

- 697 Special Topics in Industrial Relations. 3 hrs.**
Selected topics of current interest in industrial relations. (PR: HRM 600 and permission of program director)
- 698 Independent Study. 1-4 hrs.**
Independent study of a specific nature under the supervision of a qualified faculty member. Hours of credit are determined by the magnitude of the project. (PR: Permission of division head or GSM academic advisor)

INDUSTRIAL ENGINEERING (IE)

- 639 Operations Research I. 3 hrs.**
Examination of the methodology of operations research, including linear programming, transportation methods, network flows, economic analysis, decision analysis, queuing theory and simulation.
- 640 Operations Research II. 3 hrs.**
A continuation of IE 540 including an introduction to sensitivity and parametric analysis in linear programming, integer programming, nonlinear programming, dynamic programming, reliability theory, and inventory control. (PR: IE 630)
- 650-653 Special Topics. 1-4 hrs.**
Special topics in advanced Industrial Engineering that are not offered regularly.
- 670 Operations Management. 3 hrs.**
Examination of the quantitative and conceptual tools for generating goods and services in manufacturing and non-manufacturing organizations.

INFORMATION SYSTEMS (IS)

- 580-83 Special Topics. 1-4 hrs.**
Occasional offerings of current topics in information systems, providing important supplementary material for participating students.
- 585-88 Independent Study. 1-4 hrs.**
An approved study of special interest concerning information systems that is appropriate for the student's program of study. Carried out under the supervision of a faculty member.
- 600 Management Information Systems. 3 hrs.**
The course examines personal, work group, and enterprise information systems with respect to their value, their components, and the process of developing them.
- 603 Programming for Artificial Intelligence. 3 hrs.**
An introduction to programming for artificial intelligence applications using Prolog.
- 605 Systems Analysis Techniques. 3 hrs.**
Introduction to information systems from system implementor's viewpoint; information systems life cycle; techniques of analysis; data dictionaries and data flow diagrams; computer-oriented system description. (PR: Admission to program)
- 610 Systems Design. 3 hrs.**
Physical design of information systems; hardware selection; software design, database considerations; program development; software structuring techniques; cost/ performance trade-offs; system implementation; evaluation and optimization techniques. (PR: IS 605)
- 615 System Simulation. 3 hrs.**
An introduction to discrete-event computer modeling and simulation. Probability distributions, model verification and validation, input data collection, output analysis. Simulation languages and software. (PR: programming capability and quantitative skills)
- 618 Computer Applications in Engineering and Science I. 3 hrs.**
Computational and algorithmic methods in engineering and science, optimization and numerical analytic techniques including gradient and search methods, linear programming, simulation, and data base mechanics. (PR: Admission to the program)
- 620 Introduction to Operating Systems. 3 hrs.**
General principles of managing jobs, processes and storage (real, virtual, auxiliary) in multiprogramming operating systems; interconnection and management of processors in multi-processing and distributed computing system configurations; operating systems comparison. (PR: IS 621 and IS 630, or consent)
- 621 Information Structures I. 3 hrs.**
Representation and manipulation of numeric and non-numeric information, linear lists, strings, multilinked structures; sorting and searching; storage management; data structures in programming languages. Relevant aspects of discrete mathematics. (PR: IS 510 or equivalent)
- 622 Information Structures II. 3 hrs.**
A continuation of IS 621. Tree, graph, and set structures; file structures for secondary storage; aspects of discrete mathematics. (PR: IS 621)

- 623 Database Management. 3 hrs.**
Review of information structures and of relationships among data elements and objects. Relational database theory; design and organization of databases, retrieval structures, and query mechanisms. (Prerequisite: IS 622 or consent)
- 624 Data Warehousing. 3 hrs.**
A hands-on introduction to the concepts and techniques of data warehousing and data mining. (PR: IS 623 or instructor's permission)
- 625 Software Engineering. 3 hrs.**
The process of developing complex software products. Includes the software life cycle, methods and tools for life cycle phases. Application of concepts, methods, and tools in a class project. (PR: IS 510 or permission)
- 630 Computer Architecture and Assembly Language. 3 hrs.**
An introduction to the composition and operation of electronic digital computers and to assembly language programming. (PR: IS 510 or equivalent)
- 631 Information Security. 3 hrs.**
This course provides foundation knowledge in information security, including protecting information assets, risk mitigation strategies, response to security incidents, and designing secure systems. (PR: IS 600, 620, 656, 610)
- 635 Computer Graphics. 3 hrs.**
An introduction to the areas of computer graphics that are necessary to understand, evaluate, and develop graphics applications. (PR: Admission to program)
- 640 Programming Languages. 3 hrs.**
Definition of program environment, program sequence and control, subroutines and other secondary sequences; statement structures, parsing, grammars, etc.; classes of programming languages. (PR: IS 622 or consent)
- 645 Geographic Information Systems. 3 hrs.**
Covers the elements of GIS hardware, software, data and infrastructure needs. Input data issues; data types, sources, error, preprocessing, manipulation and analysis, GIS tools and applications. (PR: Consent)
- 650-653 Special Topics. 1-4 hrs.**
Occasional offerings of current topics in information systems, providing important supplementary material for participating students.
- 655 Multimedia and Electronic Information Dissemination. 3 hrs.**
Components of multimedia, such as data, voice, pictures, animations, and videos, and their production, manipulation, dissemination processes. Technologies, processes, and services for electronic dissemination. Applications and current trends. (PR: TM 660 or permission)
- 656 Communication and Network Technologies. 3 hrs.**
Different transmission media, digital communications, telecommunications services, types of networks and topologies, network protocols, components, and applications. (PR: IS 622, or TM 660, or permission)
- 660 Models of Computation. 3 hrs.**
Switching algebra and relationship to computers; finite automata; Turing machines; recursion; computability and unsolvability. (PR: IS 622, math maturity)
- 670 Language Translators and Concepts. 3 hrs.**
Formal language concepts, syntactic analysis; types of translators; detailed review of assemblers, interpreters, and compilers, and techniques of their construction. (PR: IS 622)
- 680 Social Issues in Information Systems. 3 hrs.**
Aspects of the interaction of computer systems and society including such topics as system security, respect of privacy, changing job requirements, ergonomics, and moral and ethical considerations. (PR: completion of core, or consent of instructor)
- 685-88 Independent Study. 1-4 hrs.**
An approved study of special interest concerning information systems that is appropriate for the student's program of study. Carried out under the supervision of a faculty member.
- 690 Principles of Artificial Intelligence. 3 hrs.**
A survey of the fields of artificial intelligence and expert systems. Students will work together designing and implementing a project. (PR: Permission)
- 692 Image Processing for Forensics. 3 hrs.**
Image processing focuses on the application of technology to scientific analysis of images. Topics include: measurement techniques; scientific methods of reconstruction and interpretation of images; enhancement of images and video. (PR: Permission of instructor)
- 695 Expert Systems. 3 hrs.**
A review of expert systems techniques and applications. Participants will develop small expert systems using several different personal computer expert systems development programs (shells).

The following courses do not count for credit toward the master's degree:

- 500 Computer Systems and Structured Programming I. 3 hrs.**
Introduction to programming; survey of computer information systems. (PR: Facility with algebra)
- 501 Introduction to Programming Languages. 3 hrs.**
An introduction to a high level language such as BASIC, C, COBOL, FORTRAN, LOGO and PASCAL. The course assumes a knowledge of at least one other high level language.
- 510 Computer Systems & Structured Programming II. 3 hrs.**
A continuation of IS 500. Topics include algorithm development, manipulation of arrays and an introduction to dynamic data structures. (PR: IS 500 or consent)
- 551 Computer Programming in Education. 3 hrs.**
Programming with educational applications. S-U grade.
- 565 Computers in Management. 3 hrs.**
Basic computer concepts, equipment, and use of applications programs (word processor, spreadsheet, data base).

INSTRUCTIONAL TECHNOLOGY AND LIBRARY SCIENCE (ITL)

Certification endorsement program for those with teaching certification

- 501 Libraries and the Learning Process. 3 hrs.**
The role of the school library in the learning process through instruction collaboration, and curriculum support. Study of information literacy, learning styles, and models and assessment of learning outcomes.
- 502 Library Materials for Adolescents. 3 hrs.**
Addresses the selection and promotion of library materials in support of a school curriculum and issues of service, diversity and balance in the school library collection.
- 515 Reference and Bibliography. 3 hrs.**
Study of the basic reference sources for elementary and secondary school libraries. Emphasis on materials evaluation, the reference interview, search strategies, and the impact of new technologies.
- 580-583 Special Topics. 1-4 hrs.**
- 585-588 Independent Study. 1-4 hrs.**
- 622 Cataloging. 3 hrs.**
Fundamentals of cataloging and classification, applying AACR2, the Dewey Decimal system, and related aids to the organization of library materials. Implications of new technology for technical services will also be addressed.
- 625 Library Organization and Administration. 3 hrs.**
Principles of administration for elementary and secondary school library media centers, including personnel, facilities, budgets, program planning and evaluation, publicity and public relations, audio-visual equipment and materials, computer hardware and software, and methods and materials for teaching library skills.
- 631 Technology and the Library. 3 hrs.**
An introduction to the function, management, and the issues of computer and non-computer technology in the library. Students learn to use technology as an educational tool in the classroom.
- 650 Library Practice (Field Work). 3 hrs.**
Experiences in the application of techniques of library service, adapted as far as possible to the student's needs.

JOURNALISM AND MASS COMMUNICATIONS (JMC)

- 500 Photojournalism. 3 hrs.**
A course in advanced techniques for newspaper and magazine photography, concentrating on the creation, design and use of photographic essays and picture stories. (PR: JMC 360)
- 502 Law of Mass Communication. 3 hrs. I, II, S.**
Legal aspects of mass communication as they apply to the professional journalist.
- 504 History of American Journalism and Mass Communications. 3 hrs. II.**
The development of the press in the United States, the contributions of American journalists, the rise of radio and television, and the relationship of communication developments to political, economic and social trends in America.
- 508 Advertising Research. 3 hrs. I.**
Lectures, readings, and discussions relating to all media advertising. Students may select special areas of interest.
- 509 Public Relations Research Methods. 3 hrs.**
The course is designed to provide hands-on experience in collecting, interpreting, evaluating and reporting research valued in the field of public relations. Included: lectures, readings, discussions, and projects.

- 510 Magazine Editorial Practices. 3 hrs.**
Study of the organization and functions of the magazine editorial department, with practice in planning magazine content, laying out pages and establishing production procedures.
- 514 Reporting Public Affairs. 3 hrs. II.**
Instruction in reporting local, state and federal government; politics, finance and labor; social and environmental issues and other matters, with emphasis on background and interpretation. Course includes field trips and guest speakers.
- 515 Advertising Strategy and Execution. 3 hrs.**
Analyzing advertising problems in a case-study approach, proposing a strategic solution, and implementing the strategy. Students must write and produce advertisements for a variety of media.
- 525 Advertising Campaigns. 3 hrs. II.**
Students function as an advertising agency to plan, prepare, and present local and national advertising campaigns. Problems of the advertiser and the agency are considered.
- 528 Supervision of School Publications. 3 hrs.**
A comprehensive study of advising and producing school publications, with emphasis on methods, for teachers of journalism.
- 530 Magazine Article Writing. 3 hrs. I.**
Fundamentals of researching and writing factual articles for popular magazines; techniques of selling articles to magazines.
- 532 Corporate and Instructional Video. 3 hrs.**
Development of the use of video for communication and instruction in business, agencies, and education. Production and use of video units for specific objectives.
- 533 Radio-Television Programming. 3 hrs.**
Principles of programming, including audience analysis, production, purchase, and scheduling of various formats.
- 534 Advanced Video. 3 hrs.**
Development of the elements necessary for the production of detailed video projects. Students study the creation and production of public affairs, educational and creative video programming. (PR: JMC 332 or equivalent)
- 535 Radio-Television Law and Regulation. 3 hrs.**
Development and current status of the legal structure of broadcasting in the United States.
- 536 International Communications. 3 hrs.**
Development of various systems of mass communications and comparison with the United States.
- 537 Public Relations Writing. 3 hrs. I.**
Theory and practice of various writing challenges encountered by public relations practitioners. Some consideration of publications design. (PR: JMC 201, 241 and 330 or equivalent)
- 538 Public Relations Case Studies. 3 hrs. I.**
Examination of the handling of public relations problems and opportunities by business, educational, governmental, and social organizations, with particular emphasis on public relations analysis and problem solving. (PR: JMC 330 or equivalent)
- 539 Public Relations Campaign Management. 3 hrs. II.**
Applying the four-step public relations process to an organization's program or campaign. Includes execution of public opinion research and development of original communication tools. Competitive agency model generally used. (PR: JMC 537 and 538)
- 540 Mass Communications Ethics. 3 hrs. I, II, S.**
Study of basic concepts underlying contemporary American mass communications operations and practices and how those concepts affect professional ethics in the field. Examination of ethical conflicts encountered and application of ethical principles when determining solutions.
- 545 Advertising in Modern Society. 3 hrs.**
An examination of issues and problems affecting the advertising industry and a study of advertising's impact on and responsibility to society.
- 550 Contemporary Issues in Radio and Television. 3 hrs.**
An examination of the current political, social, economic and legal issues affecting the decision-making process in the newsrooms and programming centers of the electronic media.
- 555 Women, Minorities and the Mass Media. 3 hrs.**
A seminar that explores the portrayals and participation of women and people of color in the mass media.
- 560 Web Strategies, 3 hrs, I.**
Examination of web strategies in news and strategic communication contexts. Includes online media trends, content development, ethical issues and best practices.
- 561 Web Design for Mass Media, 3 hrs, I, II.**
Creative and practical aspects of typography, design and interactivity of online communications for the mass media.

- 580-583 Special Topics. 1-4; 1-4; 1-4; 1-4 hrs.**
- 585-588 Independent Study. 1-4; 1-4; 1-4; 1-4 hrs. I, II, S.**
- 590 Journalism and Mass Communications Internship I. 1-3 hrs. I, II, S.**
Supervised journalistic work with the professional media. Course is for students without substantial professional media experience. Arrangements must be made in advance with the school's internship director.
- 591 Journalism and Mass Communications Internship II. 1-3 hrs., I, II, S.**
Supervised journalistic or mass communications work with professional media including newspapers, magazines, radio, television, advertising and public relations departments or agencies. Students must have completed a previous internship. (PR: Permission and JMC 590)
- 601 Theory of Mass Communication. 3 hrs. I, II.**
Major theoretical concepts in mass communications are studied as a basis for understanding the communication process and the institutional impact of the mass media on the individual and on society. Required of all majors.
- 602 Mass Communications Research and Methodology. 3 hrs. I, II.**
Research techniques applied to problems of mass communication including computer applications, with emphasis on mastery gained by participation in specialized research projects. Required of all majors.
- 603 Media Management. 3 hrs.**
An in-depth examination of the process and practice of media management.
- 606 Depth Reporting. 3 hrs.**
Depth reporting of social and environmental activities and problems, with emphasis on thorough research and documentation. Articles will be submitted for publication.
- 609 Seminar in Public Relations. 3 hrs.**
Theoretical and practical aspects of public relations, with special projects and readings to provide skills and insights requisite to success in the profession. Seminar discussions and research projects.
- 612 History of Mass Communication, Specialized Study. 3 hrs.**
Analysis of mass media development in the United States and of current media problems, with emphasis on research. (REC: JMC 504 or equivalent)
- 630 Seminar in Media Criticism. 3 hrs.**
Intensive critical analysis of broadcasting programs and programming procedures from the sociocultural, literary, political and industry points of view.
- 632 Seminar in Public Broadcasting. 3 hrs.**
Examination and evaluation of the unique content, policies, and prospects of public broadcasting.
- 634 Issues in Radio and Television. 3 hrs.**
Problems in the broadcast field on varied subjects which concern the industry.
- 650-651 Special Topics. 1-3 hrs.**
- 681 Thesis. 1-6 hrs. (PR: Consent of advisor)**
- 685-688 Independent Study. 1-4; 1-4; 1-4; 1-4 hrs.**
(PR: Permission of dean)

LATIN (LAT)

- 503 Roman Comedy. 3 hrs.**
(PR: 6 hours of Latin literature numbered 304 or above or equivalent)
- 504 Roman Elegy: Propertius and Tibullus. 3 hrs.**
Close readings in Latin of selections from elegies of Propertius and Tibullus. (PR: 6 hours of Latin literature numbered 304 or above or equivalent)
- 505 Readings in Vergil. 3 hrs.**
Introduction to the poetry of Vergil, especially Vergil's Aeneid, and to the culture and ideology of the Augustan principate. (PR: 6 hours of Latin literature numbered 303 or above, or equivalent)
- 506 Horace: Odes, Epodes, Epistles. 3 hrs.**
A close reading in Latin of selections from Horace's non-satirical poetry, with special attention to its literary context. (PR: 6 hours of Latin literature numbered 303 or above, or equivalent)
- 507 Livy's History of Rome. 3 hrs.**
A close reading in Latin of selections from Livy's history poetry, with special attention to its literary and cultural contexts. (PR: 6 hours of Latin literature numbered 303 or above, or equivalent)
- 509 Roman Satire: Horace, Martial, Juvenal. 3 hrs.**
Close readings in Latin of selections from the satires of Horace and Juvenal and the epigrams of Martial. (PR: 6 hours of Latin literature numbered 304 or above or equivalent)
- 510 Tacitus (Selections From): Annals, Agricola. 3 hrs.**
(PR: 6 hours of Latin literature numbered 304 or above or equivalent)
- 580-583 Special Topics in Latin. 1-4; 1-4; 1-4; 1-4 hrs. I, II.**
(PR: 6 hours of literature numbered 304 or above or equivalent and consent of instructor)

- 585-588 Independent Study. 1-4; 1-4; 1-4; 1-4 hrs.**
640 Advanced Prose Composition. 3 hrs.
 A close study of advanced Latin grammar and style through composition in Latin.
- 660-665 Special Author in Latin Literature. 3 hrs.**
 A detailed study of Latin of a single author. Special attention will be given to style, genre, literacy and cultural contexts, and study of secondary sources on the author.
- 681 Thesis. 1- 6 hrs.**
 Students will develop an extensive body of knowledge on a particular topic, author, or issue. This knowledge will cover primary and secondary sources, and secondary sources will include current theoretical approaches. Students will synthesize this knowledge in a comprehensive paper, the development of which will include drafting, revision, redrafting, final copy and presentation. Students will work with a thesis director and a committee throughout the process. (PR: Instructor Permission)
- 682-683 Special Topics in Latin Literature. 1-4 hrs.**
 These courses are designed to provide instruction to students in Latin authors or topics that are not part of the regular curriculum. (PR: Instructor Permission)
- 685-688 Independent Study in Latin Literature. 1-4 hrs.**
 These courses are designed to provide instruction to students in Latin authors or topics that are not part of our regular curriculum. (PR: Instructor Permission)

LEADERSHIP STUDIES (LS)

- 500 Introduction to School Leadership. 3 hrs.**
 Examination of fundamental purposes, functions, and structure of public schools.
- 510 The Principalship. 3 hrs.**
 The Principalship is a study of school management as it relates to ethical behavior, and to support services, information systems, fiscal matters, and facility utilization and maintenance.
- 515 Instructional Leadership. 3 hrs.**
 This course is designed to develop skills in instructional leadership, including instructional supervision, instructional strategies, program development, instructional evaluation, and human relations.
- 520 Administration of Elementary, Middle and Secondary Schools. 3 hrs.**
 This course addresses the concerns of the school leader, including instruction, learning, communication, discipline, parental involvement, instructional organization, climate, facilities, professional development, and personnel practices. Emphasis is placed on the physical, social/emotional, and cognitive/intellectual characteristics of children and the implications for developmentally appropriate school administration.
- 530 Human Relations. 3 hrs.**
 This course assesses and develops students' knowledge and skills in interpersonal relations and ethical practices. It provides structured experiences in group processes, verbal and non-verbal communications, leadership styles, and team building.
- 532 Human Relations in the Public Sector. 3 hrs.**
 This course is designed to help prospective leaders in the public sector establish and maintain positive interpersonal relationships with their constituents.
- 535 Technology and the Classroom. 3 hrs.**
 This course is designed to examine the effects of technology, both pedagogical and practical, on the educational process.
- 550 Schools as Systems. 3 hrs.**
 This course assesses and develops students' knowledge and skills in change strategies, school cultures, systems theory, and understanding of the school in relation to other systems, agencies and organizations.
- 561-563 Professional Development. 1-4 hrs.**
 These courses and activities are designed to meet the specific in-service needs of public school administrators. Credit in these courses may be used for certificate renewal and salary upgrading but not in degree programs.
- 580 Special Topics in Leadership. 1-9 hrs.**
 To provide the master's level student an opportunity to examine selected issues in leadership and to apply their findings to the field of study.
- 585-588 Independent Study 1-4 hrs.**
 By arrangement only.
- 600 School Personnel Administration 3 hrs.**
 This course offers an examination of personnel functions including recruitment, selection, orientation, evaluation, and retention with particular emphasis on staff development.

- 606 Planning, Research and Evaluation for School Leaders. 3 hrs.**
This course is designed to avail potential school administrators with an understanding of planning strategies, academic research, action research, and program evaluation methods, with the intent of their being able to write a cogent, data-based school improvement plan.
- 610 Leadership for School Improvement. 3 hrs.**
Leadership preparation for developing and implementing a shared vision and strategic plans focused on teaching and learning, implementing change, applying leadership theory and acting with understanding of society's influences.
- 612 Curriculum Leadership. 3 hrs.**
This course addresses the role of the principal in the development and implementation of school curriculum. This includes developmentally appropriate curriculum design, special education curriculum and modifications, the integration of technology, and authentic assessment.
- 615 Leadership in the Public Sector. 3 hrs.**
This course will enable potential leaders in the public sector to define and evaluate personal and organizational goals and to develop strategies to achieve shared goals.
- 616 Governance of Higher Education. 3 hrs.**
This course is designed to develop an understanding of the structure of governance of multi-campus public higher education systems.
- 617 Student Affairs Administration in Higher Education. 3 hrs.**
This course surveys the purpose and functions of student personnel administration in higher educational institutions and the administrative procedures developed to accomplish these purposes.
- 618 History of American Higher Education. 3 hrs.**
This course will present a historical overview of the factors that influence the development of higher education in America.
- 625 Human Resources Management. 3 hrs.**
This course develops knowledge of the major functions and tasks necessary for the development of human resources.
- 626 Institutional Advancement in Higher Education. 3 hrs.**
This course will require students to understand the broad area of institutional advancement, including major campaigns, donor research, donor recognition programs, restricted gifts, etc.
- 630 School and the Community. 3 hrs.**
This course provides students the opportunity to study the concept of community, to examine relationship patterns, to explore the possibilities for combining the resources of the school and community in the interest of school improvement, and to evaluate communication strategies designed to enhance the school-community relationship.
- 645 Community Relations in the Public Sector. 3 hrs.**
This course examines the public perception of the justice system and how this perception impacts public support and the success of the system.
- 646 Administration of Community and Technical Colleges. 3 hrs.**
This course provides an opportunity for students to examine a specific institutional type and explore its developmental and functional relationship within the total framework of higher education.
- 647 Adult and Continuing Education Administration. 3 hrs.**
This course develops an understanding of the principles, concepts, and processes involved in planning learning experiences for adults within the framework of higher education.
- 655 Externship. 1-9 hrs.**
This is a field based program designed for practicing administrators. (PR: Consent)
- 675 Legal and Policy Issues. 3 hrs.**
This course examines the principal's role and responsibility related to law and administrative policy.
- 685 Internship: Portfolio Assessment. 3 hrs.**
This course provides training and assessment experiences for students seeking initial certification as a school principal. The student's degree portfolio and capstone assessment will be completed. (PR: Completion of degree/certification courses and consent)
- 691 The Attendance Director. 3 hrs.**
This course is designed to develop the skills needed for the school attendance director to manage attendance programs, policies, and programs.
- 692 Internship: School Social Services. 3 hrs.**
This course will require school social service workers and attendance directors to demonstrate proficiency in those administrative and leadership skills required for managing school social services and student attendance programs.

- 693 School Law for Support Personnel. 3 hrs.**
This course provides the student with a working knowledge of school law and other legal matters as they pertain to the attendance director. The focus of this course is on those laws dealing with mandatory school attendance and juvenile matters. (PR: Admission into the Social Services/Attendance program)
- 700 Superintendency. 3 hrs.**
This course examines the roles, relationships, behaviors and competencies which characterize school superintendents and their staffs.
- 703 Research Design. 3 hrs.**
The purpose of this doctoral research methods course is to prepare College of Education doctoral students to design and carry out research at the doctoral level.
- 705 Administrative Theory. 3 hrs.**
This course analyzes administrative theories and their application to organizational leadership and management.
- 707 Ethical Theories. 3 hrs.**
The course focuses on the primary ethical theories and the ethical reasoning processes which are representative of each, providing students opportunities to analyze decisions against existing ethical models and reinforce or reform those decisions in light of moral principles.
- 710 Principles of Leadership. 3 hrs.**
This course is a study of the characteristics and behaviors of leaders. Emphasis is on the development of understandings and abilities which will work in different situations.
- 714 Administration and Organization of Higher Education. 3 hrs.**
This course is a survey of higher education with attention to administrative functions at the campus level.
- 719 Introduction to Doctoral Studies. 1 hr.**
This course is designed to introduce students to the tasks and processes involved in the completion of the doctoral requirements. (PR: Admission to the Doctoral Program)
- 720 Public School Finance. 3 hrs.**
This courses examines concepts in the financing and economics of public education. (PR: Principal or supervisor certificate or consent)
- 724 Organizational Analysis. 3 hrs.**
This course is an interdisciplinary approach to the study of organizational structure, relationships, and functions focusing on problems and alternatives for solving them.
- 725 Higher Education Finance 3 hrs.**
This course examines basic concepts in the financing and economics of higher education.
- 730 Facility Planning and Management. 3 hrs.**
This course teaches the systematic collection and utilization of data in planning for educational facilities. (PR: Principal or supervisor certificate or consent)
- 740 Public School Law. 3 hrs.**
This course presents the effect of case, statutory, and constitutional law as adjudicated in state and federal courts on public school operation. (PR: Principal or supervisor certificate or consent)
- 745 Higher Education Law. 3 hrs.**
This course presents the effect of case, statutory, and constitutional law as adjudicated in state and federal courts on higher education operation.
- 755 Internship: Administration in Higher Education 3 hrs.**
This course provides a field experience in higher education administration. (PR: Consent)
- 756 Current Issues in Higher Education. 3 hrs.**
This course focuses on current and emerging problems of higher education. It deals with both societal and internal factors which impinge on the administration of colleges and universities.
- 760 Politics of Education. 3 hrs.**
This course explores the social process of governance in the public schools including higher education. The milieu of federal, state, and local inputs will be explored.
- 762 The Politics of Higher Education. 3 hrs.**
This course is designed to develop an understanding of the complex internal and external forces and the political processes that affect higher education institutions.
- 764 Advanced Research I. 3 hrs.**
This course will develop knowledge about and skills in using quantitative and qualitative methods in educational research. It will further prepare doctoral candidates for comprehensive exams as well as dissertation research.
- 765 Advanced Research II in Leadership Studies. 3 hrs.**
This is an advanced research course directed toward the preparation of a thesis or dissertation. (PR: Consent)

- 770 **Practicum. 3 hrs.****
This is a highly individualized cooperative educational administration experience between the college and another public agency. (PR: Consent)
- 771-772 **School District Leadership 3-6 hrs.****
This is an individualized cooperative field experience in district level school administration. (PR: Consent)
- 775 **Seminar. 3 hrs.****
This course is a concentrated analysis of current problems in educational administration. (PR: Consent)
- 776 **Computer Analysis in Leadership Studies Research. 3 hrs.****
This course provides the development of skills and competencies in data analysis and management. It is designed for doctoral students in the data analysis stage of dissertation preparation. (PR: Consent)
- 780 **Special Topics. 1-12 hrs.****
This course requires study, reading and research in an approved area of education and supervision. (PR: Consent)
- 797 **Doctoral Research. 1-12 hrs.****
Dissertation research is the purpose of this course. (PR: Consent)

LEGAL ENVIRONMENT (LE)

- 691 **Government and Business Relationships. 3 hrs.****
Preparing business executives for dealing with problems of the firm in its relationships with government. Applies case analysis to the board categories of antitrust, trade regulation, and agency regulation. (PR: GSM admission)

MANAGEMENT (MGT)

- 500 **Analytical Methods and Techniques. 3 hrs.****
Provides competency in some of the basic quantitative skills necessary for analytical work in business administration. Required of all candidates who have had little or no undergraduate background in mathematics.
- 502 **Research Methods. 3 hrs.****
This course provides the student with the necessary knowledge to perform business research. Emphasis is placed on applicable research techniques. In addition, several statistical techniques are covered including multiple regression and analysis of variance. (PR: MGT 500)
- 520 **Operations Management. 3 hrs.****
An examination of the design and operation of systems for the creation of goods and services in both manufacturing and non-manufacturing organizations. Emphasis is placed upon the application of quantitative and conceptual decision tools for the planning and control of production systems. (PR: MGT 500 or MTH 203 and MGT 218; and MGT 320 or MKT 511; and ECN 253 or ECN 501)
- 601 **Quantitative Methods for Business. 3 hrs.****
The use of quantitative methods for managerial decision making. A review of basic calculus and statistics as required in business. Other topics include decision analysis, linear programming, and queuing. (PR: M.B.A. admission)
- 620 **Human Resource Management. 3 hrs.****
The study of policies, methods, and techniques utilized in personnel management and human relations. Specific attention is given to problems of recruitment, selection, compensation, motivation, communications, training, service and benefit programs, performance evaluation, safety, discipline, business ethics, and community relations. (PR: GSM admission or permission of GSM academic advisor)
- 630 **Management and Supervisory Skills Development. 3 hrs.****
An analysis and application of personal and organizational skills associated with the effective management of both public and private sector organizations. Skills to be developed or refined include time management, decision making, delegation, stress management, oral and written communication, team-building and others. Applied exercises, case studies, simulation, role play, films, and other learning methods are emphasized. (PR: MGT 672)
- 650-651 **Special Topics. 1-3; 1-3 hrs.****
(PR: Permission of the division head and full M.B.A. admission or permission of GSM academic advisor)
- 660 **Independent Study. 1-4 hrs.****
Independent study of a specific nature under the supervision of a qualified faculty member. Hours of credit are determined by the magnitude of the project. (PR: permission of division head or GSM academic advisor)

- 672 Organizational Behavior. 3 hrs.**
Basic ideas and concepts for the effective management of an organization. Major topics include motivation, communication and decision-making processes, group dynamics, leadership study, conflict management, work and organizational design, and organization development. Emphasis on organizational behavior and theory. (PR: GSM admission and MKT 511)
- 673 Problems in Personnel Management. 3 hrs.**
Principles and procedures of the personnel system in the firm; selected areas of recruitment and selection; training and development; performance appraisal and evaluation; general communication system, and role of government in manpower administration. (PR: GSM admission)
- 674 Production/Operations Management. 3 hrs.**
A study of operations management methods used in production, manufacturing, services, and other business operations. Includes project management, capacity planning, and transportation problems. (PR: Permission of GSM academic advisor and MGT 500)
- 675 Problems in Labor-Management Relations. 3 hrs.**
Comprehensive coverage of the development of the field of industrial relations. The impact of organized labor and federal social legislation of management decision. Alternative directions for future developments are studied. (PR: GSM admission)
- 676 Organization Theory and Design. 3 hrs.**
An analysis of organizational systems and subsystems incorporating traditional, behavioral, and situational approaches to organizational and work unit design. Emphasizes environmental interface and interdependencies as functions of internal systems phenomena (PR: M.B.A. admission)
- 680 Entrepreneurship. 3 hrs.**
The management of small business emphasizes how they are started and financed, how they produce and market their products and services and how they manage their human resources. (PR: GSM Admission)
- 692 Ethics and Global Aspects of Business. 3 hrs.**
An examination of the administrator's social, ethical, and environmental responsibilities to his employees, customers, and the general public and other external factors which management must be cognizant of in modern society. (PR: GSM admission)
- 696 Administrative Policy and Strategy. 3 hrs.**
Capstone graduate business course for Master of Science students (Human Resource Management and Health Care Administration). Emphasis on policy and strategy issues in a service and/or public setting instead of within a "for-profit" environment. (PR: Permission of GSM assistant director)
- 699 Business Policy and Strategy. 3 hrs.**
The study of administrative decision making under conditions of uncertainty. Policy construction at top administrative levels with emphasis on strategy and ethics with consideration of major functions of the business organization. (PR: Permission of GSM academic advisor)

MANAGEMENT INFORMATION SYSTEMS (MIS)

- 678 Management Information Systems. 3 hrs.**
To familiarize students with the characteristics and functions of management information systems, as well as the benefits, limitations, and applications for advanced management information systems. (PR: GSM admission)

MARKETING (MKT)

- 511 Marketing and Management. 3 hrs.**
A comprehensive survey of the fundamental principles of management and marketing applicable to all organizations. Provides the student with a basis for analyzing appropriate situations in a management/marketing framework.
- 580-581 Special Topics. 1-4; 1-4 hrs.**
650-651 Special Topics. 1-3; 1-3 hrs.
(PR: Permission of the division head and full M.B.A. admission)
- 660 Independent Study. 1-4 hrs.**
Independent study of a specific nature under the supervision of a qualified faculty member. Hours of credit are determined by the magnitude of the project. (PR: MKT 682 and permission of division head and academic advisor)
- 682 Advanced Marketing Management. 3 hrs.**
An integrated approach to marketing from a managerial point of view: making use of economic, quantitative, and behavioral concepts in analyzing and developing a framework for the decision-making and implementation of the firm's marketing program. (PR: M.B.A. admission or permission of GSM academic advisor)

- 683 Advanced Marketing Research. 3 hrs.**
A study of research methods and procedures used in the marketing process; emphasis will be given to the sources of market data, sampling, preparation of questionnaires, collection and interpretation of data. (PR: MKT 682)
- 685 Marketing Problems. 3 hrs.**
Determination of the marketing mix within the framework of the problem-solving and decision-making process. (PR: MKT 682)
- 687 Seminar in Marketing. 3 hrs.**
An advanced study of basic concepts of current problems in Marketing. Seminar discussions and research projects. (PR: MKT 682)
- 688 Advanced Transportation. 3 hrs.**
Current national transportation problems and a review of the various modes including history of the modes. (PR: MKT 682)
- 689 Advanced Physical Distribution. 3 hrs.**
A study of activities concerned with efficient movement of products from the sources of raw materials supply, through production to the ultimate consumer. These include freight transportation, warehousing, order processing, forecasting, etc. (PR: MKT 682)

MANAGEMENT PRACTICE NURSE ANESTHESIA (MPNA)

- 700 Introduction to Health Care Systems: Health Policy and Delivery. 3 hrs.**
This course is designed to provide the student with an overview of the development of health policy and delivery in the United States. Emphasis is placed on the evolution of the structure, financing and function of the current delivery system in American and how these aspects compare to those of other countries.
- 710 Financial Management for Health Care Professionals. 3 hrs.**
Application of financial management techniques to decision making for health care providers. Focus is on financial statement analysis, working capital management, capital budgeting, evaluating financial risk and return, long-term debt financing, and developing a financial portfolio.
- 711 Marketing and Management for Health Care Professionals. 3 hrs.**
This course will provide an overview of the basic components of marketing such as marketing mix and SWOT analysis. It will also enlighten the students regarding the various established basic marketing theories.
- 715 Health Economics. 3 hrs.**
Economic analysis applied to the health services sector. Traditional concepts such as efficiency, production and distribution are discussed within the context of the unique health environment. The micro/macro economic impacts of health insurance, government participation, credentialing and regulation are analyzed.
- 724 Evidence-Based Research Methods I for Nurse Anesthesia. 3 hrs.**
This course is designed to provide the student with the necessary foundation to participate in the design, implementation and evaluation of field and/or clinical research. Upon completion, the student will understand the basics of the scientific method and its application to research design. The role of the Institutional Review Board, including the Belmont Report, will be discussed. Students will be IRB certified by the end of the course. (PR: MPNA 700)
- 725 Evidence-Based Research Methods II for Nurse Anesthesia. 3 hrs.**
To provide the student with an understanding of the appropriateness, benefits and limitations of statistical methods when applied to field and/or clinical research. Upon completion, the student will understand the theory behind parametric and nonparametric statistical techniques. At this point, students will begin to conceptualize their research projects. (PR: MPNA 724)
- 726 Statistical Methods for Research. 3 hrs.**
To provide the student with the skills necessary to apply the appropriate statistical techniques for field and/or clinical research. Topics include analysis of variance, correlation and regression, chi-square, t-tests, etc. (PR: MPNA 700)
- 730 Medical/Legal Issues in Health Care. 3 hrs.**
Legal aspects of corporate liability, medical malpractice, informed consent, patient rights, privacy, fraud and abuse, governmental regulation of health professionals and health facilities. The legislative process, legislative oversight and regulatory agencies are discussed in depth. (PR: MPNA 700)
- 734 Basic Principles of Nurse Anesthesia Practice. 4 hrs.**
Principles of patient assessment, airway management, anesthesia machine, monitoring devices, fluid and blood therapy, positioning, and prevention of infection. Recognition and management of selected anesthesia complications. (PR: Admission to DMPNA program)

- 735 Advanced Principles of Anesthesia Practice-Senior Seminar. 3 hrs.**
Management decisions related to complex anesthesia situations including, but not limited to: unusual co-existing disease, uncommon operative procedure, adverse complications or unexpected events. (PR: senior level DMPNA student)
- 741 Introduction to Health Care Clinical Practicum. 6 hrs.**
The Introduction to Health Care Clinical Practicum provides the student with a beginning knowledge and proficiency in all phases of anesthetic management (pre-anesthesia, induction, maintenance, post- anesthesia).
- 741-B Regional Anesthesia for Nurse Anesthesia. 1 hr.**
Clinical pharmacology of local anesthetics, anatomy of peripheral nervous system, block administration techniques, drug doses; indications and contraindications for subarachnoid, epidural, brachial plexus, ankle, and other selected regional procedures. (PR: MPNA 734)
- 741-D Pediatric Anesthesia for Nurse Anesthesia. 1 hr.**
In-depth study of the specialty of pediatric anesthesia. Subject matter will include: anatomy, physiology and pathophysiology of the pediatric patient, preoperative evaluation and preparation, airway management, implications of rare pediatric disorders, and management for painful procedures. (PR: Admission to DMPNA program)
- 741-F Obstetrical Anesthesia for Nurse Anesthesia. 1 hr.**
Course takes an in-depth look at the normal physiological changes associated with pregnancy. It will investigate management issues starting from the basic advancing to the complex. Issues include maternal fetal physiology, fetal monitoring, anesthetic techniques, high-risk pregnancy, emergency management, and fetal and neonatal resuscitation. (PR: Admission to DMPNA program)
- 741-H Geriatric Anesthesia for Nurse Anesthesia. 1 hr.**
Management decisions related to complex anesthesia situations including, but not limited to: unusual co-existing disease, uncommon operative procedure, adverse complications or unexpected events. (PR: Admission to DMPNA program)
- 753 Management of Complex Health Care Organization. 3 hrs.**
In this course, emphasis is placed on the management of complex health care institutions representing the organizational spectrum from horizontally integrated group practices to large integrated health centers. (PR: MPNA 700)
- 755 Marketing Goods and Services in Medical Environment. 3 hrs.**
An investigation of the role of marketing in today's health care environment. Topics include traditional marketing concepts such as segmentation and promotion blended with unique issues like health services marketing, direct to consumer pharmaceutical advertising, mass media ethics, the role of the Internet in health product/service marketing, etc. (PR: MPNA 700)
- 756 Clinical and Administrative Information Systems. 3 hrs.**
Foundations of clinical information use starting with information collection, processing, decision making and recording. Special emphasis on management information systems to support the nurse's work and health care delivery. (PR: MGT 678 and computer literacy.)
- 772 Organizational Behavior in Health Care. 3 hrs.**
Advanced level theories of effective organization management as they relate to health care organizations will be provided. Topics include: managing diverse work groups in the health care system, planning and organizing, decision making models, various leadership styles, and controlling and evaluating management effectiveness.
- 777 Moral Management. 3 hrs.**
A discussion of the concept of Moral Management. Guidelines for how to make ethical decisions and tough choices are included. Cases relevant to ethical/unethical scenarios will be analyzed. Students will view ethics videos and write a Credo term paper. (PR: Admission to DMPNA program)
- 796 Policy, Strategy, Entrepreneurship. 3 hrs.**
The study of administrative decision making under conditions of uncertainty. Policy construction at top administrative levels with emphasis on strategy and ethics with consideration of major functions of an organization. Includes developing a business plan, assessing the environment, evaluating markets, securing financing, marketing services, analyzing and negotiating managed care, and insurance contracts. (PR: Admission to DMPNA program)
- 799 Research Project. 3 hrs.**
This is a 9-hour sequence of three (3 credit hours) courses. The student is required to apply the principles of scientific research methods to a field and/or clinical investigation. Students are required to design, implement, evaluate and present (written and oral) a research project approved and guided by the student's research project committee. Each student will have a research project committee chair and two other designated committee members. (PR: MPNA 726)

MATHEMATICS (MTH)

- 500 Structure of Algebra. 3 hrs.**
Informal development of modern elementary algebra. Recommended for pre-service middle school teachers and for elementary and secondary in-service teachers. May not be used for either a 5-12 mathematics specialization or for any degree offered by the Mathematics Department. (PR: MTH 130 or equivalent)
- 501 Structure of Modern Geometry. 3 hrs.**
Informal development of geometry with an exploration of probability and statistics. Recommended for pre-service middle school teachers and for elementary and secondary in-service teachers. May not be used for either a 5-12 mathematics specialization or for a degree offered by the Mathematics Department. (PR: MTH 130 or equivalent)
- 511 Mathematical Modeling. 3 hrs.**
Students will work in teams to construct mathematical models of various real-world situations. Problems to be modeled will be drawn from diverse areas of application and will use a wide range of undergraduate mathematics. (PR: MTH 231, or 230 and permission of instructor)
- 515 Partial Differential Equations. 3 hrs.**
Elementary partial differential equations. Heat equation, Laplace's equation, separation of variables, Fourier series, vibrating strings, eigenvalue problems, finite differences, Bessel functions, Legendre polynomials. (PR: MTH 330 and 335, or permission)
- 518 Biostatistics. 3 hrs.**
Statistical skills for biological/biomedical research, with emphasis on applications. Experimental design/survey sampling, estimation/hypothesis testing procedures, regression, ANOVA, multiple comparisons. Implementation using statistical software such as SAS, BMDP.
- 519 Forensic Statistics. 3 hrs.**
Basic theory of probability and statistics, adds from Bayes' Theorem for transfer evidence, likelihood ratio, population and statistical genetics, statistical issues in paternity testing and mixtures, and presenting evidence. (PR: Admission to M.S. program in Forensic Science, or permission)
- 527 Advanced Calculus I. 3 hrs.**
A rigorous study of the real number system, continuity and differentiability of functions of a single variable, integration of functions of a single variable, infinite series. (PR: MTH 231 and 300, REC: MTH 330)
- 528 Advanced Calculus II. 3 hrs.**
A rigorous development of algebra and topology of Euclidean spaces, differentiability and integrability of functions of several variables. (PR: MTH 427 or 527)
- 530 Topology I. 3 hrs.**
First course in topic of topology. Basics of point-set topology: metric and topological spaces, continuity, connectedness, compactness, products, quotients. Surfaces and simplicial complexes, Euler characteristics.
- 531 Topology II. 3 hrs.**
First course in algebraic topology. Homotopy, fundamental group, simplicial homology. (PR: MTH 530 and MTH 550)
- 542 Numerical Linear Algebra. 3 hrs.**
Direct and iterative methods for numerical solution of linear systems of equations. Eigenvalues and eigenvectors. Error analysis and norms. Related Topics. (PR: MTH 230, 330)
- 543 Numerical Analysis. 3 hrs.**
The theory and technique of numerical computation involving the difference calculus, the summation calculus, interpolation methods, solutions of equations, and methods of solution of ordinary differential equations. (PR: MTH 230)
- 545 Probability and Statistics I. 3 hrs.**
Probability spaces, conditional probability, and applications. Random variables, distributions, expectations, and moments. (PR: MTH 230)
- 546 Probability and Statistics II. 3 hrs.**
Parametric statistics: sampling methods, estimation of parameters, tests of hypotheses. Regression, analysis of variance. (PR: MTH 230)
- 548 Modern Geometries. 3 hrs. I.**
Finite geometries, basic background material for the modern development of Euclidean Geometry, other geometries. (PR: MTH 230)
- 549 Projective Geometry. 3 hrs.**
Projective geometry using both synthetic and algebraic methods. (PR: MTH 230)
- 550 Fundamental Concepts of Modern Algebra. 3 hrs.**
Structure of the abstract mathematical systems; fields, rings groups, with illustrations and applications from number theory. (PR: MTH 230; REC: MTH 300)

- 580-583 Special Topics in Mathematics. 1-4; 1-4; 1-4; 1-4 hrs.**
Courses on special topics not listed among the current course offerings. (PR: Permission of instructor)
- 585-588 Independent Study. 1-4; 1-4; 1-4; 1-4 hrs.**
(PR: Consent of instructor and department chairman)
- 589 Seminar for Teaching Assistants. 1 hr.**
An introduction to techniques of teaching mathematics with emphasis on lower-level mathematics courses. (PR: Assignment to teach mathematics as a teaching assistant; CR/NC)
- 591 Master's Essay. 3 hrs.**
In-depth exploration of topics related to a theme chosen by the instructor; experience in reading, speaking, and writing mathematics. (PR: Any two of MTH 527, 545, 550, or equivalents.)
- 610 Modern Algebra. 3 hrs.**
The structure of semigroups, groups, rings, fields, modules, vector spaces, lattices and related topics. (PR: MTH 450 or 550 or equivalent)
- 630 Topology. 3 hrs.**
General topology including separation axioms, connectedness, compactness, convergence, continuity, metric spaces, product and quotient spaces. (PR: MTH 427 or 527 or 450 or 550)
- 640 Theory of Functions of Complex Variables. 3 hrs.**
A study of algebra, topology, and geometry of the complex plane; holomorphic functions; conformal mapping; analytic functions and analytic continuation; complex integration; representation theorems; convergence theorems and related topics. (PR: MTH 427 or 527)
- 641 Complex Variables II. 3 hrs.**
A study of algebra, topology, and geometry of the complex plane; holomorphic functions; conformal mapping; analytic functions and analytic continuation; complex integration, representation theorems; convergence theorems and related topics.
- 650 Theory of Functions of Real Variables. 3 hrs.**
A study of measure and integration and related topics. (PR: MTH 528 or 428)
- 651 Real Variables II. 3 hrs.**
A study of measure and integration and related topics.
- 660 Stochastic Processes. 3 hrs.**
Theory and applications of Markov chains. (PR: MTH 445 or 545)
- 661 Advanced Mathematical Statistics. 3 hrs.**
Topics in mathematical statistics including distribution theory for functions of random variables, convergence concepts, sufficient statistics, finding optimal estimates for parameters, optimal tests of hypotheses. (PR: MTH 446 or 546 or permission of instructor)
- 665 Optimization Mathematics. 3 hrs.**
Classical optimization of functions of several variables. Theory and methods of linear and nonlinear programming. (PR: MTH 231 and consent of department; MTH 427 recommended)
- 667 Numerical Partial Differential Equations. 3 hrs.**
Finite difference methods for elliptic, parabolic, and hyperbolic PDEs. Study of properties such as consistency, convergence, and stability. Computer implementation.
- 670 Independent Study. 1-4 hrs.**
An independent program of study of advanced topics not normally covered in other courses. The topics are chosen upon mutual agreement between the student and the instructor. (PR: Consent of instructor and Department Chairman)
- 681 Thesis. 1-6 hrs.**
- 690-693 Special Topics. 1-4 hrs.**

MICROBIOLOGY, IMMUNOLOGY AND MOLECULAR GENETICS (MCB)

- 620 Principles of Medical Microbiology. 6 hrs. I.**
The study of microorganisms, immunobiology, immunologic diseases, host resistance and the means by which diseases are produced and prevented. (PR: Organic Chemistry, General Microbiology and consent of instructor)
- 622 Current Topics in Molecular Biology. 1 hr.**
Critical discussion of current literature/concepts. Participants present published research papers on topic(s) with a molecular biology component. Presentations are followed by discussion/evaluation of the contribution of the research.
- 642 Graduate Microbiology I (Physiology/Genetics). 4 hrs. II.**
An advanced treatment of microbiology with emphasis on the molecular aspects of anatomy, taxonomy, and physiology and genetics of microorganisms.

- 643 Principles of Immunology. 3 hrs. I.**
Basic principles of the immune response system of humans and related mammals. Concepts of B & T cell function and interrelationships emphasized. (PR: Cellular and Molecular Biology)
- 648 Molecular Aspects of Pathogenesis. 3 hrs.**
An in depth study of molecular mechanisms of bacterial, viral, and immunemediated disease processes.
Course Requirements: BMS 600 and BIC 620
- 660 Diagnostic Virology. 3 hrs., II.**
A comprehensive survey of methodologies used to detect and characterize viral specific antibodies and antigens and the status of cellular immunity in virus infected hosts. (PR: MCB 620)

MINE SAFETY (MSF)

- 510 Survey of Mining. 3 hrs.**
An overview of mining to provide the participant with a general understanding of mining history, development systems terminology, procedures, methods and safety and health activities.
- 511 Mine Safety Program Analysis. 3 hrs.**
This course prepares the participant for the effective analysis of safety programs and provides some specific applications in the mining environment.
- 512 Mine Safety and Health Legislation. 3 hrs.**
A survey of the legislation that has affected safety and health in mining with special emphasis of the Federal Mine Safety and Health Act of 1977.
- 513 Mine Safety and Health Management. 3 hrs.**
This course covers the principles, functions and philosophies of mine management.
- 514 Hazard Control in Mining. 3 hrs.**
A study of how to recognize accident potential throughout the mining industry.
- 525 Statistics/Biostatistics, Epidemiology and Industrial Hygiene. 3 hrs.**
Statistics/Biostatistics, Epidemiology and Industrial Hygiene as these subjects relate to health hazards in the mining environment. (PR: Module #1 of the Advanced Industrial Hygiene Program)
- 526 Industrial Toxicology and Airborne Contamination in Mining Environments. 3 hrs.**
Principles of Toxicology: biochemistry, biological monitoring, biological transformation and chemical hazards. Properties, behavior and measurement of airborne particles. Special topics: sampling and evaluating airborne asbestos dust. (PR: Module #1 of the Advanced Industrial Hygiene Program)
- 527 Physical and Biological Health Hazards in Mining and Milling Operations. 3 hrs.**
Physical hazards: heat, noise and radiation. Biological hazards: atmospheric transport of microorganisms that cause disease. (PR: Module #1 of the Advanced Industrial Hygiene Program)
- 580-583 Special Topics. 1-4; 1-4; 1-4; 1-4 hrs.**
A study of special topics not offered in regularly scheduled courses.
- 585-588 Independent Study. 1-4; 1-4; 1-4; 1-4 hrs.**
- 591-594 Workshop (Selected Topics). 1-4; 1-4; 1-4; hrs.**
- 621 System Safety Engineering in the Mining Industry. 3 hrs.**
A study of the analytical tools used in the recognition, evaluation and control of exposure to hazards in the Mining Industry.
- 622 Accident Prevention in the Mining Industry. 3 hrs.**
A survey course which discusses why and how mining accidents occur, factors in successful safety programs and the recognition, evaluation, and control of accident causes.
- 624 Mine Haulage and Transportation. 3 hrs.**
A study of the operation of hoisting haulage equipment used in the mining industry.
- 625 Philosophical Concepts of Mine Safety and Health. 3 hrs.**
An analysis of the philosophies of mine safety and health; application of these philosophies to actual mining situations.
- 626 Safety and Health Research in the Mining Industry. 3 hrs.**
An analysis and study of selected works of national and international authors concerning mine safety and health.
- 627 Health Hazards in Mining. 3 hrs.**
A broad spectrum approach to the mine health field which includes: the principles for recognition, evaluation and control of health hazards in mining.
- 628 Man, Machines and the Environment in the Mining Industry. 3 hrs.**
A study of the interactions of man, machines and the environment. The role of these interactions in causing or in preventing accidents.
- 629 Problem Analysis and Consultation in Mine Safety and Health. 3 hrs.**
A study of the rational process of problem solving decision making consultation with emphasis on realistic case studies.

- 631 Mine Accident Investigation and Reporting. 3 hrs.**
A study of the principles, techniques and procedures of investigations of mine accidents including attendance in court and report writing.
- 635 Sampling, Industrial Ventilation, and Respiratory Protective Equipment for Mining and Milling Operations. 3 hrs.**
Gas, vapor and particulate sampling - industrial ventilation for control of health hazards. Use of respiratory protective equipment to control health hazards. (PR: Module #1 of the Advanced Industrial Hygiene Program)
- 636 Threshold Limit Values: Sampling and Analytical Techniques. 3 hrs.**
Threshold limit values and material safety data sheets. Hands-on experience in collecting industrial hygiene samples and subsequent laboratory analysis of the samples. (PR: Module #1 of the Advanced Industrial Hygiene Program)
- 637 Stress and its Impact on Safety and Health in Mining. 3 hrs.**
A study on stress and its impact of safety and health in mining. Activities will be scheduled to enable the student to apply, in a work setting, some of the basic stress concepts.
- 679 Problem Report. 3 hrs.**
- 681 Thesis. 1-6 hrs.**
Individual research on a specific problem of concern to the student and of significance to mine safety.
- 690-692 Seminar. 1-4 hrs.**

MUSIC (MUS)

- 505 Music Technology Review. 3 hrs.**
Review of music software and DAW hardware for classroom instruction, assisted practice, notation, MIDI and recording.
- 510 Introduction to World Music. 3 hrs.**
This course will survey native musics of Africa, Asia, and the Americas as an aspect of culture. No formal background in music is required, as students will learn techniques for listening and articulating responses to music.
- 511 Orff-Schulwerk. 3 hrs.**
Experiences in Orff-Schulwerk include use of poetry, rhymes, games, songs, and dances in teaching music. Singing, movement, and instrument playing and the spoken word are the primary learning tools. (PR: Graduate standing and one course in elementary music methods)
- 520 Principal Ensemble. 1 hr.**
Chamber Choir, Chorus, Orchestra, Symphonic Band, Wind Symphony, 12:00 Jazz Ensemble; Audition may be required. May be repeated for credit
- 521 Secondary Ensemble. 1 hr.**
Selected chamber and small ensembles, such as Guitar Ensemble, Brass Quintet, String Ensemble. Audition may be required. May be repeated for credit.
- 526 American Music and Its Influences. 3 hrs.**
Musical and cultural influences of European, West Africa, Caribbean, and Native American societies on United States music from 1650-1920. Specific application to concert music. (PR: Graduate standing or permission of instructor)
- 532 Electronic Music Composition. 2 hrs.**
The theory and practice of electronic media used for musical composition. History, Synthesis, and Digital Audio processing will be emphasized. (PR: Graduate standing in music)
- 540 Graduate Theory Review. 2 hrs.**
Review of undergraduate music theory for entering graduate students who are deficient or wish to review music theory skills.
- 550 Guitar Literature. 2 hrs.**
A survey of the literature for guitar from c. 1400 to the twentieth century; to expose the guitarist to many of the important composers and their works.
- 551 Guitar Pedagogy. 2 hrs.**
A survey of guitar pedagogy materials, and a practicum in teaching classical guitar.
- 570 Music Production Practicum. 1 hr.**
Application of musical production processes, theories, and techniques. Specialized practical experience in all musical aspects of rehearsal and performance.
- 579a-d Graduate Class Piano. 1 hr.**
Class instruction progressing from beginner to advanced. Development of literature and skills needed to pass the prano proficiency exam. (PR: Permission)
- 580-583 Special Topics. 1-4; 1-4; 1-4; 1-4 hrs.**
- 585-588 Independent Study. 1-4; 1-4; 1-4; 1-4 hrs.**

- 591-594 Workshop. 1-4; 1-4; 1-4; 1-4 hrs.**
- 601 Orchestral Literature. 3 hrs.**
A survey of orchestral literature from the 17th century to the present.
- 602 Band and Wind Ensemble Literature. 2 hrs.**
A comprehensive survey of the literature for concert band and wind ensemble.
- 604a Keyboard Literature. 2 hrs.**
A survey of keyboard literature from the 14th to the 20th century. Emphasis is on stylistic developments and formal procedures.
- 604b Chamber Music Literature. 2 hrs.**
A survey of chamber music literature from the Baroque Era to the 20th century. Analysis of form emphasized in the study of string quartet trio, quintet, and various other combinations.
- 604c Song Literature. 2 hrs.**
The song literature of Western Europe and America, also including contemporary material from other countries; interpretation, song study, program building, languages, and interpretation of accompaniments. For singers and accompanists.
- 604d Choral Literature. 2 hrs.**
A comprehensive study of the forms and styles of Choral Composition from Renaissance to present day.
- 604f Percussion Literature. 2 hrs.**
A survey of instructional and performance literature for solo brass instruments and brass ensembles.
- 604g String Literature. 2 hrs.**
A survey of instructional and performance literature for solo violin, viola, cello, bass, guitar, and string ensembles.
- 604h Woodwind Literature. 2 hrs.**
A survey of instructional and performance literature for flute, oboe, clarinet, bassoon and/or saxophone in both solo and ensemble settings.
- 604i Brass Literature. 2 hrs.**
A survey of instructional and performance literature for solo brass instruments and brass ensembles.
- 610 History and Philosophy of Music Education. 3 hrs.**
Historical study and philosophical analysis of objectives, rationales and justifications for the study of music in the public schools.
- 611 Music Psychology and Learning Theory. 3 hrs.**
Theories of learning, neuromuscular, and psychological processes applied to musical development, and their applications to teaching, performance and curriculum development.
- 612 Projects and Problems in Music. 3 hrs.**
Detailed investigation of problems and/or projects in the student's area of specialization.
- 614 Seminar in Teaching Music Appreciation. 2 hrs.**
Methods and materials for teaching music appreciation. Required of all graduate assistants teaching MUS 142, Music Appreciation. May be repeated for credit.
- 615 Advanced Techniques for Marching Band. 2 hrs.**
Advanced methods, materials, and techniques for training and administering a marching band program, including show planning, drill writing, arranging, and administration.
- 616 Music Curriculum and Administration. 3 hrs.**
Study of the organization of the school music program including budget, scheduling, organization and curriculum design.
- 617 Seminar in Music Education. 3 hrs.**
Specialized study of advanced concepts and current problems in music education.
- 618a Administration of Instrumental Music. 3 hrs.**
The planning and operation of the instrumental program and the details of programming the work in a school system.
- 618b Administration of Choral Music. 3 hrs.**
A study of the organization of choral music programs including; recruitment, auditions, scheduling, rehearsal arrangement, programming, touring, and budget.
- 619a Seminar in Vocal Pedagogy. 2 hrs.**
A study of the techniques of singing and their application to private and class instruction. Emphasis placed upon diagnosis of problems, and teaching under supervision.
- 619b Seminar in Piano Pedagogy. 2 hrs.**
An analytical survey of developments in piano techniques and pedagogical procedures with open discussions on various facets of piano teaching.
- 620a Instrumental Techniques and Materials. 2 hrs.**
Advanced study of the methods and materials of instrumental music instruction at all levels

- 620b Choral Techniques and Materials. 2 hrs.**
Advanced study of the methods and materials of choral music instruction.
- 621 Music Research Methods. 3 hrs.**
Introduction to bibliographic sources, historical, analytical and empirical research methods applied to music and music education.
- 622 Styles and Analysis. 3 hrs.**
Identification of structural principles and compositional idioms characteristic of historical eras and representative composers from the Ars Antiqua to the present day.
- 629a Choral Conducting and Interpretation. 2 hrs.**
Advanced study of the methods and materials of choral music instruction
- 629b Choral Conducting and Interpretation. 2 hrs.**
Continuation of Music 629a.
- 630a Instrumental Conducting and Interpretation. 2 hrs.**
Advanced study in conducting techniques, score preparation and analysis, interpretation, rehearsal planning and execution, and instrumental ensemble literature.
- 630b Instrumental Conducting and Interpretation. 2 hrs.**
A continuation of 630a.
- 640a Music Theory. 3 hrs.**
Analytical and writing techniques of 19th and 20th Century music.
- 640b Music Theory. 3 hrs.**
Continuation of Music 640a.
- 641 Advanced Counterpoint. 3 hrs.**
An intensive study of contrapuntal techniques, styles, and forms through composition and analysis.
- 642 Procedures and Techniques for Elementary Music (Grades K-6). 3 hrs.**
Fundamentals of Music; experience in keyboard, guitar, recorder and autoharp. Survey of materials and methodology to aid in establishing program in school music. Non-majors only.
- 645 Original Composition. 2 hrs.**
- 646 Advanced Choral Arranging. 2 hrs.**
Techniques of choral composition and arranging with emphasis on the mixed choir. Arrangements and original works sung by choral groups and conducted by students.
- 647 Advanced Band Arranging. 2 hrs.**
A study of the scoring for modern concert and marching bands, the transcription of works for other media as well as original works; analysis of band literature, harmonic and formal.
- 648 Advanced Orchestration. 2 hrs.**
Scoring compositions from other media for modern orchestras of various sizes.
- 649 Advanced Jazz Arranging. 2 hrs.**
Advanced study of jazz arranging for combo through big band instrumentation.
- 650 Music of the Middle Ages. 3 hrs.**
The historical and stylistic study of music of the Middle Ages, ca. 600 to ca. 1400.
- 651 Music of the Renaissance. 3 hrs.**
The historical and stylistic study of music of the Renaissance, ca. 1400 to ca. 1600.
- 652 Music of the Baroque Era. 3 hrs.**
The historical and stylistic study of music of the Baroque Era, ca. 1600 to ca. 1750.
- 653 Music of the Classical Era. 3 hrs.**
The historical and stylistic study of music of the Classical Era, ca. 1720 to ca. 1820.
- 654 Music of the Romantic Era. 3 hrs.**
The historical and stylistic study of music of the Romantic Era, ca. 1800 to ca. 1900.
- 655 Music Since 1900. 3 hrs.**
The historical and stylistic study of music ca. 1900 to the present.
- 656 Seminar in Performance Practice. 2 hrs.**
Students will prepare and perform music from a selected style period using editorial methods and research as appropriate to the chosen period. May be repeated for credit.
- 670 Current Trends in Music Education (PreK-5). 3 hrs.**
Methods and materials that engage children in musical learning experiences from an infancy through grade 5, including curriculum development, designing age-appropriate activities; study of current research in music learning.
- 675 Music in Early Childhood (Birth to Age 5). 3 hrs.**
Methods and materials for music learning in earliest childhood to include developmentally appropriate curriculum and activities, ways that babies and toddlers learn, and current trends in early childhood music education.
- 679 Problem Report. 1-3 hrs.**
- 681 Thesis. 1-6 hrs.**

Applied Music

680	Saxophone. 1-2 hrs.
682	Flute. 1-2 hrs.
683	Oboe. 1-2 hrs.
684	Clarinet. 1-2 hrs.
685	Bassoon. 1-2 hrs.
686	French Horn. 1-2 hrs.
687	Trumpet. 1-2 hrs.
688	Trombone. 1-2 hrs.
689	Euphonium. 1-2 hrs.
690	Tuba. 1-2 hrs.
691	Violin. 1-2 hrs.
692	Viola. 1-2 hrs.
693	Cello. 1-2 hrs.
694	String Bass. 1-2 hrs.
695	Piano. 1-2 hrs.
696	Voice. 1-2 hrs.
697	Organ. 1-2 hrs.
698	Percussion. 1-2 hrs.
699	Guitar. 1-2 hrs.

NURSING (NUR)

Graduate nursing courses are open only to those students admitted to the nursing program.

- 580-584 Special Topics in Nursing. 1-4 hrs.**
Program of study not normally covered in other courses. Topics vary from semester to semester. (PR: Permission of instructor)
- 585-588 Independent Study in Nursing. 1-4 hrs.**
Courses taught by tutorials; directed independent readings or research; problem reports, and other activities designed to fill needs of individual students.
- 591-594 Nursing Workshop. 1-4 hrs.**
Practical, participatory courses for advanced students. Experience in new techniques and application of new knowledge.
- 602 Theoretical Foundations in Nursing. 3 hrs.**
Provides students with opportunity to relate a philosophical and theoretical base to concepts and processes inherent in nursing. Emphasis is on analysis of nursing theories and their relationship and application to research and practice.
- 604 Leadership in Nursing. 3 hrs.**
Explores the theoretical basis for effective leadership in nursing. Emphasis is placed on analysis of leadership, characteristics and behaviors of leaders, and the role of the nurse leader.
- 606 Advanced Nursing Research. 3 hrs.**
Provides the opportunity to develop a research approach to nursing situations. Focus is upon the development of a research proposal. (PR: or concurrent NUR 602 or Perm)
- 608 Issues in Health Care. 3 hrs.**
Explores and evaluates concerns germane to contemporary nursing. Focus is upon the role of nursing in addressing health issues affected by social, economic, political, and technological forces.
- 616 Curriculum Development in Nursing. 3 hrs.**
Introduces the various component in the curriculum development process. Emphasis is on philosophy, objectives, curriculum designs, and program evaluation. Factors influencing curriculum development, implementation, evaluation, and nursing curriculum patterns are examined.
- 618 Teaching in Nursing. 3 hrs.**
Investigates the responsibilities of the educator in contemporary nursing. Emphasis is upon the instructional process. Practicum allows student to practice the role of the teacher in a variety of educational experiences.
- 619 Practicum: Teaching in Nursing. 3 hrs.**
Guided experience in didactic teaching of nursing clinical teaching, supervision and evaluation of students.
- 622 Advanced Family Nursing I. 5 hrs.**
Introduction to knowledge and skills essential for comprehensive health assessments, analysis of data, formulation of diagnoses, development of the therapeutic plans, and implementation of health promotion and maintenance activities. Practicum included. (PR or concurrent: NUR 602, NUR 604)

- 624 Advanced Family Nursing II. 5 hrs.**
Provides advanced knowledge and nursing management of common and acute self-limiting health problems of individuals and families of various age groups. Includes pathology and therapeutic modalities related to specific health problems. Practicum included. (PR: NUR 622, PR or concurrent: NUR 606)
- 626 Advanced Family Nursing III. 5 hrs.**
Provides advanced knowledge of chronic illness and the long-term nursing management of health care problems. Includes pathology and therapeutic modalities related to management of chronic health problems. Practicum included. (PR: NUR 624)
- 632 School Nurse - Administration. 3 hrs.**
Focus is upon the role of the school nurse and family nurse practitioner in the school system. (PR: NUR 602, NUR 604 or permission)
- 634 School Nurse - School-Aged Children. 3 hrs.**
Focus is upon the role of the school nurse and family nurse practitioner in providing care to the school-aged children. (PR: NUR 632 or concurrent or Perm)
- 642 Organizational Dynamics in Nursing. 3 hrs.**
Focus is upon the organizational dynamics as they apply to the nurse manager role in health care delivery systems.
- 644 Financial Strategies in Nursing Administration. 3 hrs.**
Examines the financial management role of the nurse administrator in relation to economic, political, and societal trends.
- 646 Nursing Management in Health Care Settings I. 6 hrs.**
Focuses on the application of theories and principles related to nursing management. Practicum included. (PR or concurrent: NUR 604, NUR 606; PR: NUR 642, NUR 644)
- 648 Nursing Management in Health Care Settings II. 6 hrs.**
Practicum focuses upon the application of the role components of the nurse manager in selected health care settings. Seminars included. (PR: NUR 646)
- 662 Pharmacology for Nurses in Advanced Practice. 3 hrs.**
Focus is upon a review of the knowledge base in the basic science of drugs and on how this knowledge base can be applied to client care and education by nurses in advanced practice. (PR: Evidence of current RN license and perm)
- 679 Problem Report in Nursing. 1-3 hrs.**
The preparation of a written report on a research problem or field of study in nursing.
- 681 Thesis. 1-6 hrs.**
Individual research in a selected area of nursing under direction of a faculty member. (PR: NUR 606)
- 690-693 Seminar in Nursing. 1-3 hrs.**
Topics in nursing not covered in other courses; topics will vary.
- 695 Internship: Advanced Family Nursing. 6 hrs.**
Focus is upon the role of the family nurse practitioner using the case management approach in a supervised contractual work study arrangement with a health care agency. (450 hrs. minimum) (PR: NUR 626)
- 697-698 Instructional TV. 1-4 hrs.**
A course based upon Instructional Television series broadcast by public television. The student is responsible for viewing the series on the air and satisfying all course requirements.
- 720 Pharmacology for Nurse Anesthesia I. 4 hrs.**
Study of general principles of pharmacology, pharmacokinetic, pharmacodynamic, and biochemistry concepts, as they relate to specific anesthetic and adjunct drugs. (PR: Admission to DMPNA program)
- 721 Pharmacology for Nurse Anesthesia II. 3 hrs.**
Continuation of Pharmacology I with an emphasis on drugs acting on the autonomous nervous system, local anesthetic agents, drugs for pain management and cardiovascular drugs. (PR: Admission to DMPNA program)
- 741 Introduction to Health Care Clinical Practicum. 6 hrs.**
The Introduction to Health Care Clinical Practicum provides the student with a beginning knowledge and proficiency in all phases of anesthetic management (pre-anesthesia, induction, maintenance, post-anesthesia)
- 741-A Health Care Clinical Practicum. 5 hrs.**
The Clinical Practicum prepares the student for the full scope of current practice and requires a minimum of 550 clinical cases including a variety of procedures, techniques, and specialty practice. (PR: MPNA 741)
- 741-C Health Care Clinical Practicum. 5 hrs.**
Continuation of NUR 741-A. (PR: NUR 741-A)

- 741-E Health Care Clinical Practicum. 5 hrs.**
Continuation of NUR 741-C. (PR: NUR 741-C)
- 741-G Health Care Clinical Practicum. 5 hrs.**
Continuation of NUR 741-E. (PR: NUR 741-E)
- 741-I Health Care Clinical Practicum. 6 hrs.**
Continuation of NUR 741-E. (PR: NUR 741-G)
- 741-J Health Care Clinical Practicum. 6 hrs.**
Continuation of NUR 741-I (PR: NUR 741-I)
- 741-K Health Care Clinical Practicum. 6 hrs.**
Continuation of NUR 741-J. (PR: NUR 741-J)

PARK RESOURCES AND LEISURE SERVICES (PLS)

- 500 Leisure and Aging. 3 hrs.**
A course presenting an overview of leisure services for the elderly. Topics include research results, theories, and modern day trends. A wellness model will be included.
- 501 Administration of Parks and Recreation. 3 hrs.**
Considers administrative practice and various organizational structures. Includes administrative processes, supervision of personnel, budgeting, and public relations. Requires conducting a case study of an existing park and recreation department, including fiscal and personnel policies and an analysis of the effectiveness of such policies.
- 502 Assessment and Evaluation in Recreation and Leisure Services. 3 hrs.**
Theoretical and practical approach to evaluation as applied to recreation and leisure services. Emphasis will be upon developing sound assessment and evaluation methodology applicable to recreation and leisure studies. (PR: PLS 101 or permission)
- 510 Recreation Area and Facility Maintenance. 4 hrs.**
A study of the knowledge and skills necessary to supervise and administer the general development and maintenance of park and recreation areas and facilities.
- 511 Recreation Areas and Facilities. 3 hrs.**
Basic considerations in the planning and design of recreational and sport areas, facilities, and structures including associated amenities.
- 521 Recreation for Special Populations. 3 hrs.**
Study of the use of recreation activities with disabled persons. Techniques in programming and adaptation to meet the leisure needs of special groups in today's society. In association with a therapeutic recreation institution, student must develop a new/revised procedure for providing recreation programs at that institution. (PR: PLS 120 or permission)
- 522 Therapeutic Recreation in Institutional Settings. 3 hrs.**
Designed to acquaint students with the role and practice of therapeutic recreation in treatment centers. Requires preparation of an annotated bibliography of current literature in this field and conducting of a case study of therapeutic recreation programmatic offerings in such an institution. (PR: PLS 120 or permission)
- 530 Environmental Interpretation. 4 hrs.**
Principles and techniques of environmental interpretation as practiced in federal, state, and private agencies. Student must develop an interpretative brochure and evaluate both a facility and a program. 3 lec.-2 lab.
- 531 Forest Recreation Planning. 4 hrs.**
Utilizes the functional planning approach based upon demand and site capability analysis. Student conducts an in-depth recreation capability analysis in an existing park facility, presents this in written form; reviews the current literature on forest recreation development, and makes a final oral report. 3 lec.-2 lab.
- 550 Introduction to Off-Highway Vehicle Recreation. 3 hrs.**
A course designed to integrate off-highway vehicle recreation concepts, experiences, research trends, supply and demands, and management issues.
- 551 Planning, Design, and Construction of Off-Highway Vehicle Trail System. 3 hrs.**
Planning methodologies typically used by federal, state, and local governments. Includes assessment of resource and social value conflicts and partnership creation.
- 552 Construction of OHV Trail Systems. 3 hrs.**
A course designed to instruct students in contemporary methods and techniques of constructing OHV trails and related facilities.
- 553 Operation and Management of OHV Trail Systems. 3 hrs.**
Diagnosis of OHV problems and development of solutions based upon recognized trail standards and typical resource impacts.

- 580-583 Special Topics in Recreation. 1-4; 1-4; 1-4; 1-4 hrs.**
Study of an advanced topic not normally covered in other courses. 3 lec-2 lab. (PR: Permission of Chairman)
- 585-588 Independent Study. 1-4; 1-4; 1-4; 1-4 hrs.**
Requires conducting of individual survey/research projects beyond the requirements for undergraduates. Such projects will be individualized to meet the needs of students while accomplishing some practical need in the field. (PR: Permission)

PATHOLOGY (PTH)

- 620-621 Human Pathology. 7; 7 hrs., I, II.**
General principles of pathology, systemic pathology, and holistic integration with laboratory medicine and autopsy-clinical-and-cytologic material. (PR: Consent of instructor)

PHARMACOLOGY (PMC)

- 610 Introduction to Pharmacology. 3 hrs., I.**
An indepth presentation of the history and introductory principles of pharmacology. Designed to acquaint students with pharmacology as a scientific discipline and provide the basis for more advanced courses. (PR: Consent of instructor)
- 615 Pharmacology Reviews. 1 hr., I, II.**
A course designed for students to read and discuss recent and classic papers in pharmacological sciences. Students become acquainted with the pharmacology literature and classic advances in the field.
- 620 Medical Pharmacology. 8 hrs., II.**
An introduction to the basic concepts of drug actions and therapeutic principles governing drug therapy. Emphasis is placed on general mechanisms, therapeutic uses and toxicity of prototypic drugs. (PR: BIC 620, PHS 629 desirable; consent of instructor)
- 625 Drug Metabolism. 3 hrs., I.**
Topics will include a discussion of the metabolizing enzymes, enzyme induction and inhibition, toxic metabolites, prodrugs, metabolic disorders and analytical methods for studying drug metabolism. (PR: consent of instructor)
- 630 Chemical Aspects of Pharmacology. 3 hrs., I.**
An introduction to the chemical principles of pharmacology. The chemical classification, acid-base chemistry and stereochemical properties of drugs and the reactivity of drugs with biological systems will be discussed. (PR: organic chemistry, consent of instructor)
- 633 Vistas in Pharmacology. 3 hrs., I.**
A discussion and study of recent advances in the various fields of pharmacological investigation. This course is designed to acquaint students with state-of-the-art techniques and developing areas of pharmacology. (PR: PMC 620)
- 635 Neuropharmacology. 3 hrs., I.**
A study of the actions of drugs on the nervous system.
- 640 Behavioral Pharmacology. 3 hrs., I.**
Behavioral methods for assaying drug action. (PR: consent of instructor)
- 643 Introductory Cardiopulmonary Pharmacology. 3 hrs.**
A general overview of the principles of pharmacology and the mechanisms and effects of cardiovascular and respiratory drugs. (PR: PHS 629 or BSC 522, consent of instructor)
- 645 Advanced Cardiopulmonary Pharmacology. 3 hrs., I.**
An in-Depth presentation of pharmacological aspects of cardiovascular and pulmonary systems. Current knowledge, principles and methods used in cardiopulmonary research will be discussed. (PR: PMC 620 or PMC 643; consent of instructor)
- 650 General Toxicology. 3 hrs., I.**
An in depth presentation of the general principles and methods of toxicology. Mechanism, distribution and organ system responses to toxins and methods of toxicological evaluation will be discussed. (PR: PMC 620 or consent of instructor)
- 655 Toxicology Reviews. 1 hr.**
This course will provide a presentation and discussion of current literature in the area of toxicology. Fundamental principles and new discoveries will be emphasized.
- 676-677 Special Topics. 1-4 hrs.**
Material on special areas of research of topics which are not routinely covered in existing courses.

PHILOSOPHY (PHL)

- 500 Ancient Philosophy. 3 hrs.**
Advanced study of major philosophers drawn from the ancient Greek and Roman period.
- 501 Modern Philosophy. 3 hrs.**
Advanced study of major movements in philosophy from the 17th century on, including movements such as rationalism, empiricism, idealism, and existentialism.
- 520 Metaphysics. 3 hrs.**
A study of what Aristotle called "first philosophy" or the study of being, later called metaphysics.
- 521 Philosophy of Knowledge. 3 hrs.**
Advanced study of the nature and possibility of knowledge.
- 551 Philosophy of History and Culture. 3 hrs.**
Ancient and modern theories of the meaning and consequence of history and culture.
- 553 Philosophy of Science. 3 hrs.**
Crucial concepts in modern science relevant to contemporary philosophical issues concerning man and the universe; special attention to epistemological and ethical implications of natural law, induction, mathematical theory and the new physics.
- 555 Philosophy of Religion. 3 hrs.**
Theories of the nature and functions of religion, including the meaning of religious language and problems of belief.
- 560 Philosophy of Politics and Power. 3 hrs.**
Advanced study of the significance or the place in human reality of political organization, negotiation, strategy, and power.
- 563 Philosophy of Feminism. 3 hrs.**
An introduction to contemporary feminist theory including discussion of current gender-related issues.
- 565 Existential Philosophy. 3 hrs.**
A survey of the contributions of leading existentialist philosophers of the past and present from Kierkegaard and Nietzsche to Sartre and Tillich; course is conducted much like a seminar.
- 570 Philosophy of Logic. 3 hrs.**
Advanced study of the nature of logic; whether logic is possible at all, how far it applies, and whether and how there can be conflicting logics.
- 580-583 Special Topics. 1-4; 1-4; 1-4; 1-4 hrs.**
- 585-588 Independent Study. 1-4; 1-4; 1-4; 1-4 hrs.**
- 598 Directed Readings in Philosophy. 3 hrs. I, or II.**
Advanced research adaptable to the needs of students. Regular consultations with the chairman and staff.
- 599 Humanities Seminar. 3 hrs.**

PHYSICAL SCIENCE (PS)

- 500 Astronomy. 3 hrs.**
A study of the stars and planets and galaxies, planetary motion, cosmology and cosmography. Designed to assist teachers and others to develop an interest in astronomy. (PR: PHY 101 or 203 or PS 109 or equivalent)
- 500L Astronomy Laboratory. 1 hr.**
Fundamental observations in astronomy and their interpretation through physical laws. Quantitative discussion of orbital motion, time, telescopes, solar system, stars, galaxies, and limited opportunity for astronomical observation. (PR or CR: PS 500)
- 510 Physical Principles of Remote Sensing with Applications. 4 hrs.**
A study of the physical systems for collecting remotely sensed data. Statistical/spatial analysis and modeling using image processing/geographic information/spatial analysis computer software systems with earth resource applications. (PR: PHY 203 and 204, MTH 225, or permission)
- 511 Digital Image Processing and Computer Simulation Modeling. 4 hrs.**
A study of image processing/geographic information and spatial analysis hardware/software systems, concurrent and parallel image processing modeling scenarios utilizing geobiophysical data for computer simulation modeling and practicum. (PR: PS 410/510 or permission)
- 525 Development of Scientific Thought. 3 hrs.**
A study of the people and ideas which have influenced science; the philosophy of their periods; the economic conditions leading to scientific advancement and the works of the foremost scientists in the field. (PR: A total of twelve hours in Physical Science, Physics, and Chemistry courses)
- 570 Practicum. 4 hrs.**
Problem solving, geobiophysical modeling, and proposal development techniques in the physical sciences. (PR: PS 411, 511 or Permission)

- 580-583 **Special Topics. 1-4; 1-4; 1-4; 1-4 hrs.**
 585-588 **Independent Study. 1-4; 1-4; 1-4; 1-4 hrs.**
 646 **Seminar on Recent Developments in the Physical Sciences. 3 hrs. Offered on demand.**
 648 **Modern Physics for Teachers. 3-5 hrs. Offered on demand.**
 A course designed to provide additional background material in atomic and nuclear physics for teachers. Lecture and laboratory.
 649 **Electronics for Teachers. 3-5 hrs. Offered on demand.**
 A course in basic theory of electronics for teachers. Lecture and laboratory.
 681 **Thesis Research. I, II, S. 1-6 hrs.**
 (PR: Graduate status and approval of advisor)

PHYSICS (PHY)

- 505 **Optics Laboratory. 2 hrs.**
 A course in optical experiments encompassing geometrical and physical optics. This course is to be taken with Physics 304.
 512 **Atmospheric Physics with Computer Simulation Modeling. 3 hrs.**
 A general introduction to the earth's atmosphere. The physical and chemical dynamic behavior of the earth's atmosphere will be analyzed by comparing computer simulated profiles with in situ measurements.
 515 **Electronics Laboratory. 2 hrs.**
 A course in laboratory measurements encompassing transistors, integrated circuits, and their associated circuits. This course is to be taken with Physics 314.
 521 **Modern Physics Laboratory. 2 hrs.**
 Laboratory exercises on modern physics topics encompassing both experiments of historic significance and current applications. To be taken with Physics 320, or equivalent.
 542 **Quantum Mechanics. 3 hrs.**
 Alternate years. Mathematical formalism of quantum mechanics, particles in potential fields, perturbation theory and other approximation methods, scattering, applications to simple systems. 3 lec. (REC: PHY 331 and MTH 335 or equivalent)
 545 **Mathematical Methods of Physics. 3 hrs.**
 Offered on demand. An introduction to the theory of orthogonal functions, curvilinear coordinate systems, vector and tensor fields and their applications in Physics. Problems are drawn from different areas of physics. 3 lec. (PR: PHY 203.)
 547 **Mechanics for Teachers. 4 hrs.**
 An in-depth study of mechanics for education majors specializing in physics with emphasis on problem solving techniques, demonstrations, experiments and computer applications. (PR: PHY 203, MTH 122, MTH 140)
 550 **Radiation Physics in the Life Sciences. 4 hrs. II.**
 Alternate years. A course in radiation physics with emphasis on applications in the medical sciences. Designed for students interested in the life sciences. A field trip to the University of Michigan nuclear reactor is an integral part of the course. 3 lec-2 lab/demonstration. (PR: PHY 203 and 204, or consent of instructor)
 562 **Nuclear Chemistry and Physics. 3 hrs. II.**
 Alternate years. An introduction or the description of nucleons, electric and magnetic properties of a nucleus, nuclear energy levels, nuclear reactions including neutron activation, interaction of particles with matter, and nuclear forces. 3 lec. (PR: PHY 320 and MTH 231 or consent of instructor). See 424d.
 563 **Nuclear Physics Laboratory. 2 hrs.**
 Laboratory techniques for the measurement of nuclear properties, theory and characteristics of various detectors, statistics of counting, and energy determination of nuclear particles and radiation. This course is to be taken with Physics 462/562. A field trip to the University of Michigan Nuclear Reactor is an integral part of the course.
 580-583 **Special Topics. 1-4; 1-4; 1-4; 1-4 hrs.**
 585-588 **Independent Study. 1-4; 1-4; 1-4; 1-4 hrs.**
 616 **X-Ray Diffraction. 3 hrs.**
 Offered on demand. A study of the properties of X-rays, X-ray diffraction, and crystal structure. 2 lec-3 lab. (REC: CHM 358 or equivalent)
 631-632 **Seminar. I; 1 hr. I, II.**
 640 **Fundamentals of Physics. 4 hrs. S.**
 Offered on demand. A course in fundamental concepts of physics. Subject content varies. Designed primarily to strengthen conceptual understanding of teachers.

- 644 Atomic Physics. 3 hrs.**
A historical development of the modern theories concerning the structure of matter, electricity, and light, including applications of optical spectra and X-rays. (PR: PHY 203, 204 or PHY 213, 204 or equivalent)
- 661-662 Special Topics. 1-3; 1-3 hrs.**
- 682 Thesis Research. 1-6 hrs. I, II, S.**
(PR: Graduate status and approval of advisor)

PHYSIOLOGY (PHS)

- 628 Mammalian Neurophysiology. 2 hrs.**
This course is a basic introductory, survey course covering neurophysiology from subcellular level to behavioral level. (PR: Consent of instructor)
- 629 Mammalian Physiology. 6 hrs. II.**
A study of mammalian systems including pulmonary, renal, cardiovascular, gastrointestinal, endocrine and reproductive systems. Emphasis will be placed on homeostatic mechanisms and on experimental approaches to physiology. (PR: PHS 628)
- 630 Experimental Physiology. 1 hr. II.**
A laboratory course in mammalian physiology which includes instruction in surgical preparation, bioinstrumentation technique and open-chest surgery in dogs. (PR: PHS 629 and consent of instructor. This course may be taken concurrently with 629)
- 631 Physiology Practicum. 2 hrs. II.**
Experience in laboratory instruction of medical and graduate students in the mammalian physiology laboratory. (PR: PHS 630 and consent of instructor)
- 632 Physiology of Sleep. 1 hr.**
Detailed examination of changes in EEG, EMG, cardiorespiratory function and ocular motility during sleep. (PR: PHS 628, 629)
- 634 Advanced Neurophysiology. 1-2 hrs., I.**
Bioelectric potentials. A.C. and D.C. potentials, transcortical potentials, E.E.G., cornea-retinal potential, blood-CSF potential, etc. (PR: PHS 628, 629)
- 638 Advanced Cardiovascular Physiology. 1-2 hrs., I.**
(PR: PHS 629)
- 639 Neurophysiology Research Techniques. 3 hrs.**
Class participants will be exposed to state-of-the-art neurophysiology research techniques while in the laboratories of neurophysiology faculty.
- 640 Advanced Renal and Electrolyte Physiology. 1-2 hrs., I.**
(PR: PHS 629)
- 641 Recent Advances in Physiology. 1 hr., I., II.**
Recently published articles in a selected area of physiological investigation will be presented by participants in the class. Each presentation will be followed by a discussion and evaluation of the paper. (PR: Consent of instructor)
- 661 Endocrinology. 3 hrs.**
An in depth study of the endocrine system with special emphasis on the role of experimentation in the development of concepts in endocrine physiology (PR: BMS 600 or equivalent, consent of instructor)
- 666 Physiology of the Cell. 3 hrs.**
An in-depth study of selected topics in cell physiology.
- 675 Special Topics. 1-4 hrs.**
Present course material on special areas of research of topics which are not routinely covered in existing courses.
- 676 Special Topics. 1-4 hrs.**
Present course material on special areas of research or topics which are not routinely covered in existing courses.
- 677 Special Topics. 1-4 hrs.**
Present course material on special areas of research or topics which are not routinely covered in existing courses.

POLITICAL SCIENCE (PSC)

- 505 International Organization. 3 hrs.**
Study of world and regional organizations as reflections of world politics, as instruments of foreign policies, and as forces for change and order, with emphasis on their role as channels for management of cooperation and conflict.

- 506 International Politics. 3 hrs.**
Study of major issues in world politics, with emphasis on theoretical approaches, problems of war and peace, and contemporary trends.
- 507 Asian Politics. 3 hrs.**
Study of such nations as India, China, Japan, and Korea in the contemporary setting.
- 508 Middle Eastern Politics. 3 hrs.**
Study of the Arab States and such nations as Israel, Iran and Turkey in the contemporary setting.
- 509 Western Democratic Politics. 3 hrs.**
Study of such nations as Canada and those of Western Europe, particularly Great Britain and France.
- 510 Politics of Russia and the Former Soviet Union. 3 hrs.**
The study of the politics of Russia and the former Soviet Union.
- 511 Latin American Politics. 3 hrs.**
This course studies Latin American politics by sectors, such as landed elites, the military, the church, etc. Various styles of governance are considered. Case examples illustrate concepts discussed.
- 512 International Political Economy. 3 hrs.**
This course will examine the evolution and structure of the global economic system with emphasis on the development of the Liberal International Economic Order.
- 515 International Law. 3 hrs.**
Study of theories, origins, sources, development, present state, and trends of international law as a factor in various aspects of international politics.
- 516 Politics of Development. 3 hrs.**
A survey of major theories of development and modernization and issues confronting developing nations around the world.
- 517 Homeland Security and Civil Liberties. 3 hrs.**
An examination of the policy issues involved in protecting the U.S. homeland from terrorist and other threats, with special attention to the impact such policies have on individual liberties.
- 518 American Political Thought II. 3 hrs.**
This course is a detailed examination of the philosophical and historical roots of American politics from Reconstruction through the present with emphasis on original texts.
- 519 Women and Political Thought. 3 hrs.**
This course examines how women were conceptualized in the history of political philosophy and how women then began conceptualizing themselves and their relation to politics.
- 520 Current World or Regional Issues. 3 hrs.**
An intensive study of specific world or regional problems, such as the politics of world hunger. The role of multinational corporations, imperialism, third world communist movements, etc.
- 521 American Political Thought I (Founding to Civil War). 3 hrs.**
This course is a detailed examination of the philosophical and historical roots of American politics from the Colonial era through the Civil War with emphasis on original texts.
- 522 African Political Systems. 3 hrs.**
The study of political systems of selected countries, blocs or regions.
- 523 American Foreign Policy. 3 hrs.**
The study of descriptive, analytical, and normative aspects of American foreign policy with emphasis on contemporary problems and issues.
- 524 Comparative Foreign Policy. 3 hrs.**
Application of the comparative method to foreign policy decision-making and outputs. Comparisons within or between geographic regions.
- 525 Ancient Medieval Political Thought. 3 hrs.**
Selective study of classics of Western political theory from earliest times through the 15th century, such as that of Plato, Aristotle, the Romans, Augustine, and Aquinas.
- 526 Modern Political Thought. 3 hrs.**
Selective study of classics of Western political theory from the 16th century through the 19th century, such as that of Machiavelli, Bodin, Hobbes, Locke, Rousseau, Hume, Burke, Mill, and Marx.
- 527 Shapers and Definers. 3 hrs.**
A study of political leaders who have shaped and defined the American constitutional tradition.
- 528 Islamic Political Ideas and Institutions. 3 hrs.**
A study of Islamic political ideas, practices and institutions and their impact on the rise and development of contemporary Islamic movements, organizations and states.
- 529 The Politics of Conflict and Revolution. 3 hrs.**
Study of major theories of conflict and revolution with emphasis on cross-national explanations and outcomes.

- 530 Political Ideologies. 3 hrs.**
This course examines modern political ideologies including Liberalism, Conservatism, Anarchism, Socialism, Fascism, Feminism, and Environmentalism with emphasis on the original texts.
- 531 Politics of Global Terrorism. 3 hrs.**
An examination of terrorism globally, both in its development and its current manifestations, with attention to its attractions, the difficulties of confronting it, and its implications for democratic society.
- 533 Public Administration and Policy Development. 3 hrs.**
An examination of alternative theoretical approaches to the study of policy and administration and their implications for the use of policy to shape administrative practice.
- 536 The American Judiciary. 3 hrs.**
Structure and behavior in American national and state judicial systems, including analysis of their decision making and policy making functions, their procedures and administration, and problems and trends.
- 540 Power in American Society. 3 hrs.**
An examination of some of the major theoretical approaches-pluralist, elitist, etc.-to the study of power. A major concern is on the relationship between the distribution of political resources and the performance of political systems. Efforts to transform political systems are examined on the basis of cross-national research.
- 541 American Politics in Film. 3 hrs.**
This course examines the way the American people view their political leaders and institutions through the use of film, with a critical eye towards the ebb and flow of public approval or disapproval.
- 542 Politics and Welfare. 3 hrs.**
A comparative course examining the political institutional methods states use to assist citizens who are poor, primarily women and children. It also addresses behavioral concerns that shape welfare policy.
- 544 Dictatorship and Democracy. 3 hrs.**
An investigation of the strengths of democracies relative to dictatorships with regard to such dimensions as economic growth, income equality, health and welfare of citizens and war reduction.
- 546 Politics in History. 3 hrs.**
A study of politics as an order-shattering, order-restructuring force during some of America's most transformative moments.
- 550 Administrative Law. 3 hrs.**
A study of the basic legal framework of administrative organization, including the problems of administrative discretion, rule making and adjudication, regulatory agencies, and administrative responsibility in the democratic state. (PR: PSC 333)
- 552 Public Personnel Administration. 3 hrs.**
Survey of Public Personnel Administration with particular attention on various facets of the merit system concept. Psychological and human relations aspects of the work situation and supervisor-subordinate interaction emphasized. (PR: PSC 333 or permission)
- 553 Governmental Budgetary Administration. 3 hrs.**
Study of organization, administration, and accountability in the management of public funds, with emphasis on the political decision-making processes of budget formulation, presentation, and execution. (PR: PSC 333 or permission)
- 554 Administrative Organization and Behavior. 3 hrs.**
A study of the contributions of the behavioral sciences to the study of organizations with stress on such concepts as leadership, motivation, power conflict, organizational design and decision making.
- 560 Civil Rights and Liberties. 3 hrs.**
The basic substantive and procedural elements of American constitutional liberties and civil rights with emphasis on historical development as influenced by social and political forces.
- 561 Urban Problems and Public Policy. 3 hrs.**
Study of policy problems of metropolitan areas in terms of structures, alternatives, and outcomes.
- 580-583 Selected Topics. 1-4; 1-4; 1-4; 1-4 hrs.**
To offer a course on some special topic which is not adequately treated in the regular course offerings.
- 584 Constitutional Law. 3 hrs. I.**
Introduction to the principles of American constitutional law and analysis of constitutional issues, emphasizing leading Supreme Court cases.
- 585-588 Independent Study. 1-4; 1-4; 1-4; 1-4 hrs.**
These numbers are reserved for tutorials, directed and independent research, problem reports, etc.

- 600 Research Design. 3 hrs.**
Philosophy of Science as applied to empirical political inquiry; elements of good research design, measurement theory, writing and critiquing research reports. (PR: PSC 211 or permission)
- 601 Readings in Political Science. 2-3 hrs.**
Readings to meet the needs and interests of individual students.
- 604 Data Analysis. 3 hrs.**
A study of quantitative methods used in empirical research with an emphasis upon applied statistical analysis; writing and critiquing research reports.
- 606 Seminar in Judicial Politics. 3 hrs.**
- 609 Seminar in International Relations Theory. 3 hrs.**
- 611 Seminar in the American Legislative Process. 3 hrs.**
- 612 Seminar in the American Executive Process.**
- 614 Seminar in Comparative Politics. 3 hrs.**
- 618 Seminar in Public Administration. 3 hrs.**
- 621 Urban Administration. 3 hrs.**
Principles and methods of urban administration in the U.S.
- 622 Constitutions. 3 hrs.**
A study of constitutions, their duration, distribution of power, contribution to a stable government and the rule of law. While the course is comparative, major emphasis is on the United States.
- 629 Seminar in Political Thought. 3 hrs.**
- 648 Seminar in State Government and Politics. 3 hrs.**
West Virginia government and political problems will receive special attention although other states may be considered.
- 650-651 Seminar. 3-6 hrs.**
- 652 Seminar in Political Behavior. 3 hrs.**
- 660 Seminar in Policy Analysis. 3 hrs.**
Development of theoretical and methodological skills in the analysis of public problems and the use of policy in problem solving.
- 675 Legislative Internship. 6 hrs.**
Intensive work experience in the West Virginia legislative processes coupled with a seminar involving directed reading Legislative Services with only selected students participating. (PR: One semester of graduate work and recommendation of department chairman.)
- 680 Master's Essay. 3 hrs.**
- 681 Thesis. 1-6 hrs.**

PSYCHOLOGY (PSY)

- 502 Advanced Social Psychology. 3 hrs.**
Advanced study of selected topics in social psychology.
- 503 Applied Social Psychology. 3 hrs.**
Examination of the applications of social psychological methods, theories, principles and research findings to the understanding of social problems.
- 506 Psychometrics. 3 hrs.**
Mental test theory and applications.
- 508 Abnormal Psychology. 3 hrs.**
Study of the nature, causes and treatment of maladaptive human behavior.
- 515 Child Psychology. 3 hrs.**
Introduction to child development with major emphasis on normal growth and development. Specific topics include theories of child development and the biological, mental, emotional, social and cognitive growth and development of children.
- 516 Psychology of Learning. 3 hrs.**
Critical study of the major theories of learning and related research.
- 517 Intermediate Behavioral Statistics. 3 hrs.**
An intermediate level presentation of descriptive and inferential statistics as applied in behavioral research.
- 518 Psychology of Personnel. 3 hrs.**
Psychological principles and methods applied to functions in personnel administration.
- 519 Theories of Personality. 3 hrs.**
Discussion of theories of personality with attention given to major philosophies of science research and methodological problems in personality theory and research.
- 520 Introduction to Industrial-Organizational Psychology. 3 hrs.**
A systematic study of the application of psychological methods and principles in business and industry. Emphasis is on research methods, motivation, training, leadership, personnel selection, employee safety, and job satisfaction.

- 526 Cross Cultural Psychology. 3 hrs.**
Emic and etic cultural concepts are considered from an American (subcultural) and international perspective. Cultural influences on healing, health and service are covered.
- 527 Computer Applications in Psychology. 3 hrs.**
An introduction to computer applications in psychology, emphasizing data collection, management, organization, analysis and reporting.
- 533 Current Models of Psychotherapy. 3 hrs.**
Introduction to theoretical models and related therapeutic strategies which influence the practice of modern psychotherapy.
- 540 Physiological Psychology. 3 hrs.**
The relationships between physiological functions and biochemical processes and behavior.
- 543 Health Psychology. 3 hrs.**
Introduction to the contribution of psychology to the promotion and maintenance of health and the prevention and treatment of illness. (PR: PSY 201 & 323)
- 560 History and Systems of Psychology. 3 hrs.**
Overview of Psychology from historical perspective. (REC: 12 hours of psychology or equivalent)
- 580-583 Special Topics. 1-4; 1-4; 1-4; 1-4 hours.**
- 600 Teaching of Psychology. 3 hrs.**
A course designed to train psychology graduate students to teach a course in introductory psychology. (PR: Graduate status in Psychology and a minimum of 9 hours Psychology Graduate credit)
- 605 Ethical, Legal, and Professional Issues in Psychology.**
Introduction to ethical standards and issues, laws which influence psychological practice, and current challenges facing psychology as a profession.
- 608 Differential Diagnosis and Treatment Planning. 3 hrs.**
A course using the instruments and techniques of psychological clinical assessment to explore psychopathology with an emphasis on differential diagnosis and treatment planning. Students will become competent in the use of the diagnostic and statistical manual for classification of mental disorders and will be able to translate linguistic data into the goals and objectives of a treatment plan.
- 610 Assessment of Adults. 3 hrs.**
Principles and methods of psychological assessment for adults. Key issues in test construction, and training in report writing. (PR: Admission to Clinical Psychology area of emphasis or to Psy.D. program; CR: PSY 620)
- 611 Assessment of Children. 3 hrs.**
Principles and methods of psychological assessment for children. Key issues in test construction, and training in report writing. (PR: PSY 610; CR: PSY 621)
- 615 Advanced Developmental Psychology. 3 hrs.**
Psychological development from conception with a focus on major developmental principles, issues, and concepts. An introduction to conducting research with developmental topics and experience in applying basic developmental principles to work situations will be provided. (PR: PSY 515 or equivalent with permission of instructor)
- 616 Human Memory and Information Processing. 3 hrs.**
Theory and research relating to human learning, memory and decision processes. (PR: PSY 323 or equivalent)
- 617 Applied Developmental Psychology. 3 hrs.**
Application of research in developmental psychology to issues of causes of clinical problems, issues of parenting, and factors to be taken into account in interventions. (PR: Graduate status)
- 619 Psychotherapy with Children. 3 hrs.**
Discussion and analysis of the major theories of psychotherapy with children including psychoanalytic, client-centered, existential, and behavioral theories. Students will be expected to participate in an experiential component. (PR: admission to Clinical Psychology area of Emphasis, School Psychology program, or Psy.D. program or permission)
- 620 Assessment of Adults Practicum. 1 hr.**
Students will be expected to administer, score, interpret and write reports for a battery of tests used with adults. Must be taken concurrently with PSY 610.
- 621 Assessment of Children Practicum. 1 hr.**
Students will be expected to administer, score, interpret and write reports for a battery of tests used with children. Must be taken concurrently with PSY 611.
- 623 Experimental Design. 3 hrs.**
An introduction to the design and interpretation of behavioral research. Emphasis is upon tests of significance and assumptions governing their application. (PR: PSY 517 or equivalent)

- 624 Multivariate Analysis. 3 hrs.**
Multivariate analysis in behavioral research including multiple regression, analysis of variance, canonical correlation, and principal components and factor analysis. (PR: either PSY 623 or PSY 652)
- 627 Social Psychological Bases of Groups. 3 hrs.**
Examination of the dynamics of groups such as size, cohesion, leadership, norms and communication channels and their effects on the individual members; consideration of the impact of groups on the larger social structure.
- 630 Adult Diagnosis and Therapy. 3 hrs.**
Current diagnostic criteria for adult psychopathology, including prevalence, epidemiology and socio-cultural milieu; in-depth presentation of psychotherapy with adults, including psychodynamic, gestalt, crisis and other modalities. (PR: PSY 533 or equivalent, or permission; admission to clinical psychology area of emphasis)
- 633 Individual Psychotherapy and Interviewing. 3 hrs.**
An introduction to the basic skills and techniques used in treating various forms of psychopathology. (PR: Admission to Clinical Psychology area of emphasis or Psy.D. program)
- 634 Group Therapy. 3 hrs.**
Different types of group psychotherapy as appropriate for various forms of psychopathology. (PR: Admission to Clinical Psychology area of emphasis or Psy.D. program)
- 635 Child and Family Diagnosis and Therapy. 3 hrs.**
This course covers psychopathology, diagnosis and treatment of the major child and family disorders including childhood anxiety, depression, delinquency, parent-adolescent conflict, eating disorders, and others. (PR: Admission to clinical psychology area of emphasis, Psy.D. program, or permission)
- 650 Seminar in Performance Appraisal. 3 hrs.**
The course will offer students a research-based investigation of the performance evaluation process within work organizations. Emphasis is given to human rater x ratee x appraisal system features interactions (PR: Graduate standing in Psychology; or permission of the instructor)
- 651 Advanced Nonparametric Statistics. 3 hrs.**
An advanced survey of distribution-free statistical methods; dichotomous observations, one-sample tests, two sample tests for both independent and dependent observations, k-sample tests for both independent and dependent observations, ordinal correlational techniques, and relational measures. This course emphasizes both the theoretical constructs of distribution-free statistics and their application. Computer application of these techniques is stressed. (PR: PSY 517)
- 652 Advanced Regression Techniques. 3 hrs.**
Survey course of the theoretical development and application of multiple regression, advanced univariate correlational techniques, covariant analysis, and an introductory factor analysis. The course emphasis is on the application of these techniques to research and data analysis within the student's professional setting. Students will be expected to design and solve problems using computer-based models. (PR: PSY 517)
- 654 Single Subject Analysis. 3 hrs.**
Statistical analysis of small group designs as might be found in clinical and field situations. Emphasis will be on time series analysis and computer simulation of single subject and small group behaviors. (PR: PSY 517)
- 656-657 Research in Psychology. 1-3; 1-3 hrs.**
A laboratory course designed to give advanced students experience in all aspects of conducting psychological research. (PR: Permission of instructor)
- 670-671 Clinical Practicum. 1-3; 1-3 hrs.**
Supervised application of principles of therapy and evaluation in a clinical setting. CR/NR grading. (PR: PSY 611, 633 and consent of instructor)
- 672 Cognitive Psychology. 3 hrs.**
Theory and research findings in the process of learning/memory, attention, problem solving, decision making, concept formation and perception. Emphasis will be on the perceptual aspects of cognitive processes as they apply to psychological practices.
- 674 Biological Bases of Behavior. 3 hrs.**
A course designed to provide an understanding of the psychophysiological functions of the human organism as an operating entity in the environment. The areas to be covered include the basic characteristics of the nervous system and the internal physiological and biochemical environment; various models of genetic aberrations, stress, drugs and other physiological anatomical factors and their observed effects on behavior. Data will be drawn from experimental work on both human and infrahuman organisms. Both theoretical and applied aspects will be considered. (PR: 6 credit hours in biology or psychology)
- 675-679 Practicum in Teaching of Psychology. 1-3 hrs. CR/NC.**
Supervised teaching experience in introductory psychology, including development of lectures, classroom demonstrations, quizzes, tests, extra-credit activities and syllabi.

- 679 Testing in Industrial/Organizational Psychology. 3 hrs.**
An in-depth study of psychological and educational test theory and application. Emphasis is on classical test theory, constructs, and validation, including sources of variance in test scores and prediction of individual performance. Students will be expected to design, construct, and establish reliability and validity on a test as a class project.
- 680 Clinical Internship. 1-6 hrs. CR/NC.**
Placement in an approved mental health setting for minimum of 400 hours. Supervised by on-site personnel in addition to psychology faculty. CR/NC grading. (PR: completion of required clinical practicum sequence)
- 681 Thesis. 1-6 hrs. CR/NC.**
- 683 Internship in Industrial-Organizational Psychology. 3 hrs. CR/NC.**
This course will offer students applied observational/research experience in Personnel/Human Resource Departments under the supervision of professionals within the fields of Industrial-Organizational Psychology and Human Resources. CR/NC grading. (PR: Advanced standing and admission into the I/O degree program)
- 685-686 Independent Study. 3 hrs.**
- 690-695 Seminar. 1-3; 1-3; 1-3; 1-3; 1-3; 1-3 hrs.**
Reports on current problems and literature in psychology and related fields; professional ethics. (PR: consent of instructor)
- 706 Integrated Assessment I. 3 hrs.**
Integrated, battery-based assessment of adults with emphases on test selection and construction, validity, reliability, special populations, cultural and individual differences, and preparation of professional reports. (PR: Admission to Psy.D. program; CR: PSY 707)
- 707 Integrated Assessment Practicum I . 1 hr.**
Instrument administration for the psychological assessment of adults; includes multiple diagnostic procedures. (PR: Admission to PsyD Program, CR: PSY 706)
- 708 Integrated Assessment II. 3 hrs.**
Integrated, battery-based assessment of children with emphases on test selection and construction, validity, reliability, special populations, cultural and individual differences, and preparation of professional reports.(PR: Admission to Psy.D. program, Psy 706 and Psy 707; CR: PSY 709)
- 709 Integrated Assessment Practicum II . 1 hr.**
Instrument administration for the psychological assessment of children; includes multiple diagnostic procedures.(PR: Admission to Psy.D. program, PSY 706 and PSY 707; CR: PSY 708)
- 710 Advanced Psychological Assessment. 3 hrs.**
This course will offer coverage in advanced topics in psychological assessment. This topics will include geriatric assessment, assessment of addictions, neuropsychological screening, forensic assessment, and cross-cultural assessment issues. (PR: Admission to Psy.D. program or permission of instructor)
- 712 Geropsychology. 3 hrs.**
An examination of normal and abnormal processes of aging, including common social, cognitive, health and psychopathological problems, will be studied. Issues of community resources, assessment, and therapy will be discussed. (PR: Admission to Psy.D. program or permission of instructor)
- 713-714 Advanced Assessment Practicum. 1-3 hrs.**
This experience is designed to increase proficiency in psychological assessment through client experience. Students are supervised by a licensed psychologist in the campus training clinic.
- 723 Clinical Research Methods in Psychology. 3 hrs.**
This course will provide an overview in basic research methods and ethical issues prevalent in the field of clinical psychology. Use of research to document clinical outcomes will also be addressed.
- 726 Advanced Studies in Cross Cultural Psychology. 3 hrs.**
Comprehensive, broad scope course covering research topics, definitions and methodology; behavioral health needs of minorities; cultural perspectives on health / healing / wellness; international applications of psychological theory / practice.
- 731 Psychodynamic Therapy. 3 hrs.**
This course presents an overview of the theory underlying psychodynamic and insight-oriented psychotherapies, with an emphasis on brief/short-term interventions. Current empirical evaluation of insight therapy is covered. (PR: Admission to Psy.D. program or permission of instructor)
- 732 Behavior Therapy. 3 hrs.**
The course covers the methods of behavior therapy, including its use in treatment of common disorders such as depression, anxiety disorders, child conduct problems, and chronic illnesses such as schizophrenia. (PR: Admission to Psy.D. program or permission of instructor)

- 733 Cognitive Psychotherapy. 3 hrs.**
Introduction to the literature on and profession applications of cognitive approaches to psychotherapy. Readings, case discussions, demonstrations, and seminar interactions will be used throughout. (PR: Admission to Psy.D. program or permission of instructor)
- 750 Behavioral Health. 3 hrs.**
This course will provide an overview of common medical problems, and their related psychological issues. Adjustment issues, health behavior, family impacts, and medical compliance will also be discussed. (PR: Admission to Psy.D. program or permission of instructor)
- 752 Rural Community Psychology I. 3 hrs.**
This course presents an overview of the philosophy, issues, methods, and interventions of community psychology practice. Students will complete field projects as part of the experience. (PR: Admission to Psy.D. program or permission of instructor)
- 753 Supervision in Clinical Psychology. 3 hrs.**
Review of current supervision research and theory combined with opportunities for doctoral students to gain supervised experience in clinical supervision. (PR: Admission to Psy.D. program or consent of instructor)
- 755 Rural Community Psychology II. 3 hrs.**
This course prepares students to undertake supervised practice in rural areas, including employment of appropriate research techniques and the design of culturally and economically effective interventions. (PR: Admission to Psy.D. program or permission of instructor)
- 756 Independent Study. 1-4 hrs.**
This is a doctorate level course that will permit students to explore topics in-depth that are not part of the regular curriculum. Faculty supervision is required. (PR: Admission to Psy.D. program and permission)
- 764 Advanced Studies in Human Sexuality. 3 hrs.**
An examination of the knowledge and theory which explain important areas of sexual behavior. Topics emphasize sexual orientation, sexual dysfunctions, gender identity, paraphilias, and compulsive and coercive behaviors. (PR: Admission to Psy.D. program or permission of instructor)
- 769 Practicum in Clinical Psychology. 3 hrs.**
Supervised application of principles of therapy and evaluation in a clinical setting. (PR: Admission to Psy.D. program)
- 770-71 Advanced Practicum in Clinical Psychology. 3 hrs.**
Students provide supervised clinical services at an approved field site. (PR: Admission to Psy.D. program)
- 772-773 Rural Practicum I & II. 3 hrs.**
Supervised two-semester sequence providing field experience in rural mental health settings. (PR: Admission to Psy.D. program)
- 780-783 Pre-Doctoral Internship. 1-9 hrs.**
This is the final, capstone clinical training experience completed by students in the doctoral program in clinical psychology (Psy.D.). Students must complete the equivalent of a full-time, full year clinical placement at a site that is APA/APPIC accredited or has been approved by the clinical faculty. (PR: Completion of all coursework in the PsyD program; successfully pass doctoral comprehensive; approval of faculty)
- 790-96 Seminar in Clinical Psychology. 1 hr.**
Seminars on current topics and issues of interest to clinical psychologists. Topics will change for each semester. Psy.D. program students are required to enroll for six semesters of seminars; check with advisor for details. (PR: Admission to Psy.D. program)
- 799 Doctoral Research. 3-9 hrs.**
Doctoral research project under the supervision of research committee and chair. (PR: Permission of program coordinator)

QUALITY ASSURANCE (QA)

- 635 Quality Control. 3 hrs.**
Application of statistical methods to quality control: process control charts and acceptance sampling plans by variables and by attributes. Process improvement techniques.
- 636 Reliability Estimation and Analysis. 3 hrs.**
Failure models and distributions, graphical methods of goodness-of-fit and parameter estimation, reliability measures for components and systems, fault trees, accelerated life testing, and censoring mechanisms.
- 650-653 Special Topics. 1-4 hrs.**
Special topics in quality assurance. (PR: Consent)

- 676 Quality Assurance. 3 hrs.**
Provides a technical overview of quality assurance and managerial implications. Management of total quality systems will be stressed. Concepts from statistical process control will be introduced. Quality costs and audits.

RELIGIOUS STUDIES (RST)

- 519 Religious Thought in the Western World. 3 hrs.**
An analysis of the major schools of religious thought as they have developed in the West.
- 550 Sociology of Religion. 3 hrs.**
An investigation into the nature of religion as a social phenomenon.
- 580-583 Special Topics. 1-4; 1-4 hrs.**
- 585-588 Independent Study. 1-4 hrs.**
- 599 Humanities Seminar. 3 hrs.**

SAFETY TECHNOLOGY (SFT)

- 500 Traffic Law Enforcement. 3 hrs.**
A course designed to study and evaluate the varied and complex system of laws governing the control of all forms of human traffic law and enforcement on present and future societies.
- 505 Introduction to Occupational Safety and Health. CR/NC. 1 hr.**
Introduces students to the basic principles and emerging trends in the safety and health discipline. (All students [except safety majors] will be required to enroll.)
- 510 Problems and Practices in Traffic Safety and Driver Education. 3 hrs.**
A survey course for supervisors of traffic accident prevention programs. Examines and evaluates problems, attitudes, activities, and administrative practices in school, city, and state traffic safety programs. Supplements basic teacher training courses in driver education. (PR: SFT 235 and 385)
- 536 Safety Education for Elementary Teachers. 1 hr.**
Survey of accident prevention methods in the elementary school environment, with emphasis on elementary school safety curriculum, laws, personal protection and resources for elementary school teachers.
- 540 Industrial Fire Protection. 3 hr.**
An introductory course that explores the relationship between engineering and fire prevention. Topics include: water supplies, sprinkler systems, behavior of fire and materials, fire protection, fire extinguishers, and other systems.
- 550 Traffic Engineering. 3 hrs.**
Concerned with traffic and pedestrian flow, channelization, light coordination, intersection control, and devices as related to safe, convenient, and economical transportation of persons and goods.
- 553 International Safety and Health. 3 hrs.**
The course covers the impact of globalization on worldwide safety and health programs, and a wide variety of safety and health programs for various countries and multi-national organizations.
- 554 Industrial Hygiene I. 3 hrs.**
Environmental protection as related to industrial settings. Air/water quality, noise and chemical pollution and hazardous material control.
- 554L Industrial Environmental Auditing/Programming. 2 hrs.**
Concerns development of an industrial environmental protection program for a small plant, including workplace experience in sampling/measurement of contaminants. (PR: SFT 454, or 554 or 647)
- 558 Hospital Safety. 3 hrs.**
The course covers the various aspects of safety and health in professional health care services.
- 560 Fundamentals of Ergonomics. 3 hrs.**
Introduction to ergonomics with discussion of ergonomic issues in relevant office, industrial, and service work. Emphasis on anticipation, recognition, evaluation, and control of ergonomic stressors.
- 565 Incident Investigation Techniques. 3 hrs.**
An introductory course in accident investigation designed to give insight into the recognition and collection of evidence, collection and recording data and reconstructing the accident based on the facts.
- 580-583 Special Topics. 1-4 hrs.**
Occasional offerings of current topics in safety, providing important supplementary material for participating students.
- 585-588 Independent Study. 1-4 hrs.**
An approved study of special interest that is appropriate for the student's program of study concerning safety. Carried out under the supervision of a faculty member. (PR: Permission)
- 589 Process Safety Management. 3 hrs.**
A study of the latest industrial safety information which will assist the student in designing a program to reduce or eliminate all incidents which downgrade the system. (PR: SFT 565)

- 591-594 Workshop. 1-4 hrs.**
- 597 Occupational Safety and Health Program Development. 3 hrs.**
Safety functions in industry. Principles of organization and application of safety programs. Prevention, correction, and control methods are outlined and evaluated.
- 599 Occupational Safety Program Management. 3 hrs.**
A study of safety programs at the state and local levels including the administrative, instructional, and protective aspects of a comprehensive safety program in schools, occupations, home and public.
- 601 Safety in Transportation. 3 hrs.**
Concerned with safe, efficient movement of people and goods. Involves highway, air, water, pipeline, and rails.
- 606 Field Experience for the Safety Specialist. 3 hrs.**
Concerned with the visitation and evaluation of the safety program of various agencies in the region.
- 610 Philosophical and Psychological Concepts of Occupational Safety and Health. 3 hrs.** An analysis of the educational philosophies and the application of these philosophies to occupational safety. A study of the effect of occupational safety on modern living.
- 630 Current Literature and Research in Occupational Safety and Health. 3 hrs.** An analysis and study of selected works of national and international authors concerning significant works in Occupational Safety.
- 645 Safety Engineering and Equipment Design. 3 hrs.**
The design and engineering of facilities and equipment to meet the physical needs of the human as well as enhancing production.
- 647 Industrial Hygiene II. 3 hrs.**
Concerned with environmental health and safety hazards that arise out of or occur during work of employees.
- 647L Quantitative Industrial Hygiene Lab. 3 hrs.**
A laboratory course designed to complement Industrial Hygiene. (CR: SFT 647)
- 648 Industrial Ventilation. 3 hrs.**
The course will cover the techniques of development, design, maintenance, and trouble shooting of industrial ventilation systems. Also the types of ventilation systems used for different types of toxic materials. (PR: SFT 647 or SFT 554 or permission)
- 649 Biophysical Hazards and Monitoring. 3 hrs.**
The course will cover sources of biological and physical hazards for various industries and occupations. Hazard controls and preventive techniques will also be covered.
- 650 Internship for the Safety Specialist. 3-12 hrs. CR/NC.**
Supervised experience on the job site. Involves the student working under safety personnel and analyzing and writing of experiences. (Permission)
- 651 Toxicology and Epidemiology. 3 hrs.**
The course will emphasize the principles of toxicology, dose-response relationships, xenotoxins, the distribution of toxins, and the storage of toxins. (PR: SFT 554 or SFT 647)
- 652 Industrial Noise and Vibration. 3 hrs.**
A study of the physical characteristics of noise and vibration, and its effects on the human body. (PR: SFT 554 or SFT 647)
- 660 Human Factors in Accident Prevention. 3 hrs.**
A study of the psychological principles and their applications to accident causation and prevention.
- 661 Advanced Occupational Ergonomics. 3 hrs.**
The study and application of occupational ergonomics to the design and evaluation of various work environments. (PR: SFT 660)
- 662 Methods in Work Analysis. 3 hrs.**
To study, utilize, and critique several existing ergonomic analysis methods for specific intended purpose, and provide directions for new methodologies. (PR: SFT 660)
- 663 Work Environment Issues. 3 hrs.**
An examination of the aspects of the work environment that can affect health: time pressure, machine pacing, control, etc. The recognition, measurement, and control of these factors will be discussed.
- 669 Traffic Safety Management. 3 hrs.**
Concerned with the total Traffic Safety Management Program, including vehicle registration, driver licensing, motorcycle driver education, and motor vehicle registration.
- 679 Problem Report. 1-3 hrs. (Permission)**
- 681 Thesis. 1-6 hrs.**
- 690-692 Seminar. 1-4 hrs.**

SCHOOL PSYCHOLOGY (SPSY)

- 523 Independent Research. 1-3 hrs.**
Coursework designed to provide the student with the opportunity to work with a School Psychology program professor on a research on a research problem mutually agreed upon in terms of a specific plan of study.
- 601 Professional Competence I: Schools. 3 hrs.**
Introduction to the roles and functions of school pupil personnel professionals, models of operation, problems, issues, and techniques. The organization and administration of school systems and philosophy of education are considered. Students may be expected to spend a minimum of one-half day a week observing in a local school.
- 603 Professional Competence II: Professional School Psychology. 3 hrs.**
Examination of current professional issues, theoretical model and research related to delivery of school-based psychological services. Examination of the variety of methodologies and strategies for children of diverse backgrounds and exceptionalities. (PR: SPSY 601 or concurrently with 601).
- 606 Adolescent Substance Abuse. 3 hrs.**
Substance abuse is a pervasive problem within our society. Mental health professionals and educators require knowledge and skills in adolescent substance abuse prevention, intervention, and treatment to address this problem.
- 616 Typical and Atypical Child Development. 3 hrs.**
Psychological development from conception with a focus on major developmental principles, issues, and concepts. An introduction to conducting research with developmental topics and experience in applying basic developmental principles to work situations will be provided.
- 617 Indirect Service Delivery I: School Consultation. 3 hrs.**
This course is an introduction to the theory and practice of consultation and will prepare students to serve as consultants within public schools.
- 618 Direct Service Delivery I: Instruction Methods and Behavior Modification. 3 hrs.**
This course teaches the application of behavior modification principles to the classroom setting as well as the modification of instruction to meet the needs of atypical learners.
- 619 Direct Service Delivery I: Individual and Group Counseling. 3 hrs.**
This course is a direct interventions course focusing on individual and group therapy for children. (PR: SPSY 616 or PSY 615)
- 620 Indirect Service Delivery II: Primary Prevention. 3 hrs.**
This course is an introduction to the science and practice of primary prevention.
- 621 Data-Based Decision Making I. 3 hrs.**
This course is a beginning problem-solving course designed to provide students with a variety of assessment methods they can use to start constructing their professional "tool kits."
- 622 Data-Based Decision Making II. 3 hrs.**
This course is an intermediate problem-solving course designed to provide students with a variety of assessment measures to add to their professional "tool kits."
- 624 Data-Based Decision Making III. 3 hrs.**
This course is an advanced problem-solving course designed to provide students with a variety of assessment methods to add to their professional "tool kits."
- 674 Biological Bases of School Psychology. 3 hrs.**
SPSY 674 is a 3-credit interactive and reading intensive course that uses both live class meetings and the WebCT format to present information on the biological foundations of school psychology.
- 675 Survey of Psychological Foundations of School Psychology. 3 hrs.**
PSY 675 is a reading and writing-intensive course that presents information on the psychological foundations of school psychology.
- 700 Special Topics. 1-6 hrs.**
Courses in specialized areas of school psychology on issues in the practice of school psychology.
- 738 School Psychology Practicum I. 3 hrs. CR/NC.**
The initial practicum in school psychology is designed to provide a structured, experiential link between early coursework and practical experience.
- 739 School Psychology Practicum II. 3 hrs. CR/NC.**
The second practicum in school psychology is designed to provide a structured, experiential link between intermediate coursework and practical experience.
- 740 School Psychology Practicum III. 3 hrs. CR/NC.**
Assessment behavior management and consultation experiences in a school setting, supervised by a certified school psychologist for 2 days per week. (PR: SPSY 624 and SPSY 739)

- 745 Internship in School Psychology. 1-12 hrs. CR/NC.**
Students may apply for permission to enroll for this course with the Coordinator of Field-Based Experiences. Students must request internship from the program faculty at least one semester in advance of their starting dates. The internship requires full-time experience for one school year or one half-time experience for two consecutive school years (minimum of 1200 clock hours). Each 1 hour credit requires 100 clock hours. The internship in School Psychology requires a contractual agreement between the school system, the university, and the student that outlines the responsibilities of each party. Students will be expected to assume the roles and responsibilities of functioning school psychologists in a school. (PR: SPSY 740)
- 750 Ed.S. Thesis Research. 3 hrs.**
Development and defense of a research proposal examining a specific hypothesis in School Psychology. Analysis of data, written presentation in thesis form, and public defense are required. (PR: 3 credit hours of 600-level statistics and approved prospectus)
- 751 Program Evaluation. 3 hrs.**
The course is designed to provide students with the fundamental skills to develop and implement evaluations of educational programs in the classroom, school, county or state. (PR: PSY 517 and SPSY 623)

SOCIOLOGY (SOC)

- 501 Population and Human Ecology. 3 hrs.**
The course focuses on population and its relation to characteristics of environment. Specifically, it is designed to discuss the interaction of population processes and resources.
- 503 Social Research II. 3 hrs.**
Intermediate social research methodology with emphasis on research design. 2 lec-2 lab. (Required of all M.A. candidates). (PR: SOC 344, 345 or equivalent)
- 508 The Family. 3 hrs.**
Theoretical analysis of the family as a primary social institution. (PR: SOC 200 or permission)
- 513 Social Movements and Social Change. 3 hrs.**
Analysis of large-scale social change, including intentional social movements and revolutions. (PR: SOC 200)
- 520 Criminology. 3 hrs.**
An overview of sociological criminology, including an examination of explanations of criminal behavior, types of criminal activity, and an analysis of the criminal justice system. (PR: SOC 200 and SOC 311 or permission)
- 521 Sociological Theory. 3 hrs.**
Examination of the emergence and development of theoretical orientations in Sociology. (PR: SOC 200)
- 523 Social Class, Power and Conflict. 3 hrs.**
Theoretical analysis of economic and political inequality and the role of social conflict in the process of large-scale social organization. (PR: SOC 200)
- 525 Race and Ethnicity. 3 hrs.**
Diverse theoretical approaches to the meaning of race and ethnicity and the character of racial/ethnic relations, with substantive focus primarily on the U.S. (PR: SOC 200)
- 528 Medical Sociology. 3 hrs.**
Social organization of modern medicine and allied health delivery systems. (PR: SOC 200 or departmental permission)
- 532 Sociology of Appalachia. 3 hrs.**
Study of the economics, politics, and social relations of Appalachia, including contemporary debates. (PR: SOC 200)
- 533 Industrial Sociology. 3 hrs.**
Study of the organization and structure of the workplant as a social system; the meaning and organization of work; managerial functions; management-labor relations; and human relations in industry. (PR: SOC 200 or permission)
- 535 Juvenile Delinquency. 3 hrs.**
A sociological analysis of juvenile crime, including a review of the origins of juvenile delinquency, an evaluation of causal theories, and an overview of the juvenile justice system. (PR: SOC 200 and SOC 311 or permission)
- 540 Introduction to the Sociology of Aging. 3 hrs.**
An introduction to the social processes and consequences of growing older for both the individual and society. (PR: SOC 200)
- 542 Urban Sociology. 3 hrs.**
The sociology of urban and metropolitan communities. (PR: SOC 200 or permission)

- 543 Evaluation Research. 3 hrs.**
Analysis and application of theories and methods for assessing the outcomes of applied organizational services and programs to affect change in people and for social conditions. (PR: SOC 200)
- 545 Social Statistics II. 3 hrs.**
Intermediate level statistical analysis, including analysis of variance and covariance. 2 lec-2 lab. (Required of all M.A. candidates). (PR: SOC 345 or equivalent)
- 550 Sociology of Religion. 3 hrs.**
An investigation into the nature of religion as a social phenomenon. (PR: SOC 200 or permission)
- 552 Sociology of Death & Dying. 3 hrs.**
The study of death and dying as a societal and cultural phenomenon. Explores how institutions within our society deal with death. (PR: SOC 200 or permission)
- 555 Sociology of Sex and Gender. 3 hrs.**
Analysis of social differentiation and inequality by gender, with a focus on the contemporary U.S. (PR: SOC 200)
- 564 Complex Organizations. 3 hrs.**
Analysis of complex organizations with special attention given to bureaucratic organization. (PR: SOC 200)
- 570-571 Sociological Field Experience. 3; 3 hrs.**
Supervised field work in a social organization or community working on practical problems. (PR: SOC 406 or 506 or permission)
- 580-583 Special Topics. 1-4; 1-4; 1-4; 1-4 hrs.**
Study of topics not covered in regularly scheduled courses. (PR: Graduate majors, SOC 200 or permission)
- 585-588 Independent Study. 1-4; 1-4; 1-4; 1-4 hrs.**
Individual study of topics not offered in regularly scheduled courses. (PR: For majors only; advance departmental permission is required)
- 597-598 Instructional Television Course. 1-4 hrs.**
A course based upon Instructional Television Series broadcast by public television. The student is responsible for viewing the series on the air and satisfying all course requirements announced by the department.
- 601 Advanced Sociological Theory. 3 hrs.**
Examination of current issues and controversies in Sociological theory. (PR: SOC 421 or SOC 521)
- 602 Contemporary Social Change. 3 hrs.**
Theories of social change and their uses in analyzing social change of today. (PR: SOC 200 or permission)
- 603-604 Behavioral Science I and II. 3; 3 hrs.**
Seminar in behavioral science theory. (PR: SOC 200 or permission)
- 615 Applied Demography. 3 hrs.**
The focus of this course is to study the application of the principles and methods of demography to decision making and planning problems in both public and private setting. (PR: SOC 200 or permission)
- 620 Criminology. 3 hrs.**
Seminar in crime and delinquency. (PR: SOC 200 or permission)
- 640 Problems and Prospects for an Aging Society. 3 hrs.**
Seminar in current and anticipated social consequences of aging for individuals and society and societal responses to this process. (PR: SOC 200 or permission)
- 655 Feminist Social Theory. 3 hrs.**
Diverse theoretical perspectives on the origins and nature of gender, inequality. Emphasis on contemporary debates and their political implications. (PR: SOC 200 or permission)
- 668 Seminar. 1-3 hrs.**
Topics vary from semester to semester. (PR: SOC 200 or permission)
- 679 Problem Report. 1-3 hrs.**
The preparation of a written report on a research problem or field study in sociology under direction of member of graduate faculty. (PR: Departmental permission)
- 681 Thesis. 1-6 hrs. I, II, S.**
Individual research in a selected field of sociology under the direction of a graduate faculty member of the department. (PR: Admission to candidacy and staff approval of thesis proposal.)

SPANISH (SPN)

- 505 Pedagogy and Instructional Experience in the Middle School. 3 hrs.**
Students plan and deliver beginning Spanish instruction to middle school students.

- 506 Composition, Conversation, and Introduction to Hispanic Literature. 3 hrs.**
Continuing supervision of students' teaching experiences. Continued attention to advanced grammar concepts, composition and conversation, and reading proficiency with an emphasis on the introduction of Hispanic literature.
- 510 Spanish Literature from the Cid Through the 17th Century. 3 hrs.**
On demand. Readings, lectures, reports and discussions of significant literary works from the Cid through the 17th century. (PR: 6 hours of literature numbered 318 or above or equivalent)
- 560 The Modernist Movement. 3 hrs. S.**
The precursors of the Modernist Movement, its chief exponents, and its influence on the literature of Spanish America and Spain. Readings, lectures, discussions, and reports in Spanish. (PR: 6 hours of literature numbered 318 or above or equivalent)
- 561 Advanced Syntax and Stylistics. 3 hrs. S.**
A detailed analysis of Spanish syntax and shades of meaning with the writing of original compositions in Spanish to perfect the student's own style. (PR: SPN 204 or equivalent)
- 580-583 Special Topics. 1-4; 1-4; 1-4; 1-4 hrs.**
- 585-588 Independent Study. 1-4; 1-4; 1-4; 1-4 hrs.**
Independent research in selected areas of Spanish and Spanish American literature that are not available in other courses in the catalog. The student has the opportunity to become familiar with leading authorities and bibliographies. Conferences and reports in Spanish. (PR: 6 hours of literature numbered 318 or above or equivalent and permission of instructor)
- 507 Foreign Language Teaching Methodology. 3 hrs.**
Introduction to the communicative approach to language teaching. Presentations and practice in the creation of lesson plans using in-class technologies and computer assisted language learning materials. Course taught in English. Required for teaching assistants. Does not count toward degree.
- 511 Literature I: Pre Modern Latin American Literatures. 3 hrs.**
A study of representative Latin American literary works from the Pre-Colonial and Colonial periods and the 19th Century. Course taught in Spanish.
- 512 Literature II: Contemporary Latin American Literatures. 3 hrs.**
A study of a selection of Latin American authors and works representative of the major literary movements in Latin America, from Modernism to present. Course taught in Spanish
- 513 Literature III: Literary Genres and Non Can. Issues in Latin America 3 hrs.**
Study of poetry, fiction, drama, essays, etc. in Latin America. At the discretion of the instructor literary genres will be crossed with approaches such as gender, race, religion, ethnicity, etc. Course taught in Spanish.
- 514 Literature I: Medvl., Rnsscn., Golden Cent. Literature. 3 hrs.**
Study of the representative Spanish authors and literary works and the major intellectual movements in peninsular literature from Medieval times to Spain's Golden century. Course taught in Spanish
- 515 Literature II: 18th and 19th Centuries. 3 hrs.**
Study of the representative Spanish authors and literary works and the major intellectual movements in peninsular literature during the 18th and 19th Centuries. Course taught in Spanish.
- 516 Literature III: Contemporary Spanish Literature. 3 hrs.**
Study of the representative authors and literary works and the major intellectual movements in peninsular literature from the Generation of 1898 to the present. Course taught in Spanish.
- 533 Intensive Grammar Review. 3 hrs.**
This course will review and expand specific, advanced Spanish language structural points. It will include daily intensive practice in the four linguistic skills. Course taught in Spanish. (PR: SPN 315/316 or SPN 323/324 or permission)
- 535 Contemporary Latin American Culture. 3 hrs.**
The course provides an overview of contemporary Latin American cultures. It deals with political changes, artistic movements and issues of public interest during the 20th Century. Course taught in Spanish.
- 536 Culture and Society in Contemporary Spain. 3 hrs.**
Course based on origins of issues confronting contemporary Spain: the war's aftermath, transition to democracy and modernization, the European Union, terrorism, regional autonomy, feminism, sexual identity. Course taught in Spanish.
- 544 Bilingual Contrastive Grammar. 3 hrs.**
This course will compare Spanish and English grammatical structures. It will be taught in both languages to demonstrate the similarities, the differences, and intertwining relationship between them. (PR: SPN 315/316 or SPN 323/324 or permission)

- 610 Readings in Spanish or Spanish American Literature. 1-3 hrs.**
Readings designed for the graduate student who has the interest and the ability to study in depth a certain author, genre, or literary movement. (PR: 6 hours of literature numbered 318 or above or equivalent and permission of instructor)
- 611 Latin American Poetry: Resistance through Verse. 3 hrs.**
Course introduces students to Latin American poetry within framework of gender/genre and linguistic subversions of canonical and linguistic codes in traditionalist Western aesthetics of poetry. Course taught in Spanish. (PR: SPN 656 and graduate status).
- 612 Spanish-American Romanticism. 3 hrs.**
Leading writers and trends in thought and versification of the romantic period. (PR: 6 hours of literature numbered 318 or above or equivalent)
- 613 Texts and Intertextualities in 20th Century Latin America. 3 hrs.**
Overview of the various ways in which literary and non-literary Latin American texts have interacted during the 20th century. Course taught in Spanish. (PR: SPN 656 and graduate status).
- 614 Themes and Styles in Spanish Poetry. 3 hrs.**
Survey of Spanish poetry with emphasis on the cultural and intellectual contexts in which it is produced. Poetics. Course taught in Spanish. (PR: SPN 656 and graduate status).
- 615 Latin American Theater: Plays, Performance and Politics. 3 hrs.**
Course introduces students to Latin American theater within framework of literary and discursive subversion theater and realism. Course taught in Spanish. (PR: SPN 656 and graduate status).
- 616 Traditional and Innovative Forms in Spanish Prose. 3 hrs.**
Development of Spanish prose. Reading of selected works by important authors. Comparison and contrast of different types of discourses. Discourse analysis and interpretation. Course taught in Spanish. (PR: SPN 656 and graduate status).
- 618 Society and Literature: Spanish Theater. 3 hrs.**
Application of dramatic theories to samples of Spanish theater. Emphasis will be placed on the cultural contexts of the plays read. Course taught in Spanish. (PR: SPN 656 and graduate status).
- 620 Spanish Romanticism. 3 hrs.**
The trends and characteristics of the romantic period in the writings of its leading exponents in lyric poetry, non-dramatic prose, and the theatre. (PR: 6 hours of literature numbered 318 or above or equivalent)
- 625 Spanish Literature of the Twentieth Century. 3 hrs.**
Emphasis on prose, poetry and the theatre since 1936, including writers in exile. (PR: 6 hours of literature numbered 318 or above or equivalent)
- 655 Introduction to Spanish Linguistics. 3 hrs.**
General Survey of Spanish linguistics, both theoretical (phonetics, phonology, syntax, and semantics) and applied (pragmatics, discourse analysis, sociolinguistics and bilingualism). Course taught in Spanish. (PR: SPN 533 or SPN 544 and graduate status)
- 656 Critical Theory for Spanish/Latin American Literature. 3 hrs.**
Study of the major trends in literary theory and criticism in the 20th century. Practical application of the theories to various kinds of texts written in Spanish. Course taught in Spanish. (PR: graduate status)
- 679 Problem Report. 1-3 hrs. (PR: Permission)**
- 681 Thesis. 1-6 hrs. (PR: Permission)**

SPECIAL EDUCATION
(See Curriculum and Instruction)

SPEECH
(See Communication Studies)

SPEECH PATHOLOGY
(See Communication Disorders)

SPORT ADMINISTRATION
(See Exercise Science and Sport)

TECHNOLOGY AND ENGINEERING (TE)

- 580-83 Special Topics. 1-4 hrs.**
Occasional offerings of current topics in technology and engineering, providing important supplementary material for participating students.
- 585-88 Independent Study. 1-4 hrs.**
An approved study of special interest concerning technology and engineering that is appropriate for the student's program of study. Carried out under the supervision of a faculty member.
- 650-53 Special Topics. 1-4 hrs.**
Occasional offerings of current topics in technology and engineering, providing important supplementary material for participating students.
- 685-88 Independent Study. 1-4 hrs.**
An approved study of special interest concerning technology and engineering that is appropriate for the student's program of study. Carried out under the supervision of a faculty member.
- 698 Comprehensive Project Formulation. 3 hrs. S/U.**
Comprehensive project proposal is developed and approved, and work begun under supervision. Technical report writing, oral presentations, and communication skills. (PR: EM 660 and have completed min. 18 hours toward degree)
- 699 Comprehensive Project. 3 hrs. S/U.**
Completion of comprehensive project under the supervision of a faculty member. Includes final written submittal and public oral presentation. (PR: TE 698 and have completed minimum 27 hours toward degree)

TECHNOLOGY MANAGEMENT (TM)

- 600 Program Introduction Seminar. 1 hr.**
This course reviews fundamental mathematical and statistical methods, presentations, report writing, group project skills, and use of case studies. An orientation and overview to the degree program are also provided. (PR: Full Admission to TM program, or permission of TM Program Director)
- 610 Technology and Innovation Management. 3 hrs.**
Provides a comprehensive introduction to technology and innovation management. Considers issues relating to international markets, innovation, and rapidly changing technology. Also covers effective organizational and managerial approach to technology. (PR: Full Admission to TM program, or permission of TM Program Director)
- 612 Economic and Financial Analysis for Technology Management. 3 hrs.**
Tools and techniques for financial analysis, cost estimation, budgeting, and control, for technology-oriented projects and organizations. Includes financial statements, economic analysis, reporting, and life-cycle costing and control principles. (PR: CITE majors only or permission)
- 615 Information Technology Strategies. 3 hrs.**
This course provides sound principles for managing information technology-computers and telecommunication systems - as well as the processes and procedures for applying the principles. (PR: CITE majors only or permission)
- 620 Technology Planning. 3 hrs.**
Methods of technology planning, strategic management, and forecasting for use in technology intensive organizations are discussed, including technology life cycles and strategies for commercializing products. (PR: TM 610 or permission of Program Director)
- 630 Quality and Productivity Methods. 3 hrs.**
Study of quality and productivity improvement methods with emphasis on applications to knowledge worker organizations. Examines total quality management, and personal and organizational productivity improvement processes. (PR: CITE majors only or permission)
- 640 Intelligent Transportation Systems. 3 hrs.**
Overview of transportation telemetrics and introduction to intelligent transportation systems. Communications and computing technologies in transportation. Overview of issues: traffic safety, public transportation.
- 650-653 Special Topics. 1-4 hrs.**
Occasional offerings of current topics in technology management, providing important supplementary material for participating students. (PR: Full Admission to TM program or permission of TM Program Director)
- 660 Computing and Information Systems Technologies. 3 hrs.**
Provides a broad understanding of computing and information systems technologies with emphasis on development, current trends, strategic and tactical management, and legal and regulatory issues. (PR: TM 615 or permission of Program Director)

- 664 Health Informatics. 3 hrs.**
Introduction of various aspects of medical informatics, including medical literature search and retrieval, management and analysis of data, modeling and simulation, data communications, on-line databases, and clinical decision analysis. (PR: TM 615)
- 667 Modern Manufacturing Concepts. 3 hrs.**
The course covers modern manufacturing concepts, analysis, and tools such as Just-In-Time, MRP systems, Lean Manufacturing, inventory management, total quality manufacturing, factory physics, and operating and control philosophies. (PR: TM 600 concurrent and TM 610 concurrent)
- 668 Computer Integrated Manufacturing. 3 hrs.**
The course covers computer-aided design, computer-aided manufacturing, and computerized process support tools for increasing productivity in manufacturing.
- 685-688 Independent Study. 1-4 hrs.**
An approved study of special interest concerning technology management, under the supervision of a faculty member. (PR: Full Admission to TM program, or permission of TM Program Director)
- 699 Capstone Project. 3 hrs. S/U.**
An individualized technology management capstone project, which will be planned and carried under the supervision of a faculty member and a work-site supervisor.

THEATRE (THE)

- 510 Playwriting. 3 hrs.**
Study of dramatic structure, characterization, dialogue, themes, sounds, and spectacle, including the writing of one-act plays. (PR: THE 101 or permission of instructor.)
- 520 Acting for the Musical Theatre. 3 hrs.**
Analysis of musical scripts; study of spoken and musical scenes; staging musical numbers; and preparation of audition material. (PR: THE 222)
- 521 Acting for the Camera. 3 hrs.**
Projects in acting for the camera. Video taping of selected acting exercises. (PR: THE 222)
- 523 Stanislavsky System of Acting. 3 hrs.**
Study of the Stanislavsky System of Acting and using it in preparing and performing excerpts from plays.
- 536 Children's Theatre. 3 hrs.**
Theory, direction, and staging of plays for children.
- 537 Directing I. 3 hrs.**
Introduction to theories, principles, techniques, and history of directing. (PR: THE 150, 151, 152, and 222)
- 538 Directing II. 3 hrs.**
In-depth study of directorial approaches. Analysis of contemporary movements and leaders in the field. Students must stage productions as part of class requirement. (PR: THE 537 or permission of instructor)
- 539 Directing for the Camera. 3 hrs.**
Projects in directing for the camera. Video taping of selected directing exercises. (PR: THE 437/537 or permission of instructor)
- 540 Theatre History to 1660. 3 hrs.**
Survey of man's activities in the theatre from primitive times to 1660. (PR: THE 101 or permission of instructor)
- 541 Theatre History since 1660. 3 hrs.**
Survey of man's activities in the theatre from 1660 to the present. (PR: THE 101 or permission of instructor)
- 550 Stage Lighting III. 3 hrs.**
Advanced study in the aesthetic principles of lighting design. Emphasis on design principles in non-proscenium theatres. (PR: THE 350)
- 560 Scene Design II. 3 hrs.**
Advanced work in the process and styles of design for the stage. Emphasis on abstraction, different materials, and designing for various theatre forms. (PR: THE 261, 360)
- 580-583 Special Topics in Theatre. 1-4; 1-4; 1-4; 1-4 hrs.**
Program of study not normally covered in other courses. Topics vary from semester to semester. (PR: Permission of chairman)
- 585-588 Independent Study. 1-4; 1-4; 1-4; 1-4 hrs.**
Courses taught by tutorials; directed independent readings or research; problem reports, and other activities designed to fill the needs of individual students. (PR: Permission of chair)