



Graduate Courses of Instruction

ABBREVIATIONS

PR:	Prerequisite
CR:	Corequisite
REC:	Recommended
I,II,S:	I-Fall semester; II-Spring semester; S-Summer
-lec. -lab	lecture and laboratory hours per week (e.g., 2 lec-4 lab means two hours lecture and four hours laboratory per week)
S/U:	Graded Satisfactory/Unsatisfactory.

A & S	ARTS AND SOCIETY	201	CIVI	CURRICULUM AND INSTRUCTION: VISUAL IMPAIRMENTS	180
ACC	ACCOUNTING	148	CJ	CRIMINAL JUSTICE	169
ATE	ADULT AND TECHNICAL EDUCATION	149	CL	CLASSICS	161
ACB	ANATOMY, CELL AND NEUROBIOLOGY	153	CMM	COMMUNICATION STUDIES ...	162
ANT	ANTHROPOLOGY	154	COUN	COUNSELING	165
ART	ART AND DESIGN	155	CS	COMPUTER SCIENCE	164
ARTS	STUDIO ART	203	CSE	CONTROL SYSTEMS	165
BIC	BIOCHEMISTRY AND MOLECULAR BIOLOGY ..	156	CULS	CULTURAL STUDIES	201
BMS	BIOMEDICAL SCIENCES	159	DTS	DIETETICS	180
BSC	BIOLOGICAL SCIENCES	157	ECN	ECONOMICS	181
CD	COMMUNICATION DISORDERS	161	EDF	EDUCATIONAL FOUNDATIONS	182
CE	CIVIL ENGINEERING	160	EE	ELECTRICAL ENGINEERING ..	184
CHE	CHEMICAL ENGINEERING	159	EM	ENGINEERING MANAGEMENT	184
CHM	CHEMISTRY	159	ENG	ENGLISH	184
CI	CURRICULUM AND INSTRUCTION	171	ENGR	ENGINEERING	184
CIDH	CURRICULUM AND INSTRUCTION: DEAF/HARD OF HEARING ...	173	ENVE	ENVIRONMENTAL ENGINEERING	187
CIEC	CURRICULUM AND INSTRUCTION: EDUCATIONAL COMPUTING ..	174	ES	ENVIRONMENTAL SCIENCE ..	188
CIME	CURRICULUM AND INSTRUCTION: MATHEMATICS EDUCATION ..	175	FCS	FAMILY AND CONSUMER SCIENCE	190
CIRG	CURRICULUM AND INSTRUCTION: READING EDUCATION	176	FIN	FINANCE	191
CISE	CURRICULUM AND INSTRUCTION: SCIENCE EDUCATION	177	FRN	FRENCH	193
CISL	CURRICULUM AND INSTRUCTION: ENGLISH AS A SECOND LANGUAGE	175	FSC	FORENSIC SCIENCE	191
CISP	CURRICULUM AND INSTRUCTION: SPECIAL EDUCATION	178	GEO	GEOGRAPHY	193
			GLY	GEOLOGY	195
			HCA	HEALTH CARE ADMINISTRATION	196
			HS	HEALTH SCIENCE	197
			HIST	HISTORICAL STUDIES	202
			HRM	HUMAN RESOURCE MANAGE- MENT	203
			HST	HISTORY	198
			HUMN	HUMANITIES	200

(continued)

IE	INDUSTRIAL ENGINEERING ..	204	PHL	PHILOSOPHY	223
IS	INFORMATION SYSTEMS	204	PHS	PHYSIOLOGY	227
ITL	INSTRUCTIONAL TECHNOLOGY AND LIBRARY SCIENCE	206	PHY	PHYSICS	226
JMC	JOURNALISM AND MASS COMMUNICATIONS	207	PLS	PARK RESOURCES AND LEISURE SERVICES	221
LAT	LATIN	208	PMC	PHARMACOLOGY	222
LE	LEGAL ENVIRONMENT	213	PS	PHYSICAL SCIENCE	225
LITS	LITERARY STUDIES	202	PSC	POLITICAL SCIENCE	228
LS	LEADERSHIP STUDIES	209	PSY	PSYCHOLOGY	230
MCB	MICROBIOLOGY, IMMUNOLOGY AND MOLECULAR GENETICS	216	PTH	PATHOLOGY	222
MGT	MANAGEMENT	212	QA	QUALITY ASSURANCE	234
MIS	MANAGEMENT INFORMATION SYSTEMS	213	RST	RELIGIOUS STUDIES	234
MKT	MARKETING	213	SFT	SAFETY TECHNOLOGY	234
MSF	MINE SAFETY	216	SOC	SOCIOLOGY	237
MTH	MATHEMATICS	214	SPN	SPANISH	239
MUS	MUSIC	217	SPSY	SCHOOL PSYCHOLOGY	236
NUR	NURSING	220	TE	TECHNOLOGY AND ENGINEERING	240
PE	PHYSICAL EDUCATION	224	THE	THEATRE	241
			TM	TECHNOLOGY MANAGEMENT	240

ACCOUNTING (ACC)

- 510 Survey of Accounting. 3 hrs.**
Application of accounting as an information development and communication function that supports economic decision making. Topics include principles, concepts, problems, financial analysis, personal and organizational decisions, business entities, and government.
- 580-583 Special Topics. 4 hrs.**
- 612 Accounting Functions in Business. 3 hrs.**
A study of the generation, transformation, and presentation of quantitative data produced by the accounting process. Emphasis is given to the modern accounting system that generates information (1) for marketing, production, and financial executives in planning and controlling business operations, and (2) by investors, creditors, governmental agencies, and other external groups having an interest in the operating results and financial position of business firms. (PR: Full M.B.A. admission or permission of GSM academic advisor)
- 613 Profit Planning and Controls. 3 hrs.**
Determination, analysis, and reporting of data for planning and controlling operations. Includes flexible budgets, standard costs, and systems of determining historical costs. (PR: Full M.B.A. admission or permission of GSM academic advisor)
- 614 Theory of Accounting. 3 hrs.**
History and development of accounting principles; intensive study of theoretical problems related to determination of income and presentation of financial conditions. (PR: Accounting 613 and full M.B.A. admission or permission of GSM academic advisor)
- 615 Auditing Theory and Practice. 3 hrs.**
Legal and social responsibilities of the auditor. Verification of financial statements by independent public accountants and internal auditors. (PR: ACC 429 and full M.B.A. admission or permission of GSM academic advisor)
- 616 Advanced Income Tax Procedure. 3 hrs.**
A study of selected topics in the Internal Revenue code and regulations with emphasis on tax accounting and research. (PR: ACC 348 and full M.B.A. admission or permission of GSM academic advisor)
- 617 Advanced Controllorship. 3 hrs.**
Functions of the modern corporate controller. Topics and problems demonstrating the integrative nature of the controller's role are investigated. The use of the computer is integrated into the course. (PR: ACC 613 and full M.B.A. admission or permission of GSM academic advisor)
- 618 Accounting Research. 3 hrs.**
Examination and evaluation of current theories, issues, and problems relating to accounting. Primary emphasis on accounting theory and research. (PR: ACC 312 and full M.B.A. admission or permission of GSM academic advisor)

- 648 Tax Research. 3 hrs.**
Examines the primary and secondary sources of income tax law. Assignments will address using paper and electronic research tools to locate, understand, and interpret primary and secondary source materials.
- 650 Special Topics. 1-3, 1-3 hrs.**
(PR: Permission of the division head and full M.B.A. admission)
- 660 Independent Study. 1-4 hrs.**
Independent study of a specific nature under the supervision of a faculty member with graduate status. Hours determined by the magnitude of the project. (PR: Permission of the division head and full M.B.A. admission or permission of GSM academic advisor)

ADULT AND TECHNICAL EDUCATION (ATE)

- 503 Introduction to Adult Learning Theory. 3 hrs.**
Designed to acquaint the student with the field of adult education and its underpinnings and the various adult learning theories and/or approaches.
- 505 Instructional Methods in Technical Training. 3 hrs.**
Unit and lesson planning; cooperative education as a method of instruction, project plan of instruction, classroom management and control, demonstration techniques, evaluation methods, field experience in Marketing Education classroom.
- 508 Teaching Methods in Career and Technical Education. 3 hrs.**
Correlating lab instruction with classroom instruction; individual and group instruction sheets and materials; the four teaching steps in career and technical education; physical factors relating to classroom and lab.
- 510 Developing Selling Curriculum. 3 hrs.**
Conduct library research, review selling content, select content objectives, identify content appropriate for the target group, prepare teaching outlines, and design evaluation instruments.
- 511 Introduction to Career and Technical Education. 3 hrs.**
Designed as a follow-up to Teaching Methods in Career and Technical Education and intended to provide the new teacher guidance and supervision in developing teacher competence.
- 512 Course Construction and Planning in Career and Technical Education. 3 hrs.**
Analysis procedures for determining career and technical curriculum content; determination of program goals and objectives; involvement of advisory committees; factors, principles, and techniques of developing a course of study.
- 513 Organization and Management of School Shops and Laboratories. 3 hrs.**
Responsibilities as a manager; methods of handling tools, equipment, and supplies; project instructional resource needs and reporting; improvement of facilities; filing system, and career and technical laboratory.
- 520 Principles of Cooperative Education. 3 hrs.**
Principles for planning, implementing, and evaluating the cooperative design within the various service areas of technical education; analysis of factors which must be considered in selection of the cooperative design.
- 521 Occupational Analysis. 3 hrs.**
Assist the instructor in analyzing an occupation; goals and objectives to form a basis for vocational curriculum; classifying and describing occupations; analysis procedures; course content, and technical skills and knowledge.
- 522 Administration of Cooperative Programs. 3 hrs.**
Administering cooperative education programs, recruiting, and selecting students; selecting training agencies and placing students; conducting public relations activities for the program; and advising the student organization.
- 524 Safety in Career and Technical Education. 3 hrs.**
Responsibilities of the teacher in providing a safe learning/working environment; effective approaches to accident prevention; laws and regulatory agencies regarding safety management in the classroom and laboratory.
- 525 Computer Applications in Business and Marketing Education. 3 hrs.**
Study of computer applications and software for Business and Marketing Education.
- 535 Methods of Examination in Career and Technical Education. 3 hrs.**
Develop written and performance evaluation instruments; develop and use progress charts; determine appropriate grading procedures. Develop rating scales, objectives tests, classroom tests, and manipulative tests. Introduction to statistics.
- 536 Coordination of Cooperative Career and Technical Education. 3 hrs.**
Background of coordination; methods of techniques for evaluating and selecting work stations; student selection, placement, and follow-up; role of advisory committees; methods of evaluating cooperative work experience.

- 540 Developing Merchandising/Sales Promotion Curriculum. 3 hrs.**
Conduct library research, review merchandising and sales promotion content, objectives, identify content appropriate for the target group, prepare teaching outlines, and design evaluation instruments.
- 542 Principles of Prevocational Exploration. 3 hrs.**
Study of the prevocational exploration delivery system. Develop instructional units which include goals, objectives, and criteria for evaluation of students.
- 544 Practicum in Prevocational Exploration, I. 3 hrs.**
Participants make revisions to instructional units, organize a Career Exploration Club, and recognize apprenticeship opportunities.
- 546 Practicum in Prevocational Exploration, II. 3 hrs.**
Participants modify the 36-lesson plan project, incorporate additional "hands-on" activities, examine teaching strategies, and design activities for community involvement utilizing an advisory committee.
- 547 Computer Applications in Career and Technical Education. 3 hrs.**
Designed to introduce modern instructional technology in today's classrooms and labs. Introduction to disk operating systems; application software for instruction and instructional management; student evaluation; record keeping, and work processing.
- 548 Applications of Basic Skills in Career and Technical Education. 3 hrs.**
Methods, techniques, and strategies for incorporating basic skills in career and technical instruction; emphasis on reading, writing, math, oral communication, and critical thinking skills; job-seeking and job-keeping skills.
- 549 Occupational Analysis and Instructional Design. 3 hrs.**
Analyzing an occupation to identify knowledge and skills; use of the analysis to develop problem solving objectives and instructional plans; emphasis on approach to facilitate student achievement of objectives.
- 550 Interpersonal Skills in the Workplace. 3 hrs.**
Course is designed to provide opportunities to learn in preparation for career success with supervisors, co-workers, clients, and customers. Human relations skills are examined and related to business success.
- 552 History and Philosophy of Career and Technical Education. 3 hrs.**
Historical influences in the development of workforce education in America and Europe; motivating influences and the implications of philosophy in modern career and technical education.
- 559 Coordination of Career and Technical Youth Activities. 3 hrs.**
Organize and develop co-curricular student organization; defining the purpose of the organization; plan application and integration into the vocational program; competencies in leadership and team building.
- 560-563 Professional Development. 1-4 hrs.**
- 565 Career Exploration and Development. 3 hrs.**
Exploring principles and techniques for career planning and job search. An overview of strategies for gaining a competitive edge in the labor market and for experiencing a successful career beginning.
- 569 Business and Occupational Teaching Methods. 3 hrs.**
Survey materials and methods for developing competencies in teaching business education and/or occupational training programs.
- 570 Practicum in Adult and Technical Education. 1-4 hrs.**
Individually designed field experience under supervision of the faculty; such experience related to the student's future professional role.
- 580-584 Special Topics. 1-4 hrs.**
- 585-588 Independent Study. 1-4 hrs.**
- 591-594 Workshop. 1-4 hrs.**
- 589 Grant Proposal Writing for Business and Industry. 3 hrs.**
This course provides a step-by-step guide to the proposal writing process, from the initial stages of planning, to writing the first draft, to preparing the final document.
- 595 Historical Developments in Workforce Preparation. 3 hrs.**
An overview of the historical evolution of technical education legislation; analysis of Technical Education Acts as they relate to state and local planning of technical education programs.
- 600 Aspects of Training and Development. 3 hrs.**
Overview of the training and development profession and theories that support the profession; emphasis on the variety of solutions used by HRD professionals to help improve individual and organizational performance.
- 601 Philosophy of Workforce Preparation 3 hrs.**
Overview of the historical origins of technical education and their relationship to educational philosophies; foundations of areas of technical education; analysis of questions fundamental to a philosophy of technical education.

- 603 Introduction to Adult Education and Adult Learners. 3 hrs.**
Designed to acquaint the student with the field of adult and continuing education, its foundations and development in this country and future trends.
- 605 Foundations of Business and Marketing Education. 3 hrs.**
Application of philosophy and principles of business and marketing education to the objectives, curriculum, guidance, and teacher preparation, emphasizing the techniques for coordination of federally aided programs.
- 609 Developing Training Plans for Business and Industry. 3 hrs.**
Analysis of factors in developing local plans for business and industry; emphasis on implications of federal guidelines; factors which impinge upon programs during implementation; developing evaluation procedures.
- 610 Current Issues in Business and Marketing Education. 3 hrs.**
Individual and group analysis of current issues in business and marketing; identification of issues significant to the direction of sound business education and marketing education programs.
- 614 Adult/Technical Education and Economic Development. 3 hrs.**
Study of the sources of data on employment needs; relationship to planning techniques for conducting a community survey; organizing data for analysis and applying the findings to the planning process.
- 615 Student Career Organizations. 3 hrs.**
A study of various facets of existing state/national student organizations. Special emphasis is placed upon the organizations of student career organizations and parliamentary procedures. (PR: ATE 542 or equivalent)
- 616 Community Relations in Adult/Technical Programs. 3 hrs.**
Study of community organization and the relationship of adult/technical education; consideration of models for analyzing employment opportunities and occupational training needs and the process in securing community commitment.
- 618 Literature of Adult and Continuing Education. 3 hrs.**
A program of readings and reports on specific areas in adult education or particular problems within an area of adult and continuing education. Readings to be selected cooperatively with advisor.
- 628 Adult Instruction: Environmental and Personal Aspects. 3 hrs.**
The course examines both environmental and personal factors which may impact on the adult learning process and is designed to foster awareness, which will be translated into appropriate intervention strategies.
- 631 Survey Practicum in Computer Applications in Business and Industry. 3 hrs.**
An introductory course for persons who want to become familiar with the application of computers in the business/industrial fields represented by adult and technical education.
- 635 Specialized Practicum in Computer Applications in Business and Industry. 3 hrs.**
An advanced course for persons who want to further their knowledge of the application of computers in the business/industrial fields represented by adult and technical education.
- 637 Individual Computer Program Applications. 3 hrs.**
Individually designed learning activities that involve the application of previously learned theories, processes, operations, techniques or systems. The applications are studied, analyzed, and evaluated.
- 640 Program Design in Technical Education. 3 hrs.**
An overview of technical education history, philosophy, legislation, certification, evaluation, and operations. Comparison to academic programs to emphasize similarities and differences.
- 643 Teaching EFL Abroad. 3 hrs.**
Designed to explore the educational history of teaching a foreign language in different countries. (PR: CISL 550 and CISL 551)
- 650 Career Education Curriculum Development. 3 hrs.**
Instructional unit is developed to assist children and youth achieve academic, general, or technical education and also career education goals; includes goals, objectives, procedures, student activities, resources, and evaluation.
- 651 Developing Marketing Curriculum. 3 hrs.**
Conduct library research, review marketing content, select content objectives, identify content appropriate for the target group, prepare teaching outlines, and design evaluation instruments.
- 652 Field Based Job Analysis and Curriculum Design. 3 hrs.**
Field study of job analysis, curriculum, course, and program design.
- 653 Developing Management Curriculum. 3 hrs.**
Conduct library research, review management content, select content objectives, identify content appropriate for the target group, prepare teaching outlines, and design evaluation instruments.
- 655 Developing Human Resources Curriculum. 3 hrs.**
Conduct library research, review personnel content, select content objectives, identify content appropriate for the target group, prepare teaching outlines, and design evaluation instruments.

- 656 Instructional Planning for Adult Populations. 3 hrs.**
An examination and application of the process involved in the development, operation, and evaluation of adult programs in the community, business, and industry.
- 659 EFL Methods. 3 hrs.**
Designed to provide students with the latest methodologies associated with teaching EFL to the adult learner. (PR: ATE 643)
- 661 Practicum in Adult and Continuing Education. 3 hrs.**
Individually designed to provide field experience under the supervision of the faculty, such experience to be related to the student's project role in adult and continuing education.
- 662 Applied Field Experience in Prevocational Exploration. 3 hrs.**
Participants are assisted in making revisions in instructional units, organizing an advisory committee, and organizing a Career Exploration Club as an integral part of the classroom instruction. (PR: ATE 542)
- 663 EFL Practicum. 3 hrs.**
Designed to engage the student in hands-on teaching in a classroom setting. (PR: ATE 659)
- 664 Technical Education Practicum. 3 hrs.**
Individually designed to provide field experience under the supervision of the faculty, such experience to be related to the student's profession.
- 667 Cooperative Education Workforce Experience. 1-10 hrs.**
Alternating or parallel periods of study and paid employment for experiential learning related to student's academic and/or professional goals (Min. 50 hours of paid work experience per credit hour)
- 668 Field Based Internship in Business and Industry. 3 hrs.**
Internship in the technical content areas of marketing, merchandising, management or technology; evaluating methods, and procedures in marketing, merchandising, management, or technology. (PR: ATE 609, 628, 652 and 656)
- 671 Evaluation of Adult and Technical Instruction. 3 hrs.**
An examination of the design and evaluation processes used in adult learning areas with emphasis on the T&D and technical fields as well as the general field.
- 673 Assessment in Adult/Technical Education. 3 hrs.**
Evaluation procedures in adult/technical education including principles of test construction; survey of standardized and published tests; utilization in the classroom or training department; review of statistical methods.
- 675 Literature and Applied Research in Adult/Technical Education. 3 hrs.**
Program of readings and reports on specific areas of adult/Technical education or particular problems within an area of adult and technical education; reading selected cooperatively with advisor.
- 677 Research Methodology and Design in Adult/Technical Education. 3 hrs.**
Study of methodology, application, analysis and synthesis of research; a review of current studies with attention to statistical techniques, data collecting, data handling, and the impact of particular research.
- 679 Problem Report. 1-6 hrs.**
- 680 International Workforce Development. 3 hrs.**
This course is designed for students in technical and social fields who are interested in workforce development. It has three components: education and training, collaborative research, and technical assistance.
- 681 Thesis. 1-6 hrs.**
- 690-692 Seminar. 1-4 hrs.**
- 701 The Community and Technical College. 3 hrs.**
History, functions, and unique characteristics of the two-year college in the American education system.
- 702 Analysis of Literature on Community and Technical College Teaching. 3 hrs.**
Identification and analysis of current issues in community technical college teaching with application of procedures for investigation, accompanied by a critical examination of findings and their application to local programs.
- 703 Interpretation and Utilization of Applied Research in Community and Technical College Teaching.**
Students will learn how to choose the appropriate statistics, interpret the outputs, and develop skills in writing about the meaning of the results.
- 707 Professional Seminar I. 1 hr.**
Selected topics in program and institutional assessments related to community and technical colleges.
- 708 Professional Seminar II. 1 hr.**
Selected topics in thesis proposal, overview of grantsmanship, and funding sources. Discussion of the effects of new technologies and the Internet on the proposal process.
- 709 Professional Seminar III. 1 hr.**
Provides students an opportunity to synthesize prior course experiences and to prepare and present a draft thesis prospectus.

- 712 Classroom Assessment for Community and Technical College Students. 3 hrs.**
Presentation of assessment principles that clearly and specifically relate to instruction, current research and new directions in the assessment field, and practical and realistic examples and suggestions.
- 714 Community and Technical College Curriculum Design. 3 hrs.**
Study of the major curricular programs of the comprehensive community college, including factors that influence the design and implementation, processes for assessing, and strategies for changing the curriculum for open access colleges.
- 718 Education and Employment Preparation for Diverse Populations. 3 hrs.**
The needs of diverse/special needs populations, including youth and adults with disabilities, disadvantaged, limited English proficient, displaced workers, minorities, incarcerated, and single teen parents. Specific attention to federal legislation.
- 723 Perspectives and Strategies for Teaching Workforce Education. 3 hrs.**
Teaching/learning process and consideration of teaching methods employed to encourage, guide, and evaluate community and technical college students' learning.
- 726 Funding, Planning, and Administrative Issues of Community and Technical Colleges. 3 hrs.**
Governance and administration of the contemporary community and technical college in the United States with a focus on planning, funding, and selected administrative issues.
- 781 Thesis. 6 hrs.**
Individual research in a selected field of community and technical college teaching under the direction of a graduate faculty member of the department.

ANATOMY, CELL AND NEUROBIOLOGY (ACB)

- 620 Gross Anatomy/Embryology. 8 hrs. I.**
The course presents a comprehensive study of the structures of the human body and their development. Although the course is centered in dissection, additional learning resources include examination of non-invasive images such as CAT scans, MR images and radiographs, and the study of models and the use of computer programs. Clinical correlates and cases are used to establish the anatomical basis of the practice of medicine.
- 624 Microscopic Anatomy and Ultrastructure. 4 hrs. II.**
Students study the functional and microscopic aspects of cell and tissue types found in different regions of the human body. Presentation of topics correlates with the physiology course, which runs concurrently and provides an organ system approach to the material. In the laboratory portion of the course, tissues from medical histology slide sets and electron micrographs are studied.
- 626 Advanced Histological Techniques. 4 hrs., II.**
Advanced techniques of tissue preparation, staining, histochemistry and immune localization. (PR: Consent of instructor)
- 628 Anatomy of the Nervous System. 4 hrs. II.**
The gross and fine structure of the nervous system is correlated with function at each level of the spinal cord and brain. Lectures are supplemented in the laboratory by the study of microscopic sections and gross sections of the spinal cord, brain stem and whole brain. (PR: Consent of instructor)
- 632 Principles of Mammalian Development. 3 hrs. I.**
A course designed to present the salient features of normal human development so that students will have a basis for comprehending normal adult anatomic relations and variations, and a basis for interpreting congenital pathologic conditions. (PR: Consent of instructor)
- 639 Neuroanatomy Research Techniques. 3 hrs. S.**
Students rotate through neuroanatomy faculty research laboratories where they have the opportunity to see state-of-the-art neuroanatomy research skills demonstrated. Each student has the opportunity to participate in neuroanatomical research. (PR: Consent of instructor)
- 640 Current Topics in Cellular Biology. 1-3 hrs. II.**
Students carry out a guided comprehensive review of the literature on a current research topic. The topic is selected by agreement of the student and faculty member. Consent of instructor is required.
- 641 Electron Microscopy. 3 hrs. I.**
The theory and practice of transmission electron microscopy (TEM). Sample preparation, TEM operation, darkroom work, manuscript preparation, and an individualized research project. (PR: Consent of instructor)
- 643 Independent Study in Electron Microscopy. 1-5 hrs. II.**
Supervised individual research projects in electron microscopy and advanced EM Techniques: STEM, SEM, Diffraction, Darkfield. (PR: ACB 641 or approval of instructor)
- 650 Research in Cellular Processes. 1-4 hrs. II.**
Provides the student with an introduction to research in cellular biology and neurobiology. The education program is arranged in consultation with an individual faculty member. Consent of instructor required.

- 655 Digital Video Imaging. 3 hrs. I, II.**
An in-depth study of the theory and practice of fluorescence and confocal microscopy (including Image Deconvolution, Multiphoton Imaging, FRET, FRAP, and GFPs), intracellular ion measurements and Immunocytochemistry. (PR: Consent of instructor)
- 660 Current Topics in Neurobiology. 1-3 hrs. II.**
Students carry out a guided comprehensive review of the literature on a current research topic in neurobiology. The topic is selected by agreement of the student and faculty. Consent of instructor required.
- 675 Special Topics. 1-4 hrs. I, II.**
Present course material on special areas of research or topics which are not routinely covered in existing courses. Consent of instructor is required.
- 676 Special Topics. 1-4 hrs. I, II.**
Present course material on special areas of research or topics which are not routinely covered in existing courses. Consent of instructor is required.
- 677 Special Topics. 1-4 hrs. I, II.**
Present course material on special areas of research or topics which are not routinely covered in existing courses. Consent of instructor is required.

ANTHROPOLOGY (ANT)
(See Sociology)

- 505 Applied Anthropology. 3 hrs.**
Principles of applied anthropology in community development. (PR: 6 hours of anthropology or sociology or equivalent)
- 526 African Cultures. 3 hrs.**
Comparative analysis of the tribal cultures of Africa. (PR: 6 hours of anthropology, or equivalent)
- 527 Ethnic Relations. 3 hrs.**
Analysis of cultural contact situations with emphasis on the role of western Europe cultures. (PR: 6 hours of anthropology or equivalent)
- 530 The American Indian. 3 hrs.**
Comparative analysis of Indian tribal cultures of the Americas. (PR: 6 hours of anthropology or equivalent)
- 537 World Cultures: An Anthropological View. 3 hrs.**
Anthropological analysis of the major culture areas of the world. (PR: 6 hours of anthropology or permission)
- 541 Oceania. 3 hrs.**
Comparative analysis of the original cultures of the Pacific Islands area. (PR: 6 hours of anthropology or permission)
- 543 Anthropological Theory. 3 hrs.**
Introduction to ethnological theory and to the development of grounded theory. (PR: 6 credit hours of anthropology or departmental permission)
- 551 Anthropological Analysis. 3 hrs.**
Examination of the analytical procedures utilized in ethnographic and comparative approaches to anthropological data, and an introduction to computer processing of cross-cultural data using the Human Relations Area Files. (PR: ANT 201)
- 553 Cognitive Anthropology. 3 hrs.**
Analysis of the relations between cultural, social and personality systems. (PR: 6 hours of sociology or anthropology, 6 hours of psychology or equivalent)
- 555 Appalachian Cultures. 3 hrs.**
Analysis of the Cultures of Appalachia. (PR: 6 hours of anthropology or departmental permission)
- 561 Theory and Analysis in Archaeology. 3 hrs.**
An introduction to archaeological theory and its application to the material record of cultures, past and present (PR: 6 credit hours of anthropology or departmental permission)
- 570 Appalachian Field Experience I. 3 hrs.**
Supervised field work in an Appalachian community studying the social and cultural characteristics of the area. Four afternoons each week plus one class hour. (PR: ANT 455, or equivalent)
- 571 Appalachian Field Experience II. 3 hrs.**
Supervised field work in an Appalachian community studying the social and cultural characteristics of the area. Four afternoons each week plus one class hour. (PR: ANT 555)
- 580-583 Special Topics. 1-4 hrs.**
Study of topics of interest not covered in regularly scheduled classes. (PR: Graduate status and permission)

- 585-588 Independent Study. 1-4 hrs.**
Individual study of topics not offered in regularly scheduled classes. (PR: Graduate status and permission)
- 597-598 Instructional Television Course. 1-4 hrs.**
A course based upon Instructional Television Series broadcast by public television. The student is responsible for viewing the series on the air and satisfying all course requirements announced by the department.
- 600 Ethnographic Methods. 3 hrs.**
Introduction to anthropological data-gathering and interviewing methods (PR: ANT 201; for students who have not had ANT 333 and 343)

ART AND DESIGN (ART)

- 500 Co-Curricular Experiences in the Visual Arts. 0 hrs.**
Students attend distinguished lectures, exhibitions, workshops, field trips, and other co-curricular visual arts events as part of their requirement for graduation.
- 504 Iconography of Mary. 3 hrs.**
Traces the sources and evolution of Catholic doctrine and images of the Virgin Mary.
- 505 Art in the United States. 3 hrs. I or II or S.**
A survey of the development of architecture, painting, and sculpture from colonial times to the present.
- 506 Figure Drawing. 3 hrs. I or II or S.**
Practice in drawing from the posed human figure.
- 507 Tribal Arts. 3 hrs. I or II or S.**
An introduction to the unique Arts of so-called precivilized peoples with a twofold emphasis: First, the European Pre-Historic; Second, the Non-European Primitive.
- 508 Art and Architecture of Ancient Egypt.. 3 hrs.**
History of the visual arts and architecture in Ancient Mesopotamia, Egypt, Greece and Rome.
- 509 Nineteenth Century Art. 3 hrs. I or II or S.**
A survey of the development of architecture, painting, and sculpture in the western world during the 19th century.
- 510 Art and Architecture of Ancient Greece. 3 hrs.**
Explores the art and architecture of the ancient Greek world in light of social and religious influences.
- 511 Art and Architecture of Ancient Rome. 3 hrs.**
Explores the art and architecture of ancient Rome in light of social and religious influences.
- 512 20th Century Art. 3 hrs.**
A survey of the development of architecture, painting and sculpture in the Western World from 1900 to 2000.
- 513 Contemporary Art. 3 hrs.**
A survey of the development of architecture, painting and sculpture in the Western World from World War II to the present.
- 514 Art and Architecture of the Italian Renaissance. 3 hrs. I or II or S.**
Explores the art and architecture of the Italian Renaissance in light of social and religious influences.
- 515 Art of the Renaissance in Northern Europe. 3 hrs.**
Explores the art of northern Europe during the Renaissance in light of social and religious influences.
- 516 Baroque Art. 3 hrs.**
Analyzes Baroque art and social milieu that influenced, commissioned, financed, and produced it.
- 519 Spinning, Dyeing, and Tapestry. 3 hrs. I or II or S.**
Basic procedures in hand spinning, dyeing and tapestry weaving.
- 524 Women and Art. 3 hrs.**
Explores the relationship of women to art historically: as artists, as subject matter, and as patrons/consumers.
- 540 Advanced Graphic Design. 3 hrs.**
Directed study in which student may select subject from any area of commercial design with the goal of developing specific area of expertise. Emphasis on original design and research.
- 548 Ceramic Materials and Processes. 3 hrs.**
Practical and empirical investigation of ceramic materials, techniques and approaches to their use in clay and glazes.
- 550 2 & 3 Dimensional Designs for Fabrics. 3 hrs.**
Exploring the potentialities of fabric as an art experience in two and three dimensional art form.

- 554 Designing for Multimedia. 3 hrs.**
Current topics and techniques in multimedia design. Topics include animation, incorporating digital video and sound, interaction design, information design, Web site design and advanced image processing.
- 555-556 Painting: Acrylic and Oil. 3; 3 hrs. I, II, S.**
Study and practice of painting in expressing still life, landscape and the human figure.
- 557 Figure Painting. 3 hrs. S.**
Painting the nude model using modern and classical methods.
- 560 History and Philosophy of Art Education, 3 hrs. I.**
A survey of the evolution of art education and philosophy, and a study of problems related to art education on the elementary and high school level.
- 566 Problems in Curriculum Development for Public School Art K-12, 3 hrs.**
Exploring considerations for curriculum development in Art Education, developing individualized curriculum for specific situations on grade levels K-6 or 7-12.
- 569 Printmaking Processes. 3 hrs. I, II, S.**
Experiments in the media of Intaglio, Lithography, Serigraphy, Relief, Collagraphs and new techniques of printmaking.
- 570-573 Practicum. 3 hrs. I, II, S.**
To be used for learning activities that involve the application of previously learned processes, theories, systems or techniques
- 580-583 Special Topics. 1-4 hrs.**
To be used for experimental courses. By permission only.
- 585-588 Independent Studies. 1-4 hrs.**
To be reserved for tutorials, directed and independent research and readings, problem reports, and other activities designed to fit the needs of individual students within the major.
- 601 Advanced Problems in Art Education (Grades K-12). 3 hrs. I, II, S.**
For graduate students with limited experience in the arts and crafts wishing to familiarize themselves with methods and materials used in art education.
- 650-656 Advanced Studio Sequence. 3; 3; 3; 3; 3; 3 hrs. I, II, S.**
The student will select special studies from art education, art history, drawing, painting, sculpture, ceramics, graphics, and other related approved projects.
- 670 Seminar. 3 hrs. II. Even years only.**
Discussion and research in selected areas of art.
- 679 Problem Report. 1-3 hrs. I or II or S.**
- 681 Thesis. 1-6 hrs. I or II or S.**

BIOCHEMISTRY AND MOLECULAR BIOLOGY (BIC)

- 620 Human Biochemistry. 6 hrs. I.**
A study of structure and metabolism of biological compounds with special reference to the human. Must be taken concurrently with BIC 621. (PR: Organic chemistry and consent of instructor; CR: BIC 621)
- 621 Human Biochemistry Discussion. 1 hr. CR/NC.**
Co-requisite weekly discussion group for Human Biochemistry. Selected topics from the lecture course will be covered in greater depth. Must be taken concurrently with BIC 620. (CR: BIC 620)
- 628 Molecular Mechanisms in Growth and Differentiation. 2 hrs.**
Advanced graduate course will acquaint students with the latest information on control of cell growth & differentiation at the molecular level. Lecture & student presentations. A short grant proposal is also required. Prerequisite: Cellular & Molecular Biology; BMS 600.
- 634 Lipid Biochemistry. 2 hrs. II.**
Advanced study of lipid structure and metabolism. (PR: Biochemistry and consent of instructor)
- 636 Enzymology. 3 hrs. I.**
A study of enzyme structure and function, including purification, kinetics, pH and temperature effects, molecular chaperones, degradation, protein engineering, and enzymes important in the cell cycle and regulation of gene expression. (PR: Biochemistry and consent)
- 638 Nucleic Acids and Protein Synthesis. 3 hrs. II.**
An advanced course in molecular biology and molecular genetics emphasizing current research in these areas. (PR: Biochemistry and consent of instructor)
- 643 Molecular Signal Transduction. 3 hrs.**
An advanced exploration of the newest information on cellular signalling pathways. Special emphasis will be placed on current literature in following signal transduction from the plasma membrane to the nucleus. (PR: BMS 600 or equivalent)
- 675 Special Topics. 1-4 hrs.**
Present course material on special areas of research or topics which are not routinely covered in existing courses.

BIOLOGICAL SCIENCES (BSC)

- 501 Ichthyology. 4 hrs. II. (Alternate years)**
Anatomy, physiology, ecology, zoogeography, economic importance and classification of major groups and representative local species of fishes. 2 lec-4 lab and field. (PR: BSC 120-121, 214 or 310)
- 504 Cellular Physiology. 4 hrs.**
The physio-chemical nature of intracellular processes in plant and animal cells with emphasis on the functional significance of microscopic and submicroscopic structure and organization. 3 lec-3 lab. (REC: Background in chemistry and physics; PR: 12 hours biological sciences)
- 505 Economic Botany. 3 hrs.**
Plants used by man for food, ornamental purposes, building materials, textiles and other industrial purposes: economic importance of conservation. No laboratory. (PR: BSC 120-121 or equivalent)
- 506 Herpetology. 4 hrs. II. (Alternate years)**
A survey of the reptiles and amphibians of the world with special emphasis placed on forms resident to West Virginia including aspects of zoogeography, morphology, taxonomy, and behavior. 2 lec-4 lab. (PR: BSC 120-121, 214)
- 507 Genetics. 4 hrs. I, II.**
The fundamental principles and mechanisms of inheritance. 3 lec-4 lab. (PR: BSC 120-121 or equivalent)
- 508 Ornithology. 4 hrs. II. (Alternate years)**
An introduction to avian biology: identification, distribution, migration and breeding activities of birds. 2 lec-4 lab. (PR: BSC 120, 121; REC: BSC 214)
- 509 Mammalogy. 4 hrs. I (Alternate years).**
Study of morphology, evolution and classification, zoogeography, ecology, economic importance; survey techniques and recognition of native mammals of West Virginia. (PR: BSC 121 plus an additional 8 hours of BSC courses)
- 510 Remote Sensing/GIS Applications. 4 hrs. I.**
A study of the physical systems for collecting remotely sensed data. Statistical/spatial analysis and modeling using image processing/geographic information/spatial computer software systems with earth resources applications. (PR: PHY 203-204, MTH 225 or permission)
- 511 Digital Image Processing/GIS Model. 4 hrs. II.**
A study of image processing/geographic information/spatial analysis systems, concurrent and parallel image processing 3-D modeling scenarios utilizing geophysical data for computer simulation modeling. (PR: BSC/PS 410 or BSC 510)
- 513 Principles of Organic Evolution. 3 hrs. II.**
The facts and possible mechanisms underlying the unity and diversity of life with emphasis on Neo-Darwinian concepts of the role of species in evolutionary phenomena. (PR: 16 hours BSC)
- 514 Entomology. 4 hrs.**
Entomology, anatomy, physiology, identification, classification, life histories and economic importance of representative insect groups. 2 lec-4 lab. (PR: BSC 120-121 or equivalent)
- 515 Morphology of Plants and Fungi. 4 hrs. I, II, S.**
Form, structure, and development of plants and fungi. 2 lec-4 lab.. (PR: BSC 120, 121 or equivalent_
- 516 Plant Taxonomy. 4 hrs. I, II, S.**
Identification and classification of seed plants and ferns of eastern United States. Readings in history and principles of taxonomy, rules of nomenclature and related topics. 2 lec-4 lab. (PR: BSC 120-121 or equivalent)
- 517 Biostatistics. 3 hrs.**
Statistical skills for biological/biomedical research, with emphasis on applications. Experimental design/survey sampling, estimation/hypothesis testing procedures, regression, ANOVA, multiple comparisons. Implementation using statistical software such as SAS, BMDP. Same as MTH 518. (PR: Permission)
- 518 Mycology. 4 hrs. I.**
Nature, cause and control of plant diseases. 2 lec-4 lab. (PR: BSC 120-121)
- 519 Plant Anatomy. 4 hrs. II.**
Investigations in plant anatomy with emphasis on seed plants. 2 lec-4 lab. (PR: BSC 120 and 121 or permission)
- 520 Plant Physiology. 4 hrs. II. (Alternate years)**
Experimental study of plant life processes to include applicable biophysical and biochemical principles, water relations, molecular biology, stress physiology, and growth and development. (PR: BSC 322 or equivalent)
- 521 Phycology. 4 hrs.**
Taxonomy and morphology of algae. Techniques used in the study of algae with emphasis upon application of ecological principles to current water quality problems. 2 lec-4 lab. (PR: BSC 105 or 121)

- 522 Animal Physiology. 4 hrs. I.**
Physiological principles operating in the organ systems of vertebrate animals. (PR: BSC 120, 121 or equivalent; BSC 322)
- 524 Animal Parasitology. 4 hrs. I, S.**
Morphology, life histories, classification, and host relationships of common parasites. 2 lec-4 lab. (REC: BSC 212 or equivalent)
- 526 Medical Entomology. 4 hrs. II, S.**
The characteristics and control of certain insects and other arthropods which transmit disease-causing organisms. 2 lec-4 lab. (REC: BSC 212 or equivalent)
- 530 Plant Ecology. 4 hrs. II.**
The study of plants and their interactions with their environment at different levels of ecological organization: individuals, populations, communities, and ecosystems. Emphasis on quantitative analysis of ecological data.
- 531 Limnology. 4 hrs. I, S.**
The study of inland waters; ecological factors affecting lake and stream productivity and various aquatic communities. 2 lec-4 lab. (PR: BSC 120-121 or equivalent; REC: BSC 212)
- 542 Advanced Microbiology. 4 hrs.**
An advanced treatment of microbiology with emphasis on the molecular aspects of anatomy, taxonomy, and physiology of microorganisms. 2 lec-4 lab. (PR: BSC 302)
- 545 Microbial Ecology. 3 hrs. II.**
This course introduces students to the vital roles that microbes play in sustaining life on earth. Includes both theoretical and practical concepts ranging from the origin of life to biodegradation. (PR: BSC 121 or permission)
- 546 Microbial Ecology Lab. 2 hrs. II.**
A laboratory course emphasizing the recovery, cultivation, enumeration, and identification of bacteria from environmental samples. Also introduces students to molecular-based methods for studying microbial community structure and dynamics. (PR: BSC 121, CR: BSC 545 or consent)
- 550 Molecular Biology. 3 hrs. II.**
Advanced principles in molecular function emphasizing current research using recombinant DNA methodology. (PR: BSC 322 or equivalent)
- 560 Conservation of Forests, Soil and Wildlife. 3 hrs. I.**
Primarily for students in the biological sciences, general and applied sciences. Includes fieldwork, seminars, and demonstrations related to conservation. 2 lec-4 lab. (PR: BSC 105 or 121 or equivalent)
- 580-583 Special Topics. 1-4; 1-4; 1-4; 1-4 hrs.**
(PR: Permission)
- 585-588 Independent Study. 1-4; 1-4; 1-4; 1-4 hrs. CR/NC**
(PR: Permission)
- 601 Vertebrate Embryology. 4 hrs. I.**
Vertebrate development based on frog, chick and pig embryos. 2 lec-4 lab.
- 608 Plant Physiology: Growth and Development. 4 hrs. II. (Alternate years)**
Comprehensive advanced study of correlative growth in plants with emphasis on germination, dormancy, growth substances and physiological phenomena associated with phases of development. (PR: BSC 322 or 420 or 520)
- 620-622 Taxonomy of Vascular Plants. 1-2; 1-2; 1-2 hrs.**
Field studies in the taxonomy of higher plants. (Limited to 4 hours credit per student). (PR: BSC 516 or equivalent)
- 625 Advanced Physiology. 4 hrs.**
Lecture, current literature and introduction to research in physiological systems. 3 lec-3 lab. (PR: 4 hrs. physiology or permission)
- 626 Protozoology. 4 hrs. (Offered every third semester)**
A study of free-living and parasitic protozoa important to agriculture, wildlife, and man. Morphology, physiology, reproduction, ecology, and life histories of parasitic protozoa will be emphasized.
- 631 Animal Ecology. 4 hrs. I.**
A study of population and behavior ecology; community dynamics and field techniques. 2 lec-4 lab.
- 650-652 Special Problems. 1-3; 1-3; 1-3 hrs.**
By permission of adviser, graded CR/NC.
- 661 Seminar I. 2 hrs. I.**
In depth group discussion of current biological issues.
- 662 Seminar II. 1 hr. II.**
Oral presentation of individual topics. (PR: BSC 661)
- 679 Problem Report. 1-4 hrs.**
Preparation and completion of a written report from experimental or field research in biological sciences. (PR: permission)

- 680 Special Topics. 1-4 hrs.**
681 Thesis. 1-6 hrs.
(PR: By permission of advisor).

BIOMEDICAL SCIENCE (BMS)

- 600 Cellular and Molecular Biology. 3 hrs. I.**
A study of the molecular biology of the cell and its organelles, cell interactions and evolution. (PR: One year of Biology and Organic Chemistry and consent of instructor)
- 614 Basic Human Genetics. 2 hrs. II.**
This course will focus on the study of heritable human diseases. Major topics include the metabolic/molecular basis and detection of inherited disease, gene mapping and genetic risk assessment. (PR: BIC 620 or permission of instructor)
- 624 Human Genetics. 4 hrs., II.**
An introduction to the study of heritable diseases, their molecular basis and their detection and treatment. Clinical cases will be presented in the second half of the class. (PR: Graduate status in one of the biomedical sciences)
- 630 Neuroscience. 5 hrs., II.**
The structure and function of the nervous system. (PR: Permission of instructor)
- 631 Neuroscience Literature Review. 1 hr.**
Published articles in the neuroscience literature will be presented by all class members. Each presentation will include background introduction methods, results, and discussion of the neuroscience research. (PR: Permission of instructor)
- 632 Neuroscience Research Techniques. 3 hrs.**
Class participants will be exposed to state-of-the-art neuroscience research techniques while in the laboratories of the neuroscience faculty. (PR: Permission of instructor)
- 660 Communication Skills for Biomedical Sciences I. 1 hr.**
Biomedical graduate students are trained to plan, prepare, and deliver effective scientific presentations.
- 661 Communication Skills for Biomedical Sciences I. 1 hr.**
Biomedical graduate students are trained to plan, prepare, and deliver effective scientific presentations.
- 670 Basic Methods in Molecular Cloning. 2 hrs. II.**
This course is designed to expose students to basic molecular cloning techniques, such as genomic library construction, preparation of plasmid DNA, subcloning, nucleic acid hybridization and DNA sequencing. (PR: Undergraduate biology or chemistry majors or graduate student status in one of the biomedical sciences or third year medical student and permission of instructor.)
- 679 Special Problems. I, II, S. CR/NC**
Intensive study of a selected topic or problem. Emphasizes independent study. (PR: Consent of advisor)
- 680 Seminar. 1 hr. I, II. CR/NC**
Study and discussion of current topics related to the Biomedical Sciences.
- 681 Thesis. 1-6 hrs. I, II, S. CR/NC.**
- 685 Introduction to Research. 1-6 hrs. I, II, S. CR/NC**
Directed research activities requiring a completed prospectus for an advanced research project, a written report, or a research thesis. A minimum of three (3) hours required for all M.S. candidates. (PR: Consent of instructor)
- 882 Research. 1-15 hrs. I, II, S. CR/NC**

CHEMICAL ENGINEERING (CHE)

- 650-653 Special Topics. 1-4 hrs.**
Designed to increase the depth of study in a specialized area of chemical engineering. (PR: Consent)

CHEMISTRY (CHM)

- 510 Advanced Synthesis and Analysis. 4 hrs.**
Advanced problems in synthesis, separation and analysis with emphasis on modern instrumental methods. 1 lec-6 lab. (REC: CHM 356 or equivalent)
- 511 Modern Instrumental Methods in Chemistry and Biochemistry. 4 hrs.**
This course investigates the theory and functional aspects of modern analytical instrumentation. Emphasis is placed on components of instruments and the applicability of various techniques to specific analytical problems.
- 520 Fundamentals of Chemistry. 4 hrs. S. Offered on demand.**
An introductory chemistry course for College of Education graduate students.
- 522 Spectrophotometric Methods of Analysis. 3 hrs.**
Modern theories and methods of spectrophotometric analysis, including atomic absorption, infrared, UV-visible and colorimetric methods. 1 1/2 lec.-3 lab. (PR: CHM 345 and 307 or 358)

- 523 Environmental Analytical chemistry. 4 hrs.**
Sampling and modern instrumental analysis of water, air and sediments according to EPA methodology. (PR: Graduate standing; C or better in CHM 345 or equivalent experience.)
- 526 Chromatographic Methods of Analysis. 3 hrs.**
Modern theories and methods of chemical separations with emphasis on gas and liquid chromatography. (PR: 345, 356, 307 or 357) 2 lec-2 lab.
- 530 Introduction to Polymer Chemistry. 3 hrs.**
Properties of macromolecules. Methods of preparation and characterization. Industrial applications and processes. (PR: CHM 307 or 357, and 356 or permission of instructor)
- 540 Thermodynamics. 3 hrs.**
An introduction to chemical thermodynamics and statistical mechanics. (REC: CHM 358 or equivalent)
- 542 Quantum Mechanics. 3 hrs.**
An introductory course in quantum mechanics. (REC: MTH 231 or equivalent)
- 548 Advanced Inorganic Chemistry I. 4 hrs.**
Study of physical properties and periodic relationships of inorganic materials. 3 lec-2 lab. (PR: CHM 356 and 307 or 357)
- 549 Advanced Inorganic Chemistry II. 3 hrs.**
A detailed consideration of bonding, structure, reaction rates and equilibrium involving inorganic materials. (PR: CHM 448 or equivalent)
- 550 Industrial Chemistry. 3 hrs.**
Modern industrial processes for making chemicals, with emphasis on petrochemicals. An introduction to the engineering, economic, and environmental aspects of these processes. (PR: CHM 307 or 357, and 356 or permission of instructor)
- 553 Magnetic Resonance in Chemistry. 3 hrs.**
Applications of analysis by magnetic resonance. Emphasis will be placed on proton and heteronuclear magnetic resonance theory and applications. 2 lec-2 lab. (PR: CHM 356)
- 562 Nuclear Chemistry and Physics. 3 hrs.**
An introduction to the phenomena of nuclear physics and chemistry. (REC: MTH 231 or equivalent)
- 563 Nuclear Chemistry and Physics Laboratory. 2 hrs. 4 lab.**
(REC: CHM 462 or equivalent)
- 565 Advanced Organic Chemistry I. 3 hrs. I.**
Studies of the dynamics of organic reactions with emphasis on mechanisms and stereochemistry. (REC: CHM 356 or equivalent)
- 566 Advanced Organic Chemistry II. 3 hrs.**
A continuation of Chemistry 565 with emphasis on synthetic methods. (PR: CHM 565)
- 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.**
- 604 Theories of Analytical Chemistry. 2 hrs.**
Offered on demand. (PR: CHM 556)
- 607 Theoretical Organic Chemistry. 2 hrs.**
The application of quantitative methods to problems in structure and dynamics. (PR: CHM 565)
- 618 Kinetics. 3 hrs.**
An advanced study of reaction rates and mechanisms.
- 627 Physical Chemistry for Teachers. 3-5 hrs. S.**
Offered on demand. 3 lec-6 lab. (PR: CHM 520 or equivalent)
- 628 Special Topics (Inorganic). 1-3 hrs. Offered on demand.**
- 629 Special Topics (Organic). 1-3 hrs. Offered on demand**
- 630 Special Topics (Physical). 1-3 hrs. Offered on demand**
- 631-632 Seminar. 1; 1 hr. I, II.**
- 679 Problem Report. 3 hrs.**
Preparation of a comprehensive written report on a topic in Chemistry of current importance. Registration only by permission of Department.
- 682 Research. 1-12 hrs. I, II, S.**
Credit in the course is earned by pursuing a directed original investigation in a field of chemistry. Twelve semester hours credit in research are applied toward the M.S. degree. Students may sign for one or more credit hours per semester depending upon the time to be spent on research. A grade of PR may be reported at the close of each term or semester. (PR: Approval of Department Chairman)

CIVIL ENGINEERING (CE)

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

CLASSICS (CL)

These courses are given in English and require no knowledge of Greek or Latin.

- 535 Greek Civilization. 3 hrs.**
Study of ancient Greek culture, emphasizing parallels with present-day issues.
- 536 Roman Civilization. 3 hrs.**
Study of ancient Roman culture, emphasizing parallels with present-day issues.
- 560 Ancient Goddess Religions. 3 hrs.**
Study of the mythology and cults of the goddesses of Greece, Crete, Asia Minor, and Rome, with a view to discovering cultural contexts.
- 570 Transformations of Myth. 3 hrs.**
An examination of how ancient myth transforms into the psychological and fictional works of more modern times.
- 580-583 Special Topics in Classics. 1-4; 1-4; 1-4; 1-4 hrs.**
(PR: Consent of the instructor)
- 585-588 Independent Study. 1-4; 1-4; 1-4; 1-4 hrs.**
- 599 Humanities Seminar. 3 hrs.**
- 620 Theoretical Approaches to Ancient Literature. 3 hrs.**
A close study of ancient and modern literary approaches to and theories about ancient literature with emphasis on genre and cultural contexts.

COMMUNICATION DISORDERS (CD)

- 518 Communication Disorders of School Children. 3 hrs.**
A survey of the causes, symptoms, and treatment of communication disorders encountered in the classroom. Not open to communication disorders majors.
- 524 Diagnostic Processes with Communication Disorders. 3 hrs.**
Evaluation of procedures for securing behavioral information to differentiate among various communication disorders; a study of symptom complexes. (PR: Permission of instructor and graduate standing)
- 524L Diagnostic Processes with Communication Disorders. 3 hrs.**
Observation and practice in evaluating individuals with communication disorders (PR: Permission of instructor and graduate standing)
- 526 Therapeutic Procedures I. 3 hrs.**
Examination of therapeutic procedures relative to developmental speech disorders. (PR: Permission of instructor and graduate standing)
- 526L Therapeutic Procedures I. 1 hr.**
Observation of individuals with communication disorders and introduction to analysis of the clinical process. (PR: Permission of instructor and graduate standing)
- 527 Therapeutic Procedures II. 3 hrs.**
Examination of therapeutic procedures relative to speech and language disorders. Investigation into the clinician's role in case management as well as behavior management techniques. (PR: Permission of instructor and graduate standing)
- 527L Therapeutic Procedures Laboratory II. 1 hr.**
Observation and in-depth analysis of the clinical process. (PR: Permission of instructor and graduate standing)
- 570-571 Clinical Practicum. 1-3 hrs.**
Supervised clinical practicum in the Marshall University Speech and Hearing Center. (PR: Permission of instructor)
- 580-583 Special Topics. 1-4; 1-4; 1-4; 1-4 hrs.**
(PR: Permission of chair)
- 585-588 Independent Study. 1-4 hrs.**
(PR: Permission of chair)
- 601 Introduction to Graduate Studies. 3 hrs.**
An introduction to graduate studies, including clinical and research applications; quantitative and qualitative research methodology; critical analysis of clinical instruments and research literature. (PR: Permission of instructor)
- 620 Communication Disorders Related to Cleft Palate and Voice. 3 hrs.**
Intensive study of the anatomy and physiology of laryngeal and maxillofacial structures; voice production and resonance; nature and etiology of voice and resonance disorders; principles of assessment and treatment. (PR: Permission of instructor)
- 622 Phonological Processes and Disorders. 3 hrs.**
Advanced study of the phonological component of the linguistic system. Emphasis on phonological disorders in children; social dialects; critical analysis of literature. (PR: Permission of instructor)

- 623 Fluency Disorders. 3 hrs.**
Detailed evaluation of theories of fluency disorders and relevant therapies; critical analyses of research literature. (PR: Permission of instructor)
- 624 Motor Speech Disorders. 3 hrs.**
Study of the neurological bases of speech; etiologies and symptoms of dysarthrias and apraxias; principles of assessment and treatment. (PR: Permission of instructor)
- 625 Acquired Aphasia. 3 hrs.**
Advanced study of the acquired aphasia; critical analysis of research literature. (PR: Permission of instructor)
- 628 Child Language Disorders: Infancy through Preschool. 3 hrs.**
Advanced study of the characteristics and etiology of language disorders in young children. Special emphasis will be placed on diagnosis and treatment of young children with language disorders. Helping children with language disorders acquire the oral language skills they need to successfully acquire literate language also will be covered (PR: Permission of instructor).
- 629 Child Language Disorders: School-Age through Adolescence. 3 hrs.**
Advanced study of the characteristics and etiology of language disorders in school-aged and adolescence children. Special emphasis will be placed on diagnosis and treatment of language disorders in these children (PR: Permission of instructor).
- 630 Communication Disorders Associated with Neurophathologies. 3 hrs.**
Intensive study of the nature and etiology of communication disorders associated with traumatic brain injury, right hemisphere lesions, dementia, and other neuropathologies; diagnosis and treatment; critical analysis of research literature. (PR: Permission of instructor)
- 660 Professional Issues. 3 hrs.**
Examination of current trends in contemporary professional issues and practices. (PR: Permission of instructor)
- 670-671 Advanced Clinical Practicum. 1-6 hrs.**
Supervised clinical practicum in the Marshall University Speech and Hearing Center and in affiliated educational, rehabilitation and medical settings. (CD 671 may be repeated but cannot be applied to a master's degree in accordance with the American Speech-Language-Hearing Association's standard regarding application of practicum credits to master's degree programs. Clinical Clock hours will apply for certification. (PR: CD 570 or equivalent; Permission of instructor)
- 672-673 Clinical Practicum in the Schools. 3-6 hrs.**
Supervised clinical practicum with school-aged children; fulfills student teaching requirements for West Virginia Certification as a Speech Language Pathologist. (PR: Permission of instructor)
- 677-678 Special Topics. 1-4 hrs. I, II.**
Program of study not normally covered in other courses. Topics vary from semester to semester. (PR: Permission of chair)
- 681 Thesis. 1-6 hrs. I, II.**
(PR: Permission of chair)
- 685-688 Independent Study. 1-4; 1-4; 1-4; 1-4 hrs.**
(PR: Permission of chair)
- 691 Dysphagia. 3 hrs.**
Study of the nature of normal and disordered swallowing, including critical analysis of the literature. (PR: Permission of instructor)
- 690,692-3 Seminar. 1-4; 1-4; 1-4 hrs.**
Topics in communication disorders not covered in other courses; topics vary from semester to semester. (PR: permission of chair)

COMMUNICATION STUDIES (CMM)

- 501 Organizational Communication. 3 hrs.**
Investigation of information flow in organizations with emphasis on identifying communication problems.
- 502 Rhetorical Theory. 3 hrs.**
An exploration of theories of rhetoric from the Greek philosophers to the present. This course will examine the strategic use of symbols in persuasive discourse.
- 506 Interviewing. 3 hrs.**
Skill development in the question-answer-response process as it applies to a variety of interviewing situations.
- 508 Leadership and Group Communication. 3 hrs.**
A study of the variables affecting, and affected by, the communication process in small groups, with particular emphasis upon leadership variables.

- 509 Theories of Persuasion and Change. 3 hrs.**
Study of the relationship between persuasion and social change, including theories of attitude and behavioral change and contemporary theories of persuasion.
- 511 Communication Study and Research. 3 hrs.**
Introduction to the advanced study of theory and research areas with emphasis on communication research methods and reporting.
- 513 Theories of Interpersonal Communication. 3 hrs.**
A survey and analysis of theories related to interpersonal communication in relationships. Emphasis is on the communication processes and contingencies underlying relationship development, maintenance, and disengagement in various interpersonal contexts.
- 520 Communication and Conflict. 3 hrs.**
An exploration of the theory, research, and practice of communication in understanding and negotiating interpersonal conflict.
- 521 Gender and Communication. 3 hrs.**
An exploration of gender as an organizing principle for communication.
- 541 Development and Appreciation of Film Since 1930. 3 hrs.**
A study of important directions in modern film, including style, genre, and the relationship to contemporary society. A variety of films will be viewed for analysis.
- 550 Direction of Speech Activities. 3 hrs.**
Direction of extracurricular speech activities/assemblies, forensic events, etc. (PR: Fifteen hours of speech or permission of departmental chairman)
- 556 Computer-Mediated Communication. 3 hrs.**
This course explores the impact of computer-mediated communication on human organization. (PR: E-mail capability; web search capability)
- 574 Health Communication. 3 hrs.**
Explores communication demands of human health care and health care promotion; examines communication controversies in the modern health care system, and examines communication strategies to resolve health care problems.
- 576 Communication for Classroom Teachers. 3 hrs.**
Knowledge and utilization of interpersonal communication skills in all teaching-learning environments.
- 580-583 Special Topics. 1-4; 1-4; 1-4; 1-4 hrs.**
(PR: Permission of chair)
- 585-588 Independent Study. 1-4 hrs.**
(PR: Permission of chair)
- 597-598 Instructional Television Course. 1-4 hrs.**
A course based upon Instructional Television Series broadcast by public television. The student is responsible for viewing the series on the air and satisfying all course requirements announced by the department.
- 601 Problems and Methods in Communication Research. 3 hrs.**
- 602 Communication Consultation Strategies. 3 hrs.**
An in-depth analysis of diagnostic and intervention strategies employed by communication consultants. Strategies include communication network analysis, communication process observation and consultation, communication role and norm negotiation, and team building.
- 603 Nonverbal Communication. 3 hrs.**
Examines the major dimensions and functions of nonverbal communication with a focus on what constitutes nonverbal competence in a variety of contexts.
- 606 Studies in Communication Theory. 3 hrs.**
An extensive investigation into the major concepts of contemporary communication theory.
- 650 Leaders and Movements in Communication Education. 3 hrs.**
The study of speech-communication education from the time of the Greeks to the present, with emphasis upon the evolution of communication education to meet the needs of contemporary society.
- 656 Seminar in Public Communication. 3 hrs.**
- 673 Seminar in Interpersonal Communication. 3 hrs.**
Intensive treatment of principles and processes underlying dyadic communication. Designed to enable the student to diagnose and intervene to resolve communication problems.
- 674 Seminar in Communication Pedagogy. 3 hrs.**
Primarily for graduate teaching assistants to develop instructional skills of preparation, presentation and evaluation; to understand instructor duties and requirements, and to exemplify interpersonal skills in dealing with students.
- 675-676 Seminar. 1-3; 1-3 hrs.**
Program of study not normally covered in other courses. Topics vary from semester to semester.

- 677-678 Special Topics. 1-3; 1-3 hrs.**
Program of study not normally covered in other courses. Topics vary from semester to semester.
- 681 Thesis. 1-6 hrs.**
- 685-688 Independent Study. 1-4; 1-4; 1-4; 1-4 hrs.**
(PR: Permission of chair)
- 689 Internship. 1-3 hrs.**
Supervised work experience in communication.

COMPUTER SCIENCE (CS)

Please see Information Systems and Technology Management for degree programs.

- 529 Introduction to Computer Graphics. 3 hrs. II.**
Introduction to underlying theory and techniques of computer graphics. Historical perspective. Display hardware technology, 2D raster operations, 2D and 3D geometric transformations, and 3D projection and viewing techniques. Project participation. (PR: MTH 330 or equivalent, or permission of instructor)
- 539 Introduction to Artificial Intelligence. 3 hrs. I.**
Concepts and methods. Heuristic search, planning, hypothesis formation, modeling, knowledge acquisition and representation. Languages, methodologies, tools. Applications including automatic programming, theorem proving, machine vision, game playing, robots. Project participation. (PR: CSD 240 or equivalent, or permission of instructor)
- 542 Communication Networks and Distributed Systems. 3 hrs. II.**
Network structures, architectures, topology. Layers, protocols, interfaces, local area networks. Coverage of current networks. Distributed processing concepts; architectural trade-offs, distributed databases. Operating system and application software issues. Project participation. (PR: CSD 322 or equivalent, or permission of instructor)
- 549 Formal Languages and Automata Theory. 3 hrs. I.**
Concepts and formalisms of formal languages and automata theory. Fundamental mathematical concepts. Grammars and corresponding automata. Deterministic parsing of programming languages. (PR: MTH 340, or equivalent, or permission of instructor)
- 557 Database Systems, 3 hrs. II.**
Basic concepts, semantic models. Data models: object-oriented and relational, lesser emphasis on network and hierarchical. Query languages and normal forms. Design issues. Security and integrity issues. (PR: Permission of instructor)
- 559 Computer Simulation and Modeling. 3 hrs. I.**
Concepts of model building and computer-based discrete simulation. Special-purpose simulation languages. Experimental design, analysis of results. Statistical aspects, random number generation. Model validation issues and methods. Project participation. (PR: MTH 445 or equivalent, or permission of instructor)
- 567 Compiler Design. 3 hrs. I.**
Compilation of modules, expressions, and statements. Organization of a compiler including compile-time and run-time aspects; symbol tables, lexical analysis, syntax analysis, semantic analysis, optimization, object-code generation, error diagnostics. Compiler writing tools. Participation project. (PR: CSD 325 or equivalent, or permission of instructor)
- 568 Image Processing. 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 and video. (PR: Graduate standing in COS or the Medical School)
- 570 Introduction to Applied Automation. 3 hrs. I.**
Introduction to production economics; programmable logic control, sensors and actuators, digital and analog I/O design. Introduction to robotics and flexible manufacturing systems. (PR: Permission of instructor)
- 579 Software Engineering. 3 hrs.**
Current techniques in software design and development using Ada, Modula-2, or C for software projects. Formal models of structured programming, top-down design, data structure design, object-oriented design, program verification methods. (PR: CSD 239 and 320)
- 580-583 Special Topics. 1-4 hrs.**
(PR: Permission of instructor)
- 585-588 Independent Study. 1-4 hrs.**
(PR: Permission of instructor)
- 603 Advanced Educational Computing. 3 hrs.**
Allows the educator to develop a more in-depth understanding of the 'BASIC programming' language and become familiar with other languages used on microcomputer.

- 610 Using the Computer as a Decision-Making Tool. 3 hrs.**
Introduction to statistical software packages and packaged microcomputer software serving as a productivity tool for lower and middle level managers. Spreadsheet, text-editing and file management packages for microcomputers. Open to all graduate students.

CONTROL SYSTEMS (CSE)

- 601 Advanced Differential Equations. 3 hrs.**
Systems of linear ordinary differential equations and nonlinear equations. Linearization, approximation, and stability. Use of dynamic simulation software.
- 602 Modeling and Simulation. 3 hrs.**
Process models for flow, heat transfer, mass transfer, and reactions. Analysis includes various lumped parameter and distributed parameter methods.
- 611 State Space Control-Continuous. 3 hrs.**
State space representation of dynamic systems; dynamics of linear systems; frequency domain analyses; controllability and observability; shaping the dynamic response; linear observers and compensator design; linear, quadratic optimum control.
- 620 Digital Control. 3 hrs.**
Discrete time systems and the Z transform; sampling and reconstruction; open-loop and closed-loop discrete systems. System time response characteristics; stability analysis techniques. Pole assignment design and state estimation.
- 621 Control Systems Design. 3 hrs.**
Design of simple control systems. Multivariable control systems. Periodic processing. The concepts will be illustrated using chemical, electrical and mechanical engineering processes.
- 624 Advanced Control. 3 hrs.**
Specific advanced control topics such as dead time compensation, inverse response, cascade control, ratio control, adaptive control, inferential control, decoupling control, process identification, and optimal control.
- 626 Non-Deterministic Systems. 3 hrs.**
Probability models used in engineering, transformations of random variables, multivariate random variables, application of statistical process control. Stochastic processes for engineering applications, linear least-square estimation and regression analysis.
- 629 Nonlinear Control. 3 hrs.**
Methods for analysis and design of nonlinear control systems. State space models, phase plane limit cycles, stability, describing functions, relay system stabilization theory, variable structure systems and advanced topics.
- 630 Optimal Control. 3 hrs.**
General theory of optimal control; calculus of variations; Pontryagin's maximum principle; Hamilton-Jacobi theory, application of optimal control theory to design of feedback systems, using several performance criteria; advanced topics.
- 631 Adaptive Control. 3 hrs.**
Study of developments in the field of adaptive control; stability, convergence of adaptive systems, model reference, self-tuning and robust adaptive control, adaptive observer, autotuning and gain scheduling, and advanced topics.
- 650-653 Special Topics. 3 hrs.**
Designed to increase the depth of study in a specialized area of control systems. (PR: Consent)

COUNSELING (COUN)

- 545 Beginning Manual Communication. 3 hrs.**
This course provides a beginning study of the psychological characteristics of the hearing impaired and fundamental techniques of manual communication.
- 554 Advanced Manual Communication. 3 hrs.**
This is the follow-up course to COUN 618 and provides an advanced study of the grammar, syntax and idioms of American Sign Language (ASL) and a comprehensive overview of the effect of hearing impairment. Emphasis will be upon communicating in ASL. (PR: COUN 545)
- 555 Crisis Intervention and Conflict Resolution. 3 hrs.**
Students explore various types of crises such as situational and developmental. Specific topics include suicide and sexual assault. Requirements include a class presentation, and 30 supervised clinical hours in a crisis setting approved by instructor.
- 556 Death and Grief Counseling. 3 hrs.**
A study of the stages of death, dying and the grief process are presented in practical, theoretical, social, and psychological aspects. Emphasis is on counseling relating to various forms of loss.

- 574 Social & Cultural Foundations. 3 hrs.**
Examines the use of appropriate resources for effective counseling of individuals of different cultural, ethnic, social, racial, geographic, or other backgrounds. Personal, social, and cultural sources contributing to social and emotional disenfranchisement are explored, as well as the impact of using stereotypes and practicing discrimination in society and human service delivery systems. (PR: COUN 603, program admission, or permission.)
- 575 Prevention and Treatment of Addictions. 3 hrs.**
Course surveys the field of addictions covering assessment, treatment, prevention, and education. It will explore the development of addiction theory and with particular focus on the bio-psycho-social model. (PR: COUN 600 & 603)
- 577 Stress Management Counseling. 3 hrs.**
This course provides counseling students and others with a comprehensive analysis of stress in contemporary society. Of particular emphasis is an orientation to stress management as a counselor helping intervention. Students explore theoretical and practical alternative in helping the stressed client.
- 579 Pharmacology in Counseling. 3 hrs.**
Provides basic understanding of the role of therapeutic drugs in the treatment of psychiatric disorders, familiarizes with most commonly used drugs, side effects, and adverse reactions in specific mental illness. (PR: COUN 600 & 601)
- 580 - 583 Special Topics. 1-4 hrs.**
Study, reading, and research in specialized areas of counseling and human relations. Areas of interest are offered at various times by the faculty to provide specialized study for advanced students or practicing professionals in the field of counseling. (PR: Consent)
- 585-588 Independent Study. 1-4 hrs.**
Individual or group study and research of various issues and fields of emphasis in counseling. (PR: Consent)
- 600 Professional Orientation. 1-3 hrs.**
This course provides an understanding of all aspects of professional helping in mental health including history, roles, ethics, standards and credentialing. (PR: Program admission or permission)
- 601 Counselors in Consulting Roles. 3 hrs.**
This course provides an exploration of consultation roles that are integrated into the various settings in which counselors work. Content includes an orientation to consultation and its historical development, theory and practice issues, and major models. Of special emphasis is the focus upon case applications and presentations. (PR: COUN 600)
- 602 Human Development and Psychopathology. 3 hrs.**
The course will explore human growth/development from birth through adulthood. Theories of character development, social maturation, abnormalities and variations in development due to gender, culture, and environmental factors will be covered. The change processes, helping relationships, and strategies for facilitating development appropriate to various phases of the life span will be addressed. (PR: COUN 600 & 603)
- 603 Counseling Theories. 3 hrs.**
Survey of classical and contemporary counseling philosophies, history, and techniques as related to interpersonal relationships in the counseling process. (PR: Program admission or permission. CR: COUN 607)
- 604 Group Counseling & Theories. 3 hrs.**
An examination of group dynamics and theories of group counseling with demonstrations of specific group techniques and the practice of popular approaches in group counseling. (PR: COUN 607)
- 605 Theory and Practice of Human Appraisal. 3 hrs.**
Provide an understanding of individual and group approaches to assessment and evaluation including history, theoretical and statistical aspects, applications to special populations, and legal and ethical concerns and issues. (PR: COUN 600 and 603)
- 606 Career and Lifestyle Development. 3 hrs.**
A study of career development theories and decision-making models that impact career development and related life factors. (PR: COUN 600, 607, EDF 621 or 625)
- 607 Counseling Techniques in Human Relationships. 3 hrs.**
Study of a variety of counseling and therapeutic techniques within the framework of a systematic counseling model. Emphasis on basic interviewing, assessment and counseling skills that facilitate the helping process through integration of various theoretical orientations. (PR: Program admission or permission. CR: COUN 603)
- 608 Practicum. 3 hrs.**
A clinical experience under professional supervision preparing the student for internship; audio and video tapes, group supervision and feedback are used to achieve competency in the application of a counseling process. (PR: Consent. Students must have achieved a minimum grade of B in 606, 607, and EDF 621 or 625)

- 611 Foundations of Community Counseling. 3 hrs.**
Examines the history of deinstitutionalization in human services with an emphasis on prevention in the delivery of such services in community agencies. Proposal writing for grants and needs assessment processes and procedures will be emphasized. (PR: COUN 603)
- 616 Domestic Violence. 3 hrs.**
An introduction to the epidemiology, dynamics, clinical interventions and treatment of domestic violence.
- 617 Seminar in Counseling. 1-6 hrs.**
For students in degree programs or in post-master's work who wish to discuss and study theory, principles, and techniques of counseling or other special topics. Instructor will indicate in course syllabus whether class is letter graded or S/U. (PR: Consent)
- 620 Workshop. 1-6 hrs.**
Special workshops and short intensive courses on theory, methods, supervision and other special topics in counseling, designed for advanced students and professionals in the counseling field or related fields. (PR: Consent)
- 621 Introduction to Child Abuse & Neglect. 1 hr.**
Introduction to the dynamics of child abuse and neglect and to the legal and ethical issues of persons mandated to report child abuse and neglect. (PR: COUN 600 & 603)
- 622 Parent Education. 3 hrs.**
Study of family education skills training for conducting family education groups and parent training.
- 630 Introduction to Mental Health Counseling. 3 hrs.**
Provides an introduction to the foundations and contextual dimensions of mental health counseling. Emphasis is given to an exploration of mental health counseling roles and functions, theories and techniques, professional standards and operations, administration, evaluation, and special issues. (PR: COUN 603 and 607)
- 631 Diagnosis and Treatment Planning in Mental Health Counseling. 3 hrs.**
Provides an in-depth exploration of the knowledge and skills necessary for the practice of mental health counseling. Emphasis is given to the principles and practices that relate to psychopathology, DSM diagnosis, etiology and assessment, systematic treatment planning, interviewing, and short and long-term interventions.
- 632 Introduction to Marriage, Couple, and Family Counseling. 3 hrs.**
A comprehensive survey of the major theoretical models of marriage, couple, and family therapy from a systems perspective and the applied practices evolving from each orientation.
- 635 Core Functions of Addiction Counseling. 3 hrs.**
Advanced course designed to prepare students for work with clients presenting with substance abuse, and addiction disorders. The course will address the nature and treatment of addiction with attention to the core functions of the addiction counselor. (PR: COUN 575)
- 636 Couple Counseling. 3 hrs.**
A comprehensive survey of the major theoretical models of couple counseling and the applied practices evolving from each orientation.
- 637 Adult and Family Development and Transition. 3 hrs.**
An in-depth study of various theories of family development and interaction. Focus will be on theoretical understanding of family relationships across the stages of the family life cycle and related treatment strategies.
- 638 Interventions: Marriage, Couple, and Family Counseling. 3 hrs.**
An intensive practical experience in marriage, couple, and family therapy techniques to prepare the student to enter the supervised internship of the program. (PR: Students must have achieved minimum grades of B in COUN 622, 632, 636, and 637)
- 641 Correctional Counseling Seminar. 1-9 hrs.**
A critical examination of counseling models in corrections and an appraisal of current professional trends in community corrections. The course may include field experience in correctional settings. The course is designed for visiting professors and/or consultants who offer an expertise in a correctional setting. (PR: COUN 600 & 603 or Consent)
- 646 Correctional Counseling: Client Advocacy. 3 hrs.**
Designed to provide the counselor in a correctional setting with an integration of current contributions from related disciplines. Emphasis will be upon client advocacy, as well as the public, administrative, and legal responsibilities of correctional counselors and others who work with correctional clients. (PR: Consent)
- 651 Seminar in Career Counseling. 3 hrs.**
For students in career counseling who wish to discuss and study theory, principles, and techniques of career counseling or to study specific topics and issues in the field of career counseling. (PR: Consent)

- 652 Career Counseling with Special Populations. 3 hrs.**
Introduction to the special career development needs and concerns of various groups of people in a variety of settings. Emphasis will be given to the special concerns of women, various ethnic groups, the physically and mentally challenged, and person at various stages of vocational maturity. (PR: COUN 600 & 603)
- 653 Career Assessment Techniques and Report Writing. 3 hrs.**
A study of career assessment tools needed to assist individuals in making career choices. Focus will be given to the administering, scoring, and interpreting of vocational and career instruments utilized in career decision making. (PR: COUN 605 and 606)
- 654 Ecology of Domestic Violence. 3 hrs.**
The course will examine domestic violence from an ecological and sociocultural perspective in the context of the community infrastructure, and its response to victims, child safety, and batterer accountability.
- 655 DV 1 - Working with Victims. 3 hrs.**
This course will focus on victim dynamics, diagnostic indicators that victims may present without revealing an abusive relationship, and interventions that empower and focus on victim strengths.
- 656 DVII – Working with Perpetrators. 3 hrs.**
This course will focus on working with the domestic violence perpetrators, by providing guidelines for interviewing, assessment, and interventions for the cessation of violence toward victims.
- 657 DVIII – Working with Children. 3 hrs.**
This course will address issues related to the cognitive, behavioral and emotional problems of children who witness and/or experience domestic violence, and explore appropriate interventions.
- 660 Introduction to Student Affairs. 3 hrs.**
Provides a broad, comprehensive introduction to the field of college student affairs and its role with the context of American higher education. Various student affairs functional areas, historical, and philosophical foundations of the field, professional standards, guiding theories, and models, and competencies needed to work with diverse student populations are examined. (PR: COUN 603)
- 662 Current Issues in Student Affairs. 3 hrs.**
To enhance the student's awareness and understanding of the educational, environmental, administrative, legal, and ethical issues in the field of Student Affairs in colleges and universities, this course provides the opportunity to discover, discuss and analyze current issues impacting student affairs practices both nationally and internationally. (PR: COUN 603 and 607)
- 670 Interventions for Current Issues in School Counseling. 3 hrs.**
An in-depth examination of effective strategies for dealing with current issues in K-12 environment. Issues such as academic failure, substance abuse, loss, violence, multicultural factors, etc. will be explored. (PR: COUN 603 and 607)
- 672 Organization and Administration of School Counseling Programs. 3 hrs.**
Operation and administration of elementary and secondary school counseling programs in terms of personnel functions, relationships, physical facilities, instructional integration, financial standards, laws, and regulation. (PR: COUN 670)
- 673 Counseling Children, Adolescents, and Parents. 3 hrs.**
Consideration of effective counseling strategies and techniques appropriate for children, adolescents and parents through lecture, demonstration and laboratory experiences. Personal, social, career, academic and family related issues and dynamics will be explored. (PR: COUN 600 & 603)
- 674 Observation of School Environment (Required). 3 hrs.**
Introduction to the roles and functions of school pupil personnel professionals (general classrooms, exceptional student environments, support staff and administration), models of operation, problems, issues, and techniques. The organization and administration of school systems and philosophy of general and special education are considered. Students will spend a minimum of one-half day a week observing in K through 12 schools.
- 691 Internship in Mental Health Counseling . 3 - 9 hrs.**
Supervised experience in mental health counseling. Participation in seminars on specified topics. Minimum 100 clock hours for each semester hour credit. (PR: COUN 608 and 631 with minimum grade of *B* or permission)
- 692 Internship in Community Counseling. 3-6 hrs.**
Supervised experience in community counseling. Minimum 100 clock hours for each semester hour credit. (PR: COUN 608 with a minimum grade of *B* or permission)
- 693 Internship in Marriage and Family Counseling. 3 - 9 hrs.**
Supervised experience in marriage and family counseling. Participation in seminars on specified topics. Minimum 100 clock hours for each semester hour credit. (PR: Student must have achieved a minimum grade of *B* in COUN 638)

- 695 Internship in Corrections Counseling. 3 - 6 hrs.**
Supervised experience in corrections counseling. Participation in seminars on specified topics. Minimum 100 clock hours for each semester hour credit. (PR: COUN 608 and 641 with a minimum grade of *B* or permission)
- 696 Internship in Career Counseling. 3 - 6 hrs.**
Supervised experience in career counseling. Participation in seminars on specified topics. Minimum 100 clock hours for each semester hour credit. (PR: COUN 608 and 653 with a minimum grade of *B* or permission)
- 697 Internship in Student Affairs Counseling. 3 - 6 hrs.**
Supervised experience in student affairs counseling. Participation in seminars on specified topics. Minimum 100 clock hours for each semester hour credit. (PR: COUN 608 with a minimum grade of *B* or permission)
- 698 Internship in School Counseling 3 - 6 hrs.**
Supervised experience in school counseling. Participation in seminars on specified topics. Minimum 100 clock hours for each semester hour credit. (PR: COUN 608 and 673 with a minimum grade of *B* or permission)
- 740 Internship 1-12 hrs.**
A course designed to offer advanced graduate students an opportunity to practice under close supervision the professional skills required in the broad field of counseling in school and community settings. Instructor will indicate in course syllabus whether class is letter graded or S/U. (PR: Consent)
- 742 Current Issues in Counseling 3 hrs.**
An examination of current issues affecting professional counselors and training in effectively dealing with the issues. Selected readings, guest speakers, and class discussion will center around professional issues relevant to counselors in various settings (i.e., legal and ethical considerations). (PR: Consent)
- 746 Systems Intervention 3 hrs.**
Examination of the major systems which may require intervention by a supervisor of counselors and training in effective intervention strategies. (PR: Consent)
- 747 Advanced Group Counseling 3 hrs.**
The application of counseling theories in group settings, including supervised group leadership experiences. (PR: Consent)
- 750 Seminar 3 hrs.**
For students in post-master's work who wish to discuss and study theory, principles, and techniques of counseling or other special topics. Instructor will indicate in course syllabus whether class is letter graded or S/U. (PR: Consent)
- 755 Models of Counselor Supervision 3 hrs.**
A survey of theoretical approaches and techniques counseling supervision. Emphasis is placed on supervision of counselors in various settings. (PR: Consent)
- 756 Residency in Counselor Supervision 6 hrs.**
Supervised application of the knowledge and skills gained in the Ed.S. Program. Students will supervise practicing counselors in approved settings. (PR: Acceptance into the Ed.S. Program, completion of all other Ed.S. academic requirements, and consent)
- 760 Special Topics 3-6 hrs.**
Study, reading, and research in specialized areas of counseling, human relations, guidance or other special topics.

CRIMINAL JUSTICE (CJ)

- 500 Applied Ethics in Criminal Justice. 3 hrs.**
Examines ethical issues and moral dilemmas faced by criminal justice professionals. Traditional ethical theories and practices designed to foster public trust in the criminal justice system are examined and applied.
- 501 Teaching and Training in Criminal Justice. 3 hrs.**
Students examine various theories and techniques used in teaching and training criminal justice professionals, develop lesson plans, and use technology based presentation media to present information.
- 504 Theoretical Criminology. 3 hrs.**
A critical analysis of the major criminological theories and their empirical foundations. Current theory and research receive greater emphasis than historical development.
- 506 Race, Ethnicity, Gender, & Crime. 3 hrs.**
Examines the impact of race, ethnicity, and culture within the criminal justice system. Explores minorities and women as victims, witnesses, and offenders.

- 510 Police Administration. 3 hrs.**
This course studies the functions and activities of police agencies, including police department organizations and responsibilities of police administrators. Current administrative and management techniques and theories are also explored.
- 512 Community Relations. 3 hrs.**
Law enforcement and the community; relation to schools, public education functions of law enforcement personnel; community attitudes. (PR: CJ 211 or consent of instructor)
- 521 Corrections and the Law. 3 hrs.**
Review of legal principles relating to convicted criminals, including plea negotiations, sentencing, post-conviction remedies, constitutional rights of inmates, and conditions of confinement.
- 522 Law of Evidence. 3 hrs.**
Leading rules and principles of exclusion and selection; burden of proof, nature and effect of presumptions; proof of authenticity and contents of writings; examinations, competency and privilege of witnesses. (PR: CJ 321 or permission)
- 525 Juvenile Justice Administration. 3 hrs.**
A survey of the juvenile justice process, police, courts and corrections, including programs, services, and the laws. (PR: CJ 321 or permission)
- 526 Civil Liability Issues in Criminal Justice. 3 hrs.**
This course examines various theories of civil liability that relate to Criminal Justice professionals, the civil justice system, and preventing and defending civil liability claims.
- 531 Criminal Rehabilitation. 3 hrs.**
Legal and historical background of rehabilitation; roles of correctional workers; and nature of the rehabilitation process. (PR: CJ 231 or permission)
- 532 Correctional Institutions. 3 hrs.**
Analysis of the theory of organizations and administration of correctional institutions; principles of institutional corrections. (PR: CJ 231 or permission)
- 533 Correctional Administration. 3 hrs.**
Objectives of correctional institutions; records; personnel, program development, security; educational programs. (PR: CJ 231 or permission)
- 550 Business and Industry Security. 3 hrs.**
Selection, training and staffing of a security force; security devices available, techniques of internal security; ground security; security techniques applicable to personnel selection; legal problems. (PR: majors only)
- 553 Seminar in Crime Prevention. 3 hrs.**
This course examines theory, operation, and evaluation of crime prevention as a function of the criminal justice system. Techniques for crime prevention are analyzed from various orientations, including environmental design.(PR: CJ 353 or permission)
- 580-583 Special Topics in Criminal Justice. 1-4; 1-4; 1-4; 1-4 hrs.**
A study of special interest criminal justice topics under the supervision of a qualified faculty member. (PR: Consent of instructor)
- 585-588 Independent Study. 1-4; 1-4; 1-4; 1-4 hrs.**
This course permits the student to undertake supervised research (field or library) in any area where there is no appropriate course. (PR: Consent of instructor)
- 590 Internship. 1-6 hrs.**
The placement of an individual into a criminal justice agency (police, probation, courts, jails) to observe and participate in its operation. Grading is CR/NC. (PR: Consent of instructor)
- 601 Seminar in Criminal Justice. 3 hrs.**
A forum to acquaint students, faculty and guests with each others' research and experiences in dealing with criminal justice issues.
- 602 Law and Social Control. 3 hrs.**
An examination of the nature of law and crime with a view towards determining the nature of control of social behavior by the legal system.
- 603 Criminal Justice Planning. 3 hrs.**
A systematic review of procedures to plan and evaluate criminal justice organizations and their operations.
- 604 Advanced Theory in Criminal Justice. 3 hrs.**
Course is designed to provide the student already familiar with the basic concepts of criminological theory the opportunity to examine in depth a selected set of theories (PR: CJ 504, its equivalent, or permission of instructor)
- 605 Juvenile Delinquency. 3 hrs.**
Juvenile delinquency in the modern world; nature, extent, causes, treatment, and control.
- 620 Criminology. 3 hrs.**
Seminar in crime and delinquency.

- 621 Advanced Criminal Law and Procedure. 3 hrs.**
A review of contemporary legislation and court decisions relating to criminal law and procedure. (CJ 322 or permission)
- 632 Community Corrections. 3 hrs.**
A survey of probation, parole, pre-release centers, halfway houses and other forms of community corrections as elements of a total correctional system. Historical development, contemporary organization, and legal issues are emphasized.
- 655 Research Methods in Criminal Justice. 3 hrs.**
Elements of scientific research; interaction between research and theory; use of data processing resources. (PR: Undergraduate research methodology course, undergraduate statistics course, and permission)
- 656 Applied Statistics in Criminal Justice. 3 hrs.**
Principles of statistical techniques with emphasis upon their application in the Criminal Justice system. (PR: Undergraduate statistics course, CJ 655, and permission)
- 679 Problem Report. 3 hrs.**
The preparation of a written report on a research problem or field study in Criminal Justice. (PR: CJ 655 and permission)
- 681 Thesis, 1-6 hrs.**

CURRICULUM AND INSTRUCTION (CI)

- 501 Middle Childhood Curriculum. 3 hrs. I, II, S.**
The study of procedures for creating a functional middle childhood curriculum with emphasis upon the needs of middle childhood learners.
- 503 Methods and Materials of Teaching in the Middle Childhood Grades. 3 hrs. I, II, S.**
The study of methods appropriate for teaching in the middle childhood grades and the production and utilization of materials and resources in these grades. Middle school clinical experience is required (PR or CR: CI 501)
- 511 Analysis of Teaching in Early Years. 2 hrs.**
The analysis and appraisal of teaching strategies employed in the teaching of young children. (CR: CI 630)
- 515 Integrated Methods and Materials: Secondary Education. 3 hrs.**
General secondary/middle school course with emphasis on instructional standards and objectives, methods, and materials of the disciplines. A clinical experience provides observation and teaching. *MAT students only.* (PR: EDF 537; CR: EDF 637)
- 517 Comprehensive Classroom Discipline Techniques. 3 hrs.**
Identification of common classroom discipline problems and techniques for dealing with behavioral incidents in school settings K-12.
- 518 Classroom Motivation. 1-3 hrs. I, II, S.**
Classroom motivation with an emphasis on theoretical constructs and practical applications for teachers of students from early childhood through adolescence.
- 539 Language Arts and Literature. 3 hrs.**
An examination of theory, research, and practical strategies for integrating language arts and teaching literature for students K-8.
- 542 Instructional and Classroom Management in Elementary Education. 3 hrs.**
This course allows elementary education students to critically examine a variety of classroom management strategies and educational issues that impact instruction.
- 549 Instructional and Classroom Management in Secondary Education. 3 hrs.**
Classroom management with an emphasis on practical techniques for dealing with management problems in secondary and middle school settings.
- 550 Writing in an Integrated Literacy Framework. 3 hrs.**
Views writing from an integrated literacy framework emphasizing multiple methods of writing and writing assessment.
- 551 Writing to Learn in Content Areas. 3 hrs.**
Designed to introduce teachers to successful approaches and strategies to foster thinking and learning through writing, and experiment with a variety of approaches and techniques in their classrooms.
- 552 Summer Institute: The National Writing Project Model. 6 hrs.**
Participants will examine problems in the teaching of writing, present and demonstrate approaches to the teaching of writing, study current and past research in the field.
- 557 Elementary Education: Teaching Contemporary Mathematics. 3 hrs.**
Application of modern methods and techniques in the implementation of a contemporary elementary mathematics program.

- 559 Multicultural Influences in Education: Materials and Techniques. 3 hrs. I, S.**
Multicultural education with an emphasis on methods and materials for teaching students from diverse cultural backgrounds.
- 560-564 Staff Development: (Identifying content title to be added). I-4; 1-4; 1-4; 1-4; 1-4 hrs. I, II, S.**
Courses and activities designed to meet the specific inservice needs of public school personnel. Credit in these courses may be used for certificate renewal and salary upgrading if approved but not in degree programs. CR/NC grading.
- 580-583 Special Topics. 1-6 hrs. I, II, S.**
- 585-588 Independent Study. 1-4 hrs. I, II, S.**
Permission of Chair and GPA 3.0 to take class. Limit of 6 hrs. of Independent Study to be used in master's degree program.
- 591-594 Workshop. 1-4 hrs.**
A study of practical applications in teacher education and related fields for advanced students and professionals. Experience in new techniques and application of new knowledge.
- 597-598 Instructional Television Course. 1-4 hrs.**
A course based upon Instructional Television Series broadcast by public television. The student is responsible for viewing the series on the air and satisfying all course requirements announced by the department.
- 609 Elementary Education: Curriculum in the Modern Elementary School. 3 hrs. I, II, S.**
Examination of traditional and current assumptions undergirding the modern elementary school curriculum with emphasis on converting theoretical bases into plans for curriculum change and modernization.
- 610 Secondary Education: Curriculum in the Modern Secondary School. 3 hrs. II, S.**
Analysis of the social and political factors which affect secondary school curriculum with emphasis upon trends and developments in high schools today.
- 618 Elementary Education: Informal Learning in Primary and Middle Schools. 3 hrs.**
Informal learning in the primary and middle school with emphasis on the significance of natural child development, learning through games and play, and the British model for infant and junior schools, and related activities for the middle years (ages 10-14) in middle school settings.
- 623 Instructional Models and Assessment Techniques. 3 hrs.**
Selected teaching models are analyzed with implications for the role of the teacher; assessment of influences of the teacher.
- 624 Advanced Instructional Strategies. 3 hrs.**
Performance-based laboratory experiences in a micro-teaching laboratory development of a personalized teaching repertoire.
- 630 Early Childhood Education: Practicum in Early Childhood Education. 1-4 hrs.**
Supervised experience in teaching kindergarten with a concurrent seminar in organization and administration.
- 631 Early Childhood Education: Current Influences on Early Childhood Education. 3 hrs.**
A study of recent findings in the behavioral sciences and their implications for early childhood education.
- 632 Early Childhood Education: Early Childhood Programs. 3 hrs.**
An examination of past and present programs for young children with opportunity provided for curriculum development.
- 633 Early Childhood Education: Adult Involvement in Early Education. 3 hrs.**
Ways of communicating and involving paraprofessionals, parents, volunteers, staff in the education of young children.
- 634 Language and Cognition in Early Childhood. 3 hrs.**
Examination of selected studies in language acquisition and cognitive development of children from birth to eight years of age.
- 638 Curriculum Planning. 3 hrs.**
A study of the fundamental skills needed to evaluate educational progress at the classroom, program, and school levels.
- 640 Literature. 1-3 hrs. I, II, S.**
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 Curriculum and Instruction 640 is permitted. (PR: Permission of chair)
- 641 Seminar. 3 hrs. I, II, S.**
A guided program of readings, reports and discussions. No student may register for this course a second time. (PR: Permission of chair)
- 656 Elementary Education: Teaching Language Arts. 3 hrs.**
A unified Reading-Language instructional approach to develop a basic understanding of reading- language related principles derived from disciplines, research, and innovative classroom practices.

- 657 **Elementary Education: Advanced Techniques in Teaching Elementary Mathematics. 3 hrs. II, S.**
Historical, social, psychological, and philosophical foundations of mathematics education; investigation of current trends and issues in contemporary programs.
- 659 **Symposium-Elementary and Secondary Education, Part I. 3 hrs.**
The symposium is the culmination of the master's degree program in Elementary Education, Secondary Education, and Early Childhood Education. This is the first of a two-part sequence. (PR: Consent)
- 670 **Elementary Education: Teaching Social Studies in Elementary Schools. 3 hrs.**
Materials and procedures for teaching social studies with emphasis on a survey of successful programs of instruction.
- 671 **Elementary Education: Advanced Techniques in Teaching Science. 3 hrs.**
Intensive concentration on helping children inquire into the earth, physical, and biological sciences through modern methods and media.
- 672 **Practicum in Education. 3-6 hrs.**
Clinical Experience: Directed activity in a clinical setting. (PR: Permission)
- 675 **Curriculum Theory. 3 hrs.**
Analysis of the assumptions undergirding curriculum development.
- 676 **Program Evaluation. 1 hr.**
An examination of program evaluation models and techniques for instructional supervisors.
- 677 **Writing for Publication in Professional Education. 3 hrs.**
For professional educators and students who wish to study and practice writing articles for publication in scholarly journals in the field of education.
- 678 **The Supervising Teacher. 3 hrs.**
Duties and responsibilities of the teacher who supervises student teachers.
- 679 **Classroom Management for Elementary Teachers. 3 hrs.**
This course is designed for elementary teachers. The content includes methods of managing the physical and social environment in the classroom.
- 680 **Symposium-Elementary and Secondary Education, Part II. 3 hrs.**
The comprehensive assessment requirement is met within the framework of this course. (PR: Consent.)
- 681 **Thesis. 1-6 hrs. I, II, S.**
Students completing 681 must defend their thesis in an oral examination.
- 701 **Curriculum Development. 3 hrs.**
This course is designed to review curriculum development and planning from the historical perspective – the four foundations of curriculum that can be translated into instructional design. (PR: Admission to C&I doctoral program or permission)
- 702 **Curriculum Theories. 3 hrs.**
This course will give the student a foundation in the theories and paradigms underlying curriculum from the past, present and future. (PR: Admission to C&I doctoral program or permission)
- 703 **Theories, Models, and Research of Teaching. 3 hrs.**
This course will analyze and synthesize the historical development of curriculum and the implications on instructional design. Behaviorism, cognitivism, constructivism, humanism, brain-based learning, and multiple intelligences will be examined. (PR: Admission to C&I doctoral program or permission)
- 704 **Social and Political Determinants of Curriculum Development. 3 hrs.**
The goal of this course is to help the student develop a critical analysis of the social, political, and cultural determinants of curriculum design. (PR: Admission to C&I doctoral program or permission)
- 706 **Multicultural and Diversity Issues in Curriculum and Instruction. 3 hrs.**
This course attempts to understand the issue of differences and equity through personal and critical analyses of the philosophical, social, and cultural perspectives that inform and shape curriculum and teaching.
- 780 **Special Topics in Curriculum and Instruction. 1-9 hrs.**
This course requires study, reading and research in an advisor/chair approved area of curriculum and instruction. This course is limited to Ed.D. and Ed.S. students. (PR: Permission)
- 797 **Curriculum and Instruction Dissertation Research. 1-12 hrs.**
This course is designed to support the student's doctoral research. The major focus is completion of the dissertation. (PR: Admitted to candidacy of C & I doctoral program)

CURRICULUM AND INSTRUCTION: DEAF AND HARD OF HEARING (CIDH)

- 501 **American Sign Language (ASL) I. 3 hrs.**
This course emphasizes the learning of basic person-to-person conversational signing skills as a second language, including use and comprehension of ASL vocabulary, syntax, and fingerspelling.
- 502 **American Sign Language (ASL) II. 3 hrs.**
For professionals serving deaf/hard of hearing (D/HH) individuals. Includes deaf culture, functional language, and legal issues in deaf education.

- 503 American Sign Language (ASL) III. 3 hrs.**
For professionals serving deaf/hard of hearing (D/HH). Includes deaf culture, the impact of cross-cultural perspectives on D/HH children, language in the Deaf Education classroom.
- 504 Auditory Habilitation: Communication Approaches and Sensory Devices for Children with Hearing Loss. 3 hrs.**
Course will consist of lecture, demonstration discussion, and student presentations. Graduate students in the course will be required to develop a Web-based instructional module illustrating one of the major communication approaches used with children with hearing loss.
- 505 Introduction to Deaf and Hard of Hearing. 3 hrs.**
Introduction to the education of deaf and hard of hearing students. (PreK-12) for prospective teachers and other professionals serving deaf/hard of hearing students.
- 506 Curriculum and Methods for Deaf and Hard of Hearing Students. 3 hrs.**
Study of curriculum, methods, techniques, and materials used in the education of deaf/hard of hearing students. Includes information on classroom organization, classroom management.
- 507 Development and Remediation of Reading, Writing, and Discourse for the Deaf and Hard of Hearing. 3 hrs.**
Study of complex nature of language acquisition, reading, and writing in deaf/hard of hearing students and techniques for enhancing language and teaching reading in this population.
- 601 Teaching Internship and Practicum (Deaf/Hard of Hearing) I (Residential). 3 hrs.**
This course represents a residential placement in which the students works with deaf and hard of hearing students in a classroom under the direction of a licensed teacher.
- 602 Teaching Internship and Practicum (Deaf/Hard of Hearing) I (Local School District). 3 hrs.**
This course represents a residential placement in which the students works with deaf and hard of hearing students in a classroom under the direction of a licensed teacher.

CURRICULUM AND INSTRUCTION: EDUCATIONAL COMPUTING (CIEC)

- 530 Computer Software and Methodology in Education. 3 hrs.**
This course is designed for inservice teachers who want to become familiar with how to use the microcomputer to improve their instruction.
- 534 Applications Software in the Classroom Curriculum Area. 3 hrs.**
A hands-on overview of major classes of applications software. A range of computing topics such as hardware, communications, ethics, and types of software will be discussed.
- 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.**
- 591-594 Workshop. 1-4 hrs.**
- 600 Computing and Instructional Design. 3 hrs.**
An analysis of current systems of educational computing based on models of instruction, learning modalities, and desired learning outcomes. (PR: CIEC 534 or equivalent or consent).
- 610 Local Area Networks and Telecommunications in the School. 3 hrs.**
A hands-on approach to managing and using local area networks and telecommunications to meet the instructional needs of the school. (PR: CIEC 534 or equivalent or consent).
- 620 Software Evaluation and Selection. 3 hrs.**
In-depth evaluation of software based on student-developed criteria. (PR: CIEC 600 or equivalent).
- 630 Authoring Systems and Multimedia. 3 hrs.**
A hands-on approach to authoring systems, including stackware, and the integration of other technologies such as CD-ROM, video disk, still video, and video and audio cassette recordings. (PR: CIEC 620 or equivalent).
- 635 The Internet in the K-12 Classroom. 3 hrs.**
This course provides an introduction to the Internet, with an emphasis on the World Wide Web and its potential uses in the K-12 classroom.
- 660 Using Computers to Improve Instruction in the Classroom. 3 hrs.**
This course is designed for inservice teachers who are familiar with the "BASIC programming" language and who want to learn how the microcomputer can be utilized in a content area. (PR: CI 530)
- 699 Final Project in Curriculum Area. 3 hrs.**
A final project related to the student's curriculum area which demonstrates the ability to design and implement a computer-based curriculum application. (PR: CIEC 630 or equivalent).

- 700 Technology and Curriculum. 3 hrs.**
This course provides an overview of current issues related to technology in education while also providing participants with the opportunity to improve personal technology skills and use.

CURRICULUM AND INSTRUCTION: ENGLISH AS A SECOND LANGUAGE (CISL)

- CISL 550 Second Language Acquisition. 3 hrs.**
This course examines current theories of second language acquisition and their implications for second language teaching and learning.
- CISL 551 Linguistics for ESL. 3 hrs.**
This course examines major linguistic theories on first- and second-language acquisition, emphasizing acquisition of English by non-native students in prekindergarten through twelfth grade. (PR: CISL 550)
- CISL 552 Intercultural Communication. 3 hrs.**
This course focuses on the interrelationship of language and culture and includes analyses of world cultures, with literature and arts as bridges. Participants develop teaching materials for ESL classrooms.
- CISL 653 Methods and Materials for ESL: Language Development. 3 hrs.**
Approaches to developing and assessing listening and speaking skills among second language populations at different stages in academic development, with an overview of traditional ESL methods. (PR: CISL 550)
- CISL 654 Methods and Materials for ESL: Literacy Acquisition. 3 hrs.**
Approaches to developing and assessing writing and reading skills among second language populations at different stages in academic development. Focus also includes literacy acquisition in content areas. (PR: CISL 550)
- CISL 655 ESL Practicum for Teaching ESL. 3 hrs.**
A culminating practicum that involves participation in ESL curriculum evaluation and development. (PR: CISL 550, 551, 552, 553, 554)

CURRICULUM AND INSTRUCTION: MATH EDUCATION (CIME)

- 500 Mathematics for the Elementary Teacher I. 3 hrs.**
Systems of numeration, sets, relations, binary operations, decimal and other base systems, natural numbers, integers, rational numbers, and real numbers with emphasis on the algebraic structure.
- 501 Mathematics for the Elementary Teacher II. 3 hrs.**
Continuation of CIME 500. PR: CIME 500
- 555 Technical Mathematics for Mathematics Educators. 3 hrs.**
This course will cover the objectives of applied and technical preparation mathematics for teachers, with an emphasis on methodologies appropriate for those students who are likely to comprise these classes.
- 556 Finite Mathematics for Mathematics Educators. 3 hrs.**
This course will cover the methods and objectives of business and technical preparation mathematics courses with an emphasis on teaching methodologies appropriate for those students who are likely to comprise these classes.
- 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 program. CR\NC grading.
- 580-582 Special Topics. 1-4 hrs.**
- 585-588 Independent Study. 1-4 hrs.**
- 591-594 Workshop. 1-4 hrs.**
- 657 Precalculus for Mathematics Educators. 4 hrs.**
A progressive development of algebraic concepts, skills, and applications. Problem solving techniques and calculator usage will be integrated throughout the program.
- 658 Geometry for Mathematics Educators. 3 hrs.**
Basic concepts of logic and mathematical proofs. Topics include angle relationships, parallel, and perpendicular lines, circles, polygons, solids, triangles, and elementary trigonometry. (PR: CIME 557)
- 670 Teaching Mathematics to Early Adolescents. 2 hrs.**
An examination of the interrelationships of the physical, intellectual, and socio-emotional development of the pre- and early adolescent and their impact on the teaching and learning of mathematics. (PR: Any two of the following: CIME 555, 556, 557 or 558; or permission)
- 675 Supervised Field Practicum/Seminar in Mathematics, 5-9. 3 hrs.**
Supervised practicum in which the student demonstrates and is assessed in mathematics teaching skills in a clinical setting in grades 5-9. (PR: any two of the following—CIME 555, 556, 557, 558; or permission)

- 677 Supervised Field Practicum/Seminar in Mathematics, 9-12. 3 hrs.**
Supervised practicum in which the student demonstrates and is assessed in mathematics teaching skills in a clinical setting in grades 9-12. (PR: any two of the following CIME 555, 556, 557, 558, or permission)

CURRICULUM AND INSTRUCTION: READING EDUCATION (CIRG)

- 500 Building Supportive Classrooms for Early Literacy Learning. 3 hrs.**
This is a field-based course designed for schools that are adjusting the literacy curriculum to support literacy acquisition. Participants learn to provide appropriate assessment and instruction to foster the development of learning strategies for reading and writing for their pupils.
- 506 Introduction to Reading Recovery. 3 hrs.**
A course designed for Reading Recovery Teachers-in-Training including the basic concepts, practices, theory, and philosophy. Participants will administer, score, and interpret an observation survey.
- 507 Reading Recovery: Theory and Practice. 6 hrs.**
Provides information, direction, and supervision in implementing Reading Recovery within the school setting. This course includes a daily practicum and weekly seminar session relating theory to practice. (PR: CIRG 506)
- 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.
- 565 Reading for Supervisors of Instruction. 1 hr**
A course for individuals seeking certification as a supervisor of instruction. Attention will be given to comprehensive reading programs, approaches to reading instruction, and inservice programs. (PR: Content)
- 580-583 Special Topics. 1-4 hrs.**
- 585-588 Independent Study. 1-4 hrs.**
- 613 Children's Literature. 3 hrs.**
An examination of teaching methods and of children's literature that are conducive to promoting permanent interests, skills, and interests in reading for ECE and MCE.
- 614 Adolescent Literature. 3 hrs.**
Analysis of the roles of the teacher in developing a reading program for the late adolescent and adult. The utilization of children's literature as a medium for bridging the content fields with the process of reading will be a major concept that will be utilized.
- 619 Reading Leadership: Roles, Responsibilities, and Problems. 3 hrs. S.**
Analyses of administrators/supervisor's roles, responsibilities, problems, and practices in reading programs K-12. Presents practical solutions for problems encountered in a comprehensive reading program.
- 621 Current Issues and Problems in Reading. 3 hrs.**
A seminar course especially designed to explore problems and issues in reading, K-12. Professional literature, empirical research, and practical experience will be used to identify problems and solutions. (PR: CIRG 643)
- 622 The Use of Technology for Literacy Instruction. 3 hrs.**
Candidates will plan for literacy instruction and use literacy technology in their classrooms. Emphasis will be given to the Internet and educational software.
- 623 Reading Instruction for Literacy Facilitators: A Practicum. 3 hrs.**
Practicum experiences requiring demonstration of literacy leadership including demonstration teaching, classroom support of literacy instruction, and developing, implementing, and evaluating the literacy curriculum within the school setting. (PR: CIRG 654)
- 636 Developmental Reading. 3 hrs.**
Principles and practices of teaching developmental reading.
- 637 Literacy Assessment. 3 hrs.**
Study and the causes of reading difficulties, diagnostic devices and techniques, and theory related to assessing literacy development.
- 639 Reading Education Seminar: Planning, Organizing and Supervising a Reading Program. 3 hrs.**
This course is designed as an in-depth study and analysis of the planning and organizing of reading programs at various administrative levels. (PR: CI 643)
- 642 Reading Education Seminar: Reading Instruction for Individuals with Special Needs. 3 hrs.**
Study of research findings, methodology and instructional materials for atypical learners, illiterate adults and others.
- 643 Teaching Struggling Readers: A Practicum. 3 hrs.**
Clinical experiences in the diagnosis and corrective treatment of reading disabilities. (PR: CIRG 654)