Moines, Iowa. Prerequisite: PLS-A293.

PLSA291 Foundations of Law (3)
This course is open only to Pre-law scholars in the second semester of their sophomore year. This is a seminar conducted by the faculty of the School of Law. A final paper and class participation are the major determinants for the students' grade.

PLSA293 Introduction to Trial Advocacy (3)
This course is taught as a preparation for the National Intercolligate Mock Trial Competition held each spring in Des Moines, Iowa. The course is designed to teach students the fundamentals of trial performance and includes several mock trials. The theory and practice of courtroom procedures in the United States are thoroughly surveyed.

Professional Pilot (PP)

PP P100 Flight IA (0)
Professional Pilot (PP) - Lower Division Course
All required PP-P courses are offered every semester. Introduction to flight; minimum hours include 10 hours dual flight instruction, 2 hours simulator instruction, 0.5 hours solo flight, and 6 hours pre- and post-flight brief. At the end of this course, the student will have completed the initial solo flight and post solo stage check. Prerequisite: Class II medical certificate.

PP P101 Flight IB (2)
Professional Pilot (PP) - Lower Division Course
All required PP-P courses are offered every semester. Minimum hours include 10 hours dual flight instruction, 3 hours simulator instruction, 4.5 hours local and cross-country solo flight and 5 hours pre- and post-flight brief. Upon successful completion of Flight IB, the student will meet the requirements to take the FAA practical test for certification as a private pilot with an airplane single engine land rating. Prerequisite: PP-P100 or equivalent flight training as determined by the Chief of Flight Training.

PP P113 Aeronautical Science IA (2)
Professional Pilot (PP) - Lower Division Course
All required PP-P courses are offered every semester. Introduction to basic knowledge for aircraft solo, including requirements for pilot certification, aircraft engine and systems, weight and balance calculations, aircraft performance, and Federal Aviation Regulations.

PP P114 Aeronautical Science IB (2)
Professional Pilot (PP) - Lower Division Course
All required PP-P courses are offered every semester. Introduction to subjects relating to the post-9/11 stage of flight, including Federal Aviation Regulations pertaining to the private pilot, basic weather and weather chart interpretation, cross-country flight planning, and navigation, Flight Physiology, and Federal Aviation Regulations. The student is prepared to take the FAA private pilot knowledge test upon successful completion of this course. Prerequisite: PP-P113.
PP P121 Introduction to Flight (0)
This course is designed for students outside the professional pilot program seeking to broaden their aviation education. The course consists of three hours of flight and one and one-half hours of brief. Students enrolled in this course must contact the Department within the first week of classes for scheduling of flights. (Special fee assessed.)

PP P150 Aeronautical Science I (3)
This course includes all topics required by the FAA Approved Part 141 Aviation Regulations for the Private Pilot Certificate. Students will also be introduced to the training airplane with practical application problems. Prerequisite: AS-P100. Corequisite: PP-P151.

PP P151 Flight Operations I (2)
This is the first in the sequence of flight training courses. The safe operations of a non-complex single engine airplane will be the focus. This course will include all operations and procedures required for the Private Pilot Certificate. Prerequisite: Class II Medical Certificate & AS-P100. Corequisite: PP-P150.

PP P200 Aeronautical Science II (3)
This course includes all knowledge areas required by the FAA Approved Part 141 Aviation Regulations for the Instrument Rating. Students will be introduced to aspects of instrument flight appropriate to the Private Pilot Certificate with an Instrument rating. Prerequisite: PP-P150 and PP-P151. Corequisite: PP-P201.

PP P201 Flight Operations II (2)
This course is the second in the flight training sequence. Ground trainers are utilized to teach the knowledge and skills to control the airplane using only flight and navigation instruments. Additionally, multiple VFR solo cross-country flights are included. Prerequisite: PP-P151. Corequisite: PP-P200.

PP P202 Flight II (2)
Professional Pilot (PP) - Lower Division Course
All required PP-P courses are offered every semester
First of five courses leading to the commercial pilot certificate with an instrument and multi-engine ratings; minimum hours include 15 hours of dual instruction in primary training aircraft, 35 hours solo, 3 hours simulator and 8 hours per and post-flight brief. Prerequisite: PP-P101, or private pilot certificate or equivalent flight training as determined by the Chief of Flight Training.

PP P203 Flight III (2)
Professional Pilot (PP) - Lower Division Course
All required PP-P courses are offered every semester
Continued preparation for the commercial pilot certificate with instrument and multi-engine ratings; minimum hours include 9 hours dual instruction in primary training aircraft, 17 hours solo, 9 hours simulator and 8.6 hours per and post-flight brief. Prerequisite: PP-P202, or equivalent flight training as determined by the Chief of Flight Training.

PP P216 Aeronautical Science II (3)
Professional Pilot (PP) - Lower Division Course
All required PP-P courses are offered every semester
Federal Aviation Regulations and flight procedures as outlined in the Airman’s Information Manual, aircraft engine operation, aircraft/engine performance, flight instrumentation and systems; airplane operations. The student is prepared to take the FAA commercial pilot knowledge test upon successful completion of this course. Prerequisite: PP-P101 and PP-P114.

PP P217 Aeronautical Science III (3)
Professional Pilot (PP) - Lower Division Course
All required PP-P courses are offered every semester
Attitude instrument flying, parts 61 and 91 of the Federal Aviation Regulations along with the Instrument Flight Procedure set forth in the Airman’s Information Manual. Introduction to IFR charts and approach plates; theory and operation of flight instruments; radio navigation; theory and analysis of weather reports, forecasts and weather charts. The student is prepared to take the FAA instrument knowledge test upon successful completion of this course. Prerequisite: PP-P202 and PP-P216.

PP P250 Aeronautical Science III (3)
This course includes all topics required by the FAA Approved Part 141 Aviation Regulations for the Commercial single and multi-engine certificates. Students will be introduced to high performance and multi-engine airplanes through the study of advanced knowledge areas. Prerequisite: PP-P200. Corequisite: PP-P251.

PP P251 Flight Operations III (2)
This course is the third in the flight training sequence. Instruction to complete the Instrument Rating and the Commercial Pilot Certificate is included. This involves a transfer of knowledge and skills from the ground trainer to the airplane. The course includes an introduction to flight instructors and complex operations for the Commercial Pilot Certificate are included. Prerequisite: PP-P201. Corequisite: PP-P250.

PP P271 FLIGHT III
Prerequisite: PP-P200, PP-P201. This course is the third in the flight training sequence, and provides introduction for the completion of the Instrument Rating. The instruction enables the student to transfer the knowledge and skills learned in the ground trainer to the airplane.

PP P291 FLIGHT IV
Prerequisite: PP-P271. Corequisite: PP-P290. This course is the fourth in the flight training sequence. Instruction is provided to complete the multi-engine Commercial Pilot certificate.

Upper Division Courses

PP P301 Flight Operations IV (3)
This course is the fourth and final course in the flight sequence. The safe operation of a multi-engine airplane including normal and emergency operations in visual and instrument conditions is included. Prerequisite: PP-P250 & PP-P251.

PP P304 Flight IV (2)
Professional Pilot (PP) - Upper Division Course
All required PP-P courses are offered every semester
Continued preparation for the commercial pilot certificate with instrument and multi-engine ratings; minimum hours include 14 hours dual instruction in primary and complex aircraft, 17 hours solo in primary and complex aircraft, 5 hours simulator and 7.8 hours pre- and post-flight brief. Prerequisite: PP-P203, or equivalent flight training as determined by the Chief of Flight Training.

PP P305 Flight V (2)
Professional Pilot (PP) - Upper Division Course
All required PP-P courses are offered every semester
Continued preparation for the commercial pilot certificate with instrument and multi-engine ratings; minimum hours include 9 hours dual instruction in primary and complex aircraft, 20 hours solo flight in primary and complex aircraft, 6 hours simulator and 5.5 hours pre- and post-flight brief. Prerequisite: PP-P304, or equivalent flight training as determined by the Chief of Flight Training.

PP P306 Flight VI (2)
Professional Pilot (PP) - Upper Division Course
All required PP-P courses are offered every semester
Final preparation for the pilot certificate with instrument and multi-engine ratings; minimum hours include 18 hours dual instruction in primary, complex, and multi-engine aircraft; 14 hours solo; 5 hours simulator; and 9.8 hours pre and post-flight brief. Upon successful completion of Flight VI, the student will meet the requirements to take the FAA practical tests for certification as a commercial pilot certificate with airplane single and multi-engine land and instrument ratings. Prerequisite: PP-P305, or equivalent flight training as determined by the Chief of Flight Training.

PP P307 Flight VII (2)
Instruction leading to flight instructor certificate with Single Engine Land rating; minimum of 15 hours instructor training including 5 hours of dual flight instruction on analysis and performance of flight training maneuvers; 10 hours practice flight instruction with the flight instructor aboard the airplane and 9 hours practice ground instruction. Prerequisite: commercial pilot certificate with instrument rating. Corequisite: PP-P319 or approval of the Department Chair.

PP P308 Flight VIII (2)
Instruction leading to the addition of an instrument rating to a flight instructor certificate; minimum of 10 hours instructor training including 5 hours dual flight instruction on analysis and performance of instrument flight training maneuvers; 5 hours practice instrument flight instruction with flight instructor aboard the airplane; and 5 hours practice instrument ground instruction. Prerequisite: flight instructor certificate. Corequisite: PP-P320 or approval of the Department Chair.

PP P309 Flight IX (1)
Instruction leading to the addition of a multi-engine class rating to a flight instructor certificate; minimum of 10 hours ground training; 15 hours instructor training including 7 hours analysis of flight training maneuvers and 8 hours practice flight instruction. Prerequisite: flight instructor certificate.

PP P318 Aeronautical Science IV (3)
Professional Pilot (PP) - Upper Division Course
All required PP-P courses are offered every semester
Multi-engine aircraft systems including normal and emergency procedures, weight and balance, weather radar, windshear avoidance, and high altitude flight physiology. Prerequisite: PP-P203 and PP-P217.

PP P319 Aeronautical Science V (3)
Fundamentals of teaching and learning; teaching methods; aerodynamics, flight training syllabus; maneuvers and procedures. The student is prepared to take the flight instructor knowledge test upon successful completion of this course. Prerequisite: PP-P250.

PP P320 Aeronautical Science VI (3)
Fundamentals of teaching and learning; flight instructor responsibilities; aero-medical information; review of attitude instrument flying; terminal instrument procedures; enroute charts; flight training maneuvers and procedures. The student is prepared to take the flight instructor knowledge test upon successful completion of this course. Prerequisite: PP-P319.

PP P351 FLIGHT V
Prerequisites: PP-P250, PP-P291. This course is the fifth and final in the flight training sequence. Instruction is provided to complete the single-engine Commercial Pilot certificate.

Psychology (PSY)

Lower Division Courses

PSYA108 Discussion (1)
Small group discussions and activities designed to amplify and add to the contents of PSYA101. Fall and Spring semesters.
PSYA205 Understanding Statistics (4)
Focuses on understanding, rather than carrying out, statistical analyses and research designs. Descriptive statistics: central tendency and variability, correlation, regression, data display with frequency distributions, graphs and contingency tables. Inferential statistics. Laboratory. Fall and Spring semesters. Prerequisite: PSY-A101.

PSYA290 Intercultural Seminar and Practicum with International Students (1-3)
Theoretical and practical introduction to intercultural awareness. Discussion of readings and issues in weekly seminars. Consideration of cultural conditioning, values, and human values of participants and of international students in student-led conversation groups and extracurricular activities. Meets new core curricular requirement in cultural diversity. Prerequisite: Upper-level sophomore status.

Upper Division Courses

PSYA306 Psychological Research Methods and Statistics I (4)
Aims at a practicing and theoretical understanding of statistics and basic research methods, and at developing computer literacy. Application of both descriptive and inferential statistics within contexts, correlation and causal models. Development of research skills: design, implementation, data gathering, analysis, and interpretation. Prerequisite: PSY-A101 for all upper division courses.

PSYA308 Laboratory Techniques in Psychology (1-3)
Research methods in various areas of experimental psychology. Fall and Spring semesters. Prerequisite: PSY-A101 for all upper division courses.

PSYA401 Psychological Research Methods and Statistics II (3)
Course combines statistics, research design, research methods and actual research experience. Emphasizes probability theory, sampling distributions, t-test, correlation, factorial analysis of variance and non-parametric methodologies including quasi-experiments and special control procedures. Students do at least one research project including analysis of results and write-up in American Psychological Association format. Laboratory. Offered once a year. Prerequisite: PSY-A101 for all upper division courses.

PSYA404 History of Psychology (3)
Covers the history of the development of modern experimental and applied psychology from the origins of psychology in philosophy up to the contemporary state of the discipline. Topics include the beginnings of scientific psychology, early theoretical systems, the social context of developments in psychology, and contributions of ethnics minorities and women. Offered occasionally. Prerequisite: PSY-A101 for all upper division courses.

PSYA411 Sensation and Perception (3)
A survey of psychophysics, sensory systems: object, space, and event perception. Offered occasionally. Prerequisite: PSY-A101 for all upper division courses.

PSYA412 Cognition (3)
Discussion of high-order cognitive processes, including memory functioning, reasoning, thinking, problem-solving, language production and comprehension. Offered once a year. Prerequisite: PSY-A101 for all upper division courses.

PSYA413 Physiological Psychology (3)
Neural basis of behavior, including sensory and motor systems, ingestive behaviors, sleep, aggression, learning, and psychological disorders. Fall semester. Prerequisite: PSY-A101 for all upper division courses.

PSYA414 Drugs and Behavior
Behavior and physiological effects of drugs which alter behavior through their effects on neurotransmitters; these drugs include alcohol, nicotine, caffeine, tranquilizers, stimulants, depressants, narcotics, hallucinogens, and marijuana. Offered occasionally. Prerequisite: PSY-A101 for all upper division courses.

PSYA415 Psychology of Sleep (3)
Surveys the principles of and practices of sleep research. Both the applied and basic research areas are emphasized. Basic topics include physiological and anatomical dimensions, circadian rhythms, drugs and dreaming. The applied topics emphasize clinical sleep disorders. Offered occasionally. Prerequisite: PSY-A101 for all upper division courses.

PSYA416 Learning and Motivation (3)
Concepts and principles of learning and motivation with reference to their application in experimental bases. Spring and Summer (occasionally) semesters. Prerequisite: PSY-A101 for all upper division courses.

PSYA421 Child Psychology (3)
Psychological development of the individual from conception to puberty. Attention to the normal adjustment problems of children. Fall, Spring and Summer semesters. Prerequisite: PSY-A101 for all upper division courses.

PSYA423 Psychology of Adolescence (3)
Psychological development of the individual from puberty to adulthood. Attention to the normal problems of adolescence. Offered once a year. Prerequisite: PSY-A101 for all upper division courses.

PSYA424 Developmental Psychology (3)
Life-cycle approach. Considers infancy, childhood, adolescence and adulthood. Emphasizes that: 1. human development, normatively, is ethical development; 2. ethical development is intertwined with the development of self-understanding and understanding of others and with cognitive development in general. Theoretical notions from Erikson and Piaget and from contemporary cognitive developmental psychologist. Offered occasionally. Prerequisite: PSY-A101 for all upper division courses.

PSYA425 Psychology of Exceptional Children (3)
Introduction to the problems and needs of the exceptional child in adjusting to environmental demands. Emphasis on development of students sensitivity to the behavior of exceptional children. Offered occasionally. Prerequisite: PSY-A101 for all upper division courses.

PSYA426 Psychology of Women (3)
The study of what it means to be female, biologically and psychologically. Topics include the development of sex roles, gender role stereotyping and its consequences, traditional and recent psychological theories and their application to women and girls. Offered once a year. Prerequisite: PSY-A101 for all upper division courses.

PSYA430 Social Psychology (3)
Introduction to the scientific study of social behavior focusing on how people relate to, think about, and influence each other. Topics include attitude formation and change, social cognition, conformity, group decision-making, aggression, discrimination, prejudice, and interpersonal attraction and relationships. Fall, Spring, and Summer semesters. Prerequisite: PSY-A101 for all upper division courses.

PSYA431 Personality Theory (3)
Dominant personality theories of Freud, Jung, Adler, Skinner, Maslow, Rogers, Kelly, etc.; presented within a historical and contemporary context. Emphasis on application of theory to personal situations through small group discussions and student log. Fall and Spring semesters. Prerequisite: PSY-A101 for all upper division courses.

PSYA432 Interpersonal Perception and Attraction (3)
Theory and research in nonverbal communication (facial expression, personal space, kinesics, etc.); impression formation; interpersonal attraction (friendship choices and mate selection); leadership, role of friendship and minority. Offered occasionally. Prerequisite: PSY-A101 for all upper division courses.

PSYA433 Psychology of Oppression (3)
The course teaches students how to understand the mechanisms that undermine the appreciation of multiculturalism and other forms of diversity in society. The perspective emphasizes how socially constructed definitions of various groups are used to distinguish sameness and difference among people. Topics include micro- and macro-level theories of oppression, the importance of ideology in oppressive systems, and theories of social change and liberation. Offered occasionally. Prerequisite: PSY-A101 for all upper division courses.

PSYA434 African American Psychology (3)
The course reviews some of the theoretical perspectives in the psychological study of African Americans, examines some of the biases in past research, reviews current research in the field, and applies current theory and research to other areas of psychology, with examples of African American psychologists, Black psychologists, etc.) Fall semester. Prerequisite: PSY-A101 for all upper division courses.

PSYA439 Abnormal Psychology (3)
A survey of mental disorders, their signs, symptoms, underlying causes and treatment, with more emphasis on signs and symptoms. Fall and Spring semesters. Prerequisite: PSY-A101 for all upper division courses.

PSYA441 Organizational Psychology (3)
Interaction among person, environmental and organizational factors as they relate to such topics as personnel selection, motivation, job satisfaction, man-agement, leadership, etc. in profit-making organizations. Fall and Spring semesters. Prerequisite: PSY-A101 for all upper division courses.

PSYA442 Psychological Tests and Measurements (3)
Theory and techniques in the measurement of intelligence, personality, and other attitudes and interests. Emphasis on test construction, evaluation, and interpretation. Offered occasionally. Prerequisite: PSY-A101 for all upper division courses. PSYA205 or PSYA306.

PSYA443 Death and Dying (3)
Death as viewed in American and other cultures. Stages of dying, definition of death, funeral practices the value of wills, the processes of grief and mourning and the fact and fiction concerning suicide. Small group discussions for explo-ration of personal feelings about these topics. Outside speakers, audio and video tapes. Offered occasionally. Prerequisite: PSY-A101 for all upper division courses.

PSYA444 Counselling for the Helping Professions (3)
Combines theory and practice to teach a three-stage model for helping and interpersonal relating based on theories and practices of Egan, Rogers, Calkhuff, etc. Focuses on establishing rapport, attending, empathy, concreteness, respect, self-disclosure and problem solving, and on relationships among self-understanding, self-development, and effective helping. Offered occasionally. Prerequisite: PSY-A101 for all upper division courses.

PSYA446 Marital Relations, Sexuality, and Parenting (3)
Explores the interrelationships of marital relations, sexuality, and parenting integrated by the theme of psychological communication. Format is lecture/dis- cussion. Fall semester. Prerequisite: PSY-A101 for all upper division courses.

PSYA447 Small Group Behavior (3)
Experiential learning course: from learning basic human communications skills to applying these skills in small groups. Effective small groups functioning from the viewpoint of systems theory. Topics include group participation, management, decision making, problem solving, organizational change, etc. Spring semester. Prerequisite: PSY-A101 for all upper division courses.
PSYA448 Psychology and Law (3)
Examines laws, the legal system, and legal processes from the perspective of principles in psychology, as well as the use and effect of psychology in the formation and implementation of laws and examines the influence of law on social science research and medical/mental health professions. Offered occasionally. Prerequisite: PSYA101 for all upper division courses.

PSYA471 Studies: Experimental Psychology (1-3)
Prerequisite: PSYA101 for all upper division courses.

PSYA472 Studies: Developmental Psychology (1-3)
Prerequisite: PSYA101 for all upper division courses.

PSYA473 Studies: Applied Psychology (1-3)
Prerequisite: PSYA101 for all upper division courses.

PSYA474 Studies: Clinical Psychology (1-3)
Prerequisite: PSYA101 for all upper division courses.

PSYA475 Studies: Social Psychology (1-3)
(School for Professional Studies Prerequisites: PSYA101 and Advanced Course) Prerequisite: PSYA101 for all upper division courses.

PSYA479 Practicum (1-6)
Wide range of experiences available: volunteer work; internship and CO-OP placements including summer placements. Arranged with a faculty member who supervises. Does not satisfy Senior Inquiry requirements. Prerequisite: PSYA101 for all upper division courses.

PSYA480 Undergraduate Research (1-6)
Outside-the-classroom research activity done under faculty supervision. Prerequisite: PSYA101 for all upper division courses.

PSYA487 Senior Practicum Project (3)
With the addition of an academic component, agreed upon prior to registration with the supervising faculty member, the practicum, as described in PSYA479, can be used to satisfy the Senior Inquiry requirement. Prerequisite: PSYA101 for all upper division courses.

PSYA488 Senior Inquiry Research Project (3)
Arrangements must be made with a faculty member as director before registration. Prerequisite: PSYA101 for all upper division courses.

PSYA490 Advanced General Psychology (3)
(Lectures and discussions designed to integrate the students knowledge of psychology. Fall and Spring semesters. Prerequisite: PSYA101 and Senior Status) Prerequisite: PSYA101 for all upper division courses.

PSYA495 Senior Residency (0)
Prerequisite: PSYA101 for all upper division courses.

PSYA498 Advanced Independent Study (1-3)
Prerequisite: PSYA101 for all upper division courses.

PSYA499 Honors Tutorial in Psychology (1-6)
Prerequisite: PSYA101 for all upper division courses.

PSYX101 General Psychology (3)
1818 ACC program only. Findings and theories underlying the scientific study of individual and social behavior.

Public Policy Studies (PPS)

Lower Division Courses

PPSI200 Government and Politics of City and Suburb (3)
Political, social and economic aspects of the contemporary American city and its suburbs; public policies aimed at solving major urban problems.

PPSI202 Introduction to Urban Classics (3)
Introduction to the literature of urban affairs and several of the urban related disciplines, emphasizing authors and theoretical works which may have helped to shape the discipline of urban affairs.

PPSI220 Introduction to State and Local Government (3)
Government organization, operation, politics and policies of states and their subdivisions are covered.

Upper Division Courses

PPSI300 Current Urban Political and Governmental Problems (3)
Identification and analysis of current problems, political, and governmental, affecting the citizens of American cities, their suburbs, and metropolitan regions. These problems are analyzed within their appropriate social and economic contexts, and the range of programmatic interventions, whether public or private, is examined.

PPSI393 Special Topics (1-4)
Special topics in Public Policy and Urban Affairs.

PPSI400 Politics and Ecology (3)
Current environmental issues and their impact upon metropolitan areas. Legal, political, social and economic perspectives on selected problems such as energy and natural resource use, air and water pollution, and land use and economic growth.

PPSI408 Urban Issues: Poverty and Unemployment (3)
Analysis of the economic dimensions of poverty and income distribution. Welfare reform policies and employment and training policies are examined.

PPSI410 Introduction to Urban Economics (3)
Analysis of the factors determining the economic growth of urban areas. Economic considerations relevant to selected urban problems such as poverty, unemployment, housing, and transportation.

PPSI411 Urban Employment and Training Policy (3)
Manpower utilization in urban areas. Government and industry approaches to improving labor force utilization, employment training and development.

PPSI412 Career Opportunities and Work Patterns in the Future (3)
Focuses on future career opportunities and systematic career planning. Emerging occupations, the future structure of work in the U.S. and the role of liberal arts in career preparation are examined.

PPSI415 Introduction to Public Finance and Budgeting (3)

PPSI420 Urban Ecology: Communities and Neighborhoods (3)
Explores methods and theories which contribute to understanding urban neighborhoods and communities and addresses the question how people do community.

PPSI421 Conflict Management Strategies (3)
The literature on conflict and conflict theory; issues which have led to conflict, conflict roles, conflict reduction and resolution. Explores collaborative alternatives.

PPSI425 Urban Classics (3)
In-depth consideration of major authors and publications about various aspects of urban life, which literature has also contributed to the growth of urban affairs as a discipline.

PPSI426 The Census and Neighborhood Analysis (3)
Examination of analytic approaches to communities and neighborhoods utilizing census and other socio-demographic data.

PPSI432 Administrative Law (3)
Course introduces students to the legal behavior of administrative agencies in the American political system. Covered are administrative law doctrines, principles, and case law. Specific focus is on such topics as rule-making, adjudication, administrative discretion, judicial review, tort liability, and administrative searches and seizures.

PPSI433 Comparative Urban and State Politics (3)
Systematic, comparative treatment of the politics, policies, and decision processes in the American states and cities.

PPSI435 Selected Urban Issues (3)
Analysis of the politics and legal issues involved in selected functional categories of urban public policy. Topic areas will vary depending on national trends and events.

PPSI450 Research Methods (3)
Research designs and analytical techniques of empirical research with emphasis upon program analysis.

PPSI460 Law, Courts and Urban Change (3)
Analysis of the legal process in urban areas, with an emphasis on legal and political processes.

PPSI462 Probation, Parole and Community Corrections (3)
An examination of the policies designed to limit the reliance on the institutionalization of offenders.

PPSI465 Urban Criminal Justice Policy (3)
Various actors in the criminal justice system and analysis of their decision-making processes.

PPSI490 Field Service (3)
By permission of chair only.

Physiology (PPY)

PPYG254 Human Physiology (4)
Prerequisites: Biology and Anatomy. An introductory course in the fundamental mechanisms of human physiology. Emphasis is given to basic cell functions and biological control systems, as well as to coordinate body functions. Lab requirement.

Professional Studies (PS)

PS K100 Adult Transition Seminar (3)
This course may be waived as a requirement if transferring 9+ credit hours. Adult Transition Seminar is designed to facilitate student achievement at Saint Louis University. Class instruction will be student-centered and used to high-light, discuss, analyze and actively apply knowledge from readings and homework assignments. Topics which will be covered are those which have been demonstrated to assist students in managing their studies and research in accel-
Research Methodology (RM) - Upper Division Courses

RM I410 Introduction to Research Methods in Health Information Management (3)
Research Methodology (RM) - Upper Division Course
This course is designed to introduce students to the process and methods of research. The purpose is to enable students to become informed consumers of research and to provide them with reference materials that they can use in their careers. Emphasis is placed on reading and understanding empirical research articles. Students are expected to conduct their own research as part of the course. (Offered every Spring.) Prerequisite: RM I410 or equivalent.

RM I491 Statistical Analysis in Physical Therapy (2)
A survey of several introductory, intermediate, and advanced statistical techniques is presented in a non-quantitative manner. Emphasis is placed on reading and interpreting the statistical analyses presented in numerous applied research studies. Students will also have the opportunity to apply the techniques in designing an experimental study. (Offered every Spring.)

Russian (RU)

RU A110 Communicating in Russian I (3)
Introduction to Russian: speaking, listening, reading, and writing. Emphasis on the acquisition of communicative skills in simple situations related to personal interests and daily and academic life. Fall Semester.

RU A115 Communicating in Russian II (3)
Continuation of RU A110. Spring semester. Prerequisite: RU A110 or equivalent, as determined by instructor.

RU A120 Communicating in Russian III (3)
Continuation of RU A115. Fall semester. Prerequisite: RU A110 and RU A115 or equivalent, as determined by instructor.

RU A210 Intermediate Russian: Language and Culture (3)
Continued practice in speaking, emphasis on functional skills. Gerunds and participles. Readings in and discussion of culture. Spring semester. Prerequisite: RU A110; RU A115, and RU A120 or equivalent. as determined by instructor.

RU A222 Russian Culture and Civilization (3)
Understanding Russia today through a comprehensive outline of its multinationa, multicultural past: origins, geography, language, Christianity, Westernizers vs. Slavophiles, the new Soviet person; Women in Russia; Russia and the Arts. Breakup of the Soviet Union. Readings in English. Fulfills Cultural Diversity Requirement.

RU A298 Independent Study (1-3)

Upper Division Courses

RU A307 Scientific Russian (3)
Introduction to scientific prose in Russian, Emphasis on word formation and the acquisition of scientific terminology. No spoken Russian required. Fall semester. Prerequisite: RU A120 or equivalent, as determined by instructor.

RU A310 Oral and Written Proficiency in Russian I (3)
Extensive review and refinement of grammar skills. Continued emphasis on speaking. Regular writing assignments. Fall semester. Prerequisite: RU A120 or equivalent, as determined by instructor.

RU A315 Oral and Written Proficiency in Russian II (3)
Continuation of RU A310. Spring semester. Prerequisite: RU A310 or equivalent, as determined by instructor.

RU A325 Russian Culture and Civilization (3)
Understanding Russia today through a comprehensive outline of its multinationl, multicultural past: origins, geography, language, Christianity, Westernizers vs. Slavophiles, the new Soviet person; Women in Russia; Russia and the Arts. Breakup of the Soviet Union. Readings mainly in Russian. Fulfills Cultural Diversity Requirement. Prerequisite: RU A310 and RU A315 or equivalent.

RU A410 Fluency in Russian (3)
Further practice in speaking, listening comprehension, reading, and writing to achieve fluency. Fall or spring semester. Prerequisite: RU A315 or equivalent, as determined by instructor.

RU A411 Language and Linguistics (3)
Crosslisted with FA-A111, GR-A111 and SP-A111. An introduction to the basic concepts and application of linguistic studies. Presentation and discussion of three main aspects of language: Linguistic structures, language as a social dimension, and language as a mirror of cognitive processes.

RU A415 Topics in Russian Grammar (1-3)
Structural review of the morphology of the verb and the nominals, syntax, and word formation. Prerequisite: RU A510 and RU A515 or equivalent, as determined by instructor.

RU A420 Topics in Russian Literature (1-3)
Semester-long study of one major Russian author: Pushkin, Lermontov, Gogol, Tolstoy, Dostoevski, Turgenev or Chekhov; or one genre: short story, novel, poetry. Prerequisite: RU A410 or equivalent, as determined by instructor.
Understanding and utilization of various practice interventions at different levels of social work engagement. Prerequisite: SW-S441, concurrent registration in SW-S482, SW-S487.

SW S481 Social Work Practicum I (3)
Students assigned responsibility for work with individuals, groups and communities in various social work sites under professional supervision. Practice experience carried concurrently with SW-S441 and SW-S442. Prerequisite: SW-S440; concurrent registration in SW-S441 and SW-S446.

SW S482 Social Work Practicum II (3)
Continuation of SW-S481. Prerequisite: SW-S441; concurrent registration in SW-S442 and SW-S447.

SW S486 Integrative Practice Seminar I (1)
This seminar is designed to facilitate the integration of the content of social work courses with the anticipated job demands of social work practice. It will address some of the practical questions and problems faced by students in the course of their practicum placements. Prerequisite: Senior majors; concurrent registration in SW-S481 and SW-S441.

SW S487 Integrative Practice Seminar II (1)
Continuation of SW-S486. Prerequisite: SW-S486; concurrent registration in SW-S482 and SW-S442.

SW S490 Social Work Professional Portfolio
A summative compilation of a students experience in the BSSW Program. Students register for this course in their final semester but completing this assignment actually occurs throughout the students period in the BSSW Program. Students assemble materials from courses, practicum, and from other significant experiences throughout their academic career which demonstrate their development as beginning social work professionals. Work toward compiling the portfolio is guided by regular meetings between the student and his or her BSSW advisor throughout the students program.

SW S498 Independent Study (1-3)
Prior approval must be obtained from the undergraduate program director and from a faculty member who agrees to supervise the student in the independent study. Prerequisite: Junior or senior standing.

Sociology and Criminal Justice (SC)

SC A110 Introduction to Sociology (3)
This introductory course emphasizes fundamental concepts in sociology and their application to contemporary society for the purpose of enhancing the students understanding of the world in which they live. Every semester.

SC A120 Introduction to Anthropology (3)
This course emphasizes the nature of humans and culture. Human prehistory, language and other basic concepts are examined from a cross-cultural perspective. Yearly.

SC A199 Fundamentals of Social Sciences (Honors) (3)
Broad introduction to social sciences in terms of theory and methodology. Emphasizes the role of the social sciences in seeing the “bigger picture” - the patterns and processes of everyday life. Yearly.

SC A190 Introduction to Criminal Justice (3)
An examination of the police, courts and correctional systems to provide a basic understanding of their organization and operation; also, an exploration of major criminal justice issues facing America today, such as police effectiveness, plea bargaining and the contradictions of the prison system. Every semester.

SC A318 World Geography (3)
This course provides students with a worldwide overview of the relationship between people and place. Emphasis is given to the relationships among physical geography, environment, population, economy and culture. Yearly.

SC A320 Introduction to Forensic Sciences (3)
This course is an overview of forensic science, to include its function in the criminal justice process, background, development, and career opportunities. As an introductory course for the Forensic Science certificate, the course provides an overview to the work of forensic scientists and criminal investigators. Yearly.

SC A321 Demography: Population Characteristics and Trends (3)
Characteristics, trends, projections and implications of the composition and growth of the population of the U.S. and the world; analysis of population policies. Offered occasionally.

SC A322 Urban Sociology (3)
Sociology of the city and the metropolis. Processes of change and resistance to change in the urban community, ethnic and racial groupings, the effects of varying social policies and efforts at urban development. Includes field experience. Offered occasionally.

SC A323 Gender and Society (3)
Examination of the impact of large-scale forces on how gender roles are structured and enacted in our society. Particular attention to be paid to the different experiences of men and women in the labor force, politics, and the family. Offered occasionally.
SC A330 Social Psychology (3)
Processes of social interaction and reciprocal influence which arise in and constitute groups. Central emphasis is on self image and communication. Yearly.

SC A332 Social Control (3)
Examines efforts at social control from a cross-cultural and historical perspective. The motives for, consequences of, and reactions to social control are examined. Offered occasionally.

SC A333 Corporate and White Collar Crime (3)
Analysis of corporate and white collar crime with an emphasis on both the social structural (macro-level) and social psychological (micro-level) factors associated with such activity. Major organizational and criminological theories will be used, discussed, critiqued, and applied in order to provide a framework within which such problems can be understood. Offered occasionally.

SC A335 Collective Behavior (3)
Analysis of precipitating factors leading to forms of collective behavior including social movements; their organizational principles and functional and dysfunctional consequences. Offered occasionally.

SC A336 Racial and Ethnic Relations (3)
Impact of racial, cultural, national and religious differences on social processes. Emphasis on current data. Offered occasionally.

SC A337 Introduction to Social Change (3)
Cultural and demographic analysis of social change theories, trends, and processes in relation to growth, development, and globalization.

SC A338 Political Sociology (3)
The socioeconomic roots of political affiliation and interest group formation. Theoretical and practical considerations to the relationship between social structure and political action. Offered occasionally.

SC A342 Organizations: Theory and Practice (3)
This course examines some of the salient sociological models, concepts and problems of organizations with a view toward increasing the students understanding as citizens of an organizational society and as participants in a variety of occupational, civic and value-based organizations.

SC A343 Marriage and the Family (3)
Examination of theories concerning the origins of family institutions and kinship alignments. Cross-cultural data on different types of families, role assignments and role definitions as they pertain to various types of societies through space and time. Modern aspects of family institutions and problems that arise in the process of post modernization, globalization and change. Offered occasionally.

SC A344 Third World Development (3)
Issues of human well-being in the Third World countries are examined in relation to modernization, globalization and nation-building. Socialist, capitalist and mixed approaches to economic development are explored with special reference to theories of development and underdevelopment. The influence of geographic and demographic factors on developing countries, as well as the nature of multi-national corporations are examined. Offered occasionally.

SC A345 The Sociology of Development: Latin America (3)
This course is designed to help students gain an understanding of social and economic development processes in Latin American nations; reformist, and revolutionary modes of development are considered. The current role of the Catholic Church is explored. Offered occasionally.

SC A346 Principles of Social Development (3)
This course looks at the concept of social development which implies value-based social change. Sociological thinking is applied to major societal issues both at a national and international level. Offered occasionally.

SC A347 The Political Economics of Aviation Safety (3)
Processes of social interaction and reciprocal influence which arise in and constitute groups. Central emphasis is on self image and communication. Yearly.

SC A349 Sociology of Medicine (3)
Sociological interpretation of selected aspects of the field of medicine, including health and illness behaviors, professional socialization, analysis of health organizations, political and economic aspects of health care delivery, cross-national comparisons of health systems. Offered occasionally.

SC A350 Current Social Problems (3)
Analysis of contemporary and emergent social problems from the sociological point of view. Analysis of societal efforts to cope with problematic situations and assessment of impediments to successful resolution. Includes field work. Offered occasionally.

SC A352 Clinical Sociology (3)
Introduction to various sub-disciplines of sociological practice. The methods presented range from work with individuals to work with the larger community.

SC A355 Juvenile Delinquency (3)
Analysis of the process by which certain acts and persons are designated delinquent; the societal response to such actions and actors; sub-cultures and youth gangs; punitive and rehabilitative strategies.
SC A460 Sociology of Knowledge (3)
Approaches knowledge as socially constructed, simultaneously a social product reflecting political and economic arrangements and a social force influencing the society from which it emerges. Offered occasionally.

SC A462 Probation, Parole and Community Corrections (3)
Examines community-based corrections and the role of probation and parole in the criminal justice system. Offered occasionally.

SC A463 Sociology of Religion (3)
The sociology of religious institutions, the emergence, maintenance and change of social organizations around religious beliefs.

SC A465 Criminal Justice Policy (3)
Analyzes the various actors in the criminal justice system, their decision-making processes, and the policies they create and implement.

SC A492 Research Methods (3)
Students are introduced to key issues involved in sociological research; the design of research to answer distinct types of questions, the nature and techniques of measurement and the major modes of data collection and analysis.

SC A493 Special Topics (3)
Students are introduced to key issues involved in sociological research; th

SC A495 Senior Residency (0)

SC A498 Advanced Independent Study (1-3)

**Spanish (SP)**

**Lower Division Courses**

SP A109 Dartmouth Intensive Spanish I (5)
Beginning Spanish course stressing development of conversational skills, with attention to reading and writing. Course covers approximately half of the basic structures of the language. Fulfills the language requirement in two semesters. Recommended for those planning to study, travel or conduct business in Spain or Latin America. Fall semester.

SP A110 Communicating in Spanish I (3)
Introduction to Spanish language and culture. Prepares student to operate within areas of immediate needs and simple situations.

SP A112 Dartmouth Intensive: Spanish II (4)
Continuation of SPA109. Spring semester.

SP A115 Communicating in Spanish II (3)
Continuation of SPA110. Prepares the student to function in simple situations related to personal interests and daily life.

SP A210 Intermediate Spanish: Language & Culture (3)
Continued practice in all skills. Readings in and discussion of Hispanic Culture.

SP A223 Latin American Culture and Civilization (3)
A critical analysis of historical, political, religious and socioeconomic considerations that have contributed to the creation of the very complex cultural reality that is contemporary Spanish America.

SP A224 Meeting the Other: Hispanic Experience (3)
Development of cultural awareness and appreciation of the Hispanic experience as presented by its three main representatives: Spain, Latin America and the Hispanic presence in the United States.

SP A293 Special Topics (1-3)

SP A296 Independent Study (0-3)
Prior approval required of sponsoring professor and department chairperson. Prerequisite: Prior approval required of sponsoring professor and department chair.

SP A305 Business and Professional Spanish (3)
Spanish (SP) - Upper Division Course
This course counts toward credit in the minor and in the major field. Application of language skills and cultural awareness to specific business and professional practices. Spring semester.

**Upper Division Courses**

SP A310 Written Communication (3)
Reading and analysis of authentic language materials to develop written expression. Refining of communicative strategies for accurate expression of ideas. (To be taken concurrently with SPA315) Prerequisite: SP-A210 or equivalent.

SP A315 Oral Communication (3)
Development of fluent oral expression through communicative activities stressing listening comprehension, structural accuracy and systematic approach to vocabulary expansion. (To be taken concurrently with SPA310) Prerequisite: SP-A210 or equivalent.

SP A408 The Teaching of Cultural Concepts (3)
Spanish (SP) - Upper Division Course
This course counts toward credit in the minor and in the major field. Presentation and discussion of significant cultural, social, economic and political events and issues that have shaped Spain, its institutions, its cultural and artistic developments. Discussion of methodology to incorporate these concepts in the instruction of Spanish.

SP A410 Fluency in Spanish (3)
Continuation of SPA310. Description, narration and exposition in topics of particular interest and special fields of competence. (To be taken concurrently with SPA315) Prerequisite: SP-A315 and SP-A310 or equivalent.

SP A411 Language and Linguistics (3)
Conversed with FRA111, GR-A11 and RU-A11. An introduction to the basic concepts and application of linguistic studies, presentation and discussion of three main aspects of language: Linguistic structures, language as a social dimension, and language as a mirror of cognitive processes.

SP A415 Advanced Oral Communication (3)
Continuation of SPA315 Accuracy and fluency in oral expression in topics of particular interest and special fields of competence. (To be taken concurrently with SPA410) Prerequisite: SP-A310 and SP-A315 or equivalent.

SP A416 Business and Professional Spanish (3)
Application of language skills and cultural awareness to specific business and professional practices. Spring semester.

SP A418 Spanish Culture and Civilization (3)
Presentation and discussion of significant cultural, social, economic and political events and issues that have shaped Spain: its institutions, its cultural and artistic developments.

SP A419 Three in One: The Hispanic Experience (3)
This course provides an understanding of the Hispanic presence in the United States.

SP A420 Introduction to Hispanic Literature (3)
This introduction to Hispanic literature will examine the different genres and representative texts to enable the students to acquire a working knowledge both of the literary history of the genres and the analysis of literary texts in Spanish. Prerequisite: SP-A410 and SPA415.

SP A424 Contemporary Latin-American Short Story (3)
Short story trends, themes and techniques. Selections from outstanding authors with emphasis on Borges, Cortazar and Marquez.

SP A426 Latin American “Modernism” (3)
Survey course that examines the literary expressions of the debate on Modernity and Modernization in Latin America in the period 1820-1920. Topics such as national identity, the creation of modern cities, the education of women and the role of minorities will be examined through an anthology of short stories, articles, poems, essays and comics.

SP A427 Contemporary Latin-American Poetry (3)
Survey course that analyses a representative group of Latin American poets. Main themes and formal characteristics of these authors will be discussed.

SP A428 Early Latin American Novel (3)
Survey course that examines the Latin American novels written between 1890 and 1940. The class presents an overview of the major movements that informed the novels of the period such as Naturalism, Indigenism, Historicism, Futurism and other avant-garde trends. The issues of the construction of national identity and the formation of modern civilized societies will be addressed.

SP A429 Contemporary Latin-American Novel (3)
Survey course that examines the Latin American novels written between 1940 and 1970. Main themes and formal characteristics of these novels will be discussed in the context of the so-called “Latin American Boom”.

SP A430 Latin-American Thinkers (3)
Systematic analysis of predominant themes among current Latin-American thinkers.

SP A431 Contemporary Latin-American Drama (3)
Survey course that analyses the development of Latin American Theater through the 20th century. Different schools and trends will be discussed. Occasionally this course will focus on specific issues or group of authors i.e. women playwrights, etc.

SP A432 Themes in Latin-American Literature (3)
Exploration of specific themes and topics of current debate in Latin America. Offered occasionally. Content will vary. Consult the instructor.

SP A433 Latin American Novel after 1970 (3)
Survey course that analyses a representative group of Latin American novels written after 1970. Main themes and formal characteristics of these novels will be discussed in the context of the so-called Post-modern Era.

SP A435 Latin American Testimony (3)
This course examines the diverse strategies used by Latin American testimonial literature to interpret today’s realities. Through the analysis of testimonies, the students will develop an understanding of the complexity of Latin American culture and society.

SP A436 Women’s Literature in Latin America (3)
This course introduces the students to the work of Latin American women writers from the Colonial period to the 20th century. The discussion will focus on the history of women’s education, concepts of beauty, the role of women in society and the construction of women’s identity.
**Theological Studies (TH)**

**Lower Division Courses**

**TH A100 Theological Foundations (3)**
Pre-requisite to all further theology courses. This course begins the disciplined reflection on religion in the university. Along with providing the basic vocabulary, method of theology, and key theological concepts, it equips the student with the historical, textual, and comparative methods and skills that are foundational for further study at the university level. The course must and should be taken before the others. Every semester.

**History/Traditions**

**TH A200 Special Topics in Biblical Studies (3)**

**TH A201 Old Testament (3)**
Literary and historical study of the Hebrew Bible. Its cultural background, main themes, the problems modern thought poses for it, and its permanent significance.

**TH A202 Ancient Israel & Semitic Culture (3)**
Ancient Israel arose in the midst of the worlds most ancient civilizations. While borrowing heavily, she created a distinctive culture with major impact on the western (and modern) world. Topics include archaeology and languages; religion; social, political, and economic structures; art and literature.

**TH A203 Archaeology and the Bible (3)**
History of Israel and the New Testament world traced through the science of archaeology.

**TH A205 The New Testament (3)**
Books of the New Testament; their formation as literary material, message and meaning for the modern world, and transmission via the community.

**TH A206 New Testament World (3)**

**Historical (20-39)**

**TH A220 Jerusalem: City of Three Faiths (3)**
This course (under this name only) satisfies the criteria for the College of Arts and Sciences Cultural Diversity component of the Core. A survey analysis of the three abrahamic faiths and their inter-relationships focusing on the significance of Jerusalem for each of them historically and today.

**TH A221 History of Christianity (3)**
The historical expression of Christian theology in the faith and life of the church, its major figures and movements, relation to cultural developments, and significance for contemporary problems.

**TH A222 Early Church (3)**
The history of early Christianity from Jesus Christ to the Council of Chalcedon in 451 A.D. The variety of early Christianity: geographical expansion, gnosticism, emergence in the Roman world, Christian art, trinitarian and christological controversies.

**TH A223 Christian Spiritual Traditions (3)**
An overview of the major spiritual trends and key figures within the Catholic, Eastern Orthodox and Protestant traditions.

**TH A225 American Christianity (3)**
The history of American Christianity from colonial times to the present; Spanish, French, English beginnings; Puritanism, the Great Awakenings; Unitarianism, Congregationalism, Methodism; the immigrant churches; Roman Catholic history; Liberalism, Neo-Orthodoxy, Fundamentalism, black churches, contemporary movements.

**TH A226 African American Religious Traditions (3)**
This course can also fulfill the Cultural Diversity core requirement. History of Afro-American religious thought and the Black churches of the United States, contributions of black theologians in articulating Afro-American values and religious experience.

**TH A233 Islam: Religion and Culture (3)**
This course can also fulfill the Cultural Diversity core requirement. Survey of Islamic religious history, with emphasis on place of Quran, the Prophet, law, prayer ethics, and artistic expression in the faith of nearly three-quarters of a billion Muslims.

**TH A235 Judaism (3)**
This course can also fulfill the Cultural Diversity core requirement. The history of Judaism in biblical times, Talmud and rabbinic tradition, the diaspora and persecution of the Jews, the Enlightenment, Hasidism and Kabbalah, the Holocaust; Zionism; worship, kosher law, life stages; Jewish feast days; contemporary developments.

**TH A237 Religious Traditions of Asia (3)**
Includes various emphases in the following a) Historical/Doctrinal, b) Scripture, and c) Arts. Survey of Hinduism, the indigenous traditions of China (Taoism and Confucianism) and Japan (Shinto), and Buddhism from its Indian origins to its expansion into East and Southeast Asia.
Systemic (40-59)

TH A240 Special Topics in Systematic Theology (3)
This course examines the principles of Christian faith as the role of conscience, scripture, authority, nature law, etc. This course will be illuminated and applied in the light of concrete issues like human sexuality, the nuclear arms controversy, and human communication.

TH A242 Christian Beliefs (3)
A systematic theological reflection on the main tenets of Christian faith.

TH A243 The Church Today (3)
The church of Christ in the modern world. Modern church documents of renewal and reform within the church and their effect on relations with the contemporary world.

TH A244 Jesus in Christian Traditions (3)
Place of scripture and historical development of the person of Jesus of Nazareth. An examination of the nature and mission of Jesus through historical sources, historical development of the tradition, and contemporary insights.

TH A246 The Christian Sacraments (3)
The Sacraments, the Church as ultimate manifestation of Covenant of the People of God, development of sacraments in apostolic community and patristic age, modern sacramental theology.

TH A247 Christian Worship (3)
Beginning with liturgical renewal before, during and after the Second Vatican Council, contemporary documents and significant studies are systematically reviewed. Current liturgical trends are evaluated and projections for possible future developments are discussed.

TH A260 Evil and the Demonic in Christian Tradition (3)
Why bad things happen to good people (theodicy); divine retribution versus salvation; existence of the devil; end of the world and afterlife.

TH A297 Interdisciplinary Course (3)
A study of themes in theology as they relate to politics and the discipline of the spiritual life, through the writings of Gandhi, King, Merton and others. May be taken as a Core course only by students in the School of Social Service.

Upper Division Courses

TH A300 Special Topics/Christian Life (3)
This course asks what principles or values are to be found in the New Testament and how these should bear on Christian living today.

TH A312 New Testament Ethics (3)
This course seeks to acquaint the student with the history of antisemitism through a study of the phenomenon from its origins in early Christianity through the pogroms of the Middle Ages, and on through the secularization process in the West which changes anti-Semitism from a religious phenomenon to a pseudo-racial one. The anti-Jewish myths of the High Middle Ages and their continuations down to today are also examined. The course ends with a study of the Holocaust and its grounding in German history.

TH A330 Special Topics/Comparative Religion (3)
An introduction to a major component in the cultures of south, southeast, and east Asia through both the textual and visual documentation of the Buddhist tradition. From its origins in India, we follow the path of the Buddha through central Asia and into China, Korea, and Japan; by sea and through Burma into the nations of the Indo-Chinese peninsula, with a brief detour to Indonesia during late antiquity.

TH A340 Special Topics/Systematic Theology (3)
This course examines the principles of Catholic/Christian morality, such as the role of conscience, scripture, authority, natural law, etc. These principles will be illuminated and applied in the light of concrete issues like human sexuality, the nuclear arms controversy, and human communication.

TH A360 Special Topics/Ethics-Spirituality (3)
This course focuses on the relationship between the sacred and the secular, the role of the sacred in contemporary society, and the role of the secular in the sacred.

TH A362 Christian Morality: Principles and Issues (3)
This course investigates the principles of Catholic/Christian morality, such as the role of conscience, scripture, authority, natural law, etc. These principles will be illuminated and applied in the light of concrete issues like human sexuality, the nuclear arms controversy, and human communication.

TH A363 Christian Decision-Making (3)
This course aims at providing practical as well as theoretical knowledge of how to make a good decision according to Christian principles, with major emphases upon the roles of love, conscience, prayer, discernment and scripture in this process.

TH A365 Social Justice (3)
This course focuses on the role of the Church in society, including the role of the Church in social justice issues.

TH A366 Christian Morality and Business (3)
This course will study the principles of Christian morality and their application in the lives of people engaging in business. It will focus on the responsibilities of individuals, of economic structures and businesses, and of the mutual relationship involved. Catholic social teaching will be highlighted.

TH A368 Christian Morality and Health Care (3)
Principles of moral theology and their application to the health care provider and consumer. Specific issues include life-prolonging measures, neonatal care, genetics, experimentation, allocation of resources, and spiritual care of the sick and dying.

TH A370 Marriage and Christian Life (3)
A study of contemporary Christian marriage, its interpersonal, social, psychological, biblical, historical, theological and moral aspects.

TH A372 Theology of Sexuality (3)
Nature and principles of Christian sexual morality; special contemporary questions.

TH A375 Theology of Suffering and Death (3)
A study of the Christian response to the mystery of suffering, the meaning of death, healing as a religious experience. Reference to the Bible, contemporary Christian theology, and social studies.

TH A390 Christian Feminism (3)
This course is designed to offer a broad understanding of the issues and implications of contemporary feminist thought relative to religious traditions, especially the Christian tradition. It will critique theology and anthropology as well as offer constructive visioning of the new ways of living in relationship. The course is oriented toward personal and social transformation.

TH A397 Interdisciplinary Course (3)
A study of selected books and passages from Old and New Testaments, as well as selected contemporary books, plays and philosophical essays. Comparison of nature and destiny of the human person and the world. Application of these themes to contemporary life.

TH A403 Matthew, Mark and Luke (3)

TH A404 John and Judaism (3)

TH A405 Luke and Acts (3)
Investigation of Lukes main theological concern in his two volumes and how all his other themes relate to that main theme.

TH A406 Paul and Christian Mission (3)

TH A407 The Book of Revelation (3)

TH A420 Special Topics/Historical (3)
A historical, biblical and systematic study of the Mother of Jesus which focuses on her role in salvation history as the Mother of the Church and model of perfect discipleship which Christians are called to imitate.

TH A422 The Age of Reform (3)
A systematic theological reflection on the main tenets of Christian faith.

TH A425 Mary in Christian Tradition (3)
A historical, biblical and systematic study of the Mother of Jesus which focuses on her role in salvation history as the Mother of the Church and model of perfect discipleship which Christians are called to imitate.

TH A432 Christian Relations to Non-Christians (3)
A study of the self-understanding of Christianity as it faces the other religions of the world. The uniqueness of Christ, the Christian notion of revelation, particularist and universalist texts, universal salvation, salvation outside of the Church, and plurality of the Christian tradition concerning salvation.

TH A440 Special Topics/Systematic Theology (3)
A systematic and foundational study of the content and the relationships between human existence, God, Jesus Christ, Holy Spirit, Church, Sacraments, Spirituality, and Morality.

TH A444 Narrative, Language, Faith (3)
A study in the structure of biblical narrative, Christianity in the oral tradition, the role of metaphor in theological language, and the use of story in faith development.

TH A460 Special Topics/Ethics-Spirituality (3)
A study of themes in theology as they relate to politics and the discipline of the spiritual life, through the writings of Gandhi, King, Merton and others. May be taken as a Core course only by students in the School of Social Service.
Course Descriptions - 229

TH A490 Senior Seminar I (3)  Reading and analysis of classic works in the historical development of the theology in the church and the university, and in modern and contemporary understandings of theology in relation to both, with the aim of illuminating the communal and public dimensions of theological inquiry. Required of all majors.

TH A491 Senior Seminar II (3)  Reading and analysis of classic works in the historical development of the theology in the church and the university, and in modern and contemporary understandings of theology in relation to both, with the aim of illuminating the communal and public dimensions of theological inquiry. Required of all majors.

TH A493 Special Topics (1-3)  For Theology majors only. Permission of instructor and chairperson required.

TH A495 Senior Residency (0)  TH A498 Advanced Independent Study (1-3)  For Theology majors only. Permission of instructor and chairperson required.

TH A499 Inter-Departmental Listings (3)  TH J420 Historical Theology I (3)  The history of Christian theological thought during the first fifteen centuries A.D.

TH J430 Historical Theology II (3)  The history of Christian theological thought from the 16th to the 19th centuries.

TH J488 Interdisciplinary Seminar (1)  Integration, application, and deepening of paired courses in philosophy and theology.

Theatre (THR)  Lower Division Courses

THRA100 Approaching the Arts: Theatre (3)  Objectives: 1. To examine some public impressions of the role of the arts in American society; 2. To demonstrate to students, through lecture and discussion, some of the key features of a play in performance which critics, fans, and theatre artists have sought in contemporary productions; 3. To introduce the students to some of the standard tasks and procedures brought to bear in play productions; 4. To apply all of these studies to the appreciation of plays by viewing several live productions during the semester Arts and Science Core Requirement for non-majors.

THRA205 Drawing For The Designer: Orthographic Projection & Perspective Representation  Objectives: 1. To introduce students to the methods of orthographic and perspective projection using blueprints. Topics will include all standard drafting conventions. Activities will include sketching as well as drafting projects.

THRA250 Costume Construction (2)  Objectives: 1. To give students an understanding of the importance of effective stage costuming both for the actors performance and the audiences perception of the play. Topics include pattern drafting, draping, and sewing of historic costumes for the stage. Activities included guided laboratory experience in those skills.

THRA251 Acting I: Fundamentals (3)  Prerequisite: PERMISSION OF INSTRUCTOR. Objectives: 1. To free inhibitions regarding movement and vocalization before a peer audience by structuring in-class activities in creative play. 2. To teach the value of focusing personal attention on the immediate momentary experience. 3. To teach the value of sincerity in acting. 4. To introduce the student to theatre vocabulary and protocol. Topics include Objective and Action, and Inner Monologue. Activities include in-class performance and accompanying critique.

THRA252 Stagecraft (3)  Prerequisite: PERMISSION OF INSTRUCTOR. Objectives: 1. To introduce students to the common architectural features and standard equipment of modern theatres. 2. To guide students in proper and safe procedures in Stage Carpentry and Electricity. 3. To introduce students to commonly used Theatre drafting symbols.

THRA253 Acting II: Rehearsal & Performance (3)  Prerequisite: THRA251 AND PERMISSION OF INSTRUCTOR/AUDITION ONLY. Objectives: 1. To teach the value of compassionate support for co-workers in the theatre, the protocol of collaborative creativity, and the standard process of rehearsal and performance in the theatre. 2. To develop the students skill in distinguishing playable action from the projection of attitudes. 3. To guide students in the process of developing a character that is faithful to the implications of the script and sincere in its portrayal. Activities include in-class performance and critique of assigned duet scenes. Topics may also include standard audition processes.

THRA254 Voice & Diction (2)  Prerequisite: PERMISSION OF INSTRUCTOR. Objectives: 1. To teach the value of freeing the natural voice; 2. To guide students through activities in which they release vocal sound freely from the trunk of the body. 3. To identify for individual students any prior speaking habits which limit the students ability for sincere and effective passionate expression through speech. Activities include in-class performance and accompanying critique.

THRA255 Movement For The Theatre (2)  Prerequisite: PERMISSION OF INSTRUCTOR. Objectives: 1. To make the student more aware of the range of body movement which is possible; 2. To explore the body as a physical instrument through Mime exercises; 3. To introduce the student to the importance of the physical instrument in characterization for the stage. Activities include in-class performance and accompanying critique.

THRA257 Creative Awareness (2)  Objectives: 1. To introduce the student to the concept of "Imaging"; 2. To guide students in activities which allow them to explore their own inner reality; 3. To guide students in activities which enable them to achieve a state of relaxation which is preparatory for "Imaging".

THRA258 Make-up For The Stage (2)  Objectives: 1. To give students an understanding of facial anatomy and the qualities of shadow as direct light falls on the face; 2. To instruct students in the methodology of corrective make-up for the stage. Activities include in-class projects.

THRA259 Jazz Dance (2)  Special Notes: This class is repeatable once for credit. Objectives: To guide students in studio experience in Jazz Dance. All class activities are practical. Some in-class performance and accompanying critique will be used in determining grades.

THRA260 Modern Dance (2)  Special Notes: This class is repeatable once for credit. Objectives: To guide students in studio experience in Modern Dance. All class activities are practical. Some in-class performance and accompanying critique will be used in determining grades.

THRA261 Intermediate Jazz Dance (2)  Prerequisite: THRA259. This course is intended to continue the students exploration and practice of jazz dance building on the skills developed in the beginning jazz dance. Students will develop short and long movement phrases combining their skills in composition and choreography based on material covered in class.

THRA262 Intermediate Modern Dance (2)  Prerequisite: THRA260. This course is intended to further develop the students ability in physical movement in terms of space, time and dynamics as begun in the Beginning Modern Dance. This course will focus on somatic intelligence and the development of this non-stylized aesthetic movement skills as introduced on world stages in this century.

Upper Division Courses

THRA305 Advanced Drawing For The Designer: Rendering and Presentation (2)  Prerequisite: THRA205. Objectives: 1. To introduce students to dry media and materials used in two-dimensional rendering for the theatre - graphite, colored pencils, pastels, markers, and charcoal. 2. To guide students through techniques of rendering shade and shadow on perspective drawings. 3. To guide students through the conventions of presenting finished renderings for the theatre. 4. To introduce students to techniques of rendering in wet media - water color, markers, and gouache. Activities: Activities include rendering projects which combine wet and dry media.

THRA350 Playscript Analysis (3)  Objectives: 1. To introduce students to play-reading as an act of imagining the theatrical performance; 2. To introduce the students to some fundamental concepts of Dramatic Theory with reference to certain significant plays in the Dramatic canon; 3. To give students an understanding of some aspects of contemporary playwriting aesthetics; 4. To provide students with interpretive/analytical skills which enable them to explain the performance demands implicit in certain playscripts. Activities: Activities include critical writing by students at a scholarly level.

THRA351 Musical Theatre Performance (3)  Objectives: 1. To give students an overview of the history of Musical Theatre Genre; 2. To guide students in performance exercises in Musical Theatre; 3. To instruct students in acting techniques that can be used in performance of vocal music. Activities may include in-class performances in an audition format and/or longer cuttings from Musical Plays.
THRA353 Scenic Art (2)
Objectives:
1. To introduce the student to standard tools and materials used in two-dimensional scene painting for the stage; 2. To guide students through the techniques of creating an illusion of common textures: wood, marble, stone, and bricks; 3. To guide students through creating the illusion of three-dimensions on two-dimensional surfaces through shade and shadow studies; 4. To guide students through the process of reproducing scaled drawings to an appropriate scale for the theatre and applying painting techniques to create the illusion of three-dimensions on a large scale.

THRA355 Theatre Lab (1)
Special Notes:
This course is Pass/Fail requiring satisfactory work as assigned (including Acting) on 2 mainstage shows in the same semester in order to pass. Course is repeatable. Faculty guided experience in University Theatre productions.

THRA357 Advanced Scenic Art (2)
Objectives:
1. To introduce students to carving tools and materials commonly used in three-dimensional scenic art; 2. To guide students through projects involving various techniques and media including foam and plastic.
Prerequisite: THR-A251, FPA-A555.

THRA360 Professional Theatre: Career Preparation (2)
Objectives:
1. To give students an overview of the American Professional Theatre in our time, with particular emphasis on Professional Non-Profit Theatres and their organizational structure; 2. To outline the different concerns of the various Scenic Designers and Costumers that participate in the Theatre profession; 3. To instruct students in some of the tasks of Stage Management as a model of the concerns of theatre production; 4. To instruct students in methods of seeking employment in the theatre. Activities will include resume preparation for the theatre. Prerequisite: THR-A251 THR-A252 and at least 2 credits of FPA-A555.

THRA361 Theatre Management (3)
Prerequisite: At least 1 credit of THR-A355 OR THR-A252 and Permission of Instructor. Theatre Management is a course designed to introduce theatre students to the practical and career-focused study of Theatre Management Topics. In the course of managing theatre productions, students will study strategic planning, marketing/public relations, arts law, financial management, development (fund raising), operations/facility management, and personnel.

THRA362 Stage Management (2)
Prerequisite: THR 252 OR 1 CREDIT HOUR OF THR 355 AND PERMISSION OF INSTRUCTOR. This course is designed to prepare the student to perform, with skill, the responsibilities of a stage manager on a professional or educational theatrical production. There is nothing theoretical about the material in this course. A straightforward how-to approach to the subject will be taken.

THRA450 Costume Design (2)
Prerequisite: THR-A250, THR-A252, THR-A250, and at least 2 credit hours of THR-A255 plus Admission by Faculty into the Advanced Production/Design area. Objectives: 1. To help students see collaborative options for uniting the choices an actor makes in creating a given character with choices a costume designer can make in visibly presenting that character to an audience; 2. To instruct students in the process of Costume Design from conceptualization to design presentation. Activities will include individual costume design projects.

THRA451 Theatre History I (3)
Objectives:
1. To demonstrate to students, through lecture and discussion, how characteristics of theatre production and playwriting have been influenced by the philosophy, politics, and technology associated with different eras and diverse cultural environments. Topics include the rise of theatre in ancient Egypt and Rome, early Christian Liturgical presentations, the drama and scenography of the Italian Renaissance, the Italian Commedia, the theatre of 16th and 17th century Spain, the theatre in Elizabethan England, the theatre of 16th and 17th century France, and the Restoration era in England. Activities include a formal research paper.

THRA452 Theatre History II (3)
Similar in format to THR-A451. Topics include romanticism and democracy, German dramaturgy of the 18th and 19th centuries, American Colonial Theatre, the Industrial Revolution and the emergence of experimental drama in Scandinavia and Russia, the Independent Theatre Movement of early 20th century Europe and America, European theatre between the wars, changes in values after the second world war and the growth of a counter-culture, post-modernism and multi-cultural aesthetics in the theatre. Activities include a formal research paper.

THRA453 Scenic Design (2)
Prerequisite: THR-A252, THR-A250, THR-A205, at least 2 credits of THR-A355 plus Admission by Faculty into the Advanced Production/Design area. Objectives: 1. To present students with the challenge of finding visual metaphors in the implicit action of a play script; 2. To instruct students in the process of collaboration between the Scenic Designer and the Director, and some standard research practices followed by designers in the theatre; 3. To guide students through the process of Scenic Design from conceptualization to design presentation. Activities will include individual scene design projects. Prerequisite: THR-A252, THR-A250, THR-A205, at least 2 credits of

THRA454 Lighting Design (2)
Prerequisite: THR-A252, THR-A350, THR-A205, at least 2 credits of THR-A355 plus Admission by Faculty into the Advances Production/Design Area. Objectives: 1. To discuss the qualities of light and the elements of composition with regard to light as it falls on objects, scenery and the moving human form; 2. To instruct students in the processes of lighting control in the theatre and in the creation of specific effects; 3. To instruct students in the process of lighting design and guide students through projects from conceptualization through realization. Activities will include individual lighting design projects.

THRA456 Directing (3)
Prerequisite: THR-A251, THR-A252, THR-A253, THR-A254, THR-A256, THR-A350, at least 2 credits of THR-A355. Objectives: 1. To discuss with students the evolution of Directing as a craft in the theatre over the last 100 years, particularly the reasons for its emergence in the late 19th century and the rapid development of its practices; 2. To instruct students in the responsibilities of the Director as a collaborator with audience members and with the actors and designers; 3. To teach the value of imaginative flexibility coupled with attention to detail; 4. To guide students through the process of directing from conceptualization through rehearsal with actors, and finally performance before an audience. Activities will include individual student-directed plays.

THRA457 Advanced Acting: Scene Study (2)
Prerequisite: THR-A251, THR-A252, THR-A253, THR-A254, THR-A256, THR-A350, at least 2 credits of THR-A355 plus Admission by Faculty into the Advanced Performance Area. Special Notes: Students must seek prior instructor approval with another prospective enrollee as a scene partner. No student may enroll singly. This course is repeatable. Objectives: To guide students through advanced work in creating a sincere and effective character portrayal in the theatre. Activities will include scene study and performance.

THRA458 Advanced Acting: Text Analysis and Speech (2)
Prerequisite: THR-A251, THR-A252, THR-A253, THR-A254, THR-A350, at least 2 credits of THR-A355 plus Admission by Faculty into the Advanced Production Area. Objectives: 1. To introduce students to the value of poetic and spoken language; 2. To introduce students to some of the challenges of oral language and its potential complications for effective speech and verbal imagery; 3. To introduce students to some of the processes of textual analysis for the actor, including scansion; 4. To guide students in the practice of effective stage speech through the study and performance of scenes. Activities include in-class performances and critique.

THRA460 Professional Internship (1-3)
Declared Majors only. Faculty approved assignment with a Professional Theatre Company or Video Production Studio.

THRA461 Multi-cultural Survey of Theatre (3)
This course is directed towards a better understanding of theatrical literature about people of color: Black Americans, Native Americans, Native Americans, Latin Americans, Asian Americans, Native Americans, Women, Gay and Lesbian Americans. Cultural Studies and Performance Studies tools and techniques of post-structural and post-modern literary criticism will be used to analyze plays, productions, video performances, and live performance of various groups listed above. Emphasis will be placed on reading, responding and comparing the similarities and differences of the texts. A major goal will be to understand and appreciate the cultural experiences of the plays and create a character portrayal; 2. To guide students through movement conventions of certain kinds of dramas, including some period costume plays. Activities include in-class exercises and performance.

THRA462 Adv. Acting: Special Topics (2)
Prerequisite: THR-A251, THR-A252, THR-A253, THR-A254, THR-A256, THR-A350 and at least 2 credits of THR-A355, plus admission by the faculty into the Performance area. This course is structured around four different topics which introduce advanced level students to the techniques of stage combat, acting for the camera, and acting for the microphone. It will conclude with a section on improvisation and physical characterization related directly to developing roles in Childrens Theatre.

THRA463 Adv. Studies in Theatre Design (1-2)
Prerequisite: THR-A250, THR-A251, at least 1 credit of THR-A455 and at least on of the following: THR-A453 or THR-A454 or THR-A450, This course is directed study and studio work that builds on the foundation laid down in Scenic Design, Lighting design, Costume Design and Drawing for the Designer. Students select works which focus their attention on specific design problems with arise from issues of genre, style, period and venue.

THRA495 Senior Residency (0)

THRA498 Independent Study (1-6)
Permission of Instructor required.

THRX151 Acting I: Fundamentals (3)
1818 ACC program only. This course has four objectives: 1. To free students from their inhibitions regarding movement and vocalization in the company of their classmates by structuring in-class activities in creative play; 2. To teach the value of focusing personal attention on the immediate moment to moment experiencing; 3. To teach the value of sincerity in acting; 4. To introduce students to standard theatre vocabulary and protocol Topics include: Objective and Action, and Inner Monologue. Activities include in-class performance and accompanying critique.
THRX152 Stagecraft (3)
1818 ACC program only. This course has four objectives: 1. To introduce students to the regular tasks in theatre production; 2. To introduce students to the common architectural features and standard equipment of modern theatres; 3. To guide students in proper and safe procedures in stage carpentry and electronics; 4. To introduce students to commonly used Theatre Drafting Symbols. Activities include laboratory experience in some aspects of technical work for the theatre.

Women's Studies (WS)

Lower Division Courses

WS A197 Introduction to Womens Studies (3)
Examines issues concerning women in a variety of disciplines, including the humanities, the social sciences, the sciences, and art. Special focus given to enabling students to recognize and critically analyze the notion of gender and patterns of gender roles.

Upper Division Courses

WS A323 Gender and Society (3)
Examination of the impact of large-scale forces on how gender roles are structured and enacted in our society. Particular attention to be paid to the different experiences of men and women in the labor force, politics and the family.

WS A325 Women in Art (3)
The role of women in art as symbol/image; artist; or patron from the ancient world to the present. Examples drawn from architecture, painting, sculpture, film, and television in a discussion of images of women or images created by women that are both positive and negative.

WS A375 Women in Literature (3)
Designed to give students the opportunity to read and compare writings by contemporary minority women. A related focus is on seeing how the subject and text can be products of external cultural control - particularly when perceived as difference. The students will also examine to what extent each author resists forces that oppress her and recovers (or uncovers) her authentic experiences.

WS A390 Christian Feminism (3)
Designed to offer a broad understanding of the issues and implications of contemporary feminist thought relative to religious traditions, especially the Christian tradition. It will critique theology and anthropology as well as offer constructive visioning of the new ways of living in relationship. This course is oriented toward personal and social transformation.

WS A420 Psychology of Women (3)
The study of what it means to be female, biologically and psychologically. Topics include the development of sex roles, gender role stereotyping and its consequences, traditional and recent psychological theories and their application to women and girls.

WS A481 Feminist Philosophy (3)
A critical examination of the feminist challenge to traditional conceptions of law, morality and epistemology. The philosophical and methodological assumptions underlying the feminist challenge will be explored.

WS A485 Women's Studies Capstone Course (3)
The synthesizing course; students do an independent study, research paper or practicum. Every semester.