

- 643 Teaching Struggling Readers: A Practicum. 3 hrs.**
Clinical experiences in the diagnosis and corrective treatment of reading disabilities. (PR: CIRG 654)
- 644 Literacy in the Content Area. 3 hrs.**
Principles underlying the teaching of reading in the content fields.
- 653 Literacy Acquisition. 3 hrs.**
Literacy acquisition is a foundation course open to professionals whose interests require understanding of the process involved in becoming literate.
- 654 Aligning Assessment with Instruction. 3 hrs.**
Experiences in analyzing diagnostic test results, preparing diagnostic reports, and selecting appropriate materials and procedures to meet specific reading needs. (PR: CIRG 637)
- 701 Reading Education Seminar I. 3 hrs.**
An investigation of research in reading that has made a difference in education, pupil achievement in reading, the role of reading, and the role of the reading specialist. (PR: Master's degree, consent of instructor)
- 702 Reading Education Seminar II. 3 hrs.**
An examination of research that has the potential to bring about changes in reading education and school curriculum.
- 703 Reading and Reading-Related Tests and Techniques. 3 hrs.**
An examination of research related to the development of reading and reading-related diagnostic procedures. Detailed study will be made of standardized tests, the Informal Reading Inventory (IRI) and other similar diagnostic measures and competency-based instruments.
- 704 Advanced Instructional Reading Processes. 3 hrs.**
A study of advanced instructional techniques in reading. Attention will be given to such concepts as self-concept, intelligence, nature/nurture, interaction, perception, physiological differences, and exceptionalities.
- 705-706 Applied Research in Reading Education I and II. 3-6 hrs.**
Planning and implementing a study investigating aspects of reading theory. The study will necessitate deriving empirical data under field conditions.
- 707 Issues in Reading. 3 hrs.**
A review of trends and issues in reading education focusing on the complexity of the reading process.
- 708 Philosophy and History of Reading Education. 3 hrs.**
A study of the philosophical foundation of current reading programs. This course will review the historical background and progress in reading education.
- 709 Field Experience: An Aspect of Reading Education. 3 hrs.**
A field-based course designed to study the theory, preparation, presentation, and evaluation of inservice education. Emphasis will be placed on the refinement of teacher education in specialized areas of the curriculum.
- 710 Independent Study. 3 hrs.**
Individualized study of advanced topics in reading.

CURRICULUM AND INSTRUCTION: SCIENCE EDUCATION (CISE)

- 560-564 Professional Development. 1-4 hrs.**
Courses and activities designed to meet the inservice needs of public school personnel. Credit in these courses may be used for certificate renewal and salary upgrades if approved, but may not be used a degree programs. CR\NC grading.
- 570 Flora and Fauna for the Elementary/Middle School. 3 hrs.**
A study of the flora, fauna, and physical geography of West Virginia. Field-based experiences will lead to a greater understanding of the forces that shaped Appalachia and the flora and fauna that live here.
- 571 Developing Thematic Science in the Elementary/Middle School. 3 hrs.**
A study of the strategies and techniques needed to plan, implement and evaluate a thematic, coordinated, and integrated science program in the schools.
- 572 Environmental Education for the Elementary/Middle School Teacher. 3 hrs.**
A study of man's interactions with the environment. Awareness, conservation, problem-solving and stressed using strategies and techniques appropriate for the elementary/middle school student.
- 573 Chemistry for the Elementary/Middle School. 3 hrs.**
A study of the fundamental principles of chemistry focusing on developmentally appropriate methods, strategies and techniques to assist with concept development and attainment.
- 574 Integrated Science for the Elementary School. 3 hrs.**
Study and application of the concepts and activities included in an integrated science program for the elementary school.

- 575 **Integrated Science for the Middle School. 3 hrs.**
Study and applications of the concepts and activities included in an integrated science program for the middle school.
- 576 **Wave Phenomena and Electricity for the Elementary/Middle School. 3 hrs.**
A study of the fundamental principals of physics focusing on wave phenomena and electricity for the elementary/middle school teacher.
- 577 **Energy and Matter for the Elementary/Middle School. 3 hrs.**
A study of the fundamental principles of physics focusing on energy and matter for elementary and middle school teachers.
- 580-582 **Special Topics. 1-4 hrs.**
- 585-588 **Independent Study. 1-4 hrs.**
- 591-594 **Workshop. 1-4 hrs.**

CURRICULUM AND INSTRUCTION: SPECIAL EDUCATION (CISP)

- 510 **Introduction to Instruction Practices/Exceptional Children. 3 hrs.**
An introductory course on applied planning and instructional approaches for the exceptional child. The course will introduce students to validated instructional practices for the beginning classroom teacher.
- 520 **Introduction to Exceptional Children. 3 hrs.**
An introduction to the study of children who deviate from the average in mental, physical, and social characteristics, including a study of the characteristics of such children and the adaptation of educational procedures to their abilities and disabilities.
- 521 **Children with Exceptionalities. 3 hrs.**
Behavioral characteristics of children with exceptional development, dynamics of family- community interaction, and attitudes toward exceptional conditions. Implications for amelioration and educational planning. (Not for Special Education majors)
- 523 **Introduction to Learning Disabilities. 3 hrs.**
An integrated, concise overview of specific learning disabilities; definitions, etiology; observable and identifiable symptoms and implications for amelioration.
- 524 **Introduction to Emotional Disturbances. 3 hrs.**
Characteristics of emotional-social disturbances in children; dysfunction in behavior, academic achievement, and social relationships, etiology and educational implications are presented.
- 526 **Introduction to the Gifted. 3 hrs.**
An overview of giftedness in children, definitions, etiology, observable characteristics and implications for educational agencies.
- 527 **Introduction to Autism. 3 hrs.**
This is a lecture-discussion course designed to survey current autism definitions, rates of incidence conceptual models and educational designs relating to autistic children, youth, and adults. (PR: Permission)
- 529 **Introduction to the Physically Handicapped. 3 hrs.**
An introduction to the characteristics and needs of crippled and other health impaired children. The medical aspects of physically handicapping conditions are considered. (PR: CI 520; CR: Field Experience)
- 533 **Special Education: Introduction to Mental Retardation. 3 hrs.**
Acquaints teachers with the characteristics and needs of the mentally retarded child. The status of the mentally retarded in our society and the impact of mental retardation on education (PR: CI 520. CR: Field Experience)
- 535 **General Special Education Programming. 3 hrs.**
Address the educational/curricular needs of students with mild learning problems in the categorical areas of mental retardation, behavior disorders, and specific learning disabilities. (PR: CI 320/520 and 433/533 or 423/523 or 424/524 or permission of instructor)
- 553 **Special Education: Education of the Mentally Retarded. 3 hrs.**
Principles and current trends in curriculum development are reviewed and evaluated toward the development of specific curricula for the mentally retarded. Methods and materials are presented in relation to this development. (PR: CI 520 and 533)
- 554 **Working with Families of Exceptional Students. 3 hrs.**
Principles and information designed to give the student an understanding of the needs and rights of parents of exceptional children and techniques to involve parents successfully in their child's education.
- 560-564 **Staff Development. 1-4 hrs.**
Courses and activities designed to meet the inservice needs of public school personnel. Credit in these courses may be used for certificate renewal and salary upgrades if approved, but may not be used a degree programs. CR\NC grading.
- 580-583 **Special Topics. 1-4 hrs.**

- 585-588 Independent Study. 1-4 hrs.**
- 600 Grant Writing in Special Education. 3 hrs.**
A review of the federal and state guidelines for writing grants in Special Education. The priority areas of special education in which monies are currently available will also be examined.
- 601 Psychological Foundations of Giftedness. 3 hrs.**
A study of measures used to identify the gifted and interpretation of results, psychological development of the gifted and psychological pressures, problems and adjustments strategies towards mental health in the gifted child.
- 602 Education of the Gifted. 3 hrs.**
Educational models, identification techniques, teaching strategies and resources available for gifted children. Current trends in curriculum development for the gifted are also examined. (PR: CISP 526)
- 603 Field Experience: Gifted. 3 hrs.**
Supervised experiences (one semester) in field work with children who exhibit potential giftedness.
- 604 Practicum in Emotional Disturbances. 3 hrs.**
An initial participation and observation experience with children experiencing behavior problems. Course evolves around bi-weekly seminar and selected projects.
- 611 Special Education Research, Part I. 3 hrs.**
The study of problems related to the area of exceptionality receiving emphasis in the student's degree program. (PR: CI 603, 649, 651 or 674, EDF 621 or 625)
- 615 Special Education Research, Part II. 3 hrs.**
As a part of the requirements for this course, the student will submit a written, bound document, which will be added to the college library collection. (PR: CISP 611)
- 626 Special Education: Diagnostic-Clinical Practices. 3 hrs.**
Team approach to diagnosis and treatment of exceptional children. (PR: CISP 520)
- 627 Trends and Issues in Special Education. 3 hrs.**
An in-depth look at current issues affecting all areas of special education as well as issues specific to each special education category.
- 629 Special Education: Seminar 3 hrs.**
Research methods and current significant findings in special education. Guest speakers. Advanced special education students only.
- 645 Special Education: Education of Emotional Disturbances. 3 hrs.**
Recognition of emotional-social, disturbances, assessment of educational needs, establishment of programs to implement behavioral change and provide necessary modification in educational programs to remediate learning and behavioral difficulties of children. (PR: CISP 524)
- 646 Special Education: Field Experiences: Learning Disabilities. 3 hrs. S.**
Supervised experiences of one semester in field work with children or youth who exhibit symptoms of problems in learning.
- 647 Special Education: Education of Learning Disabilities. 3 hrs. I.**
Theories, diagnosis, and teaching strategies concerning children who exhibit symptoms of any or several learning disabilities.
- 649 Special Education: Field Experiences: Emotional Disturbances. 3 hrs.**
Supervised field experiences (one semester) working with children who exhibit symptoms of emotional disturbances-behavioral disorders. (PR: CISP 524 and CISP 645)
- 650 Special Education: Diagnostic Evaluation and Prescriptive Teaching Techniques. 3 hrs.**
Educational assessment and diagnostic evaluation for remediation-amelioration; advanced course for providing understanding and utilization of evaluation, teacher assessment, and analysis for programming for exceptional individuals. (PR: CISP 626)
- 651 Special Education: Field Experience: Mental Retardation. 3 hrs.**
All-day supervised teaching in special classes in the public schools required of all students who are completing curriculum for teachers of mentally retarded children. (PR: CI 533 and CI 553)
- 655 Field Experience: Multi-categorical: Mild/Moderate MI, LD, BD. 3 hrs.**
Field Experience (practicum) affords graduate students an opportunity to demonstrate the skill-based competencies required by CEC Standards and to qualify for the multi-categorical teaching license.
- 661 Introduction to Preschool Special Education. 3 hrs.**
An overview of early childhood special education programs including historical events, legislation, the population served, program models and components and current issues and trends.
- 662 Instructional Characteristics of Autism. 3 hrs.**
A lecture-discussion course, designed to provide students with an understanding of the learning characteristics of autistic children and research-based instructional techniques for teaching and managing behavior. (PR: CI 427 or 527)
- 663 Developmental Issues in Preschool Special Education. 3 hrs.**
An examination of the normal development of young children, the interrelated effects of impairment in various areas of development and strategies for intervention.

- 664 Practicum in Autism. 3 hrs.**
This course contains two components: a competency-based practicum experience with autistic students and a seminar with regular discussions and readings on practical issues concerning the education of autistic children. (PR: CI 427 or CI 527 and 662)
- 665 Assessment in Preschool Special Education. 3 hrs.**
An overview of issues in the identification, screening and assessment of young handicapped children, specific assessment techniques for working with families and interdisciplinary teams in the assessment process.
- 666 Curriculum and Methods in Preschool Special Education. 3 hrs.**
A review of curriculum development and methodology used to teach young children with handicaps. Evaluation techniques, program development and management, adaptation of materials and equipment and program models are presented.
- 673 Field Experience: Preschool Special Education. 3 hrs.**
Supervised participation and directed teaching activities in an early childhood special education program across ages, disabilities and severity levels. Activities with non-handicapped preschoolers are also required.
- 674 Practicum: Preschool Special Education. 3 hrs.**
Supervised teaching in a variety of early childhood special education programs across ages, disabilities, and severity levels. Experiences with non-handicapped preschoolers are required. Specific competencies will be individually determined.

CURRICULUM AND INSTRUCTION: VISUAL IMPAIRMENTS (CIVI)

- 500 Introduction to Visual Impairments. 3 hrs.**
Introduction to educational programs and services for students with visual impairments, history, definitions, incidence and prevalence, development, psychosocial aspects, service delivery models, issues, and professionalism.
- 501 Braille Reading and Writing. 3 hrs.**
Knowledge and skills in reading and writing literary braille code, braillewriter, slate and stylus, proof-reading, interlining, basic Nemeth mathematics code, textbook formatting, computer translation, overview of other braille codes.
- 502 Structures and Functions of the Human Visual System. 3 hrs.**
Structure and function of the eye, development of the visual system, causes of eye conditions, vision assessments, environmental modifications, relationship to other disabilities, and neurological aspects of visual impairment.
- 503 Instructional Strategies for Teaching Students with Visual Impairments. 3 hrs.**
Design and adaptation of instruction for students with visual impairments, expanded core curriculum, teaching literacy and other communication skills, assessment, early childhood intervention, parent involvement, and collaboration.
- 504 Instructional Strategies for Teaching Students with Multiple Impairments. 3 hrs.**
Strategies for students with visual impairments and severe/multiple disabilities, interaction of sensory disabilities with other disabilities, functional curricula, alternative communication and mobility systems, and collaboration.
- 505 Basic Orientation and Mobility Skills. 3 hrs.**
Strategies for teaching and reinforcing orientation mobility skills, basic concept development, movement, exploration of space in the home and school environment, environmental orientation, and collaboration with O & M specialists.
- 506 Practicum in Visual Impairment I. 3 hrs.**
Three hundred documented hours of supervised practicum experiences with students with visual impairments, including those with severe/multiple disabilities ranging from infancy to early adulthood. (PR: Permission of instructor)
- 507 Advanced Braille and Technology for Teaching Students with Visual Impairments. 3 hrs.**
Codes and techniques for advanced braille. Essential skills in transcribing Nemeth code for mathematics and science, formatting techniques, and computer translation. (PR: CIVI 501 or equivalent)
- 508 Practicum in Visual Impairment II. 3 hrs.**
The graduate student will complete an advanced selection of experiences in inclusive and residential settings in order to demonstrate competence as an entry-level teacher. (PR: Permission of instructor)

DIETETICS (DTS)

- 560 Professional Development. 1-4 hrs.**
Activities designed to meet the supervised practice needs of dietetic interns. CR/NC grading.
- 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. 2-3; 2-3; 2-3; 2-3 hrs.**
Workshop in selected areas of dietetics.
- 670 Nutrition Intervention in Dietetics. 3 hrs.**
Integrates normal and clinical nutrition with behavioral, natural, and social sciences to enhance dietary compliance among populations at nutritional risk. Systematic approach to assessment, instruction, and evaluation. Applied research in dietetics. (PR: Dietetic Internship Students or permission)
- 673 Administrative Dietetics. 3 hrs.**
Overview of management/administrative concepts for directing resources within a variety of food and nutritional service/programs. Planning, implementing, and evaluation techniques to measure organizational performance. Applied research in dietetics. (PR: Dietetic Internship Students or permission)
- 675 Dietetic Internship Practicum I. 3 hrs.**
Supervised practice experience focusing on the nutritional screening assessment and education of individuals and groups across the lifespan in a variety of community and long-term settings.
- 676 Dietetic Internship Practicum II. 3 hrs.**
Supervised practice experience focusing on the procurement, production, distribution, and service within school- and hospital -based food service management systems.
- 677 Dietetic Internship Practicum III. 3 hrs.**
Supervised practice experience focusing on skills required to become a dietitian in a clinical setting. Nutritional screening, assessment, and education of individuals with complex medical conditions will be emphasized.
- 679 Nutrition Interventions II. 3 hrs.**
Utilizes current technologies for information and communication related to selected acute and chronic diseases. Individual educational plans are designed and implemented.
- 681 Thesis. 1-6 hrs.**
Individual research in a selected field of dietetics under the direction of a graduate faculty member.
- 690 Seminar in Research and Communication. 1-3; 1-3 hrs.**
Extensive reading and reports from current literature in selected areas of dietetics.

ECONOMICS (ECN)

- 501 Economic Analysis. 3 hrs.**
Overview of the basic principles of both microeconomics and macroeconomics.
- 505 Environmental Economics. 3 hrs.**
The application of basic economic theory to a wide range of environmental problems, including pollution, natural resource exhaustion, population and economic growth. (PR: ECN 253 or permission of GSM academic advisor)
- 508 Comparative Economic Systems. 3 hrs.**
Marxism, capitalism, communism, fascism and socialism considered as theories, movements and actual political economics. (PR: ECN 253, or permission of GSM academic advisor)
- 515 Regional Economics. 3 hrs.**
A study of location theory and regional development within a framework of economic theory. (PR: ECN 253 or permission of GSM academic advisor)
- 520 International Economics. 3 hrs.**
Movement of goods and balance of payments among nations; exchange rates; exchange controls and tariffs; problems and policies. (PR: ECN 253 or permission of GSM academic advisor)
- 522 Introduction to Mathematical Economics. 3 hrs.**
Modern mathematical methods for use in economics and other social sciences. (PR: ECN 253 and Mathematics 203, or permission of GSM academic advisor)
- 540 History of Economic Thought. 3 hrs.**
Economic theories and ideas from the earliest economists to those of Marshall and Keynes. (PR: ECN 253 or permission of GSM academic advisor)
- 550 Public Finance. 3 hrs.**
Analysis of governmental activities pertaining to raising of revenue and expenditure of monies; analysis of public debt and fiscal programs at all levels of government. (PR: ECN 253 or permission of GSM academic advisor)
- 560 Economic Development. 3 hrs.**
A study of the problems, dynamics and policies of economic growth and development in underdeveloped and developed countries. (PR: ECN 253 or permission of GSM academic advisor)
- 561 Economics Education Workshop. 3 hrs.**
Intensive review of subject matter and teaching methods in economics for elementary and high school teachers. (PR: Consent of instructor or grant scholarship)
- 562 Economics Education Workshop 1-3 hrs.**
Intensive review of subject matter and teaching methods in economics for elementary and high school teachers. (PR: Consent of instructor or grant scholarship)

Note: Students who have taken the Social Studies workshop in American Capitalism Seminar for credit may not take ECN 561 and 562, American Capitalism Seminar, for credit.

- 620 The United States and The Global Economy. 3 hrs.**
A study of the interdependent and transnational nature of the global economy with an emphasis on contemporary global economic issues, commercial policies, trading blocs, developing countries and world economic agencies. (PR: GSM admission)
- 630 Managerial Economics. 3 hrs.**
Utilization of microeconomic theory and optimization techniques for management decision making. (PR: Full M.B.A. admission)
- 650-651 Special Topics. 1-3; 1-3 hrs.**
Members of the department may teach, when necessary, any economics subject not listed among current course offerings. (PR: Nine hours of economics and permission of division head and of GSM academic advisor)
- 656 Labor Economics. 3 hrs.**
Theoretical and empirical analysis of labor markets, wage determination, hours of work, unemployment and inflation, unions and collective bargaining and related subjects in their social and legal contexts. (PR: 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: Permission of division head and of GSM academic advisor)

EDUCATION (See Curriculum and Instruction)

EDUCATIONAL FOUNDATIONS (EDF)

- 502 Psychology of the Middle Childhood Student. 3 hrs.**
A course in the study of developmental principles relating to the physical, cognitive, social, and moral development of the middle childhood student 10-14 years old.
- 510 Contemporary Issues in Education. 3 hrs.**
The impact of contemporary forces in education with emphasis on current educational issues.
- 513 Human Growth and Development Birth-8. 3 hrs.**
A study of various topics and instructional implications for birth-8
- 514 Human Growth and Development Adolescents. 3 hrs.**
A study of various topics and instructional implications for adolescents.
- 515 History of Modern Education. 3 hrs.**
Our debt to the ancient Hebrews, Greeks, and Romans. Emphasis also is placed upon the movements since the beginning of the Renaissance.
- 517 Statistical Methods. 3 hrs.**
A foundation course in descriptive and inferential statistics as applied in education and the social sciences.
- 535 Classroom Assessment. 3 hrs.**
History, philosophy and elementary statistical methods for testing, measuring and evaluating pupil behavior are studied.
- 537 MAT Level I Clinical Experience. 0 hrs.**
Twenty-hour public school clinical experience in middle/secondary schools designed to provide an opportunity for MAT students to work with faculty, staff and students in a teaching environment. (CR: EDF 616)
- 580-583 Special Topics. 1-4 hrs.**
- 585-588 Independent Studies. 1-4 hrs.**
- 610 Trends and Issues in Education. 3 hrs.**
An investigation of current trends and issues in education through extensive reading, research and discussions. Implications for schools, classrooms, and teachers are the focus of the course.
- 612 Educational Evaluation. 3 hrs.**
A study of the fundamental skills needed to evaluate educational progress at the individual, classroom, program, and school levels.
- 615 History of Education in the United States. 3 hrs.**
Development of public and private educational systems in the United States.
- 616 Advanced Studies in Human Development. 3 hrs.**
The nature of human growth and development from infancy through adulthood. *MAT students only.* (CR: EDF 537)

- 617 Multiple Regression. 3 hrs.**
A first course in Multiple Regression Analysis and its application. Designed to be cross-disciplinary. Of interest to students in Education, the Social, Behavioral and Natural Sciences.
- 618 Multilevel Analysis and Growth Models. 3 hrs.**
An introduction to applied multilevel analysis and growth curve modeling for nested educational data. The nested data may have a repeated measures dependent variable.
- 619 Educational Psychology. 3 hrs.**
Study of learning theories and their applications to teaching.
- 621 Educational Research and Writing. 3 hrs.**
Research methods, techniques, and their application to education.
- 625 Qualitative Research in Education. 3 hrs.**
Study of qualitative research methods: understanding historical and philosophical foundations of qualitative research and developing expertise in qualitative research strategies including participant observation, interviewing and inductive content analysis of data.
- 626 Advanced Qualitative Research in Education. 3 hrs.**
Advanced study of selected topics in qualitative research. Emphasis on application of qualitative research knowledge and skills. (PR: EDF 625)
- 630 Comparative Education. 3 hrs.**
The study of the origins, nature, scope, basic literature and methodology of comparative education.
- 631 Gender and Education. 3 hrs.**
The course focuses on gender relations in education and schooling. The course addresses gender in relation to curriculum and knowledge, pedagogy and instructional arrangements, and administration and policy issues. (PR: EDF 621 or equivalent)
- 635 Policy Studies in Education. 3 hrs.**
The course focuses on current policy issues facing educators today. The course offers conceptual and analytical tools for a critical examination of the uncertain political environment of schooling.
- 637 MAT Level II Clinical Experience. 0 hrs.**
Thirty-hour secondary public school experience provides opportunity for preservice, master's-level teachers to put theory into classroom practice through observation, participation, reflection, individual/small group teaching, and up-front classroom teaching. (PR: EDF 537; CR: CI 515)
- 640 Literature. 1-3 hrs.**
A program of reading, either extensive or intensive, and reports on a group of outstanding contributions to education; readings selected with guidance of advisor. Only one registration for this course is permitted. (CR: Permission of instructor)
- 641 Seminar. 2-3 hrs.**
A guided program of readings, reports and discussions. No student may register for this course a second time.
- 660 Philosophy of Education. 3 hrs.**
Surveys basic philosophy schools and concepts and their application to educational practice.
- 665 Sociology of American Schools. 3 hrs.**
American school organizational patterns interpreted sociologically; role of power and bureaucracy, social and cultural change, stratification and social mobility, and values; analysis of school rituals and ceremonies.
- 677 MAT Level III Clinical Experience. 3-6 hrs.**
Culminating clinical experience through directed activity in a clinical setting for MAT students. (PR: EDF 537 and EDF 637)
- 679 Problem Report. 1-3 hrs.**
The preparation of a written report on a research problem, experiment or field project in education. This report is not a thesis; students must complete an additional 33 credit hours unless 697 is followed by 681 for 3 hours credit.
- 681 Thesis. 3-6 hrs.**
May be taken for 3 hours of credit by students whose reports in 679 were excellent and are of such character as to warrant further research. Students completing 679 and 681 for a total of 6 hours may qualify for the master's degree by earning an additional 26 hours of credit. Students completing 681 must defend their thesis in an oral examination.
- 711 Survey Research in Education. 3 hrs.**
Advanced research, theories, methods, and procedures for conducting survey research in education.

ELECTRICAL ENGINEERING (EE)

- 650-653 Special Topics. 1-4 hrs.**
Formal study of electrical engineering topics of current interest. (PR: Consent)

ENGINEERING (ENGR)

- 610 Applied Statistics 3 hrs.**
Practical application of statistical techniques to decision-making, forecasting, optimization, experimental design. Interpretation of data using central tendency and dispersion, t-test, F-test, variance analysis, correlation, and linear regression. (PR: Permission)
- 620 Computer Applications 3 hrs.**
Introduction to current software technology to solve problems of interest to technical professionals. Covers the use of tables, databases, modeling, curve fitting, and solution of equations. (PR: Permission)
- 650-653 Special Topics. 1-4 hrs.**
Formal study of engineering topics of current interest. (PR: Consent)
- 685-688 Independent Study. 1-4 hrs.**
An approved study of special interest concerning engineering, under the supervision of a faculty member. (PR: Consent)

ENGINEERING MANAGEMENT (EM)

- 620 Management of Technical Human Resources and Organizations. 3 hrs.**
Principles leading to better management and development of technical human resources and organizations. Included are concepts technical managers need to change themselves positively and to lead others toward desired behaviors.
- 650-653 Special Topics. 1-4 hrs.**
Study of special topics of an advanced nature. (PR: Consent)
- 660 Project Management. 3 hrs.**
Provides the student with a practical knowledge of how to integrate effectively the functional efforts of many in the execution of programs and projects.
- 664 Management of Research & Development Organizations. 3 hrs.**
Techniques and methods for effective management of research and development organizations, projects, and personnel. (PR: EM 601)
- 665 Management of Engineering Organizations. 3 hrs.**
Techniques and methods for effective management of engineering firms, departments, and personnel. (PR: EM 601)
- 670 Seminar in Engineering Management. 3 hrs.**
Provides the student an opportunity to examine issues in engineering management and to evaluate their consequences in organizations, in the profession, and in society. (PR: Consent)
- 675 Engineering Economics. 3 hrs.**
The concepts and methods for the financial calculations involving time value of money and uncertainty. Capital and departmental budgeting processes and engineering inputs to cost accounting. (PR: Consent)
- 694 Engineering Law. 3 hrs.**
The American legal system, contracts and specifications, liability of professional engineers, product liability, agency relationships, patent and proprietary rights, and special problems in contracts are studied.

ENGLISH (ENG)

- 502 Composition and Rhetoric for Teachers. 3 hrs. S.**
Study of rhetorical invention and models of composing process, with intensive practice in writing.
- 508 Advanced Expository Writing. 3 hrs.**
An advanced general composition course. Practice in the rhetorical types and styles used by professionals in all fields. Assignments adapted to the student's major.
- 509 Milton. 3 hrs.**
Biographical and critical study, including Milton's English poetry and prose, and his literary and intellectual milieu.
- 510 Shakespeare's Comedies, Tragicomedies, and Romances. 3 hrs.**
Intensive study of Shakespeare's comedies, tragicomedies, and late romances. Also includes the Sonnets and Venus and Adonis.
- 511 Chaucer. 3 hrs.**
The poetry of Chaucer, including the Canterbury Tales, in the light of medieval tradition and critical analysis.
- 512 Shakespeare's Histories and Tragedies. 3 hrs.**
Intensive study of Shakespeare's Histories and Tragedies.
- 513 English Novel to 1800. 3 hrs.**
Defoe, Richardson, Fielding, Smollett, and Sterne, with supporting study of their most important predecessors and contemporaries.

- 514 **Nineteenth Century English Novel. 3 hrs.**
Austen, Scott, the Brontes, Eliot, Dickens, Thackeray, Trollope, Meredith, Hardy, Butler, Wilde, and their contemporaries.
- 515 **Victorian Poetry. 3 hrs.**
Emphasis on Tennyson, the Brownings, Arnold, Hopkins, Christina Rossetti, Hardy and the pre-Raphaelites.
- 517 **English Drama to 1642. 3 hrs.**
Non-Shakespearean English drama from its beginnings to the closing of the theatres.
- 519 **Approaches to Teaching Literature. 3 hrs.**
The intensive study of the pedagogy of literature and literary critical theory and its classroom applications.
- 521 **American Literature to 1830. 3 hrs.**
Study of American literature of the Puritan, Colonial, and Federal periods, including such authors as Jonathan Edwards, Edward Taylor, Anne Bradstreet, Benjamin Franklin, Phillis Wheatley, Washington Irving, and Catharine Maria Sedgwick.
- 522 **American Literature, 1830-1865. 3 hrs.**
American literature of the Romantic Period, including such authors as Emerson, Poe, Melville, Hawthorne, Dickinson, Whitman, Fuller, Douglass, Stowe, and other figures of the period.
- 523 **American Literature, 1865-1914. 3 hrs.**
American literature of the Realistic and Naturalistic periods, including such authors as Howells, Twain, James, Dreiser, Chesnutt, Wharton, Crane, and Chopin.
- 524 **American Literature, 1914-1945. 3 hrs.**
A survey of American writers of the Modern period to World War II.
- 525 **Southern Writers. 3 hrs.**
A survey of the poetry, fiction, nonfiction, and drama indigenous to the American South, including Old South, post-Civil War, and Modern periods, and emphasizing the Southern Literary Renaissance.
- 528 **International Literature. 3 hrs.**
Readings in contemporary literature from the non Anglo-European world. Texts will be taken from Asian, African, South American, Australian, and other authors.
- 533 **Contemporary British Poetry. 3 hrs.**
British poetry since the Victorian period.
- 534 **Contemporary American Poetry. 3 hrs.**
American poetry since 1900.
- 535 **Modernism. 3 hrs.**
A study of trans-Atlantic Modernist writers, including both poetry and prose.
- 536 **Medieval Literature. 3 hrs.**
Old English elegiac and heroic poetry; Middle English lyrics and romances; the Ricardian poets and Malory.
- 537 **Tudor Literature: Poetry and Prose of the Sixteenth Century. 3 hrs.**
Survey may include works by More, Skelton, Wyatt, Sidney, Spenser, Nashe, Marlowe, Raleigh, Lyly, Sidney, Mary Sidney, and Shakespeare, excluding drama.
- 538 **Seventeenth Century Literature: Poetry and Prose. 3 hrs.**
Survey may include Donne and the Metaphysical poets, the Cavalier lyricists, Bacon, Browne, Wroth, Cary, Lanyer, Herbert, Jonson, Burton, Walton, Hobbes, and Bunyan.
- 544 **Rendering the Landscape. 3 hrs.**
Historical and contemporary approaches to the representation of landscape in art and writing (poetry, fiction, non-fiction, etc.). Joins with course in Art and Design department for a one-week trip to a West Virginia state park for field work (lodging fee required).
- 546 **Drama of the Restoration and 18th Century. 3 hrs.**
Trends, movements, and dramatic types in the British theatre of this period.
- 547 **British Romantic Poets. 3 hrs.**
Emphasis on Blake, Wordsworth, Coleridge, Byron, Shelley, and Keats.
- 555 **Literary Criticism. 3 hrs.**
Historical study, with application of principles.
- 558 **Contemporary Fiction: Form & Theory. 3 hrs.**
Readings in contemporary fiction addressing the work in terms of the formal and theoretical concerns that drive it. Texts that challenge our notions of genre, form, theory, and practice.
- 562 **Restoration and Eighteenth Century British Poetry and Prose. 3 hrs.**
British poetry and prose of the Restoration and eighteenth century (1660-1800), exclusive of the novel. Authors studied include Dryden, Swift, Pope, Johnson, Boswell, Wollstonecraft. Emphasis on satire, biography, essay.
- 565 **Literature of War: (specific war). 3 hrs.**
Examines the literary responses to an individual war and discusses the artistic, cultural, and historical contexts of those responses.

- 575 **Introduction to Linguistics. 3 hrs.**
The structural and descriptive approach to the study of the English language.
- 576 **Modern Grammar. 3 hrs.**
A descriptive analysis of the structure of present-day American English, utilizing the basic theory of generative transformational grammar.
- 578 **Introduction to Sociolinguistics. 3 hrs.**
Sociolinguistics is the study of the effects of language in society, relevant to discourse practices, language attitudes, variations, shifts, and changes.
- 580-583 **Special Topics. 1-4 hrs. each.**
(PR: Permission of the chair)
- 585-588 **Independent Study. 1-4 hrs.**
(PR: Permission of the chair)
- 591 **Creative Writing: Poetry Workshop. 3 hrs.**
A practical and intensive class in exploring the varieties of creative expression; exercises on the creating of verse in different forms and styles.
- 592 **Creative Writing: Fiction Workshop. 3 hrs.**
A forum for presentation, discussion, and refinement of the student's work, either short stories or novels.
- 593 **Creative Writing: Nonfiction Workshop. 3 hrs.**
A writing workshop where students develop and refine their original creative nonfiction (memoir, biography, essays, travel/leisure writing, etc.), employing techniques typically reserved for fiction (dialogue, narrative, poetic language, etc.).
- 601 **Folk and Popular Literature. 3 hrs.**
A study of types, variants, backgrounds, and influences. (PR: ENG 630 or permission of the chair)
- 610 **Readings in English and American Literature. 2-3 hrs.**
Independent reading in a field not covered by regularly scheduled courses. Limited to English majors who have been admitted to candidacy. (PR: Permission of the chair)
- 611 **Independent Readings. 3 hrs.**
Independent readings and research. Open only to students with an M.A. degree with a major in English or English Education.
- 620 **Twentieth Century Drama. 3 hrs.**
Major British and American dramatists since 1870. (PR: ENG 630 or permission of the chair)
- 624 **Twentieth Century British Novel. 3 hrs.**
Major British novelists of the twentieth century. (PR: ENG 630 or permission of the chair)
- 625 **Twentieth Century American Novel. 3 hrs.**
Major American novelists of the twentieth century. (PR: ENG 630 or permission of the chair)
- 628 **Twentieth Century African-American Literature. 3 hrs.**
An intensive study of selected novels, plays and poems of the period. (PR: ENG 630 or permission of the chair)
- 630 **Materials and Methods of Research. 4 hrs.**
Instruction and practice in scholarly literary research. Required among first 12 hours of coursework and prior to admission to candidacy for the Master of Arts degree with a major in English.
- 631 **Major American Authors. 3 hrs.**
An intensive study of selected American authors. (PR: ENG 630 or permission of the chair)
- 632 **Topics in American Literature. 3 hrs.**
Concentrated study of continuing themes or influences in American literature; for example, narrative perspectives, regional influences, or conflicting agrarian and industrial values. (PR: ENG 630 or permission of the chair)
- 635 **Major Texts. 3 hrs.**
An intensive study of a single major text from any period of British, American, or anglophone literature, leading to mastery of the text, its critical responses, and its influences. (PR: ENG 630 or permission of the chair)
- 636 **Selected British Writers. 3 hrs.**
An intensive study of selected British writers such as the Metaphysical Poets, the Cavalier Poets, or the Bloomsbury Group. (PR: ENG 630 or permission of the chair)
- 637 **Topics in British Literature. 3 hrs.**
A concentrated study of themes or influences in British literature; for example, narrative strategies, medievalism, the pastoral mode, or conflicting moral, social or literary values. (PR: ENG 630 or permission of the chair)
- 640 **Teaching College English. 3 hrs.**
Required for graduate assistants in English.

- 660 Literary Theory. 3 hrs.**
Intensive introduction to one or more literary or cultural theories, familiarizing students with the major developments, terms, premises, and debates of the theory or theories in question.

The following four courses are for inservice teachers and require permission of the chair and the Director of Writing.

- 641 Advanced Composition Institute I. 3 hrs.**
The study of characteristics of effective writing instruction; strategies of effective writers; an introduction to teaching writing with technology; an introduction to field research in writing. (PR: Graduate School Acceptance and Permission)
- 642 Advanced Composition Institute II. 3 hrs.**
Advanced Composition Institute II is a seminar course, a follow-up to the intensive summer Advanced Composition Institute I. (PR: ENG 641)
- 643 Electronic Writing Project. 3 hrs.**
Study in the application of teaching writing with technology. Teachers create online syllawebs, databases, peer responses, and conferencing environments, and use technology for research, for teaching research, and for publication. (PR: Graduate School Acceptance and Permission)
- 644 Teacher Inquiry. 3 hrs.**
An intensive study of composition research methodologies (ethnographic study, classroom based inquiry, reflective practice, qualitative research) with a proposal for an inquiry project. Upon completion, Fellow becomes part of Teacher Inquiry Community (TIC). (PR: ENG 641, 642, and permission)
- 650-653 Special Topics.**
(PR: ENG 630 or permission of the chair)
- 681 Thesis. 1-6 hrs.**

ENVIRONMENTAL ENGINEERING (ENVE)

- 611 Air Pollution Design I: Control of Gaseous Emissions. 3 hrs.**
An introduction to adsorption, condensation, incineration, absorption, and process modification relevant to the design of abatement systems for gaseous air pollutant emissions. (PR: unit operations, thermodynamics and calculus)
- 612 Air Pollution Design II: Control of Particulate Emissions. 3 hrs.**
An introduction to equipment, processes, and basic principles relevant to the design of particulate collection systems including electrostatic precipitators, fabric filtration units, cyclones, and high energy scrubbers. (PR: ES 604 or courses in physics, fluid mechanics, and process design)
- 615 Environmental Chemistry. 3 hrs.**
Fundamental principles governing the various aspects of chemistry relevant to the environment will be addressed. The chemistry of waste treatment, cyclical processes and other applications will be evaluated. (PR: Consent)
- 616 Principles of Biological Waste Treatment. 3 hrs.**
Principles and practices of the process design of biological systems employed in wastewater treatment, including such topics as microbial metabolism, oxygen transfer, and biomass-separation. Lectures, laboratory, and field trips. (PR: ES 651)
- 617 Physicochemical Treatment of Water and Wastewater. 3 hrs.**
A unit operation/unit process approach to industrial and advanced waste treatment covering physical and chemical methods. Application of methods to specific waters and wastes. Lectures and laboratory sessions. (Prerequisite: ENVE. 615)
- 618 Pollution Prevention. 3 hrs.**
Introduces the student to the basic understanding and criteria required for establishing a pollution prevention program, including a review of successful industry practices. Emphasis on management strategies. (PR: undergraduate degree in science or engineering)
- 620 Solid Waste Management. 3 hrs.**
Solid waste management and minimization: options, methods, laws and regulations. Landfill design, testing, operation, monitoring, and closure. Use of composting in landfills. Incinerator design and operation. Separation and recycling approaches.
- 625 Hazardous Waste Management. 3 hrs.**
Options and methods of managing hazardous waste. Landfill design, testing, operation, monitoring, and closure. Incinerator design, testing, operation, and monitoring. Design and operation of treatment facilities. Waste reduction practices.
- 650-653 Special Topics**
Occasional special offerings in Environmental Engineering. (PR: Consent)
- 663 Environmental Permitting. 3 hrs.**
The permit process for the construction and operation of facilities, including stream crossing, wetlands, etc.; permits under Clean Air Act, Clean Water Act, NPDES, RCRA and TSCA.

- 673 Industrial Ventilation. 3 hrs.**
The design and analysis of industrial ventilation systems, including properties of air contaminants; hood, duct and fan design; system performance; mine ventilation; air cleaning devices; testing; diagnosis; troubleshooting, cost analysis. (PR: Consent.)
- 675 Industrial Noise Control. 3 hrs.**
Physics of sound, absorption and reflection, sound level measurements and instruments, and noise control criteria; audiometry and the physiology of hearing; community noise abatement; laws and regulations. (PR: undergraduate degree in science or engineering)
- 680 Air Pollutant Dispersion and Meteorological Modeling. 3 hrs.**
Meteorological concepts with emphasis on air pollution; atmospheric dynamics, adiabatic processes; temperature profiles, behavior of stack effluent, atmospheric chemistry, attenuation of solar radiation, and climatology application to dispersion models. (PR: undergraduate course in physics, and spreadsheet capability)
- 681 Environmental Engineering Design. 3 hrs.**
Principles of engineering design of water and wastewater treatment systems and processes, including physical, chemical, and biological treatment and handling of treatment residuals. Includes coverage of relevant water quality concepts. (PR: Engineering degree or permission)
- 682 Environmental Remediation Technologies. 3 hrs.**
Decontamination or removal of pollutants from soil. Aeration of excavated soil on site. Use of solvents and surfactants as removal aids. Removal of soil for treatment at an off-site facility. (PR: ES 651)
- 683 Environmental Geotechnology. 3 hrs.**
Surface and subsurface geology; geotechnical properties of soil and rock. Geotechnical engineering design aspects of landfills, groundwater barriers, tunneling. Mechanics of ground movement; sediment and erosion control. (PR: engineering or geology degree)

ENVIRONMENTAL SCIENCE (ES)

- 582-83 Special Topics. 1-4 hrs.**
Occasional offerings of current topics in environmental sciences, providing important supplementary material for participating students.
- 586-88 Independent Study. 1-4 hrs.**
An approved study of special interest concerning environmental science that is appropriate for the student's program of study. Carried out under the supervision of a faculty member.
- 600 Introduction to Environmental Science. 3 hrs.**
The principles of chemistry, geology, and mathematics used in pollution analysis and control. Topographic maps, environmental regulations, field testing, and compliance. Economics of use of pollution control devices.
- 602 A Study of the West Virginia Environment. 3 hrs.**
An overview of the diversity of the local natural environment, including the plants, insects, amphibians, reptiles, other wildlife, and the impact of human activities on the local environment.
- 603 Seminar In Bioscience Education. 3 hrs.**
The influence of environmental laws, common law, contract law, tort law, and regulatory interpretations, as well as the impact of citizens' groups, professional societies, and trade associations on current practice. (PR: Consent)
- 604 Air Pollution. 3 hrs.**
Major air pollution sources; meteorological concepts; physical and chemical characterization; effects on plant and animal life; and development of air pollution laws, with emphasis on West Virginia regulations. (PR: Consent)
- 605 Analytical Principles of Environmental Sampling. 3 hrs.**
Identifying and measuring contaminants in air, water, soil, and sludge. Methods of analysis including gas chromatography, nuclear magnetic resonance, colorimetry, infrared absorption, ultraviolet absorption, atomic absorption, and mass spectroscopy. (PR: Chemistry and ES 600, or equivalent experience)
- 609 Topics in Bioscience Education. 1-6 hrs**
Selected topics of interest to teachers of biology. (PR: Consent)
- 610 Environmental Sampling Practice. 3 hrs.**
Current practice in environmental testing and monitoring. Traditional wastewater tests, bioassay analysis, aquatic toxicity. Current procedures in gas chromatographic analysis, mass spectrometry. Sample preservation, quality control, and quality assurance. (PR: analytical chemistry and instrumental methods, or ES 605)
- 614 Environmental Risk Assessment. 3 hrs.**
The course will provide a comprehensive review of currently used methods and applications of risk assessment in environmental science and engineering. The course will focus on the analysis of potential risks in all media, and will include state and federal requirements and guidelines for human health and ecological risk assessment. (PR: Consent)

- 620 Environmental Management Systems. 3 hrs.**
EMS principles and elements; environmental, health and safety regulatory issues; ISO 14000 EMS specifications and guidelines; environmental auditing; environmental performance evaluation; life cycle assessment and environmental labeling.
- 626 Remote Sensing and Map Use. 3 hrs.**
Introduction to topographic, soil, and geologic maps and aerial and satellite photography as sources of environmental information. Application of various data sources to specific types of environmental problems.
- 630 Environmental Site Assessment. 3 hrs.**
Site inspection and investigation, emphasizing the “due diligence” clause of Section 107 of the Comprehensive Environmental Response Compensation Liability Act of 1980, site remediation, and data analysis and reporting.
- 640 Groundwater Principles and Monitoring. 3 hrs.**
Introduction to groundwater hydrogeology; including porosity, hydraulic conductivity, aquifers, groundwater flow, well hydraulics, groundwater geology, and water chemistry. (PR: A background in environmental science or geology is recommended)
- 645 Applied Hydrogeology. 3 hrs.**
The fundamentals of hydrogeology are utilized to implement a case study investigation of a contaminated groundwater site from the planning stage through a final report. (PR: ES 640 or equivalent experience)
- 646 Dynamics of Ecosystems. 3 hrs**
Species interaction; population, community and ecosystem ecology; productivity; nutrient cycling; physiological ecology, population dynamics; pollution and conservation; and aquatic, marine, and terrestrial ecosystems. (PR: Consent)
- 648 Vegetation of West Virginia. 3 hrs.**
Introduces the student with a minimal biology background to basic field and laboratory botany. Introduction to science of plant taxonomy and community ecology, with emphasis given to West Virginia. (PR: Consent)
- 650-653 Special Topics in Environmental Science. 1-4 hrs.**
(PR: Consent)
- 654 Environmental Microbiology. 3 hrs.**
Microbiology of the environment; ecology of the microbial cell; microbial ecosystems; the microbe's interaction with other micro-organisms and macro-organisms; how micro-organisms obtain nutrients, and the effect on the environment. (PR: General biology and general chemistry or consent)
- 655 Environmental Ethics. 3 hrs.**
Introduction to the subject of ethics, environmental ethical theory, moral reasoning, free market regulation, right to know, proprietary information, product liability, cost-benefit analysis, risk assessment, waste disposal, and resource depletion. (PR: Consent)
- 656 Preparation and Evaluation of Environmental Impact Statements. 3 hrs.**
A practical course designed to provide students with the ability to prepare and evaluate impact statements. The course is based on the concepts of the environment as a single interrelated system.
- 660 Environmental Law I. 3 hrs.**
Introduction to major federal environmental legislation and related state programs, including policy issues, judicial review, and practical effects. Includes CERCLA, RCRA, Clean Water Act, Clean Air Act, NEPA, ESA, and SDWA. (PR: Consent)
- 661 Environmental Regulations 3 hrs.**
Practical applications and concentrated study of regulations under all major federal environmental programs, including permitting, reporting, and other compliance issues. Includes discussion of procedures used in development of regulations. (PR: ES 660)
- 662 Environmental Policy 3 hrs.**
Introduction to processes for formulation and development of env. policy, including administrative procedure and the policy process. Discussion of current env. policy issues in relevant political, legal, social, and scientific contexts.
- 663 Environmental Law II. 3 hrs.**
Course covers three general topic areas: environmental assessment and biodiversity (NEPA and ESA), risk management and regulation of toxic substances (TSCA, FIFRA, and SDWA), and international environmental law. (PR: ES 660)
- 674 Epidemiological Health Research Techniques. 3 hrs.**
An introduction to techniques of epidemiological health research. The primary focus will be health problems in the industrial setting.

FAMILY AND CONSUMER SCIENCE (FCS)

- 501 Maternal and Child Nutrition. 3 hrs.**
Nutritional requirements during prenatal and early growth periods; surveys of nutritional status.
- 502 Foods of the World. 3 hrs.**
Characteristics and cultural aspects of the foods of the world.
- 505 Quantity Food Production. 3 hrs.**
Basic principles of quantity food selection, preparation, and service. Laboratory application in local food institutions.
- 507 Food Service Systems Management. 3 hrs.**
Administration of food service in institutions.
- 510 Nutrition in Aging. 3 hrs.**
Nutritional needs of the elderly and diseases responding to nutritional therapy. Government food programs for the elderly.
- 515 Family Relationships. 3 hrs.**
Relationships in the family during its life cycle, with some consideration of family life in other cultures.
- 516 Prenatal and Infant Care. 3 hrs.**
Prenatal and postnatal care for mothers, development of the fetus and care of the infant throughout the first three years.
- 531 Guidance of the Young Child: Practicum. 3 hrs.**
Techniques of guidance of young children with emphasis on adult child interaction.
- 532 Parenting. 3 hrs.**
Examination of current challenges, problems, and issues in the field; analysis of effective strategies for parenting.
- 535 Administration of Day Care Centers. 3 hrs.**
Instruction and practice in the development of day care centers for three and four year old children and administration of programs in these centers. Laboratory participation required.
- 540 Nutrition in the Home and School. 3 hrs.**
Fundamental principles of human nutrition and their application in the home and school. Designed primarily for elementary teachers.
- 544 Consumer Education. 3 hrs.**
Analysis of economic factors related to provision of consumer goods and services; investigation of sources of consumer information; and means of providing economic security for families.
- 560 Professional Development. 1-4 hrs.**
Courses and activities designed to meet the specific inservice needs of public school personnel. Credit may be used for certificate renewal and salary upgrading, if approved, but not in degree programs. CR/NC grading.
- 562-564 Professional Development. 1-4; 1-4; 1-4 hrs.**
Courses and activities designed to meet the specific inservice needs of public school personnel. Credit may be used for certificate renewal and salary upgrading, if approved, but not in degree programs. CR/NC.
- 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. 2-3; 2-3; 2-3; 2-3 hrs.**
Workshop in selected areas of family and consumer sciences. Credit for not more than two workshops may be counted for the master's degree.
- 600 Philosophy and Trends in Family and Consumer Sciences. 3 hrs.**
Major contemporary educational theories and their relationship to trends in the field of family and consumer sciences. (PR or CR: EDF 621)
- 601 Evaluation in Family and Consumer Sciences. 3 hrs.**
Procedures for appraising student progress in the attainment of objectives; construction of evaluation instruments; analysis and interpretation of data.
- 602 Curriculum Development in Family and Consumer Sciences. 3 hrs.**
Examination of bases for family and consumer sciences curricula; development of curricula for junior and senior high school programs, utilizing various organizational patterns.
- 603 Current Issues in Child Development. 3 hrs.**
A study of current issues and research in child development. Designed for students with a background in child development seeking updated information or more in-depth study.
- 605 Recent Developments in Clothing. 3 hrs.**
Survey of recent literature and theory in the field of clothing.
- 606 Recent Developments in Foods. 3 hrs.**
Survey of recent literature and theory in the field of foods.

- 661 Family Economics. 3 hrs.**
Factors affecting material level of living for families, expenditure patterns, and impact of social change on resource allocation. (PR: FCS 544)
- 665 Family Resource Management Theory and Research. 3 hrs.**
Analysis of home management theory and concepts as revealed through current research in the field. (PR: FCS 527)
- 679 Problem Report. 1-3 hrs.**
- 681 Thesis. 1-6 hrs.**
- 684-685 Special Problems in Family and Consumer Sciences. 1-3; 1-3 hrs.**
Problems of particular interest to the graduate student. Registration by permission of advisor. Not more than four hours of seminar credit may be counted toward a master's degree.
- 690-691 Seminar. 1-3; 1-3 hrs.**
Extensive readings and reports from current literature in selected areas of Family and Consumer Sciences. Not more than six hours of seminar credit may be counted toward a master's degree.

FINANCE (FIN)

- 510 Principles of Business Finance. 3 hrs.**
Business finance from the viewpoint of the financial manager. Use of financial statements, tools, and concepts for measuring and planning for profitability and liquidity. (PR: ACC 216 or ACC 510, ECN 253 or ECN 501, MGT 218, and MTH 203 or MGT 500)
- 580 Special Topics. 1-4 hrs.**
- 620 Financial Management. 3 hrs.**
An examination of business corporations practicing at the level of the individual firm with emphasis on quantitative analysis of the variables which affect liquidity and profitability. (PR: MGT 601, ACC 613 and full M.B.A. admission or permission of GSM academic advisor)
- 625 Financial Problems in Business. 3 hrs.**
Recognizing and solving financial problems through the use of case presentations and/or corporate annual and interim reports. (PR: FIN 620 and full M.B.A. admission or permission of GSM academic advisor)
- 626 Security Analysis and Portfolio Management. 3 hrs.**
Analytical procedures used by institutional portfolio managers to measure both past performance of holdings and anticipated market performance of current offerings. Emphasis in this course may be expected to be more centralized in the area of fundamental analysis. (PR: FIN 620 and full M.B.A. admission or permission of GSM academic advisor)
- 627 Financial Institutions and Markets. 3 hrs.**
An in-depth study of the flow of funds in aggregate financial systems, with emphasis on those in the United States. Because interest rates and bank reserve requirements of Federal Reserve System are all dynamic in character, the content of this course may be expected to vary as financial events of the future dictate. (PR: FIN 620 and full M.B.A. admission or permission of GSM academic advisor)
- 650 Special Topics. 1-3 hrs.**
(PR: Permission of the division head, full M.B.A. admission, and 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: FIN 620 and permission of division head or permission of GSM academic advisor)

FORENSIC SCIENCE (FSC)

- 603 Genetics-DNA Lab. 1 hr.**
Laboratory to be offered in conjunction with FSC 604 Genetics and DNA Technology stressing techniques and methods required for DNA analysis used in forensic case investigations, in CODIS laboratories and in paternity testing.
- 604 Genetics and DNA Technology. 3 hrs.**
A comprehensive lecture series that covers the genetics and biochemistry of DNA to include the analysis, ethical considerations and quality assurance techniques used to analyze DNA for identification purposes. This course serves as a core course in the forensic science curriculum.
- 605 Forensic Science Digital Imaging. 3 hrs.**
Introductory course in digital image processing. Covers techniques used in forensic laboratory to enhance, analyze, and catalog digital images. Instruction in laboratory setting.
- 606 Crime Death Investigation. 2 hrs.**
Establishes foundations and techniques for proper crime scene investigation with or without a victim's body. Logical approach for collecting evidence and documenting scene and collection process.

- 608 Forensic Toxicology. 3 hrs.**
An in-depth analysis of both clinical and forensic aspects of toxicology from the viewpoint of the forensic and medical examiner's toxicology laboratories.
- 609 Introduction to Cybercrimes.**
Teaches the basics of how computers and networks function, how they can be involved in crimes as well as a source of evidence.
- 610 Bioterrorism. 3 hrs.**
Course traces the historical development, current status, and future threats of bioterrorism in the U.S. and on a global scale. Issues addressed include microbiology, surveillance, detection and post-event investigation.
- 612 Introduction to Forensic Microscopy/Trace. 2 hrs.**
Introduction to various types of microscopy used in forensics, including scanning electron microscopy, light and fluorescence microscopy and polarizing microscopy.
- 618 Forensic Comparative Science. 2 hrs.**
Introduction to comparative methods used by forensic scientists for analysis of fingerprints, questioned documents, and firearms.
- 622 Forensic Analytical Chemistry I. 3 hrs.**
Introduction to analytical instrumentation used by forensic scientists for analysis of drugs, arson, explosives, and trace evidence. Lab stresses sample handling, instrumental analysis, and data interpretation from simulated crime scenes.
- 624 Biochemistry: Forensic Science. 3 hrs.**
This comprehensive course in biochemistry focuses on concepts appropriate to forensic science and designed to meet forensic science educational standards at a national level.
- 626 Forensic Drug Analysis. 2 hrs.**
Concentration on modern analytical methods used in the isolation and the identification of illicit drugs and their metabolites in biological samples and other forensic evidence. (PR: FSC 622 or permission of instructor)
- 628 Forensic Analytical Chemistry II. 3 hrs.**
A continuation of FSC 622, emphasizing additional types of evidence, including paint, inks, bigers, and plastics. Methods include pyrolysis-GCMS, micro-FTIR, GPC, and capillary eletrophoresis. Required course for Forensic Chemistry emphasis.
- 630 Forensic Science Internship. 5 hrs.**
A 10-week internship in a crime labor or other forensic science-related research laboratory. Application of principles and techniques learned during first year of program. (PR: Completion of two semesters in Forensic Science program)
- 632 Foundations and Fundamentals in Digital Forensics. 3 hrs.**
This course will provide an overview of the foundations of digital forensics and its component sub-disciplines: computer, audio, and video forensics. The course will be taught as a combination of lectures, laboratory, and practical exercises.
- 650-653 Special Topics. 1-4 hrs.**
Present course material on special areas of research or topics which are not routinely covered in existing courses.
- 660 Independent Study. 1-4 hrs.**
Reserved for directed and independent research, problem reports, etc. (PR: Permission)
- 665 Legal Issues, Court Procedures for Forensic Scientists. 3 hrs.**
Covers the American legal system with specific emphasis on expert witnessing by forensic scientists. Both the federal and state systems of justice are addressed, plus topics such as the federal rules of evidence and discovery. Frye and Daubert considerations on admissibility of scientific evidence and expert witnessing are discussed. Mock trials provide experience in the courtroom. (PR: CJ 321, Consent of Instructor)
- 676 Advanced Digital Evidence Detection and Recovery. 2 hrs.**
This course will provide an overview of the advanced procedures and techniques used by investigators owrking whiht digital evidence. The course will be tuaght as a combination of lectures, laboratory, and practical exercises.
- 680 Seminar. 1 hr.**
Faculty, student and guest speaker presentations of topics pertinent to forensic science.
- 681 Thesis. 1-6 hrs.**
Research conducted in the laboratories at Marshall University which is focused on a problem of forensic importance. The original research problem will be written up as a formal document and submitted as part of the requirements to fulfill a Master of Science degree in the research track.

- 685 Introduction to Research. 1-6 Hrs.**
Directed research which can be used to satisfy requirements for a Master of Science Degree in Forensic Science.

FRENCH (FRN)

The following courses may serve as a minor in some programs.

- 535 19th Century Literature. 3 hrs.**
The French romantic movement as exemplified in the poetry, drama, and the novel of the period. (PR: 6 hours of literature numbered 317 or above or equivalent)
- 536 19th Century Literature. 3 hrs.**
Realistic and naturalistic fiction, realism in the theatre, and selected poems of Baudelaire, the Parnassians, and the Symbolists. (PR: 6 hours of literature numbered 317 or above or equivalent)
- 580-583 Special Topics. 1-4; 1-4; 1-4; 1-4 hrs. On demand.**
A course for advanced students sufficiently prepared to do constructive work in phases of the language or literature of interest to them. (PR: 6 hours of literature numbered 317 or above or equivalent and consent of instructor.)
- 585-588 Independent Study. 1-4; 1-4; 1-4; 1-4 hrs.**

GEOGRAPHY (GEO)

- 501 Historical Geography. 3 hrs.**
Historical study of human settlement patterns, population diffusion, economic development, and the evolution of state boundaries with an emphasis on processes that inform upon contemporary geographic patterns..
- 502 Geography of Appalachia. 3 hrs.**
A study of settlement, transportation, manufacturing, agriculture and resource potential.
- 503 Geography of Asia. 3 hrs.**
Special attention given activities and environment in continental countries and nearby islands.
- 504 Geography of Europe. 3 hrs.**
Relationship between human activities and natural environment studied by countries, with attention given to interrelation of countries.
- 505 Political Geography. 3 hrs.**
A systematic and regional survey of world political problems and international relations stressing current geopolitical conflicts.
- 507 Geography of SubSaharan Africa**
An exploration of the geography of Sub-Sahara Africa, its land and people, with a focus on contemporary issues that challenge Africans in the twenty-first century.
- 508 Geography of South and Middle America. 3 hrs.**
A study of settlement, transportation, manufacturing, agriculture, geopolitics, and natural resources of South and Middle American countries.
- 509 Geography of North Africa and Southwest Asia. 3 hrs.**
A geographical study of agriculture, transportation, manufacturing, settlement, geopolitics, and natural resources of the North Africa and Southwest Asia realm.
- 510 Urban Geography. 3 hrs.**
Study of city function, patterns, past and current problems confronting the city including planning, zoning, housing, and urban renewal.
- 511 Medical Geography. 3 hrs.**
An introduction to medical geography and its applications, including epidemiology, biometeorology, disease diffusion, health care delivery, folk medicine, regional health variations, agromedicine, and rural health issues in Appalachia.
- 512 Geography of Russia. 3 hrs.**
Geographical appraisal of cultural, political, and economic aspects of Russia.
- 514 Methods and Techniques of Regional Planning. 3 hrs.**
Introductory planning with emphasis on methods, techniques, tools and principles necessary to accomplish objective regional planning.
- 515 Regional Planning and Development. 3 hrs.**
The philosophy, theories, and principles involved in planning of urban and rural areas.
- 516 Environmental Land Use Planning. 3 hrs.**
An examination of the role the natural environment plays in urban and rural land use planning with an emphasis on consequences of land use change and applications of planning techniques.

- 517 Coal Industries Studies: Past & Present. 3 hrs.**
An interdisciplinary study for all facets of the coal industry within a historic perspective. Emphasis is placed upon coal industry of West Virginia and the tri-state region.
- 518 Geography for Teachers. 3 hrs.**
A study of elements of geography most essential for effective teaching of geographic content in elementary education and the social studies.
- 519 Geography of Gender. 3 hrs.**
Gender as an essential element in understanding geographic literature; the spatial dimensions and implications of gender and the cultural landscape.
- 520 Geographic Field Research. 3 hrs.**
Course focuses on the development of individual research projects based on data collected in the field.
- 521 Concepts and Methods in Geography. 3 hrs.**
Survey of the history, literature, prominent individuals, and major paradigms in geography. Review of the major concepts in geography and an introduction to various methods of geographic inquiry.
- 525 Climatology. 3 hrs.**
A study of elements of weather and climate, methods of climatic classification, and distribution and characteristics of world climatic regions.
- 529 Fundamentals of GIS - Vector Analysis. 3 hrs.**
Introduction to GIS vector analysis, beginning with the vector data model, and including buffering, overlay analysis, geocoding, and network analysis. (PR: GEO 301 or permission)
- 530 Intermediate GIS - Raster Analysis. 3 hrs.**
GIS raster analysis, including local, neighborhood, and zonal operations; terrain analysis; building raster databases; distance modeling, and surface interpolation.
- 540 Quantitative Methods in Geography. 3 hrs.**
Introduction to the application of statistical methods in geographical problems. Attention given to analysis of areal data, area sampling, and spatial analysis techniques.
- 580-584 Special Topics. 1-4 hrs.**
Selected geography subjects to cover unusual geography topics not in the regular course offerings of the department
- 585-588 Independent Study. 1-4 hrs.**
- 607 Economic Geography. 3 hrs.**
Topics in economic geography, including industrial location, transportation systems, economic development, international trade relationships, and globalism.
- 609 Geographical Research. 3 hrs.**
Geographical research methods stressed with special attention given to the development of a viable research proposal.
- 610-614 World Regions. 3 hrs.**
In-depth investigation of the cultural, physical, economic, and political aspects of a world region as defined by instructor expertise and interest.
- 617-619 Seminars in Geography. 1-3 hrs.**
Selected geography subjects/topics not included in the regular course offerings of the department are considered, using a seminar approach to learning.
- 620 Problems in Environmental Geography. 3 hrs.**
Presents elements of conservation education in the specific areas of soil, water, and human conservation.
- 631 Applied GIS Projects. 3 hrs.**
Use of advanced GIS techniques to solve community-service research problems.
- 679 Applied Project. 1-3 hrs.**
- 681 Thesis. 1-6 hrs.**
- 690 Internship in Geography. 3 hrs. I, II.**
Professional work experience in applied geography with an approved agency.

GEOLOGY (GLY)

- 518 Invertebrate Paleontology. 4 hrs. II. Alternate years (odd numbers)**
Taxonomy, morphology, and paleoecology of body and trace fossils representing the major invertebrate phyla; analysis and interpretation of faunal assemblages; theories on evolution and extinction of species.
- 521 Petrology. 4 hrs. I. Alternate years (even numbers)**
Identification and classification of igneous, sedimentary and metamorphic rocks; their origin and occurrence; their geologic and economic importance. 3 lec-2 lab. (PR: GLY 200, 314 or consent)

- 522 **Economic Geology. 4 hrs.**
Origin, distribution and economics of the metallic and nonmetallic ore deposits. 3 lec-2 lab. Course taught on a demand basis only. (REC: GLY 201, 314, or equivalent)
- 523 **Sedimentary Petrography. 4 hrs. I., Alternate years (odd numbers)**
Megascopic and microscopic identification and a depositional and post-depositional interpretation of the sedimentary rocks. 3 lec-2 lab (PR: GLY 201 and 314 or consent)
- 525 **Geochemistry. 4 hrs. II., Alternate years (odd numbers)**
Introduction to the principles of geochemistry. The application of chemistry to the study of the Earth and to geologic problems. Laboratory work includes analysis of rocks, soils, and waters. 3 lec - 2 lab (PR: GLY 200, CHM 211 & 217 or permission)
- 526 **Geophysics. 4 hrs.**
Development of seismic, gravity, magnetism, electrical and thermal methods to study the structure and dynamics of the earth. 3 lec-2 lab. Course taught on a demand basis only. (PR: GLY 200, PHY 201, MTH 229)
- 527 **Fossil Fuels. 4 hrs. II, Alternate years (even numbers)**
The origin and occurrence of petroleum, coal, and natural gas; the relationships of accumulations to depositional environments and structural history; methods used in exploration, evaluation and recovery. 3 lec-2 lab. (PR: GLY 313, 325 or consent)
- 530 **Computer Methods in Geology. 4 hrs. II. Alternate years (odd numbers).**
The computer will be used for compilation, reduction, data analysis and modeling from a wide range of geological problems. Existing and student-developed programs will be used. 3 lec-2 lab. (PR: 12 hrs. GLY and MTH 130.)
- 551 **Principles of Geomorphology. 3 hrs. I., Alternate years (odd numbers).**
Principles of identification and analysis of the world's superficial features in terms of stratigraphy, structure, processes, tectonics and time. 3 lec. (REC: GLY 200, 210 or equivalent)
- 551L **Principles of Geomorphology Laboratory. 1 hr. I., Alternate years (odd numbers).**
Identification and analysis of landforms from aerial photos and topographic maps. (CR: GLY 551, required of majors, non-majors elective).
- 555 **Hydrogeology. 3 hrs. I, Alternate years (odd numbers)**
The properties of water, the hydrologic cycle with emphasis on surface and groundwater processes. The uses, needs and problems associated with water resources. 3 lec. (PR: GLY 200; CR: GLY 555L for geology majors)
- 555L **Hydrogeology Laboratory. 1 hr. I, Alternate years (odd numbers)**
A two hour laboratory of practical hydrogeologic problem solving. (PR: GLY 200; CR: GLY 555, required of majors, non-majors elective)
- 556 **Environmental Geology. 3 hrs. II. Alternate years (even numbers)**
The interactions of man and the earth, dealing with natural resources, natural hazards, cultural and urban geology and future planning. (PR: GLY 200, 210L)
- 556L **Environmental Geology Laboratory. 1 hr. II, Alternate years (even numbers)**
Current solutions to environmental problems through real life exercises (PR: GLY 200, 210L, 451, 451L; CR 556 for Geology majors).
- 557 **Engineering Geology. 3 hrs. I, alternate years (even numbers).**
Geological principles and methods to solve geotechnical engineering problems. (PR: GLY 200, 210L, 451, 451L or by permission of instructor)
- 585-588 **Independent Study. 1-4; 1-4; 1-4; 1-4 hrs.**
- 640 **Physical Aspects of Geology. 1-4 hrs. I, II.**
- 641 **Biological Aspects of Geology. 1-4 hrs. I, II.**
- 642 **Chemical Aspects of Geology. 1-4 hrs.**
- 681 **Thesis. 1-6 hrs. I, II, S.**

HEALTH CARE ADMINISTRATION (HCA)

- 600 **The Health Care System. 3 hrs.**
This course is designed to provide managers with in-depth knowledge of the current health care system, covering the structure and delivery of care, the providers and payers, and the various players in the system. The internal and external forces impacting the system are discussed. Problems in the health care system are explored and evaluated with respect to the issues of access, cost, and effectiveness. (PR: GSM admission or permission of GSM academic advisor)
- 610 **Health Care Financial Management. 3 hrs. I.**
Course provides an overview of health care financial management, with special emphasis upon the aspects of financial systems in hospitals that differ from typical financial systems. It includes analysis of capital formation, cash flow management and determination of working capital requirements. (PR: HCA 600)

- 615 Health Care Economics. 3 hrs. II.**
The health care industry is unique. Unlike in other markets, the consumer finds it difficult to evaluate quantity, quality, and pricing. Traditional market forces are modified by government, third-party payers, and professional interests. This course applies economic principles to this unique environment. (PR: HCA 600)
- 620 The Ethical Dimension of Health Care Management. 3 hrs. II.**
Emphasis in this course is on the way managers in health care settings incorporate ethical dimensions into their decision-making. It looks at the wide variety of ethical issues faced by these managers, focusing on those related specifically in the decisions they make about their organization, personnel, and services. Specifically covered are issues regarding the allocation of scarce resources, the type and availability of care for special populations, and conflicts of interest. (PR: HCA 600)
- 630 Legal Issues in Health Care Management. 3 hrs. I.**
This course provides students with a legal framework to analyze health care organizations and their operations. The federal and state legal systems are reviewed and regulatory programs and their requirements discussed. Topics include: tax exemptions, antitrust laws, corporate liability, provider-patient legal issues (contracts and negligence), patient rights, facilities licensure and accreditation, and reimbursement issues. Court cases, as well as governmental agency rulings and findings, are analyzed for their applications to health care management. (PR: HCA 600)
- 640 The Health Care Professional. 3 hrs.**
This course presents an overview of various professional and managerial topics relevant to the health care professional. Each offering of the course focuses on a particular health profession. Emphasis is on defining the profession, understanding its historical development and evolution, examining professional roles, tasks, responsibilities, and accountabilities in current practice, studying the interaction with other professionals, delineating the parameters of the professional in ethical decision-making, and recognizing and responding to challenges faced in contemporary practice and in planning for the future. (PR: HCA 600)
- 650 Comparative Health Systems. 3 hrs.**
A survey of health care provision systems throughout the world. (PR: HCA 600)
- 651 Health Care Operations Management. 3 hrs.**
An investigation of the use of operations management techniques and methodologies that are useful in the health care industry. (PR: HCA 600)
- 652 Health Care Finance. 3 hrs.**
An examination of the various financial systems present within the American health care systems. Special emphasis placed upon the management of assets, cost control, and budgeting. (PR: HCA 600)
- 653 Integrated Health Care Delivery Systems. 3 hrs.**
An investigation of managed care systems within the United States. Emphasis placed on identifying practices that promote quality care at an affordable cost. (PR: HCA 600)
- 654 Human Resource Management in Health Care. 3 hrs.**
An investigation of the human resource function found within contemporary health care provision systems. Discussion of future challenges facing the function in this turbulent environment. (PR: HCA 600)
- 655 Health Care Marketing. 3 hrs. II.**
An investigation of the role of marketing in today's health care organizations. Specific topics include market segmentation, consumer behavior, promotion, and environmental analysis. (PR: HCA 600)
- 656 Management of Medical Technology & Information Systems. 3 hrs. I.**
An investigation of the place technology, primarily hard technology, plays in the formulation of health care policy and strategies. Special emphasis placed on the management of medical information systems. (PR: HCA 600)
- 657 Health Care Law & Public Policy. 3 hrs.**
An examination of the legal, regulatory, and policy-making interactions between government, society, and health care organizations and providers. (PR: HCA 600)
- 658 Long Term Care. 3 hrs.**
An examination of the range of health and social services that are needed to compensate for the functional disabilities of people. Review of available services and governmental policies and regulations. (PR: HCA 600)
- 659 Health Care for Rural and Underserved Populations. 3 hrs.**
An investigation of how health care is provided to rural Americans. Special attention given to the health care systems that provide medical care to the peoples of Appalachia. (PR: HCA 600)
- 671 Health Care Practicum. 1-6 hrs.**
Project-oriented experience in health care operations and organizations. Intended for those students with insufficient experience in the field. (PR: Permission of program director and HCA 600)

- 695 Field Research in Health Care Management. 3 hrs. S.**
In this course, each student selects an in-depth organizational research project on a particular management problem in a health care organization. In this "hands-on" project, the student serves as a consultant to the health care organization, conducting research, analyzing data, and making recommendations for the solution(s) to the management problem. Projects focus on such topics as strategic planning, productivity, quality assurance, risk management, and joint ventures. Field research projects are selected in conjunction with the program coordinator during the semester prior to course enrollment. (PR: Permission of academic advisor)
- 697 Special Topics in Health Care Management. 3 hrs.**
The course is designed to allow group study of selected topics of current interest in health care management. (PR: Consent of instructor)
- 698 Independent Study in Health Care Management. 1-3 hrs.**
The course is designed to facilitate individual study of selected topics of interest in health care management. (PR: HCA 600 and permission of program director)

HEALTH SCIENCE (HS)

- 522 Prevention, Care and Treatment of Athletic Injuries. 3 hrs.**
This course is designed to prepare the athlete for competition, the prevention and protection of the athlete from accidents, the etiology, examination and immediate care of the athlete, and the rehabilitation of the athlete following injury.
- 526 Curriculum in Health Education. 3 hrs. I.**
A study of principles, objectives, and procedures in curriculum construction for elementary and secondary programs. Historical and philosophical perspectives. Study of existing curricular patterns. (PR: HE 220, HE 221, HE 321 and HE 325)
- 530 Health Issues in Physical Education and Athletics. 3 hrs.**
A survey of current health issues such as sanitation, contagious diseases, substance abuse, ergogenic aids, and diet/nutrition in PE and athletics. (PR: HE 201, 215, 221, 435.)
- 540 Health Evaluation for the Athletic Trainer I. 3 hrs.**
A study of common problems and illnesses of athletes and other physically active individuals and the proper methods of evaluating these complaints.
- 548 Therapeutic Modalities in Sports Medicine. 4 hrs.**
Investigation and analysis of therapeutic modalities including indications, contraindications, biophysics and procedures. Includes a lab. (PR: PE 201, 215 & Permission)
- 549 Therapeutic Exercise in Sports Medicine. 4 hrs.**
Investigation and analysis of current trends in rehabilitation exercise, muscle testing and evaluation. Includes a lab. (PR: PE 201, 215 & Permission)
- 560-564 Professional Development (Plus title that identifies content). 1-4; 1-4; 1-4; 1-4; 1-4 hrs.**
Courses and activities designed to meet the specific in-service needs of public school personnel Credit in these courses may be used for certificate renewal and salary upgrading if approved but not for degrees.
- 579 Trends in Athletic Training. 3 hrs.**
To provide an in-depth analysis of current trends with regard to administration, liability and insurance. In addition, will cover current standards in surgery, rehabilitation and evaluation of sports related injuries.
- 580-583 Special Topics in Health Education. 1-4; 1-4; 1-4; 1-4 hrs.**
An in-depth examination of selected Health Education topics through a course, seminar or workshop.
- 585-588 Independent Study. 1-4; 1-4; 1-4; 1-4 hrs.**
- 591-592 Workshop in Health Science. 1-3 hrs.**
- 620 Substance Abuse and the Athlete. 3 hrs.**
An indepth study of commonly abused substances by athletes as well as current trends in drug testing of athletes. (PR: PE 621, permission)
- 623 Medical Aspects in Sports. 3 hrs.**
Emphasis on the development of skills in recognition of symptoms of illness, injuries and proper procedures of medical care.
- 640 Health Evaluation for the Athletic Trainer. 3 hrs.**
An indepth study of common problems and complaints of athletes and the proper method of evaluating those complaints.
- 646 Athletic Training I. 3 hrs.**
Training in the diagnosis of injuries in athletics. The student will be expected to participate in diagnostic techniques under the supervision of a trainer.
- 647 Athletic Training II. 3 hrs.**
Professional aspects of trainer-doctor and doctor-athlete relations will be taught and exploration of how to professionally handle injuries and cooperation with physicians.

- 660 **Internship. 3-6 hrs.**
Practical experience in a clinical setting. (PR: PE 682, 683, 684)

HISTORY (HST)

- 502 **American Intellectual History 1865 to Present. 3 hrs.**
A critical examination of intellectual, creative and literary movements in the modern era.
- 503 **American Urban History. 3 hrs.**
A study of the political, economic, social, and intellectual impact of the city upon American History, and the impact of history upon the growth of urbanization.
- 504 **American Diplomacy, 1789-1900. 3 hrs.**
American foreign policy from colonial times to 1900 emphasizing the gradual development of the United States and its achievement of membership in the family of nations.
- 505 **American Diplomacy. 1900-Present. 3 hrs.**
American foreign relations in the in the 20th-21st centuries. The gradual retreat from isolation in the period between World Wars I and II and modern American involvement in international commitments will be stressed.
- 506 **Tudor and Stuart England, 1450-1688. 3 hrs.**
A history of England under the Tudors and Stuarts, focusing primarily on demographic, social, cultural, and political developments.
- 509 **American Revolution. 3 hrs.**
A varied view of the American Revolution and its impact on the American people.
- 510 **Conquering the Continent: America's Frontier Experience. 3 hrs.**
A survey of the American frontier experience with particular emphasis on the fate of the American Indian, the impact on the environment, and the character of the American-created culture.
- 511 **American Social and Cultural History 1607 to Present. 3 hrs.**
A study of the changes and continuities in American Social and Cultural History from 1607 to present.
- 513 **History of the Old South, 1492-1860. 3 hrs. Alternate years.**
The History of the Old South is a study of the political, economic, social, and cultural conditions in the South that led to the development of the South as a distinct section in the United States.
- 514 **Civil War and Reconstruction. 3 hrs.**
The course will include a discussion of the economic, political, social, and cultural differences leading to the Civil War, the war itself, and an analysis of the political and economic importance of reconstruction.
- 515 **History of the New South, 1877 to the Present. 3 hrs.**
The History of the New South is a study of the political, economic, social, and cultural changes in the South after Reconstruction that explain conditions in the contemporary South.
- 516 **American Social Movements. 3 hrs.**
A study of the social movements which have influenced the course of American History. Includes abolition, women's rights, Progressivism, civil rights.
- 521 **The Era of the Renaissance and Reformation. 3 hrs.**
The impact of the Renaissance upon esthetic, economic, and political developments especially in the 15th and 16th centuries. The decline of Catholicism and the growth of the Protestant movement, and the influence of the two movements upon each other is stressed.
- 522 **The French Revolution and the Napoleonic Era. 3 hrs.**
Society and government in Europe before the French Revolution and the influence of the enlightenment; ideas and changes introduced by the revolution and Napoleon and their effect on the institutions and economy of Europe.
- 523 **U.S. Latin American Relations. 3 hrs.**
An appraisal of political, economic, and cultural relations of the U.S. and Latin America in a historical context with emphasis on the period since 1945.
- 524 **U.S. Science and Technology. 3 hrs.**
A study of the development and impact of science and technology in the U.S. with special emphasis on the modern period.
- 525 **European History 1814-1914. 3 hrs.**
A century of European political, economic, and social history. Its relationship to and influence upon the history of other world areas is noted. The impact of imperialistic rivalry is emphasized.
- 526 **European History 1914 to Present. 3 hrs.**
The impact of World War I upon Europe, the era between two world wars, the search for world peace, World War II and its aftermath are major topics of consideration.
- 528 **Intellectual and Cultural History of Modern Europe. 3 hrs.**
A survey of the main currents in European thought and culture in the 19th and 20th centuries.
- 529 **Russia to 1917. 3 hrs.**
A survey of Russian history to 1917 which examines Russia before the Russians, Kievan Russia, Appanage Russia, Muscovite Russia and Imperial Russia. Emphasis is on Imperial Russia.

- 530 Soviet Russia and Beyond. 3 hrs.**
The rise and fall of the Soviet Union, with emphasis on political and economic changes and Soviet foreign policy, and including an examination of the aftermath of the Soviet Union's collapse.
- 531 America in the Gilded Age. 3 hrs.**
A study of America's transformation from a rural, agrarian nation into an urban, industrial world power, the final destruction of the American Indian, the settlement of the West, and the farmers' revolt.
- 532 America Matures, 1900-1945. 3 hrs.**
An examination of the social, political, and economic trends in the U.S. in the first half of the 20th Century, emphasizing social upheavals, conflicts, and reform movements at home and abroad.
- 533 In Our Time-America Since 1945. 3 hrs.**
A study of America since World War II focusing mainly on domestic politics, foreign affairs, the civil rights movement, the rise of minorities, and the fragmentation of American society.
- 534 The American Experience in Vietnam. 3 hrs.**
A study of the origin and escalation of American involvement in Vietnam, the domestic impact of the war within the United States and the collapse of the South Vietnamese government.
- 535 Modern Japan. 3 hrs.**
Begins with an overview of nineteenth century Japan and stresses the twentieth century rise of Japan to the position of world power.
- 536 Modern China. 3 hrs.**
This course will provide an overview of Chinese history in the modern era (1600 to the present), including the major political, cultural, social, and intellectual events and trends of this period.
- 540 West Virginia History. 3 hrs.**
An interdisciplinary study of the state, its people and its institutions within the national context.
- 545 Arab-Israeli Conflict. 3 hrs.**
This course will examine the historical developments of the modern Arab-Israeli conflict, with emphasis placed on political, socioeconomic, and cultural change and the prospects for peace.
- 580-583 Special Topics. 1-4 hrs.**
- 585-588 Independent Study. 1-4 hrs.**
- 600 Methodology: Seminar in Historical Methods. 3 hrs.**
A research and writing seminar in which students are taught and must exhibit the skills and methodologies of practicing research historians.
- 601 Tudor England 1485-1603. 3 hrs.**
In this course, students will examine in-depth several selected themes in Tudor history through reading, class discussions, examinations, and a research paper.
- 602 Stuart England, 1603-1714. 3 hrs.**
An analysis of the Social, Intellectual, Economic, Cultural, and Political History of England in the Stuart Century.
- 603 Seminar in U.S. Economic History. 3 hrs.**
A reading and research course in which a student investigates topics related to the economic and business growth of the United States in the context of America's legal, government and social institutions. Emphasis will be on development of international economic institutions and the American role in the global environment.
- 605 American Colonial History. 3 hrs.**
A study of the English colonies in America with emphasis on slavery, minorities, and social and economic change.
- 607 Problems in European History, 1890-1923. 3 hrs.**
An analysis of the politics, diplomacy and military strategy of the period of the First World War. Special emphasis is given to the origin of the war, the war itself, the peace settlement and the Russian Revolution and its aftermath.
- 610 Readings in History. 2-3 hrs.**
Readings in topics fitted to the need of the individual student. They may deal with any graduate area. This course is ordinarily restricted to off-campus students and is used sparingly.
- 620 Seminar in American Historical Biography. 3 hrs.**
A reading and research course in which a student investigates biographical topics regarding the men and women whose lives illuminate the American experience. The course will cover a wide range of activities, including the social, political, cultural, and economic development of the United States and the region.
- 625 Rebirth of Europe, 1939-Present. 3 hrs.**
Background and course of World War II, European politics since 1945, developments in international affairs with emphasis on Cold War, economic and social trends, thought and culture.
- 632 Seminar in Reconstruction. 3 hrs.**
A reading and research course in which each student investigates a specific issue related to the reunification of the nation after the Civil War.

- 633 Problems in American History, 1877-1917. 3 hrs.**
A research course in which the student probes a selected problem within the chronological span, 1877-1917.
- 634 Problems in American History Since 1917. 3 hrs.**
A research course in which a student probes a selected problem within the period since 1917.
- 635 Oral/Local History Seminar. 3 hrs.**
The course examines the field of oral history. Students will apply oral methodology and other primary sources documentation in researching a local topic.
- 636 Seminar in Women's History. 3 hrs.**
A reading and research course in which the student investigates selected topics related to the history of women in America or Europe.
- 650-651 Special Topics. 1-4; 1-4 hrs.**
(PR: Permission of Instructor)
- 679 Problem Report. 1-3 hrs.**
- 680 Public History Internship. 1-6 hrs.**
Internship in an approved setting in Public History, Archives, Museum, Oral History, or Historical Preservation. Interns will be supervised by on-site staff and History Faculty.
- 681 Thesis. 1-6 hrs.**

HOME ECONOMICS (See Family and Consumer Sciences)

HUMANITIES (HUMN)

- 530 Technology and the Humanities. 3 hrs.**
This course surveys the effects of electronic media on the humanities and how they are taught in the postmodern society. Content will subsume both philosophical/theoretical issues and technical matters.
- 560-63 Staff Development. 1-4 hrs. S/U.**
Courses and activities designed to meet specific needs of public school personnel. Credit may be used for certificate renewal and salary upgrading if approved but not in degree programs.
- 600 Introduction to Study in Humanities. 3 hrs.**
Interdisciplinary core course addresses questions/concepts central to the humanities. Texts from philosophy, history, literature, the arts and the sciences provide insights into selected historical periods. Open to non-degree students.
- 601 Literary Theory and Criticism. 3 hrs.**
Core course introduces modern critical approaches, concepts and methods of research and scholarship in the broad field of literature. Open to non-degree students.
- 602 Historical Studies. 3 hrs.**
Core course acquaints students with problems of historical knowledge, changes in the interpretation of history, nature of historical forces, and methods of historical research. Open to non-degree students.
- 603 History and Theory of the Arts. 3 hrs.**
Core course provides chronological survey of the arts, emphasizing the social, political and/or religious motives that underlie artistic production. Emphasis on theories of modern art. Open to non-degree students.
- 604 Expository Writing for Research. 3 hrs.**
This core writing course develops proficiency in writing for research. Note: a degree student may demonstrate competency through an alternative assessment to have the requirement waived. Open to non-degree students.
- 605 Western Traditions and Contemporary Cultures. 3 hrs.**
Using primary materials from different cultural periods, as well as contemporary critical analyses, this core course explores epistemological questions that underlie conflicts between cultures. Open to non-degree students.
- 650 Selected Topics. 1-9 hrs.**
- 680 Independent Research Symposium. (formerly 701), 3 hrs.**
Prerequisite: 24 credit hours, required courses, and comprehensive examination. A pro-seminar required of all Humanities degree students who are beginning the thesis or final project. S-U grade.
- 681 Independent Research Symposium. (formerly 702), 3 hrs.**
Prerequisite: Humanities 680. A continuation of the pro-seminar for students electing the thesis option. The student will produce a thesis suitable for submission to a committee. S-U grade.

HUMANITIES: ARTS AND SOCIETY (A & S)

- 500 Study of Periods and Movements in Western Art and Music. 3 hrs.**
The course relates major periods, schools, and movements to the culture of the place and time. May be repeated for a maximum of 6 hours.
- 501 Studies in Non-Western Art and Music. 3 hrs.**
Studies emphasizing non-Western art or music (e.g., Chinese art; art of the Middle East). May be repeated for a maximum of 6 hours.
- 510 Comparative Arts. 3 hrs.**
Study of artistic movements and specific stylistic features in art, music and literature. May be repeated for a maximum of 6 hours.
- 550 Sunrise Internship. 3 hrs.**
A specially designed project under the guidance of specialists at Sunrise Museums (requires special permission from the program director and Sunrise Museums).
- 560 Film Art and the Popular Media (formerly Media 560). 3 hrs.**
A consideration of films as the successor to earlier popular literatures. Relevant aspects of media history and techniques will be examined.
- 600 Selected Topics in Arts and Society. 1-6 hrs.**
Selected topics in arts and society. The specific topic will be announced in the schedule of classes. Students may take up to nine hours in selected topics.
- 620 Selected Topics in Decorative Arts. 1-6 hrs.**
Selected topics in history and practices of decorative arts (e.g., interior design, furniture styles, architecture).

HUMANITIES: CULTURAL STUDIES (CULS)

- 500 Studies in Thought and Culture. 3 hrs.**
Basic concepts and cultural expressions in words, principally of area or period studies, such as classical Western, medieval Western, modern European and American.
- 530 Fundamental Approaches to Communication Criticism. 3 hrs.**
Course examines the theoretical approaches to criticism across the broad range of media, with focus on the philosophy behind each and on their various applications.
- 540 World Religions. 3 hrs.**
Study of several religions as they developed within their individual times and cultures.
- 550 Ethics. 3 hrs.**
A critical examination of ethical theories as seen in a detailed examination of several works. Theories may include naturalism, intuitionism, non-cognitivism, utilitarianism, and natural law.
- 560 History of Ideas. 3 hrs.**
A study of the efforts of philosophers to construct general conceptions of the world. Recent approaches in the investigation of ontology and cosmology will be examined.
- 600 Selected Topics in Cultural Studies. 1-6 hrs.**
Selected topics in an area of cultural studies. The specific topic will be announced in the schedule of classes. Students may take up to nine hours in selected topics.
- 610 Seminar in Appalachian Culture. 3 hrs.**
Exploration of selected aspects of culture (e.g., art, music, folklore, history, literature), emphasizing regional culture from an interdisciplinary perspective.
- 611 Appalachian Studies: Themes and Voices. 3 hrs.**
This interdisciplinary course orients students to the significant issues and research in Appalachian studies. Important political, social, and cultural issues will be considered. Research areas are introduced. (This core course in the Graduate Certificate in Appalachian Studies may be taken by degree students in Humanities.)
- 612 Time and Place in Appalachia. 3 hrs.**
This interdisciplinary course orients students to the importance of geography, topography, and geology to the history and development of the Appalachian region. (This core course in the Graduate Certificate in Appalachian Studies may be taken by degree students in Humanities.)
- 620 Women, Men, and Cultural Change. 3 hrs.**
A study of gender differences from sociological and philosophical perspectives. Topical areas covered include communications, law, literature, popular culture, ethics, and business.
- 650 Classical Foundations in Communication Studies. 3 hrs.**
Course surveys major contributions to rhetorical theory during the classical period and the development of rhetorical criticism in the centuries since. Philosophers/writers will include Plato, Aristotle, Cicero and Quintilian.

- 652 Communication and Social Movements. 3 hrs.**
 Course examines the role of communication in successful social movements. Contemporary reform movements are analyzed to determine communication strategies, organizational issues, leadership concerns and rhetorical focus.
- 653 Media and the Political Process. 3 hrs.**
 An introduction to the study of political rhetoric, the course relates rhetorical theory to political communication and considers the impact of political communication in government, the electoral process, and society.

HUMANITIES: HISTORICAL STUDIES (HIST)

- 580 Ethnic History of West Virginia. 3 hrs.**
 This course focuses on the contributions that individuals and groups with diverse ethnic backgrounds have made to the economic, social, and cultural history of the state.
- 585 Coal Mine Life, Work and Culture in West Virginia. 3 hrs.**
 This course provides students with a better understanding of the continuing economic, political, environmental and cultural impact which the extraction of coal has had on West Virginia.
- 600 Selected Topics in Historical Studies. 1-6 hrs.**
 Selected topics in history. The specific topic will be announced in the schedule of classes. Students may take up to nine hours in selected topics.
- 601 Historic Preservation. 3 hrs.**
 Course broadens historical awareness and provides practical applications of historical knowledge. It covers the built environment and focuses on the history, processes and legal basis of the historic preservation movement.
- 620 Civil War and Reconstruction. 3 hrs.**
 This course examines the complex causes and lasting effects of the American Civil War. Issues such as slavery, sectionalism, emancipation and Reconstruction will receive attention.

HUMANITIES: LITERARY STUDIES (LITS)

- 510 Comparative Approaches to Literature. 3 hrs.**
 Exploration of literature via literary movements, themes, genres, or relationship to other disciplines. Specific works will be read and discussed as examples of the announced approach.
- 520 Creative Writing and Practical Criticism. 3 hrs.**
 Exploration of the possibilities for communication and expression in contemporary writing with emphasis on comprehension of structure, technique and self-criticism of the writing experience.
- 522 Selected Topics in Writing (formerly Media 522), 3 hrs.**
 The study of selected topics in writing (e.g., the expository essay, screen-writing, techniques of editing, etc.)
- 540 Studies in Mythology/Folklore. 1-6 hrs.**
 Selected topics in mythology and folklore (e.g., folk drama, folk tale, folk art). May be repeated for a maximum of 6 hours.
- 580 Literature for Teachers. 3 hrs.**
 Study and appreciation of selected works with special reference to the high school curriculum.
- 600 Selected Topics in Literary Studies. 1-9 hrs.**
- 615 Modern Southern Literature. 3 hrs.**
 Course surveys important figures in Southern literature since the Southern Literary Renaissance of the 1920s and the Agrarian and Fugitive Movements.
- 625 Updating Shakespeare: Text, Stage, and Film. 3 hrs.**
 Focusing on selected Shakespearean plays, this course considers recent critical interpretations and explores how these have influenced stage and film productions. Contemporary adaptations of the plays will also be considered.
- 636 Literature and Society in Late 18th C. England. 3 hrs.**
 This course examines biographies, social, political and scientific writings, literary texts and the arts from 1750-1800 to understand English culture and the eighteenth-century world.
- 660 Modern Irish Novel. 3 hrs.**
 This course examines the subject matter, techniques, and critical background of the modern Anglo-Irish novel. Students will study representative examples by major novelists from the Republic and Northern Ireland.
- 662 Twentieth-Century Irish Drama. 3 hrs.**
 From the founding of the Abbey Theatre to the present, this course traces the development of Irish drama as art form and cultural artifact.

- 670 Contemporary World Fiction. 3 hrs.**
Contemporary works of shorter fiction from around the world offer opportunities to apply cultural critiques and comparative literary perspectives, while considering the different national and cultural traditions represented.

HUMANITIES: STUDIO ART (ARTS)

- 500 Selected Topics in Studio Arts. 1-6 hrs.**

INDUSTRIAL AND EMPLOYEE RELATIONS (IER)

- 600 Development of Labor Relations. 3 hrs. I.**
An historical survey of the organized labor movement in the United States and review of legislation affecting the American worker. Attention is given to the industrial relations system of the United States as it relates to those of Western Europe and other nations. (PR: GSM admission or permission of GSM academic advisor)
- 605 Human Resource Economics. 3 hrs. I.**
Economic issues in the employment and compensation of labor. Topics emphasized include labor force composition and growth, structure and functioning of labor markets, unemployment, wage theories, wage levels and structures, the economic influence of unions, income distribution, and human capital models. (PR: ECN 253 or ECN 501 plus GSM admission)
- 610 Collective Bargaining. 3 hrs. I.**
A comprehensive survey of collective bargaining with special emphasis given to philosophy, structure, and the process of negotiations. Attention is also given to important developments and emerging trends in collective bargaining. (PR: IER 600)
- 615 Arbitration and Grievance Procedures. 3 hrs. II (even-numbered years).**
A study of grievance procedures and arbitration as formalized in labor-management relations, including an analysis of principles and practices of complaint handling, review of concepts and methodology in such grievance handling, review of the role of arbitration as a dispute resolution mechanism, utilization of factfinding and mediation as alternate mechanisms, the preparation and handling of materials in briefs or oral presentations, and the function or role of the arbitrator, impartial chairman, umpire, or similar neutral. (PR: IER 600)
- 630 Labor Law. 3 hrs. II (odd-numbered years).**
A survey and analysis of the labor relations law; examination of the extent to which the law regulates and protects concerted action by employees in the labor market; considerations and analysis of the legal framework within which collective bargaining occurs; and analysis of major aspects of employer-employee law, such as wrongful discharge, discrimination, and safety and health law. (PR: IER 600)
- 640 Structural Issues in Union Management Relations. 3 hrs.**
A study of the organizing structure found in various types of unions, their operating procedures, governing bodies, and the interrelationships existing at the local, international, and federation levels. Review of the dual role of unions as both societal institutions and employee agents. Discussion of trade union philosophy from early beginnings to the present. Consideration is given to the different philosophical, political, and structural characteristics of American unions and European/Asian unions. (PR: IER 600 and GSM admission)
- 650 Industrial Psychology. 3 hrs.**
Survey of the applications of psychological principles and of research methodologies to the various human problems in industry, such as personnel selection and appraisal; the organizational and social context of human work; the job and work situation; human errors, accidents, and safety; and the psychological aspects of consumer behavior. (PR: GSM admission)
- 660 Administration of Compensation and Fringe Benefits. 3 hrs. S.**
The development and administration of wage and salary programs, and an analysis of both private and public health, welfare and pension plans. Topics investigated include motivation theory, factors influencing compensation levels, forms of compensation, including incentive plans and fringe benefits, a critical examination of financing, administration, and general effectiveness of the plans, special issues of managerial compensation, comparable worth, special and related issues. (PR: MGT 620 and GSM admission)
- 670 Personnel Selection and Testing. 3 hrs.**
A study of the personnel employment and selection processes. Emphasis is placed on the rationale for selection and placement; the procedures and problems in recruitment and selection; and the use of tests, interviews, and other selection devices. Special attention is given to the criterion problem and legislation and/or governmental regulations affecting selection procedures. (PR: GSM admission)
- 675 Human Resource Development and Training. 3 hrs.**
This course teaches students how to develop management training modules and materials. Students also learn and use advanced techniques in training design and group facilitation. (PR: GSM admission)

- 680 Labor and Employee Relations in Public Employment. 3 hrs.**
An examination of the development, practices and extent of collective bargaining between federal, state, and local governments and their employees. Emphasis is on the public issues related to sovereignty, unit determinations, impact on budgetary and financing processes, representation procedures, unfair practices, scope of bargaining, impasse resolution, and the strike. Some attention is devoted to the legal and ethical problems inherent in these issues. (PR: IER 600)
- 697 Special Topics in Industrial Relations. 3 hrs.**
Selected topics of current interest in industrial relations. (PR: IER 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)
- 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)
- 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.
- 520 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.
- 525 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, audiovisual equipment and materials, computer hardware and software, and methods and materials for teaching library skills.
- 530 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.
- 550 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.
- 580-583 Special Topics. 1-4 hrs.**
- 585-588 Independent Study. 1-4 hrs.**

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.
- 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.**

LEADERSHIP STUDIES (LS)

- 500 Introduction to School Leadership. 3 hrs.**
Examination of fundamental purposes, functions, and structure of public schools.