

Graduate Courses by Department

Anthropology (ANT)

ANT 587 TOPICS COURSE

3, 3/0

Art and Design (AAD, ADE, ATS, DES, FAR)

Art and Design (AAD)

AAD 687 SPECIAL TOPICS SPECIAL TOPICS

1-3, 0/0

Prerequisite: graduate level status. Special topics.

Art Education (AED)

AED 505 FOUNDATIONS IN MUSEUM EDUCATION STUDIES

3, 3/0

History of museum education; practical experience creating interpretive programs and exhibitions using museum collections, archival resources, and publications; overview of museum operations; current and controversial issues and future trends; definition, history, theory, and responsibilities of museums and museum education; opportunity to work firsthand with curators and museum educators to create appropriate and accessible programs for diverse audiences.

AED 506 COLLOQUIUM IN THE ARTS

3, 3/0

Common and related concerns, experiences, and activities in the various arts, including visual and performing arts, and other acts of individual and/or group expression; seminar reports, discussions, presentations; planning of integrated arts activities and investigation for potential implementation in the field; individual or group project as practical.

AED 510 ART MATERIALS WORKSHOP

3, 2/2

Studio experiences with visual arts media, processes, and techniques for art and classroom learning activities; individual and/or group investigations of experiences and adaptations to classroom application. Extra class studio hours as needed.

AED 518 ART EDUCATION AND MULTICULTURALISM

3, 3/0

Cultural competence in art education; attitudes, approaches, and materials required for teaching art to today's diverse school populations; understanding and appreciating the arts and life ways of various peoples and their cultures; curriculum development; interaction with various community resources.

AED 519 ART IN THE ELEMENTARY AND EXCEPTIONAL EDUCATION CLASSROOM

3, 3/0

Prerequisites: graduate status or instructor permission. Examine relationships between children's art and development pre-K through middle school; research contemporary theory for teaching art in non-arts classrooms including arts integration and supporting Common

AED 520 ART AND THERAPY

3, 3/0

Art experiences/products of children and adults in therapeutic settings; slide lectures, demonstrations, films, videotapes, articles, books, observations, and group and field experiences.

AED 527 FIELD STUDIES

1-3, 0/0

Prerequisites: Art education program major; consent of department chair. Supervised field experiences in the major discipline.

AED 565 SEMINAR IN FEMINIST ART AND CRITICISM FOR TEACHING

3, 3/0

A forum for development and critique of teaching methods, visuals, and instructional materials for using feminist art and criticism in art education; practical direction in applying relevant contemporary art, written criticism, and oral interpretation in classroom settings.

AED 588 TOPICS COURSE

3, 3/0

AED 590 INDEPENDENT STUDY

1-3, 1/0

An opportunity for a student to explore an area of art education including but not limited to studio practice or pedagogy, that may not be covered in the current curriculum or to explore an area more in depth. Students may also collaborate with faculty on research projects as an independent study, to further enhance their research knowledge and skills.

AED 591 RESEARCH PROJECT

3, 3/0

Research or investigation of a particular problem in the discipline, planned and carried out by the student, and supervised by the instructor.

AED 594 GRADUATE WORKSHOP

1-3, 1/0

AED 598 ART THERAPY ISSUES

3, 3/0

AED 603 INTERNSHIP (ART EDUCATION OR ART THERAPY)

1-3, 3/0

Prerequisite: Consent of department chair. Supervised internship in an educational setting consistent with the student's program of study.

AED 604 FUNDAMENTALS OF EDUCATIONAL PROGRAMMING FOR MUSEUMS

3, 3/0

Theories and practices of planning and implementing museum education programs for diverse audiences; techniques and methods for creating innovative programs within a museum setting.

AED 605 STUDIO AS PEDAGOGICAL SPACE

3, 3/0

Study and analysis of current theories, philosophies, and practices in studio and art education and how they impact one another.

AED 606 VISUAL ART CURRICULUM DESIGN

3, 3/0

Prerequisites: Initial certification in education. Analyzing, evaluating, and designing contemporary art teaching materials, content, and strategies. Focus on teacher-student dialogue; learning behavior, and artistic educational practices.

AED 609 STUDIO METHODS

3, 2/2

Technical studio experience as appropriate to the teaching artist: processes, procedures, skills, knowledge, and attitudes; integration of personal and classroom investigations. May be repeated up to three times.

AED 610 CONTEMPORARY ART THEORY

3, 3/0

Prerequisite: Degree in a visual arts-related field. Theoretical perspectives in art criticism and aesthetics that contribute to contemporary art education practices.

AED 675 YOUTH CULTURE

3, 3/0

Interdisciplinary analysis of adolescent-driven contemporary cultures through the investigation of their intertwined worlds of family, peers, and school. Focus on youth-centered educational research, secondary pedagogical practices, and curriculum design.

AED 680 HISTORY & PHILOSOPHY OF ART EDUCATION

3, 3/0

Critical examination of the historical roots and ideological underpinnings of art education within public/private schooling from elementary to higher education in the U.S., with special attention to the relations among schools and society with respect to social equality and a democratic way of life.

AED 688 SEMINAR IN ART EDUCATION

3, 3/0

Contemporary problems; review of curriculum developments, methodology, innovative developments, and interdisciplinary concepts; individualized studies under faculty advisement.

AED 689 RESEARCH

3, 3/0

Prerequisite: AED 688. Individual and group study of methods of research in the discipline; training in research methods, interpretation, evaluation, and adaptation of research findings for application to professional needs.

AED 690 MASTER'S PROJECT

3, 3/0

Prerequisite: AED 689. A study undertaken by one or more individuals on a problem of professional significance, to demonstrate an area of mastery in the field.

AED 695 MASTER'S THESIS

1-6, 6/0

Prerequisite: AED 689. Individual investigation of an original problem representing a significant contribution to the literature of the field. May be repeated.

AED 721 THESIS/PROJECT CONTINUATION

0, 0/0

AED 722 THESIS/PROJECT EXTENDED

0, 0/0

Art Therapy Studies (ATS)

ATS 520 ART AND THERAPY

3, 3/0

ATS 590 INDEPENDENT STUDY

1-3, 0/0

ATS 690 MASTERS PROJECT

3, 0/0

ATS 695 MASTERS THESIS

3, 0/0

ATS 721 THESIS/PROJECT CONTINUATION

0, 0/0

ATS 722 THESIS/PROJECT EXTENDED

0, 0/0

Design (DES)

DES 590 INDEPENDENT STUDY

1-6, 0/6

DES 592 INDEPENDENT STUDIO IN DESIGN

3-9, 1/5

Prerequisites: DES 220 OR DES 230 OR DES 249 OR DES 250. Independent studio experience with consultation, advice, and supervision from an instructor in a related area of study. Involves studio experiments and experiences not available in regular course offerings. May be taken up to three times.

DES 640 GRADUATE STUDIO IN DESIGN

3-9, 1/5

Organization of space with a variety of materials; the designed form in theoretical, abstract, and functional applications. Tutorial relationship with instructor. Extra class assignments, including minimum studio hours equal to class hours. May be taken up to three times.

DES 642 GRADUATE STUDIO IN FURNITURE DESIGN

3-9, 1/5

Prerequisites: DES 250 and DES 351 or equivalent. Designer-craftsperson approach to advanced projects in wood; hand, power, and machine tool practice; aesthetic and functional considerations in design; finishing methods; care of equipment. May be taken up to three times.

DES 643 GRADUATE STUDIO IN FIBER DESIGN

3-9, 1/5

Prerequisite: DES 242 or equivalent or instructor permission. Advanced work in textile design, techniques, and processes: floor loom weaving, fabric printing, related techniques of fiber embellishment and construction; individual studies and projects exploring traditional and experimental concepts in fiber arts. Tutorial relationship with instructor when appropriate. May be taken up to three times.

DES 646 GRADUATE STUDIO IN JEWELRY

3-9, 1/5

Prerequisite: DES 230 or equivalent. Technical and aesthetic aspects of jewelry design and construction; advanced experience in fabrication techniques, casting, and stone setting according to student experience level. Tutorial relationship with instructor. Extra class assignments, including minimum studio hours equal to class hours. May be taken up to three times.

DES 647 CASTING TECHNIQUES IN JEWELRY

3-9, 1/5

Preparing wax models and molds, burning out, and lost-wax casting of jewelry in silver and gold; using the centrifugal casting machine; related steam casting, cuttlefish casting, open-mold casting, and associated techniques. Extra class assignments, including minimum studio hours equal to class hours. May be taken up to three times.

DES 649 GRADUATE STUDIO IN CERAMICS

3-9, 1/5

Prerequisites: DES 320 or equivalent and DES 592. Advanced study on an individual basis: practice in throwing or hand building; study of form and texture for functional or sculptural applications; color and glaze. Extra class assignments, including minimum studio hours equal to class hours. May be taken up to three times.

DES 690 MASTER'S PROJECT

3, 1/5

A study undertaken by one or more individuals on a problem of special interest aimed at making a special contribution to design, as contrasted with normal class or studio activity. May be presented, in part, as an exhibition of materials collected or prepared, including a major exhibition of design related to study, with theories and findings reported.

DES 695 MASTER'S THESIS

3, 1/5

Individual investigation of an original problem submitted in acceptable form according to directions given by the Graduate School. Problem and procedure must be approved by the student's thesis supervisor and graduate advisory committee before investigation is begun.

DES 721 THESIS/PROJECT CONTINUATION

0, 0/0

DES 722 THESIS/PROJECT EXTENDED

0, 0/0

Fine Arts (FAR)

FAR 590 INDEPENDENT STUDY

1-6, 3/0

Independent pursuit of the development of a particular project in the discipline of fine arts. Student, adviser, and instructor develop contractual arrangements for project completion.

FAR 600 GRADUATE STUDIO IN DRAWING

1-3, 0/6

Individual concentration in drawing for advanced students; emphasizes growing facility of expression, application to painting and graphic arts; tutorial relationship with instructor; related study and gallery visits; extra class assignments, including minimum studio hours equal to class hours. May be taken up to three times.

FAR 610 GRADUATE STUDIO IN PAINTING

1-6, 0/6

Individual activities in painting for advanced students; emphasizes personal growth and mastery of chosen media; tutorial relationship with instructor; studio and outdoor problems; use of models; related study and gallery visits; extra class assignments, including minimum studio hours equal to class hours. May be taken up to three times.

FAR 620 GRADUATE STUDIO IN PHOTOGRAPHY

1-3, 0/6

Advanced black-and-white and color photography (including digital format) as a form of expression, as illustration, as event recording, as a teaching aid, and as used in publications; tutorial relationship with instructor; extra class assignments, including minimum studio hours equal to class hours. May be taken up to three times.

FAR 630 GRADUATE STUDIO IN PRINTMAKING

3-9, 0/6

Advanced work in printmaking: relief, intaglio, planographic, serigraphic processes; related drawing and design considerations; parallel studies of graphic artists; care of equipment; tutorial relationship with instructor; extra class assignments, including minimum studio hours equal to class hours. May be taken up to three times.

FAR 640 GRADUATE STUDIO IN SCULPTURE

3-9, 0/6

General studio in advanced sculpture, using additive, subtractive, and constructive methods; continued personal development in such media as clay, plaster, wood, stone, metal; tutorial relationship with instructor; extra class assignments, including minimum studio hours equal to class hours. May be taken up to three times.

FAR 690 MASTER'S PROJECT

3, 3/0

A study undertaken by one or more individuals on a problem of special interest, aimed at making a special contribution to fine arts; may be presented, in part, as an exhibition of materials collected or prepared-including a major exhibition of artwork related to study-with theories and findings reported in an acceptable form according to directions given by the Fine Arts Department.

FAR 695 MASTER'S THESIS

3, 0/0

FAR 721 THESIS/PROJECT CONTINUATION

0, 0/0

FAR 722 THESIS/PROJECT EXTENDED

0, 0/0

Interior Design (IDE)

IDE 101 INTRODUCTION TO INTERIOR DESIGN

3, 3/0; AR23

Introductory survey of the theory and practice of interior design. Emphasis is given to the impact of interior space upon the physical, social, psychological, and aesthetic needs of people. Offered fall only.

IDE 103 DIGITAL PRESENTATION METHODS

3, 2/4

Fundamentals of digital presentation techniques, vector and pixel graphics, desktop publishing, video production, and website design tools augmented by basic research methods, and digital file management. Application of these tools to creative projects. Offered every Fall semester.

Equivalent Course: AAD 104

IDE 104 SPATIAL CONCEPTS OF INTERIOR DESIGN

3, 1/4

Corequisites: IDE 101 and IDE103. Introduction to the elements and principles of space and form as the fundamental vocabulary for analyzing and communicating the spatial concepts of interior design. Offered every Fall.

IDE 151 MECHANICAL AND PERSPECTIVE DRAWING

3, 1/5

Prerequisites: IDE 101, IDE 103, IDE 104. Corequisites: IDE 152, IDE 153. Studio exploration of architectural drafting conventions and the methods to produce mechanically generated descriptive drawings, including orthographic, isometric, and perspective drawings. Skills are utilized in practical application and collaboration with the IDE 151 and IDE 153 studios. Offered spring only.

IDE 152 RAPID IDEATION AND VISUALIZATION

3, 1/5

Prerequisites: IDE 101, IDE 104. Corequisites: IDE 151. Introduction to interior design problem solving processes with a focus on rapid conceptual ideation, visualization, color rendering and project presentation. Offered every spring.

IDE 153 SPATIAL EXPLORATIONS AND MODEL BUILDING

3, 1/5

Prerequisites: IDE 101, IDE 103, IDE 104. Corequisites: IDE 151, IDE 152. A series of small experimental projects introduce, explore, and apply three-dimensional design elements and principles to the creation and representation of the built environment and interior design problems. Different media methods of building sketch, study, and scale models are introduced as tools for designing and producing spatial representations. Offered spring only.

IDE 155 FUNDAMENTAL SKILLS OF INTERIOR DESIGN

3, 2/0

Prerequisites: IDE151, IDE152, and IDE153 or, for transfer students, prior interior design course credit with portfolio review by advisement. Studio exploration of small projects in mechanical and perspective drawing, color marker rendering and rapid ideation, model making and spatial exploration, and digital presentation methods. Projects will reinforce elements and principles of interior design and design theory. Offered every summer.

IDE 189 TOPIC COURSE

1-3, 0/0

IDE 201 INTERIOR DESIGN I

3, 1/5

Prerequisites: IDE 151, IDE 152, IDE 153, successful completion of the skills competency exam and minimum cumulative GPA of 2.6. A series of small experimental projects explores how two-dimensional and three-dimensional design elements and principles are applied specifically to interior design problems. Concept design, development, and articulation are emphasized and represented through the use of sketches, mechanical drawings, and perspective tools, as well as models. Skills and knowledge are utilized in practical application and collaboration with IDE 202. Offered fall only.

IDE 202 CONSTRUCTION FUNDAMENTALS

3, 3/0

Investigation of construction systems and materials used in the built environment including principles of structure and behavior, principles of enclosure and aesthetics, and exploration of building systems. Material properties affecting installation and appearance are presented and evaluated. Offered every fall.

IDE 203 FURNITURE THEORY AND APPLICATION

3, 3/0

Exploration of the furniture elements found within interior design; the interrelation of construction, strength of materials, and styles; and how modern-day furniture, theory, and applications have been influenced by and have evolved due to mass production, material development, and ergonomics.

IDE 204 BUILDING MATERIALS - SELECTION, SPECIFICATIONS, AND ESTIMATING

3, 1/4

Prerequisites: IDE 151. The study of a) interior finishes, materials, and various interior components; b) professional specification, code restrictions, and environmental concerns of materials that are required to choose an appropriate material; and c) understanding and creation of estimates and budgets for materials and products in a design project. Offered every spring.

IDE 205 HISTORY OF INTERIOR DESIGN AND ARCHITECTURE I

3, 3/0; GA23

A comprehensive survey of the major historical periods of architecture and interiors from antiquity to the advent of the Industrial Revolution.

IDE 206 EVIDENCE BASE DESIGN

3, 3/0

Introduction to the qualitative and quantitative research methods informing evidence-based interior design. Offered every Fall.
Equivalent Course: IDE 404

IDE 251 INTERIOR DESIGN II

3, 1/5

Prerequisite: IDE 201. Small- to medium-scale residential projects facilitate the exploration of functional criteria inherent in the design of interior spaces. Problem analysis, identification of client and user needs, selection of interior finishes and materials; a detailed, developed layout plus selection of furniture, fixtures, and equipment are emphasized. Offered spring only.

IDE 254 HISTORY OF INTERIOR DESIGN AND ARCHITECTURE II

3, 3/0

Prerequisites: IDE 205. A comprehensive survey of the major historical periods of architecture and interiors from the Industrial Revolution to the present. Offered spring only.

IDE 295 SPECIAL PROJECT

1-3, 0/0

Prerequisite: Instructor Permission. Scholarship or creative work conducted under the supervision of a faculty member. Offered occasionally.

IDE 301 INTERIOR DESIGN III

3, 1/5

Prerequisite: IDE 251. Corequisite: IDE 303. Medium-scale design projects are used to explore the principles of retail design and merchandising, focusing on the translation of clearly stated program goals and objectives into unique spatial solutions. Offered fall only.

IDE 302 COMPUTER APPLICATIONS FOR INTERIOR DESIGN I

3, 1/4

Intermediate-level course. Integrates computer presentation software to augment concurrent Interior Design studio, professional practice, and stand-alone projects. Digital 3-D modeling and 2-D presentation tools, in conjunction with computer-aided design (CAD) software, are used to translate students' fundamental manual presentation techniques to digital drawing, modeling, and layout. Offered fall only.

IDE 303 CONSTRUCTION DOCUMENTATION AND INTERIOR DETAILING

3, 2/4

Prerequisites: IDE 202. Understanding and creation of detailing and construction documentation of interior spaces. Interior designs are taken from concept to construction via micro-design projects. Emphasis is on the exploration and marriage of materials, construction techniques, prototype modeling and drawing conventions as professional communication tools. Material interfaces and transitions are designed, lighting is integrated, notes, reference marks and key tag conventions are implemented and professional construction document project sets are completed. Offered every fall semester

IDE 306 COLOR AND LIGHT

3, 3/0

Prerequisite: IDE 101. The study of a) physical properties of light and color in relation to elements and principles of design, b) physiological effects of light, c) elements of natural and artificial light, luminaire and control systems, d) color principles, theories, and systems to aid selection and application of color in the interior environment. Offered every fall

IDE 351 INTERIOR DESIGN IV

3, 1/5

Prerequisite: IDE 301. Information-gathering research and analysis is the basis to solve the functional and spatial requirements of complex public buildings, such as museums, libraries, health-care facilities, and cinemas. Special emphasis is placed on adjacencies, circulation, articulation, and the shaping of space. Offered spring only.

IDE 352 COMPUTER APPLICATIONS FOR INTERIOR DESIGN II

3, 1/4

Advanced topics of instruction in Computer Aided Architectural Drafting. Instruction focuses on creation and manipulation of the three-dimensional virtual built environment; including lighting and rendering techniques to create presentation-level graphics. The course also presents an introduction to Building Information Modeling (BIM) software. Offered spring only.

IDE 354 GLOBAL DESIGN STUDY TOUR

3, 1/5

Prerequisites: open for visual arts sophomores, juniors, and seniors with a cumulative GPA of 2.5 or better, instructor permission required. The Global Design Study Tour provides an opportunity to travel and experience a wide range of different cultural and geographical settings and their impact on interior design, art and architecture. Students will study exemplary global designs with an awareness and respect for cultural and social diversity. Offered occasionally.

IDE 355 LIGHTING DESIGN

3, 1/5

Designing with light, illumination principles, design criteria, specifications, and systems applied to public and private interiors. Hands-on experience using a lighting lab, case studies, and 3-D projects reinforce lecture material in a studio setting. Offered spring only.

IDE 356 ADVANCED PARAMETRIC DESIGN

3, 2/0

Prerequisites: IDE 352. Theory and application of visual programming as expression of parameters and rules that together define, encode and clarify the relationship between design intent and design response with a focus on the creation and communication of interior architectural environments. Offered every spring semester.

IDE 357 AMERICAN DIVERSITY AND DESIGN

3, 3/0

Prerequisites: Instructor Permission. Survey how design has affected and been affected by diverse populations in the U.S., specifically including race, ethnicity, gender, class, age, physical ability, cognitive ability, and religion. Examination of physical and media environments by and about diverse U.S. individuals and groups. Inclusive design principles are presented as an analytical framework. Offered spring only.

IDE 389 TOPICS COURSE

1-3, 1/0

IDE 401 INTERIOR DESIGN V

3, 3/15

Prerequisite: IDE 351. Large-scale office planning design projects are used to explore the functional and aesthetic requirements of complex administrative buildings. Anthropometric requirements; physical, sociological, and psychological needs; and the research, analysis, and programming skills needed for designing interior work-spheres are emphasized. Offered fall only.

IDE 403 PROFESSIONAL PRACTICE

3, 3/0

Introduction to the business principles, practices and ethics of the Interior Design profession. Emphasis is placed on regional standards, codes, means, methods, organizational charts, and client interaction. Résumé and portfolio creation, preparation for internship, and job interviews, business development and marketing material creation.

IDE 404 INTERIOR DESIGN THESIS RESEARCH

3, 3/0

Prerequisites: IDE 401. Part one of the thesis project, students advance their research and design skills required to meet a complex design project. Selection of the client, site, in-depth precedent study, code and building analysis, evidence based design, and research writing, design research methods are key issues addressed in this course. Offered annually.

Equivalent Course: IDE 206

IDE 451 INTERIOR DESIGN VI THESIS STUDIO

3, 1/5

Prerequisite: IDE 401. Constitutes the final studio experience prior to graduation and features one major design project. Students focus their design initiative with increased objectivity and adopt a comprehensive approach to the interior design process utilizing proposal, research, schematic design, construction documentation, material selections, specifications, technical writing, and presentation. Offered spring only.

IDE 483 BSC LED STUDY AWAY PROGRAM

1-15, 0/0

Acceptance into the program required.

IDE 488 INTERIOR DESIGN INTERNSHIP

3, 0/6

Guided and supervised exposure to professional interior design operations through on-the-job work experience in an authorized design firm, department, studio, or showroom. To earn 3 credit hours, students must complete 135 contract hours with the firm, provide a written report of the work experience, and receive a written evaluation from the employer. Offered fall only.

Equivalent Course: DES 488

IDE 499 INDEPENDENT STUDY

3-12, 0/0

Prerequisite: Faculty adviser permission.

Art Conservation

CNS 590 INDEPENDENT STUDY

1-3, 0/0

Independent research/investigation into a specific area of conservation of cultural heritage and art; topic selected by the student in consultation with a faculty member.

CNS 600 CONSERVATION IMAGING: TECHNICAL EXAMINATION AND DOCUMENTATION I

2, 2/0

Prerequisites: acceptance into the Art Conservation Department co-requisite with CNS 601. Methods and techniques used to determine and document the condition of artifacts in visible light. Development of theoretical understanding and advanced practical skills in scientific photography, conservation photodocumentation, and studio photography. Development of advanced skills in digital photography using DSLR cameras emphasizing precision, standardization, consistency, and color accuracy. Offered annually.

CNS 601 CONSERVATION IMAGING: TECHNICAL EXAMINATION AND DOCUMENTATION LAB I

1, 0/3

Prerequisites: acceptance into the Art Conservation Department; Co-requisite with CNS 600. Laboratory component of CNS 600. Supervised applied practice in: visual examination with visible lights; digital conservation photodocumentation of paintings, paper and objects using DSLR cameras; specialized conservation and studio lighting techniques; close-up photography and photomacrography. Emphasis on individual supervision for the rapid development of skills sufficient for independent mastery of techniques presented. Offered annually.

CNS 602 CONSERVATION IMAGING: TECHNICAL EXAMINATION AND DOCUMENTATION II

2, 2/0

Prerequisites: Successful completion of CNS 600 and 601; co-requisite with CNS 603. Ultraviolet, infrared, and other specialized techniques used to examine and document the structure and condition of artworks and cultural artifacts using visible and non-visible radiations; emphasizes theoretical understanding and development of advanced practical skills using digital cameras and electronic imagers. Offered annually.

CNS 603 CONSERVATION IMAGING: TECHNICAL EXAMINATION AND DOCUMENTATION LAB II

1, 0/3

Prerequisites: Successful completion of CNS 600 and 601; co-requisite with CNS 602. Supervised applied practice in: ultraviolet examination and digital photodocumentation (reflected UV and UV induced fluorescence methods); infrared examination and digital photodocumentation using digital cameras and infrared imagers; other special examination and imaging techniques. Emphasis on individual supervision for the rapid development of skills sufficient for independent mastery of techniques presented. Offered annually.

CNS 604 CONSERVATION IMAGING: TECHNICAL EXAMINATION AND DOCUMENTATION III

2, 2/0

Prerequisites: Successful completion of CNS 602 and 603; co-requisite with CNS 605. Time Lapse photography: theory and practice of effective approach to document treatment in progress. Multispectral imaging: theory, application, practice, and critical assessment. Documentation in action: practice and critical evaluation of effective use of various cameras in treatment laboratories. Radiographic techniques: history and basic physics of x-rays and radioactive materials; theoretical study and advanced practice in applying various digital radiographic techniques for museum artifacts; radiation safety. Offered annually.

CNS 605 CONSERVATION IMAGING: TECHNICAL EXAMINATION AND DOCUMENTATION LAB III

1, 0/3

Prerequisites: Successful completion of CNS 602 and 603; co-requisite with CNS 604. Applied practice in: use of flatbed and film scanners; profiling of digital cameras, scanners, monitors and printers; film-based and computed radiography of museum artifacts; Adobe Photoshop restoration techniques; use of color temperature meters. Emphasis on individual supervision for the rapid development of skills sufficient for independent mastery of techniques presented.

CNS 606 CONSERVATION IMAGING: TECHNICAL EXAMINATION AND DOCUMENTATION IV

2, 2/0

Prerequisites: Successful completion of CNS 604 and 605; co-requisite with CNS 607. Advanced studies in examination and documentation; and in radiography, ultraviolet, infrared, and other imaging techniques appropriate to a student's areas of conservation specialization and to their specialization research project. Application of computed imaging methods, including Reflectance Transformation Imaging, stereoscopy, and photogrammetry. Emphasis on individual supervision for the rapid development of skills sufficient for independent mastery of all examination and documentation techniques presented. Offered annually.

CNS 607 CONSERVATION IMAGING: TECHNICAL EXAMINATION AND DOCUMENTATION LAB IV

1, 0/1

Prerequisites: Successful completion of CNS 604 and 605; co-requisite with CNS 606. Supervised applied practice in examination and documentation and in radiography, ultraviolet, infrared, and other imaging techniques appropriate to a student's areas of conservation specialization and to their specialization research project. Supervised practice with Reflectance Transformation Imaging, 3D imaging, and video documentation. Emphasis on individual supervision for the rapid development of skills sufficient for independent mastery of techniques presented. Offered annually.

CNS 610 POLYMERS IN ART & CONSERVATION

3, 3/0

Corequisite: CNS 611. The chemistry and physics of polymers used to create and treat artwork. Nomenclature, reactivity, structure-property relationships, solubility, surfactants, emulsions, natural and synthetic coatings and adhesives, degradation, mechanical properties, polymer additives, and analytical methods of identification and characterization.

CNS 611 POLYMERS IN ART & CONSERVATION (LAB)

1, 0/3

Corequisite: CNS 610. The chemistry and physics of polymers to explain the behavior of materials used to create and treat artwork. Nomenclature, reactivity, structure-property relationships, solubility, surfactants, emulsions, natural and synthetic coatings and adhesives, degradation, mechanical properties, polymer additives, and analytical methods of identification and characterization.

CNS 612 CONSERVATION SCIENCE: POLARIZED LIGHT MICROSCOPY, LIGHT & MATTER

2, 3/0

Prerequisite: CNS 610/611. Corequisite: CNS 613. Introduction to aspects of the elements of light, color, and optics as they pertain to polarized light microscopy in the field of art conservation; principles of optical microscopy; how light interacts with matter, especially as it applies to the appearance of art and cultural objects.

CNS 613 CONSERVATION SCIENCE: POLARIZED LIGHT MICROSCOPY, LIGHT & MATTER LABORATORY

1, 0/3

Prerequisite: CNS 610/611. Corequisite: CNS 612. Expands on lectures in CNS 612 by providing practice of laboratory applications related to treatment and analysis of works of art; focus on the use of polarized light microscopy and microchemical testing of materials found in works of art and cultural artifacts.

CNS 614 CONSERVATION SCIENCE: INORGANIC MATERIALS IN ART AND CONSERVATION

3, 3/0

Prerequisite: CNS 612/613. Corequisite: CNS 615. Specialized understanding of inorganic materials with an emphasis on alternative scientific techniques used for their investigation (i.e., scanning electron microscopy, x-ray fluorescence analysis, x-ray diffraction). Material is presented at a level that prepares students to use the equipment at a basic level, or to communicate effectively with professional scientists who run the equipment.

CNS 615 CONSERVATION SCIENCE: INORGANIC MATERIALS IN ART & CONSERVATION LABORATORY

1, 0/3

Prerequisite: CNS 612/613. Corequisite: CNS 614. Expands on lectures in CNS 614 and provides students with practice laboratory applications related to treatment and analysis of works of art. Focus on the use of polarized light microscopy and microchemical testing of materials found in works of art and cultural artifacts.

CNS 616 TECHNICAL ASPECTS OF PREVENTATIVE CONSERVATION

3, 3/0

Prerequisites: CNS614/615; co-requisite with CNS617. Explores the scientific principles behind preventive conservation and delivers hands-on experience in manipulating the storage and display environment for cultural heritage objects control. Topics include: degradation kinetics, environmental monitoring & control, artificial aging, materials testing, protective coatings, and mitigation of biological degradation. Laboratory exercises provide hands-on experiences in preventive conservation.

CNS 617 TECHNICAL ASPECTS OF PREVENTATIVE CONSERVATION (LAB)

1, 0/3

Prerequisites: CNS614/615; co-requisite with CNS616. Laboratory course explores the scientific principles behind preventive conservation. Hands-on experiences in experimentally manipulating the storage and display environment for cultural heritage objects, and the results of that manipulation.

CNS 620 TECHNOLOGY AND CONSERVATION OF PAINTINGS I

2, 2/0

Prerequisites: Formal acceptance into the Art Conservation Department; co-requisite with CNS 621. Historical survey of processes and materials employed by artists in the creation of wall and easel paintings from the Paleolithic to the present and the implications for their conservation. Painting types include rock art, Egyptian and Etruscan tomb painting, medieval egg tempera, Italian Renaissance fresco, oil on panel and canvas, and modern media. Offered annually in fall.

CNS 621 TECHNOLOGY AND CONSERVATION OF PAINTINGS 1 (LAB)

1, 0/3

Prerequisites: Co-requisite with CNS 620. Re-creation of historical paintings using traditional materials and techniques to the greatest extent possible: 14th century Sienese egg tempera on panel and 17th century Flemish or Spanish painting on canvas. Written technical examination of an oil painting of value on loan through the department's Clinic program. Offered annually in the fall.

CNS 622 TECHNOLOGY AND CONSERVATION OF PAINTINGS II

2, 2/0

Prerequisites: CNS 620 and 621; co-requisite with CNS 623. The theory and practice of conserving easel paintings. Topics include treatment proposal design, aqueous and solvent based cleaning systems, resins and solvents used for consolidation, mechanics and dynamics of canvas paintings and support systems, humidification and lining treatments, varnishes and varnishing techniques and color matching theory and its application to inpainting. Offered annually in spring.

CNS 623 TECHNOLOGY AND CONSERVATION OF PAINTINGS II LABORATORY

1, 0/3

Corequisite: CNS 622. Hands-on conservation of easel paintings. Includes treatment proposal ethics and design, aqueous and solvent based cleaning systems, resins and solvents used for consolidation, mechanics and dynamics of canvas paintings and support systems, humidification and lining treatments, varnishes and varnishing techniques and color matching theory and its application to inpainting. Offered annually in the spring.

CNS 624 TECHNOLOGY AND CONSERVATION OF PAINTINGS III SEMINAR

2, 2/0

Prerequisites: CNS 622. Ethical and practical considerations are addressed to help the student broaden her/his repertoire of skills and knowledge of materials as applied to paint consolidation, filling, tear mending and acrylic dispersions. Additional topics include philosophical approaches to the cleaning of paintings and the theory, design and construction of suction and vacuum hot tables. Offered annually in the fall.

CNS 625 TECHNOLOGY AND CONSERVATION OF PAINTING III LABORATORY

1, 0/3

Prerequisites: Co-requisite with CNS 624. Greater involvement with easel painting treatments allows the student to broaden her/his repertoire of skills, to further develop acuity for recognizing condition problems and to strengthen visual connoisseurship. Offered annually in the fall.

CNS 626 TECHNOLOGY AND CONSERVATION OF PAINTINGS IV

3, 2/3

Prerequisites: CNS 624 and CNS 625. Seminar topics include a study of fakes and forgeries, the history of cleaning controversies, structural treatment of panel paintings and conservation framing. The lab section includes a deeper involvement with easel painting treatments to help the student broaden her/his repertoire of skills, to further develop acuity for recognizing condition problems and to strengthen visual connoisseurship. Involves original research and materials analysis. Offered annually in the spring.

CNS 630 TECHNOLOGY & CONSERVATION OF WORKS OF ART ON PAPER I

2, 2/0

Corequisite: CNS 631. The structure and fabrication of paper and the media commonly found in works of art on paper, photographs, and books; examination and identification of paper and media; causes and effects of deterioration in paper and media; student writes and defends the examination report for a work of art on paper.

CNS 631 TECHNOLOGY & CONSERVATION OF WORKS OF ART ON PAPER I LABORATORY

1, 0/3

Corequisite: CNS 630. Studio recreations of paper and the media found in art on paper using historical recipes and techniques; identifications of media and sheets found in works of art on paper; rudimentary repairs on a variety of papers.

CNS 632 TECHNOLOGY AND CONSERVATION OF WORKS OF ART ON PAPER II

2, 2/0

Prerequisites: CNS 630 and CNS 631. Corequisite: CNS 633. History and theory of basic techniques in paper conservation (washing, deacidification/neutralization, tape removal, lining, adhesives, compensation of losses, formats for storage, etc.); hands-on practice of these and other techniques on mock-ups.

CNS 633 TECHNOLOGY AND CONSERVATION OF WORKS OF ART ON PAPER II LABORATORY

1, 0/3

Prerequisites: CNS 630 and CNS 631. Corequisite: CNS 632. Treatment of the first project in paper conservation under the close supervision of the faculty; a second project

CNS 634 TECHNOLOGY AND CONSERVATION OF WORKS OF ART ON PAPER III SEMINAR

2, 0/0

Prerequisites: CNS 633; Co-requisite: CNS 635. First advanced lecture/seminar course in paper conservation exposes the student to a variety of recent literature in conservation, the history of conservation, and published science in conservation. Students will criticize historical and new literature about conservation and treatment and apply this criticism to their own writing and treatment strategies. Through close reading of texts on the physics and chemistry of paper and water, the student develops a fundamental chemical and molecular understanding of the interactions of cellulose (paper) and water. Offered every fall semester.

CNS 635 TECHNOLOGY AND CONSERVATION OF WORKS OF ART ON PAPER III LABORATORY

1, 0/3

Prerequisites: CNS 630, CNS 631, CNS 632, CNS 633. Co-requisite: CNS 634. First advanced laboratory course in paper conservation allows the student to examine and treat a wider variety of media, paper and conservation problems. Independent decision-making and problem solving are encouraged as students are expected to apply the material covered in the seminar (CNS 634) to their practical treatment projects. Short research projects are also possible. Offered annually in fall.

CNS 636 TECHNOLOGY AND CONSERVATION OF WORKS OF ART ON PAPER IV

3, 2/3

Prerequisite: CNS 634. Final course in the series of treatment courses for the paper conservation specialist; intended to allow the student to examine and treat a wider variety of media, paper, and conservation problems. Independent decision making and problem solving are required. Short research projects are needed for each treatment.

CNS 640 TECHNOLOGY AND CONSERVATION OF OBJECTS I

2, 2/0

Prerequisites: acceptance into the Garman Art Conservation Department. Co-requisite: CNS 641. This course is the first semester of the curriculum in objects conservation and will focus on the technology and materials of objects. This semester focuses on the technology and conservation of organic materials (wood, plant materials, animal materials including leather, bone, ivory etc, non-cellular organics such as resins and coatings). Discussion includes changing attitudes towards these materials, and changes in the strategies of working them over time, and as conditioned by culture. Whenever possible, appropriate conservation techniques and materials will also be discussed. In addition, students will perform a comprehensive examination of the object that they will be treating in the second semester. Offered annually in the fall.

CNS 641 TECHNOLOGY AND CONSERVATION OF OBJECTS I LABORATORY

1, 0/3

CNS 642 TECHNOLOGY AND CONSERVATION OF OBJECTS II

2, 2/0

Continuation of CNS 640. Technological history and conservation of a wide variety of materials encountered in historic and artistic objects: metals, glass, ceramics, wood, decorative surface techniques (lacquering, japanning, gilding), skins and other organics, stone; fabrication techniques and how they can be identified; conservation treatments and recommendations; studio sessions include demonstrations of techniques and supervised work on a variety of objects. Field trips.

CNS 643 TECHNOLOGY AND CONSERVATION OF OBJECTS II LABORATORY

1, 0/3

Prerequisites: CNS 640, CNS 641. Co-requisite: CNS 642. Practical laboratory treatment of objects to complement the lecture, CNS 642. The application of currently accepted methods of conservation treatment. Additional impromptu explanation of problems and solutions will be presented by the instructor as issues arise. All objects under treatment, as well as the students assigned treatment will be discussed with the class at large. Alternative methods of treatment will also be discussed. Offered annually in spring.

CNS 644 TECHNOLOGY AND CONSERVATION OF OBJECTS III

2, 0/3

Prerequisites: CNS 642, CNS 643; co-requisite: CNS 645. This course is the third semester of the curriculum in objects conservation and will focus on the technology and inorganic materials of objects. This semester focuses on the technology and conservation of inorganic materials (metals, glass, ceramics, stone, etc.). Discussion includes worldwide first-use of these materials as well as changing attitudes towards them, strategies of working overtime, and culturally-based understandings. Whenever possible, appropriate conservation techniques and materials will also be discussed. In addition, students will continue treatment of additional objects assigned after the first semester. Offered fall semester only.

CNS 645 TECHNOLOGY AND CONSERVATION OF OBJECTS III LAB

1, 0/3

Prerequisites: CNS 643. Co-requisite: CNS 644. The laboratory portion of the second year, third semester course for the technology of objects focuses on the materials and techniques of historic technologies using inorganic materials. This is accomplished through examination of the extensive study collections of the Garman Art Conservation Department, slide, Power Point and video resources and participatory exploration of various making methods in a wide variety of inorganic materials. Hand-tools are used wherever possible. Raw materials from the Department study collection are also used where possible. Offered annually in the fall.

CNS 646 TECHNOLOGY AND CONSERVATION OF OBJECTS IV

3, 2/3

Prerequisites: CNS644, CNS645. This seminar is the final in the series of treatment courses for the object conservation specialist to examine and treat a wider variety of objects. Independent decision-making and problem solving are required. Short research projects are required for each treatment. Independent technical studies of art objects are undertaken by all students. In addition to practical treatments, seminar/demonstration workshops of additional treatment methods are regularly presented by the instructor. Topics are decided upon based on the interests of those specializing in objects conservation. The course is offered annually in spring.

CNS 685 SPECIAL TOPICS IN CONSERVATION I

1, 1/0

Prerequisites: Enrollment in the Garman Art Conservation department. Guest lecturers and faculty introduce specialty topics in book, photograph, paper, object, and painting conservation, as well as conservation science, materials analysis, documentation, and imaging, and many others. Topics are dynamic and change annually to reflect critical developments in these areas. Lectures, workshops, field trips, annual conservation services Clinic, and Open House are typical activities. Offered annually in fall. Repeatable.

CNS 686 SPECIAL TOPICS IN CONSERVATION II

1, 1/0

Prerequisite: CNS 685. Guest lecturers and faculty introduce specialty topics in book, photograph, paper, object, and painting conservation, as well as conservation science, materials analysis, documentation, and imaging, and many others. Topics are dynamic and change annually to reflect critical developments in these areas. Lectures, workshops, field trips and conferences are typical activities. Offered annually in spring. Repeatable.

CNS 694 MASTER'S PROJECT I

1, 0/0

Prerequisites: Instructor Permission. A directed study course guided by a student's specialty advisor and involving multiple faculty members. The second year student prepares to perform research and/or conservation treatment related to a selected artifact or group of artifacts within her/his chosen concentration. The student submits a formal statement defining the project scope and a timeline for completion, with a bibliography of pertinent references. Offered every fall semester.

CNS 695 MASTER'S PROJECT II

3, 0/0

Prerequisites: CNS 694. A directed study course guided by a student's major advisor, and involving multiple faculty members. The second year student performs research and/or conservation treatment related to a selected artifact or group of artifacts within her/his chosen concentration. Analysis and treatment procedures are documented and presented in both oral and written form at the end of the spring semester. Offered every spring semester.

CNS 698 INTERNSHIP SUSTAINING

12, 0/0

CNS 699 INTERNSHIP

12, 0/0

A 12-month off-campus academic program under the direction of an established conservator working either privately or within an institution. Both the program of study and the supervising conservator must be approved by the department faculty. Department faculty monitor student progress through regular reports from the internship supervisor and intern.

CNS 721 THESIS/PROJECT CONTINUATION

0, 0/0

CNS 722 THESIS/PROJECT EXTENDED

0, 0/0

Biology (BIO)

BIO 587 TOPICS IN BIOLOGY

1-4, 1/0

In-depth examination of rapidly and significantly changing disciplinary issues, topics, or practices; offered occasionally.

BIO 590 INDEPENDENT STUDY

1-6, 0/0

Independent investigation into a specific area of biology; topic selected by the student in consultation with a faculty member

BIO 600 FOUNDATIONS OF GRADUATE STUDIES IN BIOLOGY

3, 3/0

Prerequisite: Graduate student status in Biology. Introduction to the culture and structure of graduate studies in Biology including the methodology and tools, writing, experimental design, and communication of biological research.

BIO 601 FOUNDATIONS OF CELL AND MOLECULAR BIOLOGY

3, 3/0

Prerequisites: Undergraduate courses in cell biology and genetics or instructor permission. Fundamental paradigms in cell and molecular biology as illustrated by current research; mechanisms by which genes control morphogenesis of plants and animals; evolution of the eukaryotic genome; mechanisms by which the transcription of eukaryotic genes is regulated; regulation of the cell-division cycle in eukaryotic cells. Emphasizes current literature, as well as writing and oral expression about the literature readings.

BIO 602 FOUNDATIONS OF ENVIRONMENTAL PHYSIOLOGY

3, 3/0

Prerequisites: Undergraduate courses in botany and zoology or instructor permission. Evolution of specialized features in plants and animals that allow them to maintain a stable internal environment while being exposed to a variety of external environmental conditions: adaptations of organisms for environments low in water or oxygen; problems associated with ionic and water regulation in freshwater and marine organisms; fundamental physiological principles that apply to both plants and animals.

BIO 603 FOUNDATIONS OF ECOLOGY AND EVOLUTION

3, 3/0

Prerequisites: Undergraduate courses in ecology and evolution or instructor permission. Current theories and paradigms of modern ecology and evolution; population and community interactions of organisms; coevolution; ecological and evolutionary genetics; micro- and macroevolution.

BIO 608 MOLECULAR GENETICS

3, 3/0

Prerequisite: One course in genetics. Molecular basis of the structure, replication, and genetic function of DNA; mutation, recombination, and the nature of genes; the genetic code, messenger and transfer RNA, and protein biosynthesis; molecular evolution of proteins.

BIO 611 BIOTECHNOLOGY

3, 3/0

Prerequisite: BIO 303 or BIO 314 or an equivalent course. Exploration of current technologies in molecular biology, cell biology, and immunology to address agricultural, environmental, industrial, and human health issues. Topics include recombinant DNA technology, DNA sequencing, RNA interference, CRISPR-Cas9 genome editing, monoclonal antibodies, immunotherapies, stem cells, genetically modified organisms, infectious disease diagnosis, treatment and vaccination, and regulations of biotechnology. Offered occasionally.

BIO 612 TOPICS IN ECOLOGY

3, 3/0

Prerequisites: One semester each of ecology and biometrics or equivalent. Lecture and discussion on a specific topic in ecology, such as population ecology, microbial ecology, plant ecology, ecology of the Great Lakes, or advanced limnology. Topics vary with each session. May be taken more than once.

BIO 616 TOPICS IN ANIMAL PHYSIOLOGY

3, 3/0

Prerequisites: General physics, organic chemistry, and one year of physiology. Lecture and discussion on special topics in animal physiology, such as immunology, advanced animal physiology, and animal responses to stress. Topics vary with each session. May be taken more than once.

BIO 617 RESEARCH SEMINAR

1, 1/0

Presentations and discussions of current research projects by graduate students in biology. Each participant presents a seminar. Required for all candidates for the M.A. degree in biology.

BIO 619 PLANT ECOLOGY

3, 3/0

Prerequisites: Undergraduate course in ecology. The relationship between plants and their environment from the scale of individuals to ecosystems. Plant physiological ecology, plant community composition and structure, competition and facilitation, effects of human activities, disturbance, succession and plant-animal interactions. Offered every other year.

BIO 621 TERRESTRIAL ECOSYSTEM ECOLOGY

3, 3/0

Prerequisite: Undergraduate course in ecology. Exploration of the ecosystem concept in ecology. Interactions among organisms and their environment as an integrated system. Factors regulating pools and fluxes of materials and energy through terrestrial ecological systems. Structure and functional relationships, spatial and temporal patterns in ecosystem processes, and the legacy of response to past events. Offered occasionally.

BIO 622 FOUNDATIONS OF ANIMAL DEVELOPMENT

3, 3/0

Prerequisite: At least one upper division undergraduate course in cell or molecular biology, or instructor permission. Fundamental principles and processes of animal development with emphasis on molecular and cell mechanisms underlying differentiation, pattern formation, morphogenesis, and regeneration. Topics include fertilization, cleavage, gastrulation, and organogenesis. Experimental paradigms and techniques explored through primary literature. Offered alternate years.

BIO 626 TOPICS IN BOTANY

3, 3/0

Prerequisites: 9 credit hours of botany-oriented courses. Lecture and discussion on a specific topic in botany, such as biosystematics, dendrology, wetland plants, plant pathology, or plant response to stress. Topics vary with each session. May be taken more than once.

BIO 627 TOPICS IN ZOOLOGY

3, 3/0

Prerequisites: 9 credit hours of zoology-oriented courses. Lecture and discussion on a specific topic in zoology, such as invertebrate zoology, entomology, fisheries biology, or functional vertebrate morphology. Topics vary with each session. May be taken more than once.

BIO 629 FISHERIES MANAGEMENT

3, 3/3

Prerequisite: One semester of ecology or instructor permission. Advanced study of the ecology and management of fish populations emphasizing inland fisheries in North America. Topics include management philosophies, fisheries statistics and modeling, habitat protection and manipulation, introduced and endangered species, stocking, and Great Lakes fisheries.

BIO 630 STREAM ECOLOGY

3, 3/3

Prerequisite: One semester each of ecology and statistics or instructor permission. Biological, chemical, geomorphic, and hydrologic features affecting the ecology of flowing water systems. Emphasis on freshwater invertebrate life histories, adaptations, and community structure in shallow streams.

BIO 635 GREAT LAKES ECOLOGY

3, 3/0

Prerequisite: One semester of ecology or instructor permission. Study of the North American Great Lakes: physical and chemical features, biological structure, and ecological interactions. Focus on environmental issues, including water quality and the effect of introduced species.

BIO 661 QUANTITATIVE PCR

1, 1/0

Prerequisite: BIO 303 or equivalent. Theory and practice of quantitative Polymerase Chain Reaction (qPCR), a technique used to quantify nucleic acid molecules in biological and environmental samples. Experimental design, instrumentation, data analysis, and MIQE standards will be emphasized. Offered occasionally.

BIO 670 BIOLOGICAL DATA ANALYSIS

3, 3/0

Prerequisite: One course in statistics. Experimental design and statistical analysis of biological data; applications of computers to biological investigations. Designed for students in the initial stages of planning their research.

BIO 672 FORENSIC MOLECULAR BIOLOGY

4, 3/3

Prerequisites: BIO 303 or BIO 350; FOR 612 or CHE 312; CHE 670 or CHE 470 or BIO 305; or equivalents. Applications of biology, biochemistry, and genetics to forensic science with an in-depth look at the evidential information that can be obtained from blood,

semen, saliva, and hair. Details of DNA profiling, including DNA extraction, DNA quantification, PCR amplification, STR analysis and interpretation, and mtDNA sequencing. Protein polymorphisms and immunological tests. Laboratory component providing hands-on experience with techniques commonly used in a forensic biology laboratory.

Equivalent Course: CHE 672

BIO 690 MASTER'S PROJECT

1-3, 0/0

Prerequisite: Approval of proposal by the student's project committee; open to M.S. in education candidates. Investigation of a special-interest problem, planned and executed with consultation and advisement from the instructor and the student's project committee.

BIO 695 RESEARCH THESIS IN BIOLOGY

1-6, 0/0

Prerequisite: Approval of proposal by the student's thesis committee; open to M.A. or M.S. in education candidates. Individual investigation of an original problem submitted in acceptable form according to directions given by the Graduate School.

BIO 699 CAPSTONE EXPERIENCE IN BIOLOGY

1, 0/0

Prerequisites: BIO 600 and permission of the graduate advising committee. A culminating, "capstone" experience of the M.A. Biology program for students pursuing the non-thesis option which includes writing a literature synthesis and a public oral presentation of their work. Offered every semester.

BIO 721 THESIS/PROJECT CONTINUATION

0, 0/0

BIO 722 THESIS/PROJECT EXTENDED

0, 0/0

Business, Economics, and Public Administration (BUS, ECO, FIN, PAD)

Business (BUS)

BUS 500 MARKETING OF SERVICES

3, 3/0

Prerequisite: BME 600 Introduction to Marketing or equivalent. Applications of marketing principles in the service sector; service systems and the principles and practices involved in the marketing of services; past, current, and emerging trends in services marketing; development of marketing programs in the service sector.

BUS 512 INTRODUCTION TO USING ACCOUNTING INFORMATION FOR DECISION-MAKING

3, 3/0

Prerequisite: Graduate standing. Overview of fundamental financial and managerial accounting statements or reports, including their structure, contents, underlying concepts, analysis, interpretation, and use for economic decision making.

Equivalent Course: BUS 612

BUS 519 COMMUNICATION FOR LEADERS AND MANAGERS

3, 0/0

Theories of effective communication; face-to-face communication; group problem solving; public speaking; power and leadership in organizational settings; persuasive messages and campaigns that public relations practitioners design for a variety of publics. Designed for graduate students interested in improving their workplace communication skills.

BUS 534 SELECTED TOPICS IN BUSINESS STUDIES

3, 3/0

Review and synthesis of current content in business, product knowledge, and distributive education studies.

BUS 535 SMALL-BUSINESS OPERATIONS

3, 3/0

Role of small business in the social, economic, and political environment of the United States; forms of small-business ownerships; management concepts; legal and government controls; marketing principles.

BUS 536 THE AMERICAN ENTERPRISE SYSTEM

3, 3/0

Problems and issues relating to the free enterprise system functioning within a modern industrial society; analysis of the interrelationships of basic business concepts with the decision-making processes of corporate management; historical trends and their futuristic implications.

Equivalent Course: HIS 536

BUS 537 ANATOMY OF BANKING

3, 3/0

Prerequisites: Graduate level standing. Focus on modern banking practices and services; organizational structure, credit, Federal Reserve System, and selected areas of banking operations. Offered every fall.

BUS 545 BASIC ACCOUNTING FOR BUSINESS AND NONBUSINESS ORGANIZATIONS

3, 3/0

Financial, managerial, and not-for-profit accounting; accounting concepts, principles, and procedures.

BUS 590 INDEPENDENT STUDY

1-3, 0/0

Graduate independent study in Business.

BUS 594 WORD PROCESSING - INSTRUCTIONAL TECHNIQUES AND METHODOLOGIES

1-3, 0/0

BUS 598 MICRO-COURSE

1, 0/0

Graduate-level micro-course in Business.

BUS 603 HUMAN RESOURCE MANAGEMENT

3, 3/0

Personnel-related functions and the utilization of resources to support these functions within organizations: design of in-service training programs; supervisory skills for enhancing motivation and productivity; employee benefit packages; grievance and labor relations plans; proposals to obtain funding and training.

Equivalent Course: SWK 603

BUS 612 ACCOUNTING INFORMATION FOR DECISION MAKING

3, 3/0

Prerequisite: Graduate level standing. Overview of fundamental financial and managerial accounting statements and reports, including their structure, contents, underlying concepts, analysis, interpretation, and use for economic decision making. Offered every spring.

Equivalent Course: BUS 512

BUS 624 BUSINESS COMMUNICATIONS IN A DIGITAL WORLD

3, 3/0

Prerequisites: Graduate-level standing. Introduction and analysis of effective digital communications strategies in today's business environment. Topics include traditional versus digital business communication, marketing, and PR tactics; effective messages, both written and oral, from concept to delivery; and practical applications of digital communications. Offered alternating years.

BUS 630 MARKETING STRATEGY

3, 3/0

Prerequisites: Graduate level status. Introduction and analysis of marketing strategies that propose concrete, measurable actions to accomplish specific marketing objectives. Topics include customer relationship management; customer social and digital media engagement; brand management; marketing mix strategies including product, price, promotion, and distribution strategies; marketing metrics; and sustainable marketing in a global environment. Offered alternating years.

BUS 640 STRATEGIC HUMAN RESOURCES

3, 3/0

Prerequisite: Graduate status. A survey of human resources in the workplace. This course provides an overview of the human resources life cycle, including: strategic human resource management; recruitment and selection; compensation and benefits; performance management; diversity, equity and inclusion; employee rights and labor-management relations; and training and development. Offered fall only.

BUS 660 MANAGERIAL ANALYTICS AND DECISION MAKING

3, 3/0

Prerequisites: Undergraduate-level statistics, Graduate-level standing. Introduction and analysis of business analytics, or the ways in which enterprises such as businesses, non-profits, and governments can use data to gain insights and make better decisions. Application of business analytics in operations, marketing, finance, and strategic planning among other functions. Emphasis on business analytics techniques to the extent that they can be used to provide real insights and improve the speed, reliability, and quality of business decisions. Offered alternating years.

BUS 666 INFORMATION SYSTEMS MANAGEMENT

3, 3/0

Prerequisites: Graduate-level standing. Introduction and analysis of the information systems concepts and techniques used in today's competitive environment. Topics will include the concepts of enterprise information systems, use of information systems to achieve strategic goals and to gain competitive advantages, the impacts of information systems on business process reengineering and management, managerial issues in developing information systems, IS project management, and other contemporary IS technologies. Offered alternating years.

BUS 688 LEADERSHIP IN ORGANIZATIONS

3, 3/0

Theories of leadership; organizational contexts and culture for leadership; the role of the leader in organizations; leadership competencies for organizational effectiveness; the leader's role in mentoring and coaching for effective performance; the leader's role in achievement of organizational mission and goals.

Equivalent Courses: ADE 688, SPF 688

BUS 690 MASTER'S PROJECT

3, 0/0

A project undertaken by one or more individuals on a problem of special interest within Business, planned and carried out with consultation and guidance from the instructor.

BUS 695 MASTER'S THESIS

3, 0/0

Individual investigation of an original problem submitted in acceptable form according to directions given by the Graduate School.

BUS 712 MANAGING PROGRAM EVALUATION

3, 3/0

Prerequisite: Graduate standing or instructor permission. Management and evaluation skills required in business as well in public and not for profit sectors; establishing evaluation standards and criteria; developing evaluation instruments and designs; statistical analysis of evaluation data; computer-based statistical analyses; report preparation, and follow-up studies.

Equivalent Courses: PAD 712, SPF 712, SWK 712

BUS 715 MANAGEMENT STRATEGY

3, 3/0

Prerequisites: Graduate-level standing. Study of management theories and strategies used in organizations, including conflict resolution, negotiation strategies, creative problem-solving, and leadership skills and requirements. Offered annually.

BUS 721 THESIS/PROJECT CONTINUATION

0, 0/0

BUS 722 THESIS/PROJECT EXTENDED

0, 0/0

BUS 783 BSC LED STUDY AWAY PROGRAM

1-15, 0/0

Acceptance into the program required.

Economics (ECO)

ECO 502 WORKSHOP IN ECONOMIC EDUCATION

3, 3/0

Prerequisite: Graduate Standing. New trends in economic education; various models of participatory and active learning; examination of an economics curriculum; hands-on practice in applying computer-based and participatory pedagogical techniques in economics. Designed to aid teachers in developing pedagogical tools for enhancing education, especially at the secondary level.

ECO 505 HISTORY OF ECONOMIC THOUGHT

3, 3/0

Prerequisite: Graduate Standing. The attempts of key economic thinkers from Aristotle to the present to analyze economic phenomena and to provide guidance for economic policy; history of methodology and methodological controversies in economics and their impact on the development of economic theory; study of the writings of the major economic theorists in their original published form.

ECO 507 APPLIED MICROECONOMIC THEORY

3, 3/0

Prerequisite: Graduate Standing. Microeconomic theories and their application to specific areas of economic analysis; regulatory and environmental policy; financial decision making; firms' response to uncertainty; consumer demand; microeconomic modeling; theories of the consumer and the firm; capital and labor markets; international trade; social welfare theory. Employs numerous analytical techniques in identifying the nature and scope of microeconomic problems and policy analysis. Students use the models developed in this course to understand real-world examples and learn how to apply economic theory in practice.

ECO 508 APPLIED MACROECONOMIC THEORY

3, 3/0

Prerequisite: Graduate Standing. Macroeconomic theories and their application to specific areas of economic analysis; financial forecasting and policy analysis in the public and private spheres; macroeconomic modeling; international and open-border macroeconomics; monetary and fiscal policy; labor market institutions; determination of wages and prices; interest, inflation, and exchange rates; income and output. Employs numerous analytical techniques in identifying the nature and scope of macroeconomic problems and in the analysis of macroeconomic policy. Students use the models developed in this course to understand real-world examples and apply economic theory in practice.

ECO 510 ECONOMICS OF EDUCATION

3, 3/0

Prerequisite: Graduate Standing. Economic dimensions of education and the role of the education system in the economy; sources of school finance; education as an investment in human capital; economic implication of different education reform proposals; the school system as an influence on unemployment/employment patterns in the United States.

ECO 515 NYS GOVERNMENT AND BUDGET

3, 3/0

Prerequisite: Graduate-level standing. NYS government, politics, and annual budget process. Course covers fiscal federalism, economic climate, NYS budget components and processes, contemporary policy issues, NYS government institutions, political parties, and interests. Offered every spring.

Equivalent Course: PAD 515

ECO 524 APPLIED ECONOMETRICS

3, 3/0

Prerequisite: Graduate Standing. Statistical methods used in economic analysis by practitioners in government, business, finance, and the nonprofit sector; analysis and display of data using statistical and computer packages. Students will be able to employ statistics to solve practical problems and present data in a business or government setting.

ECO 587 TOPICS IN ECONOMICS

1-4, 1/0

Prerequisite: Graduate Standing. In-depth examination of rapidly and significantly changing disciplinary issues, topics, or practices; offered occasionally.

ECO 590 INDEPENDENT STUDY

1-3, 0/0

ECO 600 LABOR ECONOMICS

3, 3/0

Prerequisite: One core course required for M.A. program or instructor permission. Labor market theory, process, outcomes, and U.S. labor market policies; U.S. labor relations systems (labor unions, labor law and collective bargaining) compared with systems in other industrialized nations.

ECO 601 ENGINEERING ECONOMY

3, 3/0

Prerequisite: Graduate Standing. Alternatives in processing, equipment selection, operation, and output compared with the various methods of production available currently or in the future.

ECO 604 DEVELOPMENT ECONOMICS

3, 3/0

Prerequisites: ECO 507 and ECO 508. Examination of issues related to economic development; theories of development with regard to historical experiences of advanced economies, developing economies, and less-developed countries. Economic growth, poverty, unequal development, development policy, international aid, the role of international organizations.

ECO 610 ECONOMICS OF EDUCATION

3, 3/0

Prerequisite: Graduate Standing. Economic dimensions of education and the role of the education system in the economy; sources of school finance; education as an investment in human capital; economic implication of different education reform proposals; the school system as an influence on unemployment/employment patterns in the United States.

Equivalent Course: ECO 510

ECO 612 URBAN ECONOMIC ANALYSIS

3, 3/0

Prerequisites: ECO 507 or ECO 508 or instructor permission. Political economy of urban and community problems and policy: housing, poverty, environment; local government finance; strategies for the development of urban economies. Employs numerous analytical techniques in identifying the nature and scope of urban economic problems and analyzing urban policy.

ECO 650 PUBLIC FINANCE

3, 3/0

Prerequisites: ECO 507 or ECO 508 or instructor permission. Mechanics and economic costs and benefits of different modalities of federal, state, and local government finance; evaluating government programs; incidence and burden of taxes and their growth and distributional effects.

ECO 660 COST-BENEFIT ANALYSIS

3, 3/0

Prerequisites: ECO 507 or ECO 508 or instructor permission. Methods of estimating and comparing benefits and costs for the purpose of policy analysis and project evaluation in the public, private, and not-for-profit spheres. Topics include present-value calculations and estimating monetary values of nonmarket transaction, qualitative benefits and costs, such as health, education, environmental impact, recreation, and quality of life.

ECO 688 INTERNSHIP

1-3, 0/0

Applied institutional or corporate experience in economics. Offered after student's prior consultation with graduate faculty.

ECO 690 MASTER'S PROJECT

1-6, 0/0

ECO 691 SEMINAR ECONOMIC POLICY

3, 3/0

Prerequisites: ECO 507 and ECO 508, or instructor permission. Intensive examination of fiscal policy, monetary policy, industrial policy, labor policy, trade policy, foreign exchange policy, development policy, and social policy. Theoretical approaches and empirical techniques; case studies; analysis and evaluation of the impacts of economic policy on economy and society.

ECO 693 SEMINAR IN HETERODOX ECONOMICS

3, 3/0

Prerequisites: ECO 507 and ECO 508. In-depth as well as up-to-date analysis of topics in microeconomics, macroeconomics and policy from various perspectives outside the conventional theories of mainstream-neoclassical economics including, but not limited to: Post Keynesian, Institutionalist, Marxian, and social economics. Topics examined are 1) historical and theoretical analysis of economic instability and crisis, 2) control of markets and the economic system, and 3) social welfare and economic policy for the public purpose.

ECO 695 MASTER'S THESIS

1-6, 0/0

ECO 721 THESIS/PROJECT CONTINUATION

0, 0/0

ECO 722 THESIS/PROJECT EXTENDED

0, 0/0

Finance (FIN)

FIN 587 TOPICS IN FINANCE

1-4, 1/0

In-depth examination of rapidly and significantly changing disciplinary issues, topics, or practices; offered occasionally.

FIN 588 TOPICS COURSE

3, 3/0

FIN 619 RISK MANAGEMENT

3, 3/0

Prerequisite: Graduate Standing. Prepares students to take the Financial Risk Manager (FRM) exam. Risk management: measurement of risk for financial securities, portfolios, managers, and firms; various measurements of risk as mandated by the International Basel Accord on Bank Capital Requirement and the U.S. Securities and Exchange Commission.

FIN 622 CAPITAL MARKETS

3, 3/0

Prerequisite: Graduate Standing. Fundamental characteristics of capital market securities: bonds, swaps, futures, options, and their combinations. Emphasizes the understanding, creation, and combination of basic securities to create new securities (circus swaps, primes, scores), new products (portfolio insurance), and new strategies (money spreads, hedges).

FIN 630 INTERNATIONAL FINANCE

3, 3/0

Prerequisite: Graduate Standing. Applied analysis of international financial institutions, capital markets, exchange rate determination, and techniques for managing foreign exchange rate risk. Evaluate exchange rate risk management from both the institutional investor and the multinational corporate management perspectives.

FIN 645 ESTATE PLANNING AND TAXATION

3, 3/0

Prerequisite: Graduate Standing. Techniques and tax attributes of lifetime financial planning for the use, conservation, and efficient transfer of individual wealth; traditional planning techniques and major advanced methods, including various living trusts, irrevocable trusts, charitable remainder trusts, and family limited partnership.

FIN 688 INTERNSHIP

1-3, 0/0

Applied institutional or corporate experience in finance. Offered after student's prior consultation with graduate faculty.

Public Administration (PAD)

PAD 500 PUBLIC ADMINISTRATION AND POLICY

3, 3/0

Prerequisite: Graduate standing or instructor permission. Public administration and related areas of public policy: personnel; comparative and historical aspects; public budgeting; organizational structure; agency management; decision making, evaluation, and policy analysis; ethical issues and administrative law.

PAD 501 COMPARATIVE PUBLIC ADMINISTRATION

3, 3/0

Prerequisite: Graduate standing or instructor permission. Cross-cultural, cross-national, and cross-institutional survey of public administration organizations and practices around the world. Examination of administrative systems of northern nation-states and the processes of administrative change in post-Communist and southern nation-states; evolution of administration; structure of administrative systems; personnel; budgeting; ethics and legal frameworks; role of administration in economic development; transfer of administrative skills; regional and international administrative organizations; theoretical approaches and methodological issues in understanding similarities and differences in administrative behavior.

PAD 502 ADMINISTRATIVE LAW

3, 3/0

Prerequisite: Graduate Standing. Selected topics in administrative law examined and analyzed in depth.

PAD 505 INTRODUCTION TO DISASTER AND EMERGENCY MANAGEMENT

3, 3/0

Prerequisites: Graduate standing. Introduction to disaster and emergency management principles, policies and practices. How disasters and emergencies are individually defined and conceptualized, history of disaster and emergency management in the United States, phases of disaster management, phases of emergency management, politics of disaster response and humanitarian aid, and political landscape of disaster recovery and social change. Primary focus on the United States; international examples utilized.

PAD 507 NEIGHBORHOOD PLANNING AND COMMUNITY DEVELOPMENT

3, 3/0

Prerequisites: Instructor Permission. Explores the many forms, methods, and tools of neighborhood planning, community development, and engagement efforts aimed at revitalization in the context of historic and contemporary public and private sector policies and practices that have contributed to current challenges. Offered occasionally

PAD 508 HOUSING AS PUBLIC POLICY

3, 3/0

Prerequisite: Graduate standing. Explore housing's place in American society and the role of public policy. From a position of "decent and affordable housing" as a human right, examines the inequalities of the current housing system and the role of planners and public administrators in creating more socially equitable housing policy. Offered occasionally.

PAD 515 NYS GOVERNMENT AND BUDGET

3, 3/0

Prerequisite: Graduate-level standing. NYS government, politics, and annual budget process. Course covers fiscal federalism, economic climate, NYS budget components and processes, contemporary policy issues, NYS government institutions, political parties, and interests. Offered every spring.

Equivalent Course: ECO 515

PAD 540 U.S. PUBLIC POLICY

3, 3/0

Prerequisites: Graduate standing. Policymaking and policy analysis in the United States. Topics include the policymaking process, policymaking paradigms, the policy cycle, examination of policymaking actors. A focus on real world applications through case studies and contemporary readings.

PAD 587 TOPICS COURSE

1-4, 1/0

Prerequisite: Graduate standing or instructor permission. In-depth examination of rapidly and significantly changing disciplinary issues, topics, or practices; offered occasionally.

PAD 588 GRADUATE INTERNSHIP

1-6, 0/0

Field experiences that supplement departmental academic offerings; geared to students' interests. Faculty intern supervisor and department chair permission necessary.

PAD 590 INDEPENDENT STUDY

1-3, 0/0

PAD 601 PUBLIC BUDGETING

3, 3/0

Prerequisites: Graduate status. Introduction to the principles and practices used by federal, state, and local governments in budgeting. Examination of revenue sources, borrowing, debt management, regulations, reporting, and strategic budgetary planning.

PAD 603 NGO MANAGEMENT & INTERNATIONAL DEVELOPMENT

3, 3/0

Prerequisites: Graduate standing or instructor permission. International development and non-governmental organizations (NGO); international development (ID) NGO operation, structure and procedures; IDNGO management; IDNGO relations with government; IDNGO relations with donor agencies; opportunities and challenges of IDNGO; and IDNGO effectiveness, influence, and new challenges

PAD 604 NONPROFIT MANAGEMENT AND GOVERNANCE

3, 3/0

Prerequisites: Graduate Standing and Admission to the MPA Program. Examination of nonprofit (third-sector) organizations and their role in society; management issues including strategic leadership, governance, organizational attributes, accountability, and ethics. Primary emphasis on U.S. organizations, with consideration of this sector's increasingly global nature.

PAD 605 INTERNATIONAL PUBLIC MANAGEMENT AND SERVICE

3, 3/0

This course examines areas of public management, public service, and public-private partnerships as it relates to the US federal government, international government organizations (IGOs), and the global arena

PAD 606 DISASTER RESPONSE AND RECOVERY MANAGEMENT

3, 3/0

Prerequisites: PAD 505. Management of disaster response and recovery activities. Federal and state disaster relief and recovery processes and policies, intergovernmental and cross-sector collaboration in emergency response and relief, and strategies for overcoming common challenges associated with managing disaster relief and recovery operations. Primary focus on the United States, with international examples utilized.

PAD 607 CITY AND COUNTY MANAGEMENT

3, 3/0

Prerequisite: Graduate Standing. City and county management in the United States, with particular focus on New York State. Topics include principal forms of local government in the US and NYS, interactions among officials and citizens, service delivery, economic development, and financial principles and budgeting.

PAD 608 INTERGOVERNMENTAL RELATIONS

3, 3/0

Prerequisite: Graduate Standing. The federal system of government, intergovernmental relations, and intergovernmental management. Covers the constitutional basis for American federalism; the evolution of American federal relations; policy-making in the American system; fiscal federalism; role of local and state governments; cooperation and conflict in managing the delivery of public services; and contemporary challenges. Offered bi-annually, Spring only.

PAD 609 DISASTER AND EMERGENCY MANAGEMENT PLANNING

3, 3/0

Prerequisites: PAD 505. Federal, state and local disaster and emergency management policies and programs that guide disaster and emergency management planning and mitigation. How to analyze and assess hazard environments, assess local and organizational contexts, and develop strategies for preparing for and mitigating losses incurred by natural and man-made hazards. Focus is primarily on the United States. Offered alternate spring semesters.

PAD 640 HUMAN RESOURCE MANAGEMENT FOR PUBLIC AND NONPROFIT ORGANIZATIONS

3, 3/0

Prerequisite: Graduate standing. Knowledge and skills necessary in Human Resource Management for public and nonprofit organizations. Factors examined include: defining public and nonprofit organizations, human resource management functions and principles, diversity and cultural competence, human resource management applications, current issues and future trends.

PAD 646 STRATEGIC PLANNING FOR PUBLIC AND NONPROFIT ORGANIZATIONS

3, 3/0

Prerequisites: Graduate Standing and Admission to the MPA Program. Theory and practice of strategic planning and management for the public and nonprofit sectors; conceptual framework for developing, managing, and evaluating the strategic planning process; development of strategic management skills supporting decision making and goal achievement.

PAD 647 THE NONPROFIT AND VOLUNTARY SECTOR

3, 3/0

Prerequisites: Graduate Standing and Admission to the MPA Program. History of the voluntary, philanthropic and nonprofit sectors and the role they play in American and International society; history, structure and theoretical (economic, political, philosophical and social) basis for nonprofit and voluntary sectors; interdisciplinary and comparative perspectives of this evolving and complex sector.

PAD 648 NONPROFIT GRANTS MANAGEMENT AND FUND DEVELOPMENT

3, 3/0

Prerequisites: Graduate Standing and Admission to the MPA Program. This course is designed to teach students about topics and challenges in resource development for nonprofit organizations. This course will focus on detailed examination of the grant seeking process and developing an overall fundraising strategy. Students will prepare an actual grant proposal and write a fundraising plan.

PAD 680 RESEARCH METHODS IN PUBLIC ADMINISTRATION

3, 3/0

Prerequisite: Graduate status or instructor permission. Design, execution, and interpretation of research for public and nonprofit managers. Quantitative and qualitative research methods; constructing and testing hypotheses; data collection and analysis; use of SPSS, ethical consequences of social science research; preparation of a research report.

PAD 681 DATA ANALYSIS AND PRESENTATION

3, 3/0

Prerequisite: Graduate status. Preparation for advanced research and data analysis in public administration and nonprofit management. SPSS, descriptive and inferential statistics, advanced EndNote, research design for PAD 690 Master's Project, IRB application for human subjects' protection, poster presentation of MPA project proposal.

PAD 688 LEADERSHIP IN PUBLIC AND NONPROFIT ORGANIZATIONS

3, 3/0

Prerequisites: Graduate Status. A comprehensive foundation for understanding the nature of leadership in public and nonprofit organizations. Theoretical and practical knowledge; readings in leadership; historical studies; practical skills in leading public and nonprofit organizations. Improving leadership capabilities and developing leadership styles in public or nonprofit organizations.

PAD 690 MASTER'S PROJECT

3, 0/0

Research or investigation of a particular problem, planned and carried out by student with consultation and guidance from instructor.

PAD 695 MASTER'S THESIS

1-6, 0/0

Prerequisites: Graduate standing, approval of the student's thesis supervisor. Individual investigation of an original problem submitted in acceptable form according to directions given by the Graduate School. Offered occasionally.

PAD 700 IMMIGRATION AND REFUGEE POLICY

3, 3/0

Prerequisites: Graduate standing. Domestic and international challenges of migration; historical context; dilemmas faced by governments, IGOs, and INGOs in addressing population movement; and regional challenges. Special emphasis on U.S. migration policy.

PAD 701 ADMINISTRATIVE ETHICS

3, 3/0

Prerequisites: PAD 500. Public and nonprofit management and organizational theories, policies and practices; public and nonprofit organizational structures; distinctions and similarities in mission, values, and cultures. Effective management and leadership in public and nonprofit organizations; the political environment, power, and policy affecting public and nonprofit management.

PAD 704 HUMAN RIGHTS AND HUMANITARIAN POLICY

3, 3/0

Prerequisites: Graduate standing and admission to the MPA program. International human rights and humanitarian assistance covering legal aspects and major practical and policy considerations.

PAD 712 MANAGING PROGRAM EVALUATION

3, 3/0

Prerequisite: Graduate standing or instructor permission. Management and technical skills required for program evaluation in the public and private sectors; establishing evaluation standards and criteria; developing evaluation instruments and designs; statistical analysis of evaluation data; computer-based statistical analyses; report preparation and follow-up studies.

Equivalent Courses: BUS 712, SPF 712, SWK 712

PAD 715 SURVEY METHODS AND DESIGN

3, 3/0

Prerequisites: PAD 680. Design, execution, analysis and interpretation of surveys for public and nonprofit managers. Ethics of survey work; constructing and testing hypotheses; questionnaire design; survey administration and data collection; data coding; use of survey software; preparing a survey administration methodology and questionnaire. Offered every other spring.

PAD 721 THESIS/PROJECT CONTINUATION

0, 0/0

PAD 722 THESIS/PROJECT EXTENDED

0, 0/0

PAD 735 PUBLIC ORGANIZATIONS

3, 3/0

Prerequisite: Graduate standing or instructor permission. Public and nonprofit management and organizational theories, policies, and practices. History of public and nonprofit management systems; public and nonprofit organizational structures; distinctions and similarities in mission, values, and cultures; effective management and leadership in public and nonprofit organizations; the political environment, power, and policy affecting public and nonprofit management; organizational goals and effectiveness; planning, strategy, and decision making in the public and nonprofit sectors.

Career, Technical, and Science Education (BME, CTE, SED, TED)

Business & Marketing Education (BME)

BME 590 INDEPENDENT STUDY

1-3, 0/0

BME 600 PRINCIPLES OF BUSINESS AND MARKETING EDUCATION

3, 3/0

Prerequisite: Teacher certification in an education discipline. Historical and philosophical developments in business and marketing (distributive) education.

BME 601 RESEARCH SEMINAR

3, 3/0

Prerequisite: Graduate status. Current research in occupational/vocational/business education; methods of research; locating appropriate information; development of a research proposal. Required for all BUS, CTE, DED, TED students.

Equivalent Course: SPF 689

BME 602 CURRICULUM DEVELOPMENT AND PLANNING IN BUSINESS AND MARKETING EDUCATION

3, 3/0

Prerequisite: Teacher certification in an education discipline. Historical developments and changing concepts of curriculum; principles of curricula development; components of the curriculum-development process; dimensions of curriculum design systems; purposes and problems of curriculum evaluation. Required for all, BUS, CTE, and TED students.

Equivalent Course: CTE 602

BME 604 IMPROVING INSTRUCTION IN BUSINESS AND MARKETING

3, 3/0

Prerequisite: Teacher certification in an education discipline. Development of instructional techniques and resources; current best practices in educational settings; application of curriculum enhancement through effective pedagogy and program development.

BME 605 EVALUATION IN BUSINESS AND MARKETING EDUCATION

3, 3/0

Prerequisite: Teacher certification in an education discipline. General principles of evaluation and measurement; construction and use of objective tests, informal devices, and techniques of evaluation applicable to occupational education; selection and use of observation, rating scales, anecdotal records, individual and group projects; interpreting, recording, and using the results of evaluation data for the improvement of instruction. Required for all BUS, CTE, and TED students.

BME 690 MASTER'S PROJECT

3, 3/0

BME 721 THESIS/PROJECT CONTINUATION

0, 0/0

BME 722 THESIS/PROJECT EXTENDED

0, 0/0

Career & Technical Education (CTE)

CTE 530 CAREER EDUCATION: RATIONALE, NATURE, AND CONCEPTS

3, 3/0

Career education concepts, terminology, and models for elementary school through college; present programs, research, and current thinking on career education.

CTE 536 CONTEMPORARY METHODOLOGY

3, 3/0

New and emerging techniques of instruction and their applications to specific individual problems; development of models appropriate to students' particular subject areas.

CTE 550 ORGANIZATION OF DIVERSIFIED COOPERATIVE WORK-STUDY PROGRAMS

3, 3/0

Information for occupational teachers and department chairs or supervisors interested in establishing diversified cooperative programs; procedures for promoting a new program; working with advisory boards; developing employment opportunities; arranging trainee outlines; planning instructional facilities; securing Regents accreditation.

CTE 555 OPERATION OF DIVERSIFIED COOPERATIVE WORK-STUDY PROGRAMS

3, 3/0

Conducting effective instruction in diversified cooperative programs; interviewing employers; supervising trainees; interpreting legal aspects; preparing records and reports; conducting classes in related theory.

CTE 590 INDEPENDENT STUDY

1-3, 0/0

CTE 594 GRADUATE WORKSHOP

1-3, 0/0

CTE 600 CONTEMPORARY ISSUES IN OCCUPATIONAL EDUCATION

3, 3/0

Current issues, practices, policies, and literature in occupational education.

CTE 601 SUPERVISION OF VOCATIONAL EDUCATION

3, 3/0

Nature and scope of supervision; surveying and analyzing needs and facilities; planning, initiating, and maintaining supervisory programs; evaluating procedures and outcomes; trends in occupational education.

CTE 602 ADMINISTRATION OF VOCATIONAL EDUCATION

3, 3/0

Nature and scope of administering vocational technical programs: curriculum; integration with industry; evaluation; community relationships; advisory board development; state and national relationships.

Equivalent Course: BME 602

CTE 603 SELECT TOPICS IN THE ORGANIZATION AND ADMINISTRATION/SUPERVISION OF VOCATIONAL EDUCATION

3, 3/0

Prerequisite: CTE 601 or instructor permission. Problems arising in the organization, administration, and supervision of vocational technical education.

CTE 604 TECHNICAL PROJECT

3, 3/0

Internship experience with industry or business to study new techniques, operations, and processes, cooperatively initiated by faculty and student. Students develop instructional material reflecting the new knowledge and skills gained.

CTE 605 OCCUPATIONAL GUIDANCE FOR CAREER EXPLORATION

3, 3/0

Prerequisite: Graduate status and career and technical education program major or instructor permission. Vocational guidance techniques and procedures that may be effectively used in career counseling for the changing world of work.

CTE 606 HISTORY AND PHILOSOPHY OF OCCUPATIONAL EDUCATION

3, 3/0

Historical review of the philosophical, sociological, economic, and political indices that have influenced the development of vocational technical education.

CTE 620 STRUCTURE OF OCCUPATIONAL PROGRAMS

3, 3/0

Prerequisite: Graduate status or instructor permission. Structure of occupational education; survey and analysis of present programs; assessment of articulation between programs; viability of the occupational education structure in light of internal and external forces promoting change.

CTE 625 INTERRELATIONSHIPS OF LABOR, MANAGEMENT, AND OCCUPATIONAL EDUCATION

3, 3/0

Roles of labor and management in American society, their relationship to occupational education, and their historical development; the impact of technology; interpreting the needs of industry for occupational and continuing education.

CTE 655 DIVERSITY ISSUES IN ADULT EDUCATION AND TRAINING

3, 3/0

Prerequisite: Graduate status. Teaching and learning implications of diversity for adult educational achievement and career opportunities. Implications for course content and classroom management styles when adult educators are sensitive to race, ethnicity, gender, sexual orientation, class, and physical ability. Methods for structuring course content, designing curricula, and educating learners by promoting and embracing a diverse population of colleagues, learners, workers, and clients.

Equivalent Course: ADE 655

CTE 675 POSTSECONDARY TEACHING PRACTICUM

3, 2/0

Prerequisites: Graduate status, ADE 610 or CTE 536, and instructor permission. Promotes expertise in teaching in human resource development adult education, workforce training, community colleges, and GED program settings. Extended teaching assignments with coach/mentor assistance. Seminar-type discussions reflecting on learning and development of learners as they taught, principles of teaching, their teaching behaviors, strategies promoting continuing growth as teachers. Analyze issues in teaching: diversity, technology, exceptionality, promoting social justice.

Equivalent Course: ADE 675

CTE 690 MASTER'S PROJECT

3, 3/0

Research or investigation of a particular problem, planned and carried out by the student and guided by the instructor.

CTE 695 MASTER'S THESIS

6, 6/0

Individual investigation of an original problem submitted in acceptable form according to directions given by the Graduate School. Problem and procedure must be approved by the student's graduate adviser, CTE advisory committee, and the department chair before the investigation begins.

CTE 721 THESIS/PROJECT CONTINUATION

0, 0/0

CTE 722 THESIS/PROJECT EXTENDED

0, 0/0

Science Education (SED)

SED 501 HISTORY OF SCIENCE FOR SCIENCE TEACHERS

3, 3/0

Historic development of major scientific discoveries and achievements within a narrow range that directly impacts the teaching of science. Contextual forces that affect science discovery. Contributions from other disciplines such as mathematics, technology, navigation, military actions and engineering.

SED 502 SECONDARY SCIENCE EDUCATION TEACHING: THEORY, CONTENT AND PEDAGOGY

3, 2/0

Prerequisites: SCI 545 or EDU 609 or equivalent; may be taken concurrently. Acceptance into the graduate program. Use of inquiry-based teaching techniques in middle and high school science classrooms to develop candidates' science teaching skills. Current directions of research in science education. Teaching, curriculum design and lesson planning strategies and techniques, classroom management, lab safety, science resources, the nature of science, assessment, unit and lesson planning and professional dispositions for teachers.

SED 521 LABORATORY TECHNIQUES FOR ELEMENTARY SCHOOL TEACHERS

3, 3/0

Appropriate laboratory exercises designed to acquaint the elementary teacher with the subject matter, laboratory equipment, and techniques necessary to effectively teach elementary science.

SED 527 CURRENT TOPICS IN SCIENCE

3, 3/0

Prerequisites: 6 credit hours each in two science areas. Implications of science research for present and future living; implications of research in science for the secondary school science curriculum.

SED 545 LITERACY FOR TEACHING SCIENCE

3, 2/2

Prerequisites: Acceptance into a graduate science teacher degree program. Study of literacy related to secondary science. Promotion of literacy; action research project on identifying literacy levels of students; planning literacy activities based on data collection.

SED 587 TOPICS IN SCIENCE EDUCATION

1-6, 1/0

In-depth examination of important disciplinary issues, topics, or practices in science education; offered occasionally.

SED 588 TOPICS COURSE

3, 3/0

Topics course.

SED 631 CURRICULAR TRENDS IN SCIENCE TEACHING IN THE ELEMENTARY SCHOOL

3, 3/0

Recent curriculum developments in elementary school science. Students work with elementary science curricular material in a workshop atmosphere to understand the philosophies, objectives, and historical events leading to their development. Students develop and share practical classroom adaptations of these materials.

SED 632 CURRICULAR TRENDS IN SCIENCE TEACHING IN THE SECONDARY SCHOOL

3, 3/0

Prerequisite: One year of teaching science as a subject, assignment to an administrative position with responsibility for science curriculum, or instructor permission. Recent curriculum developments, philosophies, objectives, and materials; current understandings of the psychology of inquiry; historical events leading to changes in curriculum.

SED 650 CURRICULAR RESEARCH TOPICS IN SCIENCE

3, 3/0

Prerequisites: Acceptance into M.S.ED: Science Education graduate program. Nature of science educational research: problem analysis; descriptive and inferential statistics; experimental design; strategy of historical, descriptive, and experimental studies. Analysis of contemporary educational research.

SED 664 TEACHING SCIENCE WITH TECHNOLOGY

3, 2/3

Prerequisite: Acceptance to the graduate science education program. Development and integration of a variety of visual and audio technologies for the creative enhancement of visual and auditory communication in the science classroom. Specialized technology needs of science teachers.

SED 677 INITIAL MIDDLE SCHOOL SCIENCE TEACHING EXPERIENCE

6, 0/0

Prerequisites: EDU 609, EXE 500, SCI 502, SCI 545, SCI 664 and SPF 503. Assignment to a supervised middle school science teaching placement for five full days a week for 8 consecutive weeks. Candidates effectively demonstrate content knowledge; pedagogical preparation, instructional delivery; classroom management; knowledge of student development. They collaborate with school professionals and implement reflective practice.

SED 678 INITIAL HIGH SCHOOL SCIENCE TEACHING EXPERIENCE

6, 0/0

Prerequisites: EDU 609, EXE 500, SCI 502, SCI 545, SCI 664 and SPF 503. Assignment to a supervised high school science teaching placement for five full days a week for 8 consecutive weeks. Candidates effectively demonstrate content knowledge; pedagogical preparation, instructional delivery; classroom management; knowledge of student development. They collaborate with school professionals and implement reflective practice.

SED 679 SEMINAR IN SCIENCE EDUCATION

1, 1/0

Prerequisites: Acceptance into M.S. ED: Science Education graduate program. SCI 677 and SCI 678 taken as co-requisites. Taken simultaneously with student teaching. Supplements student teaching courses in areas connecting pedagogical theory with in-class experiences and practice.

SED 685 EVALUATION IN SCIENCE EDUCATION

3, 3/0

Prerequisite: 6 credit hours of graduate-level coursework. Philosophy of evaluation as applied to science education; models of evaluation; techniques used in the practical application of the models; examples and procedures directly related to science teaching.

SED 690 MASTER'S PROJECT

3, 3/0

A study undertaken by one or more individuals on a problem of special interest submitted in acceptable form according to directions given by the department.

SED 694 RESEARCH METHODS AND TECHNIQUES IN SCIENCE EDUCATION

3, 3/0

Prerequisite: 9 credit hours of graduate-level coursework in science or science education. Nature of educational research: problem analysis; descriptive and inferential statistics; experimental design; strategy of historical, descriptive, and experimental studies. Recommended for students planning educational research projects or theses.

SED 695 MASTER'S THESIS
3, 0/0

SED 795 MASTER'S THESIS
3, 0/0

Individual investigation of an original problem submitted in acceptable form according to directions given by the Graduate School.

Technology Education (TED)

TED 501 TECHNOLOGY EDUCATION IN THE ELEMENTARY SCHOOL
3, 3/0

Planning, organizing, and constructing activities for the elementary school; use of a variety of materials; technology education in the elementary school; changing technological processes and their effect on society. For technology education and non-technology education majors.

TED 507 TECHNOLOGY EDUCATION FACILITY PLANNING AND MANAGEMENT
3, 3/0

Problems involved in planning new technology education facilities or remodeling of existing laboratories; concepts in relationship of objectives to facilities; space allocation, area development, and organization; service requirement; criteria for selection and placement of equipment; analyzing available equipment and writing specifications; critique of an existing technology education laboratory.

TED 521 OCCUPATIONAL AND PRACTICAL ARTS EDUCATION FOR STUDENTS WITH SPECIAL NEEDS
3, 3/0

Prerequisite: Technology education, career and technical education, or exceptional education program major or instructor permission. Nature and needs of individuals with disabilities and the disadvantaged enrolled in occupational and practical arts education; curriculum development; evaluating work potential; identifying instructional resources and teaching methods and techniques; interpreting research; identifying the function of available vocational rehabilitation and occupational and practical arts education programs.

TED 531 ELEMENTS OF MANUFACTURING TECHNOLOGY
3, 0/3

Manufacturing technology systems; management; personnel; and production.

TED 540 CAREER AWARENESS IN TECHNOLOGY FOR THE ELEMENTARY SCHOOL
3, 3/0

Current developments in career education; role of the elementary school in career education; curriculum development and correlation techniques.

TED 590 INDEPENDENT STUDY
1-3, 3/0

TED 594 WORKSHOP
1-6, 1/0

TED 600 FOUNDATIONS IN TECHNOLOGY EDUCATION
3, 0/3

European and American antecedents of technology education; social and technological factors that make the technology education a major condition of culture; psychological and philosophical basis for teaching technology education. Required for technology education majors.

TED 615 POWER TECHNOLOGY
3, 0/3

TED 617 ELECTRONICS
3, 3/0

TED 618 ELECTRONICS
3, 3/0

TED 629 DRAFTING--PROBLEMS AND TECHNIQUES

3, 3/0

TED 630 GRAPHIC ARTS

3, 3/0

TED 690 MASTER'S PROJECT

1-3, 3/0

Prerequisites: TED 600, BUS 601, BUS 602, and BUS 604. A study undertaken by one or more individuals on a problem of special interest submitted in acceptable form according to directions given by the Technology Department.

TED 695 MASTER'S THESIS

1-6, 0/0

Prerequisites: TED 600, BUS 601, BUS 602, and BUS 604. Individual investigation of an original problem submitted in acceptable form according to directions given by the Graduate School. Problem and procedure must be approved by the student's graduate adviser, the graduate advisory committee, and the department chair before the investigation is begun.

TED 701 SEMINAR IN TECHNOLOGY EDUCATION: WRITING AND PUBLISHING

3, 3/0

Mechanics of writing and publishing, for those with a genuine desire and ability to express ideas in written form.

TED 702 SEMINAR IN THE PHILOSOPHY OF TECHNOLOGY EDUCATION

3, 3/0

Critical examination of technology from a historical perspective: study of prevalent views and issues relative to technology; its meaning, characteristics, and interdisciplinary scope; its relation to science and its place in education.

TED 703 SEMINAR IN THE DEVELOPMENT OF INSTRUCTIONAL MATERIALS

3, 3/0

An opportunity to maximize the effectiveness of the instructional program and its resultant benefits, for those with a genuine desire to develop and organize teaching materials.

TED 705 CAREER EXPLORATION IN TECHNOLOGY FOR THE MIDDLE SCHOOL

3, 0/0

Student-teacher planning in career education for the middle school: curriculum development articulation methodology; developing instructional units of study for computer-based resource units.

TED 706 CAREER EXPLORATION IN TECHNOLOGY FOR THE SECONDARY SCHOOL

3, 3/0

The evolution and potentiality of career education for adolescents; opportunities for participants to develop occupational cluster information banks, including instructional objectives, content, media, learning activities, and evaluation devices.

TED 721 THESIS/PROJECT CONTINUATION

0, 0/0

TED 722 THESIS/PROJECT EXTENDED

0, 0/0

Chemistry (CHE, FOR)

Chemistry (CHE)

CHE 501 QUANTITATIVE CHEMICAL ANALYSIS

3, 2/6

Not open to students who have had CHE 301 or equivalent. Advanced theoretical background and laboratory techniques required for quantitative and qualitative chemical analysis; emphasis on fundamental principles and applications of gravimetric, volumetric,

electrochemical, and spectrophotometric analytical techniques; statistics for experimental data handling; conducting independent chemical analysis projects.

CHE 530 ADVANCED ENVIRONMENTAL CHEMISTRY

3, 3/0

Suggested Prerequisite: CHE 201 or equivalent. Chemistry of the environment, air, water, soil, living environments, and the effects of technology thereon; the atmosphere, industrial ecosystems, phase interactions, water pollution and treatment, air pollution, global warming and green chemistry, smog, hazard wastes, soil chemistry, and toxicological chemistry.

CHE 540 SPECIAL TOPICS IN ORGANIC CHEMISTRY

3, 3/0

Suggested Prerequisite: CHE 202 or equivalent. Advanced topics, discussed in detail, with emphasis on the current state of knowledge; topics are essentially independent of each other. Class may be repeated, provided that a student has not already received credit for the same topic.

CHE 571 BIOCHEMICAL PRINCIPLES I

3, 3/0

Prerequisites: CHE 202 or equivalent; BIO 211 or BIO 214 recommended; not open to students who have taken CHE 470 or equivalent. Molecular structure and function of the four major classes of biomolecules: proteins, nucleic acids, lipids, and carbohydrates. Enzyme kinetics, mechanism, and regulation. Molecular nature of DNA replication; introduction to recombinant DNA technology.

CHE 572 ADVANCED BIOCHEMISTRY

3, 3/0

Suggested Prerequisite: CHE 571 or CHE 470 or equivalent; not open to students who have had CHE 472 or equivalent. Examination of metabolic processes in living systems. Relationship of metabolic enzyme activity to cellular control. The chemistry of genetic information, storage and expression.

CHE 588 TOPICS COURSE

3, 3/0

CHE 590 INDEPENDENT STUDY

1-3, 0/0

Independent investigation into a specific area of chemistry. Topic selected by student in consultation with a faculty member.

CHE 596 GRADUATE CONFERENCE IN CHEMISTRY

1-3, 3/0

Participation in a regional, national, or international conference in the field of chemistry overseen by a faculty member. Offered occasionally.

CHE 598 GRADUATE MICRO-COURSE

1-3, 0/0

Examination of significant disciplinary issues, topics, or practices.

Equivalent Course: FOR 598

CHE 626 SYMMETRY, GROUP THEORY, AND VIBRATIONAL SPECTROSCOPY

1, 1/0

Prerequisites: CHE202 and CHE204 or equivalents. Symmetry, point groups, and simple applications of group theory, with special emphasis on the vibrational spectroscopy of small molecules. Use of the department's IR spectrometers.

CHE 627 X-RAY CRYSTALLOGRAPHY

1, 1/0

Prerequisites: CHE 202 AND CHE 204 or equivalents. The seven crystal systems, 14 Bravais lattices, 32 crystallographic point groups, 230 space groups, the theory of X-ray diffraction, and the methods of crystal structure determination. Data mining using structural databases (Brookhaven Protein Data Bank and Cambridge Structural Database) for various applications in organic, coordination, pharmaceutical, and forensic chemistry. Collecting powder and/or single crystal diffraction data on the department's X-ray diffractometers; solving and refining a crystal structure using the appropriate software packages.

CHE 628 NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY

1, 1/0

Prerequisites: CHE 202 and CHE 204 or equivalents. Theory and practice of nuclear magnetic resonance spectroscopy, including pulse and two-dimensional methods. Use of the department's NMR spectrometer.

CHE 629 MASS SPECTROMETRY

1, 1/0

Prerequisites: CHE202 and CHE204 or equivalents. Theory and practice of mass spectrometry. Basic physics of mass spectrometry and ionization methods. Gas phase chemistry, rearrangements, and ion molecule reactions. Use of the department's electron impact ionization and electrospray mass spectrometers.

CHE 670 BIOMOLECULES: PROTEINS, NUCLEIC ACIDS, AND ENZYMES

3, 3/0

Prerequisites: CHE202 or equivalent. Structure-function relationships in proteins, enzymes, and nucleic acids. Introduction to biochemical techniques for the study of proteins, nucleic acids, and enzymes. Examination of the molecular basis of enzyme function, signal transduction, and neural and sensory responses in living systems.

CHE 672 FORENSIC MOLECULAR BIOLOGY

4, 3/3

Prerequisites: CHE 470 D or BIO 305 and BIO 303 or BIO 350 and FOR 612 or CHE 312 or equivalents. Applications of biology, biochemistry, and genetics to forensic science with an in-depth look at the evidential information that can be obtained from blood, semen, saliva, and hair. Details of DNA profiling, including DNA extraction, DNA quantification, PCR amplification, STR analysis and interpretation, and mtDNA sequencing. Protein polymorphisms and immunological tests. Laboratory component providing hands-on experience with techniques commonly used in a forensic biology laboratory.

Equivalent Course: BIO 672

CHE 680 ADVANCED ANALYTICAL CHEMISTRY

3, 3/0

Prerequisites: CHE 501 or equivalent, or instructor permission. A study of chemical analysis using representative instrumental techniques, including spectroscopy, chromatography, and mass spectroscopy; emphasis on fundamental theory, principles of operation, capabilities, and limitations of various analytical instruments; integration of laboratory-based demonstrations of data collection and analysis using selected analytical techniques.

CHE 690 MASTER'S PROJECT

1-4, 0/0

A study on a problem of special interest planned and executed with consultation and advisement from the instructor and the student's project committee. The project will be submitted in acceptable form according to directions given by the Chemistry Department and presented orally to an audience of Chemistry Department faculty and students.

CHE 698 JOURNAL SEMINAR

1, 1/0

Prerequisites: Matriculated status in the M.S. in Forensic Science program or instructor permission. Examination of methods used to compose and deliver an effective seminar in the sciences. Searching the scientific literature. Oral presentation of a topic from the current literature in chemistry or forensic science. Required of all students in the M.S. in Forensic Science program. Offered every fall semester.

CHE 699 THESIS SEMINAR AND DEFENSE

2, 2/0

Prerequisites: CHE 698. Oral presentation of master's thesis research at a departmental seminar. Defense of master's thesis to thesis committee. Required of all students in the M.S. in Forensic Science program who are completing the Thesis Option. Offered every semester.

CHE 721 THESIS/PROJECT CONTINUATION

0, 0/0

CHE 722 THESIS/PROJECT EXTENDED

0, 0/0

CHE 795 RESEARCH THESIS IN CHEMISTRY

1-12, 0/0

Individual investigation of an original problem in Chemistry submitted in acceptable form according to directions given by the Chemistry Department and the Graduate School.

Forensic Science (FOR)

FOR 588 TOPICS COURSE

3, 3/0

F

OR 596 GRADUATE CONFERENCE IN FORENSIC SCIENCE

1-3, 3/0

Participation in a regional, national, or international conference in the field of forensic science overseen by a faculty member. Offered occasionally.

FOR 598 GRADUATE MICROCOURSE

1-3, 0/0

Examination of significant disciplinary issues, topics, or practices

Equivalent Course: CHE 598

FOR 612 PRINCIPLES OF FORENSIC SCIENCE

3, 3/0

Prerequisite: CHE 301 or equivalent. Overview of forensic laboratory procedures and practices. Includes field testing, laboratory screen tests, instrumental analyses, microscopy, molecular identification, blood-alcohol analyses, identification of physical evidence, pattern evidence, crime-scene processing, evidentiary value of chemical analysis, auditing, peer-review procedures, and quality issues. Sampling techniques, data quality, error rates, blind proficiency testing, and their relevance to legal decisions.

FOR 614 FORENSIC APPLICATIONS OF INSTRUMENTAL ANALYSIS

4, 2/6

Prerequisites: CHE 403 or CHE 680 and FOR 612 or CHE 312 or equivalents. Introduction to forensic chemical analysis using representative instrumental techniques, including spectroscopy and chromatography; emphasis on laboratory-based studies for applications of these instruments to provide extensive experience in solving various analytical issues present in forensic laboratories.

FOR 616 MICROSCOPY IN FORENSIC SCIENCE

2, 1/2

Prerequisites: FOR 612 or CHE 312 or equivalents. Introduction to microscopic investigations for forensic pattern evidence and trace analysis; fundamental theory, principles of operation, varieties, and capabilities of optical microscopy and applications in forensics; fundamentals and applications of transmission and scanning electron microscopy for forensic imaging at atomic-scale resolution and chemical analysis; laboratory sections for pattern analysis and trace analysis.

FOR 618 DRUG CHEMISTRY AND TOXICOLOGY

3, 3/0

Prerequisites: CHE 202 and CHE 612 or CHE 312 and CHE 680 or CHE 403 or equivalents. Overview of misused and illegal pharmaceuticals, toxicology, poisons, forensic drug analysis, and illicit drug manufacture. Types, classes, and structures of illicit pharmaceuticals and the laws governing these substances; mechanism of biological activity and toxicological issues of each class; immunoassay technologies for drugs-of-abuse testing analysis; methods of forensic analysis of commonly encountered illegal drugs; and methods of surreptitious manufacture and law enforcement concerns with clandestine laboratories.

FOR 690 MASTERS PROJECT

1-4, 0/0

A study on a problem of special interest planned and executed with consultation and advisement from the instructor and the student's project committee. The project will be submitted in acceptable form according to directions given by the Chemistry Department and presented orally to an audience of Chemistry Department faculty and students.

FOR 721 THESIS/PROJECT CONTINUATION

0, 0/0

FOR 722 THESIS/PROJECT EXTENDED

0, 0/0

FOR 795 RESEARCH THESIS IN FORENSIC SCIENCE

1-12, 0/0

Individual investigation of an original problem in Forensic Science submitted in acceptable form according to directions given by the Chemistry Department and the Graduate School.

Communication (COM)

COM 547 DATA ANALYTICS FOR STRATEGIC COMMUNICATION

3, 3/0

A communication research and software application based investigation of data analytics in strategic communication, including its role in marketing, the media, public relations and advertising, and audience targeting, and its legal and ethical implications. Offered every fall.

COM 587 SPECIAL TOPICS

3, 3/0

Prerequisite: Instructor permission. Special topics in advanced graduate study, to be determined by the instructor. Offered occasionally.

COM 590 INDEPENDENT STUDY

3, 3/0

COM 610 PUBLIC RELATIONS PRINCIPLES AND PRACTICES

3, 3/0

Prerequisites: Admission into the master's degree in public relations program, the Public Relations Management track of the Multidisciplinary Studies master's program, or graduate status. Corequisite: COM 621. Organizational principles and strategic communication planning practices underscoring effective management of public relations; history and definitions of public relations; the role of ethics, corporate social responsibility, and legal issues in public relations. Offered every fall.

COM 612 CRISIS COMMUNICATION

3, 3/0

Prerequisite: COM 610 or instructor permission. Overview of types and stages of crises, crisis communication theories, and role of management in a crisis; impact of online world on crisis management; reputation management; crisis prevention, preparation, recognition and response; post-crisis considerations; analysis of crisis communication case studies; creation of crisis communication plans. Offered every other summer.

COM 616 SOCIAL MEDIA STRATEGIES

3, 3/0

Prerequisites: Graduate student status or instructor permission. Uses of social media in the public relations field. Includes definitions; ethical and legal principles; research, strategic planning, writing, and measurement; social media campaigns; applications of social media. Offered every other summer.

COM 621 THEORIES OF PUBLIC RELATIONS

3, 3/0

Prerequisites: Admission into the master's degree in public relations program, the Public Relations Management track of the Multidisciplinary Studies master's program, or graduate status. Corequisite: COM 610. Theoretical body of knowledge in public relations and its application to public relations practice; evolution of public relations; diversity, professional standards, and ethics in public relations. Offered every fall.

COM 631 ADVANCED PUBLIC RELATIONS WRITING

3, 3/0

Prerequisites: COM 610, COM 621. Advanced practice in writing for various public relations settings for students with prior public relations writing experience or undergraduate public relations writing coursework; focus on writing for news media and organizational media, including social media, with emphasis on mastery of grammar and punctuation rules. Offered every spring.

COM 635 INTERNSHIP IN PUBLIC RELATIONS

3, 0/0

Prerequisites: COM 610, COM 621 and COM 631. Supervised field experience in a professional setting for students who have completed extensive academic preparation in the discipline. Offered every semester.

COM 641 RESEARCH METHODS IN PUBLIC RELATIONS

3, 3/0

Prerequisites: COM 610 and COM 621. Overview of applied research methodologies for public relations campaigns including both qualitative and quantitative approaches. Attention to computer literature searches, research design, questionnaire construction, sampling, measurement techniques, and data analysis. Offered every spring.

COM 650 PUBLIC RELATIONS MANAGEMENT

3, 3/0

Prerequisites: COM 631 and COM 641. Management of public relations in various specialized situations, using a case study approach, culminating in the creation of a team communication campaign plan for an actual public relations client. Offered every fall.

COM 660 GLOBAL PUBLIC RELATIONS

3, 3/0

Prerequisites: COM 610; graduate status. Dimensions of public relations practice in international settings; overview of factors that influence communication across cultures and borders and an examination of the effect that those factors have on public relations practice in specific regions of the world. Offered occasionally.

COM 687 TOPICS COURSE

3, 3/0

Special topics, graduate level.

COM 690 MASTER'S PROJECT

3, 0/0

Prerequisites: COM 610 and COM 650; prerequisite or corequisite: COM 641. Practical application of knowledge acquired in COM 610, COM 641, and COM 650 through the development of a strategic public relations campaign or project.

COM 695 MASTER'S THESIS

3, 0/0

COM 721 THESIS/PROJECT CONTINUATION

0, 0/0

COM 722 THESIS/PROJECT EXTENDED

0, 0/0

Computer Information Systems (CIS)

CIS 500 MICROCOMPUTER SYSTEMS

3, 3/0

CIS 512 INTRODUCTION TO DATA SCIENCE AND ANALYTICS

3, 3/0

Prerequisites: Graduate standing. Introduction to Data Science and Analytics; modern analytical techniques; application to academia, industry and business needs. Fundamental concepts and terms; methods, tools, and techniques; identification of "big data" problems; data sources; analytical approaches; algorithm implementations; interpretation and reporting of results. Offered annually in the Fall semester.

CIS 590 INDEPENDENT STUDY

1-3, 0/0

Graduate independent study in Computer Information Systems.

CIS 594 GRADUATE WORKSHOP

1-3, 0/0

Graduate workshop in Computer Information Systems.

CIS 600 MACHINE LEARNING FOR DATA SCIENCE

3, 3/0

Prerequisites: CIS 512 or DSA 512 or equivalent. Introduction to Machine Learning Techniques for Data Science; mathematical methods; algorithms; application to academia, industry and business problems. Fundamental concepts and terms; methods, tools, and techniques. Supervised and unsupervised learning; identification of learning problems; data sources; analytical approaches; algorithm implementation; interpretation and reporting. Offered annually in the Fall semester.

CIS 690 MASTERS PROJECT IN EDUCATIONAL COMPUTING

3, 3/0

A project undertaken by one or more individuals on a problem of special interest within Computer Information Systems, planned and carried out with consultation and guidance from the instructor.

CIS 695 MASTERS THESIS

3, 6/0

Individual investigation of an original problem within Computer Information Systems submitted in acceptable form according to directions given by the Graduate School.

CIS 721 THESIS/PROJECT CONTINUATION

0, 0/0

CIS 722 THESIS/PROJECT EXTENDED

0, 0/0

Creativity and Change Leadership (CRS)

CRS 509 INTRODUCTION TO THE GIFTED, TALENTED AND CREATIVE LEARNER

3, 3/0

Introduction to giftedness, talent development, and creativity in students, examining both the historical foundations and the current state of the field. Examines characteristics and identification of academically gifted, creative, and talented students from diverse backgrounds and areas of ability who learn at a pace and level that are significantly different than classmates.

Equivalent Course: EDU 509

CRS 530 CREATIVE TEACHING AND LEARNING IN FORMAL AND INFORMAL SETTINGS

3, 3/0

technology to support students' creative activities. Design creativity curriculum and align with appropriate assessment procedures.

Equivalent Courses: EDL 530, EDU 530

CRS 559 PRINCIPLES IN CREATIVE PROBLEM SOLVING

3, 3/0

Theory and application of the Creative Problem Solving (CPS) process; practice in both individual and group uses for either personal or professional contexts; group work and active participation are expected.

CRS 560 FOUNDATIONS OF CREATIVE LEARNING

3, 3/0

Theory and research that form the foundation of the discipline of creativity studies; development of awareness and understanding of basic principles, select definitions, models, and theories and practice in applying them in a variety of contexts. Group interaction, discussion, and project work are expected.

CRS 570 CREATIVE PROBLEM-SOLVING EXPERIENCES

1, 3/0

Current issues, procedures, and principles of creative thinking and problem solving. Students make observations and discuss and evaluate individual experiences.

CRS 580 CREATIVITY ASSESSMENT: METHODS AND RESOURCES

3, 3/0

Practical information on methods and resources for creativity assessment; review of basic measurement principles and a critique of specific tools used to assess creativity in both education and business. Students receive personal feedback on a number of measures and develop a profile of their own creative strengths.

Equivalent Course: CRS 620

CRS 585 LEARNING STYLE METHODS/RESOURCES FOR CREATIVE AND TALENT DEVELOPMENT

3, 3/0

Applying learning style processes to guide planning for creative and talent development; information and hands-on experience on documenting students' learning style strengths.

CRS 590 INDEPENDENT STUDY

1-3, 0/0

CRS 594 GRADUATE WORKSHOP

1-3, 0/0

Graduate workshop in Creativity and Change Leadership.

CRS 596 CONFERENCE

1-3, 0/0

Conference in Creativity and Change Leadership.

CRS 598 MICRO COURSE

1, 1/0

Graduate-level micro-course in Criminal Justice.

CRS 610 FACILITATION OF GROUP PROBLEM SOLVING

3, 3/0

Prerequisites: CRS/EAD/ELF 559. Advanced strategies for leading small groups through the Creative Problem Solving (CPS) process; mastery of facilitation techniques and skills. Students receive expert feedback on their facilitation skills as they apply creative strategies to real issues. Examines conceptual relationships between facilitation and change leadership; develops basic change leadership skills.

CRS 614 ADVANCED COGNITIVE TOOLS FOR CREATIVE PROBLEM SOLVING

3, 3/0

Prerequisite: CRS 559. A focus on developing students' skills in applying and facilitating advanced creative problem-solving tools that involve diagnostic, visionary, strategic, ideational, evaluative, contextual, and tactical thinking. The cognitive tools are drawn from various fields, such as quality improvement and strategic management, and include decision making and various problem-solving models.

CRS 619 ORGANIZATIONAL CREATIVITY AND INNOVATION

3, 3/0

Prerequisite: CRS 559. Current research and practice related to organizational creativity and innovation. Developing skill in leading innovation and change initiatives in organizations from an applied perspective.

CRS 620 CREATIVITY ASSESSMENT: METHODS AND RESOURCES

3, 3/0

Practical information on methods and resources for creativity assessment; review of basic measurement principles and a critique of specific tools used to assess creativity in both education and business. Students receive personal feedback on a number of measures and develop a profile of their own creative strengths.

Equivalent Course: CRS 580

CRS 621 CURRICULUM DEVELOPMENT IN GIFTED, TALENTED AND CREATIVE EDUCATION

3, 3/0

Prerequisite: EDU or EXE 509. Appropriate curriculum, materials, instructional methods, and evaluation strategies for the development of creativity and the education of individuals who demonstrate gifted behavior and talents. Examines instructional and curricular models, differentiated teaching/learning and creative/critical thinking strategies, and collaboration with the school community.

Equivalent Course: EDU 621

CRS 625 CURRENT ISSUES IN CREATIVE STUDIES

3, 3/0

Prerequisite: CRS 559 or CRS 560. In-depth survey of current issues on the nature or nurture of creativity; skill development in research and scholarship to increase critical thinking skills and general content literacy of creativity practitioners in any discipline; review, analysis, and interpretation of findings from empirical and nonempirical sources, with some emphasis on the background and development of research at the International Center for Studies in Creativity.

CRS 626 CURRICULUM AND PROGRAM DEVELOPMENT FOR GIFTED INDIVIDUALS

3, 3/0

Development of appropriate curriculum, materials, instructional methods, and evaluation strategies for giftedness, creativity, and talent development. Focus on planning, providing, coordinating and evaluating the differentiated teaching and learning environment to challenge and assist students in learning to their highest levels of achievement and developing skill in collaborating with the school community to individualize instruction.

CRS 635 CREATIVITY AND CHANGE LEADERSHIP

3, 3/0

Prerequisites: CRS/EAD/ELF 560 and CRS 625. Culminating activities that cap the Foundations of Creativity strand of the curriculum; understanding and applying the characteristics of change leadership in the context of creativity and Creative Problem Solving (CPS); theoretical and practical launching point for students to examine their future contributions to the field, domain, and discipline by articulating their personal philosophy and definition of creativity; relation of the CPS process and other change methods to the challenge of making lasting change in other disciplines, such as business, education, psychology, sociology, history, philosophy, or the arts or sciences.

CRS 670 FOUNDATIONS IN TEACHING AND TRAINING CREATIVITY

3, 3/0

Prerequisites: CRS 559 and CRS 610 OR AED/ELF 683. Practical experience in using principles of creative learning, Creative Problem Solving (CPS), and leadership to facilitate groups; guided practice and independent work in realistic teaching/training situations to develop independent learners and reflective practitioners; use of CPS facilitation skills to develop instructional designs and examine ways to modify teaching and leading with CPS in various groups or situations.

CRS 680 DESIGNING AND DELIVERING CREATIVITY EDUCATION

3, 3/0

Prerequisites: CRS 559 and CRS 560 OR EAD/ELF 560 Team-teaching experience in creative studies undergraduate courses under direct supervision of the faculty. With permission of instructor, under special circumstances, team teaching may be done in a school, in industry, or in a special creative problem-solving program.

CRS 689 INTRODUCTION TO RESEARCH METHODS IN CREATIVITY STUDIES

3, 3/0

Prerequisites: CRS 620 or instructor permission. Qualitative and quantitative research methods within the field of creativity. Evaluation and design of empirical research on creativity. Ethical issues related to research involving human participants. Application of course content to create an initial direction for dissertation research. Offered every fall and spring.

CRS 690 MASTER'S PROJECT

3-6, 0/0

Prerequisites: CRS 559 and CRS 610 OR EAD/ELF 683 Development and implementation of an applied project requiring Creative Problem Solving (CPS), change leadership, and facilitation skills; definition and implementation of change initiatives that have a direct impact either on the community or for the field of creativity in general; development of analytical skills in the formation and evaluation of the success of the projects.

CRS 695 THESIS

3, 0/0

Individual investigation of an original problem within Creativity and Change Leadership submitted in acceptable form according to directions given by the Graduate School.

CRS 705 ADVANCED INSTRUCTIONAL DESIGN IN CREATIVITY

3, 3/0

Prerequisites: CRS 560, CRS 625, CRS 670. Experience in advanced design of creativity instruction in the higher education classroom. Demonstrating mastery of creativity content and preparation for teaching experiences. Structured participation in undergraduate courses in creativity and creative leadership. Offered every fall.

CRS 706 ADVANCED INSTRUCTIONAL DELIVERY IN CREATIVITY

3, 3/0

Prerequisite: CRS 705. Supervised teaching experience in an introductory course on creativity studies. Demonstrating mastery of creativity content through instructional delivery. Assessing student learning outcomes and learner performance. Monitoring and adjusting instructional delivery based on student needs. Offered every spring.

CRS 721 THESIS/PROJECT CONTINUATION

0, 0/0

CRS 722 THESIS/PROJECT EXTENDED

0, 0/0

CRS 725 CONTEMPORARY GLOBAL PERSPECTIVES IN CREATIVITY, THEORY, PRACTICE AND RESEARCH

3, 3/0

Prerequisites: CRS 560, CRS 625. Examination of opportunities and issues related to the advancement of creativity around the globe. Individual, societal and global diversity, historical roots and current issues related to the development and practice of creativity and innovation in various cultures. Offered every semester.

CRS 730 FOUNDATIONAL QUALITATIVE RESEARCH METHODS IN CREATIVITY STUDIES

3, 3/0

Prerequisite: CRS 689. Foundational qualitative research methods applicable to creativity research. Data-mining of narrative datasets related to an area of creativity studies. Dataset analysis. Association of various qualitative research designs to appropriate research methods. Preparation for advanced qualitative analysis procedures. Offered every spring.

CRS 731 QUALITATIVE RESEARCH METHODS IN CREATIVITY STUDIES II

3, 3/0

Prerequisite: CRS 730. Application of qualitative research methods to creativity datasets. Advanced qualitative data analysis procedures in the field of creativity. Utilization of a variety of methods such as grounded theory, case study and phenomenology. Qualitative research design with opportunities to disseminate work in the field of creativity. Offered every fall.

CRS 735 ADVANCED APPLICATION OF CREATIVE LEADERSHIP

3, 3/0

Prerequisites: CRS 619 and CRS 635. Examine real-life practices of creative leadership. Explore the process of change leadership with examples of change initiatives. Integrate real-life experiences and theories and concepts of creative leadership. Review the principles of creative thinking and change management models. Culminating course in the doctoral program. Offered every spring.

CRS 740 FOUNDATIONAL QUANTITATIVE DATA ANALYSIS AND STATISTICS IN CREATIVITY STUDIES

3, 3/0

Prerequisite: CRS 689. Foundational statistics and quantitative methods applicable to creativity research, e.g., descriptive and inferential parametric and non-parametric statistical methods. Software programs used for quantitative data analysis. Linking research design with statistical procedures. Preparation for advanced statistical procedures for students who intend to use quantitative methods in their dissertation. Offered every spring.

CRS 741 ADVANCED QUANTITATIVE DATA ANALYSIS AND STATISTICS IN CREATIVITY STUDIES

3, 3/0

Prerequisite: CRS 740. Advanced statistics and quantitative methods in creativity studies, such as multivariate and multiple regression analyses. Assumption and diagnostic testing. Scale development and use of exploratory and confirmatory factor analysis. Assessing the quality of data collection instruments. Critique published work and preparation of research reports based on data analysis. Offered every fall.

CRS 795 MASTER'S THESIS

3-6, 0/0

Prerequisites: CRS 559, CRS 560, and CRS 580. Design and implementation of empirical research (qualitative or quantitative) designed to make new and useful contributions to the field of creativity. Students work closely with faculty and, in many cases, join ongoing programs of research within the department

CRS 899 DISSERTATION

3, 3/0

Prerequisites: CRS 689 and CRS 730 or CRS 740. Students contribute new knowledge to the field of creativity by conducting original empirical research (i.e., qualitative, quantitative, mixed-methods, etc.). Under the supervision of faculty, students can follow a traditional dissertation format or may choose to complete a three-article dissertation. Offered every semester.

Criminal Justice (CRJ)

CRJ 501 THEORETICAL PERSPECTIVES ON CRIME AND CRIMINAL JUSTICE

3, 3/0

Prerequisite: Graduate level standing. Patterns and trends in crime and victimization in the United States; the complex relationships between theoretical explanations of criminal behavior and criminal justice policies and priorities; theoretical and empirical foundations of criminal behavior and crime control; development of writing and conceptual skills. Offered every fall.

CRJ 504 RESEARCH METHODS IN CRIMINAL JUSTICE

3, 3/0

Prerequisite: Graduate status or instructor permission. Graduate level statistics and undergraduate research methods. This course introduces students to the practice, theory, and philosophy of social science research, with a special focus on criminal justice. It not only broadens students' knowledge of the ethical issues associated with research, but also introduces them to a variety of research techniques such as surveys, field research, and experimental designs. Research Methods will lay the foundation for students to become informed "consumers" of research, as well as "producers" of it.

CRJ 508 HISTORY OF CRIMINAL JUSTICE

3, 3/0

Prerequisite: Graduate status or instructor permission. Societal responses to crime and disorder in the United States from the colonial period through the twentieth century; social forces that influenced the development of criminal law and its institutions of social control; readings in traditional and revisionist scholarship on social disorder, law, crime, police, courts, prisons, and juvenile justice.

CRJ 511 ADVANCED CRIME ANALYSIS

3, 3/0

Prerequisite: Completion of Undergraduate or Graduate Statistics. Introduction to tools and techniques needed to analyze and present data within the context of policing. Examination of the role and responsibilities of a crime analyst. Examination of data-based solutions for crime problems. Offered every other fall semester.

CRJ 590 INDEPENDENT STUDY

1-3, 3/0

Graduate independent study in Criminal Justice.

CRJ 601 CORRECTIONAL STRATEGIES

3, 3/0

Prerequisite: Graduate status. Examining the historical, philosophical, theoretical, and legal dimensions of corrections in the United States; the organizational context of adult and juvenile institutional corrections; the impact of correctional programs; and the process and impact of organizational change in corrections. Emphasis on the development of graduate-level scholarship primarily in adult corrections. Offered fall only.

CRJ 602 ORGANIZATIONAL BEHAVIOR AND THE MANAGEMENT PROCESS IN CRIMINAL JUSTICE

3, 3/0

Prerequisite: Undergraduate advanced administration in criminal justice or equivalent. Managerial environment of criminal justice organizations; analysis and application of administrative science to improving crime control agency management.

CRJ 603 ADMINISTRATION OF JUSTICE

3, 3/0

Prerequisite: Graduate status. Intensive and integrative analysis of the administration of criminal justice. Uses a pluralistic model of public crime control policy making to examine existing and possible future efforts and effects on the American criminal justice and criminal-legal system and its agencies and operations. Extensive exposure to the criminal justice system, supporting social science, and legal literature in the field.

CRJ 604 CRIMINAL COURTS

3, 3/0

Theory of courts and the legal, social, and political processes that significantly affect the operation of the criminal courts, the administration of justice, and judicial decision making; the interrelationship among the social and political forces that influence court decisions and justice. Offered every spring.

CRJ 605 LAW AND SOCIAL CONTROL

3, 3/0

Prerequisite: Graduate status or instructor permission. Nature of social control as it is vested in the objectives, procedures, and authority of law and social institutions; social and legal implications of social control, and the limits of criminal law as a means of social control.

CRJ 606 LAW ENFORCEMENT ISSUES

3, 3/0

Prerequisite: Graduate status or instructor permission. Selected issues relating to the role and operations of law enforcement in a time of complex social change. Topics vary as developing issues and problems affect the police.

CRJ 608 SPECIAL TOPICS IN CRIMINAL JUSTICE

3, 3/0

Prerequisite: Graduate status. Intensive analysis of a special topic(s) not covered in the existing curriculum, to be determined by relevancy and currency of the topic(s), student interests, and the availability of resources and expertise to teach the specific subject matter. May be taken three times (up to 9 credits).

CRJ 609 STATISTICS IN CRIMINAL JUSTICE

3, 3/0

Prerequisite: Graduate status or instructor permission. Introduction and overview of statistical principles and methods in criminological research. Examination of descriptive, inferential, and multivariate statistics through parametric and nonparametric measures. Emphasis on the interpretation and application of statistical results from software analysis, such as SPSS, and journal articles.

CRJ 611 DATA-DRIVEN POLICING

3, 3/0

Prerequisite: CRJ 511. Historical and current trends in data-driven policing. Examination of the different data-driven styles and strategies of policing. Implementation of data-driven policing in local, state and federal law enforcement agencies. Offered every other spring.

CRJ 620 WHITE-COLLAR CRIME

3, 3/0

Prerequisite: Graduate status. Theoretical and empirical literature on upper-world crime and its impact on society; the relationship between and effectiveness of criminal, civil, and regulatory processes; characteristics of offenders.

CRJ 622 JUVENILE JUSTICE

3, 3/0

Prerequisite: Graduate status. Historical, philosophical, theoretical, and legal foundations of juvenile justice systems in states across the country; the relationship between juvenile delinquency and youth crime; various state juvenile justice strategies; empirical studies of interventions to combat drug behavior; gangs and criminal violence; the effectiveness of the complex decisions made by the juvenile justice system in addressing delinquency and youth crime.

CRJ 624 COMPUTER APPLICATION

3, 3/0

Prerequisite: Graduate status or instructor permission. Various computer applications of basic statistical methods as they apply to criminal justice; a combination of lectures on both descriptive and inferential statistics and hands-on experience in the computer lab, designed to increase analytical ability through quantitative training exercises.

CRJ 625 RACE AND ETHNICITY IN CRIMINAL JUSTICE

3, 3/0

Prerequisite: CRJ 501. Manifestations of racial and ethnic stratification in American society and their effects on crime and the administration of criminal justice in the United States; history of racial stratification in the United States; effects of racial stratification on the criminality of minority groups; differential enforcement of the law against members of minority groups at different phases of the criminal justice process.

CRJ 626 GENDER ISSUES IN CRIMINAL JUSTICE

3, 3/0

Prerequisite: CRJ 501. Gender differences and their effects on criminal behavior, law, and the criminal justice process; crimes of which women are disproportionately victims; the extent, types, distinguishing characteristics, and theories of female criminality; criminal justice policies and practices that result in the differential treatment of female victims, offenders, and practitioners.

CRJ 628 ORGANIZED CRIME

3, 3/0

Prerequisite: Graduate status. History, structure, operation, and theories of organized crime, and the problems of control that law enforcement faces; interaction among criminals, victims, community, law enforcement, and the laws within the pluralistic political context.

CRJ 630 CONSTITUTIONAL ISSUES IN CRIMINAL JUSTICE

3, 3/0

Prerequisite: Admission to the criminal justice master's degree program or instructor permission. Legal reasoning, writing briefs, and legal research; identifying and analyzing selected Supreme Court cases, with an emphasis on the First, Fourth, and Fifth Amendments of the U.S. Constitution; examining former ideologies for comparison with current trends, issues, and ideologies, emphasizing the comprehension of legal thought and how it changes. Uses the casebook method of study.

CRJ 635 CRIMINAL JUSTICE ETHICS

3, 3/0

Prerequisite: Graduate status. Ethics as a component of criminal justice: overview of basic ethical concepts and theories; macro-level ethical issues and problems in the criminal justice process; specific ethical problems of the various components of the criminal justice process.

CRJ 690 MASTER'S PROJECT

3, 0/0

Research or investigation of a particular problem, planned and carried out by the student with consultation and guidance from the instructor.

CRJ 695 MASTERS THESIS

3, 0/0

Individual investigation of an original problem within Criminal Justice submitted in acceptable form according to directions given by the Graduate School.

CRJ 710 RESEARCH PROJECT

3, 3/0

Prerequisites: Graduate status, instructor permission, and department approval. Participation in an ongoing research project by invitation of a criminal justice faculty member. May be taken only once.

CRJ 721 THESIS/PROJECT CONTINUATION

0, 0/0

CRJ 722 THESIS/PROJECT EXTENDED

0, 0/0

Dietetics (HEW, HPR, NFS)

Health and Wellness (HEW)

HEW 520 DRUGS, SOCIETY, AND HEALTH

3, 3/0

Prerequisite: Instructor permission. Drug addiction: problems related to alcohol, tobacco, and other drugs of abuse affecting the individual, as well as society; drug education curricula within the public schools.

HEW 580 PARENTING/SEXUALITY EDUCATION PRACTICES IN HEALTH

3, 3/0

Prerequisite: Undergraduate coursework in health or human sexuality. Parenting/sexuality curricula and the utilization of technology in teaching health education; theories and practices in sexuality education in American school systems; appropriate course content specific to different grade levels and cultural settings.

Equivalent Course: ADE 580

HEW 588 TOPICS COURSE

3, 3/0

Topics course.

HEW 590 INDEPENDENT STUDY

1-6, 0/0

Equivalent Course: HPR 590

HEW 594 WORKSHOP

3, 3/0

Graduate workshop in Health and Wellness.

HEW 605 EPIDEMIOLOGY

3, 3/0

Principles and practices in the cause, prevention, and control of diseases in various community settings: epidemiological terminology; measurement of morbidity, mortality, and fertility; descriptive and analytic epidemiology; screening; infectious disease; occupational epidemiology.

HEW 615 SEMINAR IN HEALTH EDUCATION

3, 3/0

Theories of health behavior and behavior change as they relate to current health education issues: the Health Belief Model and the Health Behavior Change Model; foundations of health education; strategies to promote lifestyle change in health education settings.

HEW 620 HEALTH EDUCATION/PROMOTION STRATEGIES

3, 3/0

Overview and application of specific health promotion/education techniques; risk assessment; individual educational plans; small-group techniques; mass media, lectures, and community organization campaigns.

HEW 690 MASTER'S PROJECT

3, 0/0

A well-planned project undertaken by one or more students, with consultation and guidance from the health and wellness faculty, concerning a health problem or issues of special interest.

Equivalent Course: HPR 690

HEW 695 MASTER'S THESIS

3, 0/0

HEW 721 THESIS/PROJECT CONTINUATION

0, 0/0

HEW 722 THESIS/PROJECT EXTENDED

0, 0/0

Coaching and Physical Education (HPR)

HPR 500 PHILOSOPHIES, PRINCIPLES, AND ORGANIZATION OF ATHLETICS IN EDUCATION

3, 3/0

Basic philosophy and principles of coaching interscholastic athletics; state, local, and national policies and regulations related to athletics. Partially fulfills New York State requirements for interscholastic coaching certification.

HPR 519 SOCIAL IMPACT OF SPORT

3, 3/0

Diverse sociological perspectives of sport: social organization of sport-related activities; formal and informal organizational networks of social status, norms, goals, and values; the impact of sport on American society.

HPR 535 ATHLETIC TRAINING: PREVENTION AND CARE OF ATHLETIC INJURIES

3, 3/0

Prerequisites: Background in anatomy and physiology from BIO 308, HPR 301, or equivalent. Relationship between conditioning performance and injury prevention: techniques and programs designed to stress the importance of body conditioning needed for specific sports, as well as the possible treatment of athletic injuries. Partially fulfills New York State requirements for interscholastic coaching certification.

HPR 588 TOPICS COURSE

3, 3/0

HPR 590 INDEPENDENT STUDY

1-3, 0/0

Equivalent Course: HEW 590

HPR 690 MASTER'S PROJECT

3, 0/0

Equivalent Course: HEW 690

HPR 721 THESIS/PROJECT CONTINUATION

0, 0/0

HPR 722 THESIS/PROJECT EXTENDED

0, 0/0

Dietetics and Nutrition (NFS)

NFS 500 MACRONUTRIENTS

3, 2/0

Prerequisites: Undergraduate coursework in nutrition, biochemistry, and physiology or instructor permission. Proteins, carbohydrates, and lipids, with an emphasis on metabolism and interrelationships with other nutrients.

NFS 501 MICRONUTRIENTS

3, 0/0

Prerequisites: Undergraduate coursework in nutrition, biochemistry, and physiology or instructor permission. Vitamins and minerals with emphasis on functional roles in metabolism, interrelations, and nutritional significance.

NFS 503 NUTRITIONAL INTERVENTION IN DISEASE STATES

3, 0/0

Multisystemic view of the physiologic and biochemical alterations in disease states requiring dietary modifications; current theories of dietary treatment in light of epidemiologic data, current scientific research, and factors affecting an individual's ability to carry out the necessary modifications; altered regulatory mechanisms, including interrelations of medications and other treatments with nutritional status and dietary intake.

NFS 506 PRINCIPLES OF HUMAN NUTRITION

3, 3/0

Prerequisites: Graduate standing. Principles of human nutrition with emphasis on the functions of macronutrients and micronutrients and dietary sources, as well as their digestion, absorption, and metabolic processes. Biological determinants of nutrient requirements and the assessment of nutrient status in individuals and populations. Role of diet in health and prevention of chronic disease; applications for students contemplating careers in the health professions. Offered every semester.

NFS 510 NUTRITION EDUCATION

2, 2/0

Prerequisites: Undergraduate or graduate coursework in nutrition or instructor permission. Apply principles of nutrition by designing effective nutrition education programs. Utilize learning and behavior change theories to affect nutrition education that promotes adoption of lifelong healthy behaviors. Design effective nutrition-based health promotion materials. This course is two hours to

provide health professionals with instruction on designing effective nutrition education programs while working in the field and meeting the curriculum roadmap of the program. Offered every semester.

NFS 550 GRADUATE PRACTICUM IN DIETETICS

3, 0/0

Prerequisites: NFS 448 and clinical faculty permission; graduate status. Plan, implement, and develop a dietetics practicum and evaluation tool for student performance in a selected area of dietetic practice such as acute care, long-term care, nutrition education, or community service programs. Ability to practice independently with minimal supervision required. Offered every spring.

NFS 571 EXPERIENTIAL LEARNING IN FOOD SERVICE SYSTEMS IN HEALTH CARE

3, 0/0

Prerequisite: NFS 311 and graduate status, or instructor permission. Food systems management in healthcare facilities. Emphasis on sustainable production and distribution of quantity food products; purchasing, receipt, and storage of products used in food production and related understanding of agricultural practices; and application of principles of food safety and related risk management. Offered every summer.

NFS 590 INDEPENDENT STUDY

1-3, 0/0

NFS 594 GRADUATE WORKSHOP

1-3, 0/0

Graduate workshop in Dietetics and Nutrition.

NFS 598 MICRO-COURSE

3, 0/0

Graduate-level micro-course in Dietetics and Nutrition.

NFS 601 LEADERSHIP AND PROJECT MANAGEMENT IN DIETETICS

3, 3/0

Prerequisite: Instructor permission. Leadership and project management applied in clinical nutrition, private practice, community nutrition and food service management. Competency-based learning using skills, tools, and techniques required in the life cycle of a nutrition project, including project selection, planning, staffing, task scheduling, budgeting, risk management, and quality improvement. Exploration of nutrition informatics in executing nutrition projects. Offered every summer.

NFS 604 ADVANCES IN FOOD RESEARCH

2, 2/0

Prerequisite: Undergraduate coursework in food, food preparation, or food science or instructor permission. Current methods of foods preservation, processing, packaging, and storage; new food products; processing trends in the food industry.

NFS 605 CURRENT TRENDS IN NUTRITION

3, 3/0

Prerequisites: Undergraduate (NFS 102 or equivalent) or graduate level nutrition course (NFS 506 or equivalent). Current trends in nutrition, including dietary guidelines, fad diets, and public health nutrition policies and initiatives. Evidence-based nutrition education programs for communities. Offered every semester.

NFS 607 EXPERIENTIAL LEARNING IN WEIGHT MANAGEMENT AND DIABETES PREVENTION AND TREATMENT

3, 3/0

Prerequisites: Undergraduate coursework medical nutrition therapy and instructor permission. Pathophysiology, prevention, and treatment of obesity and diabetes. Techniques for measuring body composition and energy expenditure examined. Includes selected content for the interdisciplinary obesity and weight management certification and for the certified diabetes educator credential. Employs competency-based education (CBE). Offered every fall.

NFS 609 EXPERIENTIAL LEARNING IN ADVANCED MEDICAL NUTRITION THERAPY

3, 3/0

Prerequisites: NFS403 and NFS430. Applies evidence analysis process in evaluating medical nutrition therapies (MNT). Explores MNT outcomes for malnutrition MNT in acute and long term care, and community settings. Includes selected content for the certified

nutrition support clinician credential: e.g., parenteral electrolytes and glucose management. Employs competency-based education (CBE). Offered every Fall semester.

NFS 612 NUTRITION COUNSELING

3, 3/0

Prerequisite: Undergraduate coursework in nutrition counseling and medical nutrition therapy and instructor permission. Evidence-based practice in nutrition consultation related to models of cultural competence, nutrition counseling strategies, models of emotional intelligence, processes for coding and billing for nutrition services, and utilization of nutrition informatics. Employs competency-based education. Offered every spring.

NFS 615 NUTRITION EDUCATION PRACTICUM

1, 0/3

Prerequisites: NFS 510 and instructor permission. Application of the principles of nutrition education learned in NFS 510 by designing, presenting, and evaluating a nutrition education project.

NFS 620 EXPERIENTIAL LEARNING IN NUTRITION

1-3, 1/0

Prerequisites: NFS 510 or instructor permission. Applying knowledge and skills of nutrition in community health settings. Emphasis on planning, implementing, and evaluating community nutrition programs. Application of nutrition and health principles to create changes in knowledge, attitudes, behavior and health outcomes among individuals, families or target groups in community settings. Offered every semester.

NFS 634 NUTRITION AND GERONTOLOGY

3, 3/0

Prerequisite: Undergraduate coursework in medical nutrition therapy, nutrition in the lifecycle, or instructor permission. Examination of the nutritional needs of aging and individuals in later maturity and palliative care. Examine the nutritional needs and complications of nutritional deficiency and disease in later life. Specific nutritional concerns in aging populations and community nutrition services available. Offered annually.

NFS 689 METHODS OF NUTRITIONAL RESEARCH

3, 3/0

Prerequisites: Graduate status, undergraduate coursework in nutrition research and medicine therapy, instructor permission. Advanced knowledge of nutrition research design; planning, collection, treatment, and interpretation of research data; application of nutrition research methods and statistical analysis as related to the development of a nutrition research proposal. Students develop a proposal for individual research projects. Offered every spring.

NFS 690 MASTER'S PROJECT

3, 0/0

Prerequisite: Instructor permission. A project undertaken by one or more individuals on a problem of special interest, planned and carried out with consultation and guidance from the instructor.

NFS 695 MASTER'S THESIS

1-3, 0/0

Individual investigation of an original problem submitted in acceptable form according to directions given by the Graduate School.

NFS 721 THESIS/PROJECT CONTINUATION

0, 0/0

NFS 722 THESIS/PROJECT EXTENDED

0, 0/0

Elementary Education (EDL, EDU)

Educational Leadership (EDL)

EDL 500 MULTICULTURAL EDUCATION

3, 3/0

Cultural foundations of education; application of relevant findings of the social sciences to problems and issues of education in culturally plural (multiethnic) settings.

EDL 530 CREATIVE TEACHING AND LEARNING IN FORMAL AND INFORMAL SETTINGS

3, 3/0

Current best practices to facilitate creative teaching and learning in formal education settings and informal education initiatives in organizations such as museums and clubs. Strategies to enhance creativity education, engage in creative learning and utilize technology to support students' creative activities. Design creativity curriculum and align with appropriate assessment procedures.

Equivalent Courses: CRS 530, EDU 530

EDL 534 THE HOLISTIC CURRICULUM: TEACHING TO BOTH SIDES OF THE BRAIN

3, 0/0

EDL 544 MIDDLE SCHOOL CURRICULUM

3, 0/0

EDL 552 PUBLIC SCHOOL LAW

3, 3/0

Foundations of public school law; legal problems, and ethical concerns arising out of the operation of the public school system; New York State education law; selected cases from state and federal courts; common law principles.

EDL 559 PRINCIPLES IN CREATIVE PROBLEM SOLVING

3, 3/0

Theory and application of the Creative Problem Solving (CPS) process; practice in both individual and group uses for either personal or professional contexts; group work and active participation are expected.

Equivalent Course: CRS 559

EDL 560 METHODS, THEORIES, AND MODELS OF CREATIVE LEARNING

3, 3/0

Theory and research on the discipline of creative studies: developing awareness and understanding of basic principles and select definitions, models, and theories; practical application in a variety of contexts. Group interaction, discussion, and project work.

EDL 585 LEARNING STYLE METHODS/RESOURCES FOR CREATIVE & TALENT DEVELOPMENT

3, 0/0

EDL 590 INDEPENDENT STUDY

1-3, 0/0

EDL 597 SPECIAL TOPICS

3-6, 0/0

EDL 602 ADMINISTRATION OF SPECIAL EDUCATION PROGRAMS

3, 3/0

Aspects of educational leadership necessary to formulate, organize, implement, and evaluate high-quality, culturally responsive public school programs and services for students with special needs. Creating safe and healthy environments for all students.

EDL 606 SCHOOL-COMMUNITY RELATIONS

3, 3/0

Educational relevance of involving the greater community (parents, neighborhoods, businesses, etc.) to enhance and support student achievement; organizational relationships between schools within and outside school districts; power; multicultural awareness; major opinion leaders; vision and mission articulation; interpersonal skills. Students construct a databased school-community relations plan.

EDL 607 SITE-BASED LEADERSHIP

3, 3/0

Principles of school administration and leadership; the changing role of site leadership as it relates to the dominant themes of shared mission, leadership, change, family engagement, shared decision making, school characteristics, standards-based education, and improving student achievement for all students. Strategies for cultivating an inclusive, caring, and supportive school community.

EDL 608 ADMINISTRATION OF PROGRAMS FOR THE YOUNG CHILD

3, 3/0

Role of the administrator in developing an educational environment for young children: organization, management, equipment, parent involvement, and curriculum appropriate to the developmental needs of the young and his or her family.

EDL 610 METHODS OF ADULT EDUCATION

3, 3/0

Principles, practices, evaluation, and practical application of adult learning across the full spectrum of settings in which adult education is conducted.

Equivalent Course: ADE 610

EDL 612 SCHOOL BUSINESS MANAGEMENT AND FINANCE

3, 3/0

School district business management functions and financing to promote academic success for all students: accounting, reporting, and auditing; program budgeting systems; investments and debt service; purchasing, inventory, and insurance; sources of income; Civil Service law and personnel; collective negotiations; auxiliary services.

EDL 613 SCHOOL DISTRICT ADMINISTRATION AND GOVERNANCE

3, 3/0

Prerequisites: Admission into Educational Leadership programs. Instructional, managerial, and political roles of the chief school administrator and central office staff in promoting student achievement and achieving the educational vision; school district organization, governance, and core or governing values used in decision-making; collective bargaining; facilities management; school and community relations to engage stakeholders from diverse backgrounds; relationships with federal and state governments; and the role and operation of the board of education. Offered every Spring

EDL 630 CURRICULUM LEADERSHIP

3, 3/0

Educational leader's role in the design, implementation, and evaluation of rigorous and culturally relevant curriculum, focusing on the principles of curriculum leadership; needs assessment, school improvement, curriculum alignment, and evaluation; leadership roles in curricular decision making are examined in relationship to current research.

EDL 631 SUPERVISION OF TEACHING

3, 3/0

Principles of supervision: classroom observation; evaluating teaching; effect of teachers' purposes and research on choice of subject matter and teaching procedures; teacher-pupil relationships and cultural competence; group and individual conferences; induction of new teachers; intervisitation; demonstration teaching; teachers' meetings; bulletins; workshops; evaluation of programs.

EDL 640 CONFLICT RESOLUTION AND PEACEABLE SCHOOLS

3, 3/0

Conflict resolution in the public school context; foundations of peacemaking; emotional intelligence; teaching tolerance; cooperative learning. Presents a model for incorporating peaceable schools curricula into existing school programs.

EDL 652 SPECIAL EDUCATION LAW

3, 3/0

Laws, regulations, policy, and court cases influencing special education; due process and equal protection guarantees; Individualized Education Plan (IEP) development; Individuals with Disabilities Education Act (IDEA); Section 504 of the Rehabilitation Act of 1973.

EDL 672 THE MICROCOMPUTER IN THE INSTRUCTIONAL PROGRAM

3, 3/0

EDL 683 FACILITATION OF GROUP PROBLEM SOLVING

3, 3/0

Prerequisite: EDL/CRS 559. Advanced strategies for leading small groups through the Creative Problem Solving (CPS) process; mastery of facilitation techniques and skills. Students receive expert feedback on their facilitation skills as they apply creative strategies to real issues. Examines conceptual relationships between facilitation and change leadership; develops basic change leadership skills.

Equivalent Course: CRS 610

EDL 684 PLANNING FOR EDUCATION CHANGE
3, 3/0

EDL 686 SEMINAR IN INNER-CITY EDUCATION
3, 3/0

Nature and scope of education in the inner city; social research informing public policy on education of minorities; culture of minority children and the inner-city school; roles of the teacher and the administrator; curriculum development and the needs of inner-city students; quest for educational equity; community/parent involvement.

EDL 702 EDUCATIONAL LEADERSHIP FIELD EXPERIENCES
1, 0/0

A sequence of three 1-credit courses (upon entry into the EDL program, students are required to register for EDL 702 for three terms) designed to engage students in field experiences from the time they enter the EDL/C.A.S. program. Common core field experiences, Saturday sessions, student teacher supervision, and special involvement days. Students receive a grade upon completion of each field experience.

EDL 703 EDUCATIONAL LEADERSHIP INTERNSHIP
3, 3/0

An ongoing experience in three different pre-K-12 or community education locations and with three different field supervisors. Internship/field experiences commonly begin in the student's school/district and include two summer experiences: one in a central office, the other in a school when students are in session (e.g., summer school). Students are encouraged to complete one internship in an urban school district and at least one internship in a nonurban setting. Fall or spring terms do not have stated hour requirements. The entire internship, field experiences (EDL 702), and common core experiences should total 1,300 hours. Students enroll in EDL 703 at the end of their program, preferably after 24 credit hours have been completed. Students are encouraged to begin field and internship experiences upon admission to the program. Confer with the program adviser for details.

EDL 704 SEMINAR IN EDUCATIONAL CHANGE
3, 3/0

Issues in pre-K-12 educational leadership, change, and policy; functions of theories, practices, and philosophies in problem solving, decision making, group collaboration, and facilitation. Site-based action research project required.

EDL 705 SCHOOL DISTRICT INTERNSHIP
1-3, 0/0

An ongoing experience in a school district level (Central Office) location with a field supervisor. Candidates are encouraged to complete experiences in an urban school district as well as a nonurban setting. All activities are logged and matched to standards for school district leaders. Variable credits allow for candidates seeking either the combined SBL/SDL certificate (2) or the SBL/SDL/SDBL (3) certificate or adding the SDBL certificate to prior certification in SBL/SDL (1). Total of 500 hours including 15 weeks of participation in a district business office for candidates seeking the recommendation for School District Business Leader certification.

EDL 706 PROBLEMS IN LEADERSHIP
3, 0/0

Problems and solutions in educational leadership, organizational change, human resource development, and school-community relations.

EDL 707 COMPUTER APPLICATIONS IN EDUCATION ADMINISTRATION
3, 3/0

Recent advances in cybernetic systems as effective tools to improve instruction, organization, and administration of education. Laboratory experiences emphasize effective use of data-processing systems rather than technical aspects of programming.

EDL 708 EDUCATIONAL FACILITIES PLANNING
3, 3/0

EDL 714 PERSONNEL ADMINISTRATION IN SCHOOLS
3, 3/0

Concepts of human resource administration and problems related to personnel programs, policies, and procedures; related goals of organization and management to goals and welfare of staff members.

EDL 715 SCHOOL ADMINISTRATION AND RESEARCH

3, 3/0

A study of research as applied to school administration; major sources and review of research; individual project and administrative problem solving; proposal writing and administration.

EDU 500 PRACTICUM IN EDUCATION

3-6, 0/0

Supervised teaching experience five full days a week for 40-80 days accompanied by weekly one-hour seminars and other seminars as scheduled. Effective demonstration of content knowledge, pedagogical preparation, instructional delivery, classroom management, knowledge of student development, collaboration with school professionals, and reflectivity of practice required.

Equivalent Course: ESL 500

EDU 501 SEMINAR FOR THE REFLECTIVE TEACHER

3, 3/0

Critical reading and interpretation of educational research literature; synthesis and assessment of educational research literature as related to the enhancement of teaching and learning processes and experiences of elementary teachers. Participants reflect on ways to investigate and improve their own practice.

EDU 509 INTRODUCTION TO THE GIFTED, TALENTED AND CREATIVE LEARNER

3, 3/0

Introduction to giftedness, talent development, and creativity in students, examining both the historical foundations and the current state of the field. Examines characteristics and identification of academically gifted, creative, and talented students from diverse backgrounds and areas of ability who learn at a pace and level that are significantly different than classmates.

Equivalent Course: CRS 509

EDU 510 PRACTICUM IN CHILDHOOD TEACHING

6, 0/0

Prerequisites: EDU 511 with a grade of B or better and EDU 682 with a grade of B or better. Supervised teaching experience five full days a week for approximately seven consecutive weeks accompanied by weekly one-hour seminars and other seminars as scheduled. Effective demonstration of content knowledge, pedagogical preparation, instructional delivery, classroom management, knowledge of student development, collaboration with school professionals, and reflectivity of practice required. Offered every semester.

EDU 511 METHODS OF TEACHING ENGLISH LANGUAGE ARTS

6, 6/0

Prerequisite: EDU 546 with a grade of B or better. Building methodological practice from the theoretical scaffold of literacy knowledge and teaching. Students participate in classroom practice for at least 40 hours while exploring in-depth curricular, theoretical, and practical educational frameworks. Participants learn and practice the pedagogy required for teaching language arts across the curriculum; plan, implement, and evaluate lessons incorporating the New York State standards for English language arts; practice and evaluate assessment tools and processes; become reflective practitioners; and demonstrate effective techniques for instructional organization.

EDU 513 THEORY, RESEARCH AND PRACTICE IN LITERACY INSTRUCTION

3, 3/0

Prerequisite: Graduate standing. Provides an overview of theoretical and historical perspectives, research and literature pertaining to literacy across the lifespan, the basic concepts underlying literacy methods, materials, and assessment approaches; the reading and writing process from emergent to proficient readers/writers. Provides graduate candidates with research, instruction, and experience in the various aspects of the literacy curriculum as framed by the International Literacy Association (ILA), including: listening, speaking, reading, writing, media and technology, viewing and visually representing.

EDU 527 THEORY, RESEARCH AND PRACTICE OF PLAY

3, 3/0

Prerequisite: Graduate Standing. Play's definition and its tenets as they parallel the New York State Common Core Standards for Early Childhood. Understanding the essence of play from a socio-cultural perspective through research. Research of play's categories, social stages, and types of development. Deep analysis of the educator's role in play.

EDU 528 FAMILIES AND EARLY CHILDHOOD PROGRAMS

3, 3/0

Emphasis on building partnerships with families in the changing context of society. Examination of model family involvement programs; working with families in poverty; integrating an antibias curriculum; active strategies for implementing formal and informal communication in the school setting.

EDU 530 CREATIVE TEACHING AND LEARNING IN FORMAL AND INFORMAL SETTINGS

3, 3/0

Current best practices to facilitate creative teaching and learning in formal education settings and informal education initiatives in organizations such as museums and clubs. Strategies to enhance creativity education, engage in creative learning and utilize technology to support students' creative activities. Design creativity curriculum and align with appropriate assessment procedures.

Equivalent Courses: CRS 530, EDL 530

EDU 534 THE HOLISTIC CURRICULUM: TEACHING TO BOTH SIDES OF THE BRAIN

3, 3/0

Paradigm of teaching and learning based on current neuroscience research in brain function: learning styles, memory, discipline, student motivation, attention, retention of new material. An eclectic instructional approach that encourages direct involvement and models many of the brain-compatible techniques promulgated in the theory.

EDU 535 TEACHING WRITING: B-12

3, 3/0

Student-centered and explicit process approach to teaching writing based on the integration of theory and practice. Focus on instructional strategies for the classroom, the writing process, the relationship between reading and writing, conferencing, classroom management, evaluation, motivation, and writing across all areas of the school curriculum.

EDU 543 CURRICULUM FOR THE YOUNG CHILD

3, 3/0

Introduction to the profession of early childhood education. Identification and examination of appropriate curriculum, environments, materials, teaching strategies, and assessments for working with young children birth through second grade.

EDU 546 THEORY, RESEARCH, AND PRACTICE IN ENGLISH LANGUAGE ARTS INSTRUCTION

3, 3/0

Review of theory and research pertaining to the concepts underlying ELA curriculum, texts and assessment for the P-6 learner. Research investigating the connections between ELA theory and practice.

EDU 549 THEORY OF MIDDLE CHILDHOOD DEVELOPMENT, CURRICULUM AND LEARNING

3, 3/0

Prerequisites: Graduate Level Standing. Explores research and theory regarding early adolescence as a unique transition period. Examines middle level student characteristics. Details research-based middle-level curriculum for diverse students in Grades 5-9 to promote cognitive, social, emotional and physical development. Analyzes theories and research related to interdisciplinary models and methods for successful middle-level teaching. Offered every semester.

EDU 574 THE ELEMENTARY SCHOOL CURRICULUM

3, 3/0

Review of learning processes and purposes of the elementary school; curriculum development; types of curriculum organization; instructional strategies; materials; community resources; individual differences.

EDU 577 TEACHING INDIVIDUALS WITH EXCEPTIONALITIES IN THE REGULAR CLASSROOM

3, 3/0

Human behavior and development during infancy and early childhood periods; educational implications for early childhood educators and childhood development specialists.

EDU 580 INTERNATIONAL PROFESSIONAL DEVELOPMENT SCHOOLS STUDY ABROAD AND RESEARCH PROJECT

3, 3/0

Prerequisites: GPA 3.0 or better. Provides opportunities in conjunction with study abroad to globalize understanding and experience of education including education of language learners through study about, comparative research on, and travel to an international destination. Topics include history, geography, language, and culture of the target country; pedagogical tools for working with language learners; intercultural competency; comparative education study; research design and keys to reflective practice. Offered every semester

EDU 584 LITERACY SKILLS AND THE ADULT LEARNER

3, 3/0

Prerequisite: Graduate status. Theories, practice, curricula, and content of instruction appropriate for adult learners; the theories of Paulo Freire, Ira Shor, and Henry Giroux; collaboratively participate in the design and implementation of an action research project focusing on adult literacy.

Equivalent Course: ADE 584

EDU 590 INDEPENDENT STUDY

1-3, 0/0

Consult the Independent Study section of this graduate catalog for a description of how independent study can be initiated by a student, and for the requirements and regulations.

EDU 594 GRADUATE WORKSHOP

1-3, 3/0

This workshop format is variable. Topics are based on instructor expertise and workshop is unique each time the course is offered. Check course schedule for title of the workshop. Offered occasionally.

EDU 596 CONFERENCE

1-3, 3/0

EDU 598 MICROCOURSE

3, 0/0

EDU 604 INSTRUCTIONAL STRATEGIES FOR MORE EFFECTIVE TEACHING

3, 3/0

Prerequisite: One curriculum course. Strategies for improving instruction through informed decision making, with particular emphasis on the essential elements of instruction developed by Madeline Hunter; the theoretical framework on which the Hunter model was based and its practical application in the classroom setting.

EDU 606 LITERACY INSTRUCTION FOR CULTURALLY AND LINGUISTICALLY DIVERSE STUDENTS

3, 3/0

Prerequisite: EDU 513 or equivalent (EDU 609 is equivalent for MAT). Supporting literacy instruction for culturally and linguistically diverse learners: literacy learning and culture; language variation and multilingual learners; a model for effective instruction based on best-practices and research for application in classrooms. All readings require a critical examination and deconstruction of historical and philosophical forces influencing decisions and practices in teaching students from diverse backgrounds and addressing the needs of diverse stakeholders in the educational enterprise while considering opportunities for advocacy and cultural responsiveness.

EDU 609 RESEARCH AND PRACTICE IN ADOLESCENT LITERACY

3, 3/0

Prerequisites: Graduate standing. Practical strategies to help secondary-level students engage in literacy practices across the disciplines, the reading process; student motivation; developing vocabulary, comprehension, study, and writing skills, evaluation and assessment. Emphasizes using the topics of the disciplines as the departure point for designing instructional strategies, and materials with a focus on literacy for social interaction, voice, and advocacy with literacy viewed as a social practice.

EDU 611 EARLY LITERACY INSTRUCTION

3, 3/0

Implications of research in early literacy; factors influencing language and early success in reading and writing; process vs. product instruction; emergent literacy instruction; building a support system for students and families; focusing on print; building vocabulary; developing decoding and comprehension strategies; individualizing and differentiating instruction; planning, organizing, and managing a program while assessing growth.

EDU 612 DEVELOPING LITERACY THROUGH LITERATURE

3, 0/0

Prerequisites: Graduate standing. Research and practice in the integration of literature in literacy instruction through multi-modal texts; familiarity with genre and instructional elements; using children's books to teach comprehension, word recognition, fluency, vocabulary, and writing; integrating literature and themes across the curriculum with a focus on authors and illustrators; organizing and managing a program in a literacy rich environment; assessing students' literacy growth and needs including socio-emotional, cognitive and socio-cultural concerns; selecting books and designing spaces that promote literary development and increase motivation to read.

EDU 613 ASSESSMENT OF THE ELA FOR THE CLASSROOM TEACHER

3, 3/0

Prerequisites: EDU 513 or equivalent. This course focuses on methods of literacy (reading, writing, listening, speaking) assessment for classroom teachers. Topics include strategies for assessing the literacy abilities of students within the classroom and subsequently using the assessment results to differentiate literacy instruction within the classroom.

EDU 619 COLLABORATION AND PRACTICE IN GIFTED, TALENTED, AND CREATIVE EDUCATION

3, 2/0

Prerequisite: CRS/EDU 509, CRS/EDU 621 and CRS 559. Seminar in collaboration and supervised practice of a minimum of 50 hours in gifted, talented, and creative education in a gifted education setting with guidance from a gifted specialist. Students design appropriate environments for gifted and creative students, implement appropriate learning opportunities, collaborate with other professionals to provide individualized instruction, and examine how gifted education complements the total school program.

EDU 620 TEACHING AND LEARNING IN DIVERSE CLASSROOMS

3, 3/0

Culturally sensitive pedagogy and research relative to effective teaching and learning for diverse student populations: collaborating with parents; developing a community of learners; consideration of culture, power, and class; cooperative learning in culturally diverse classrooms; contextual teaching and learning.

EDU 621 CURRICULUM DEVELOPMENT IN GIFTED, TALENTED, AND CREATIVE EDUCATION

3, 3/0

Appropriate curriculum, materials, instructional methods, and evaluation strategies for the development of creativity and the education of individuals who demonstrate gifted behavior and talents. Examines instructional and curricular models, differentiated teaching/learning and creative/critical thinking strategies, and collaboration with the school community.

Equivalent Course: CRS 621

EDU 626 INTEGRATING THE CONTENT AREAS IN THE TEACHING OF YOUNG CHILDREN

3, 0/0

Appropriate content in the teaching of science, mathematics, social studies, and the creative arts. Theory and practice of inquiry-based instruction, emphasizing the project approach. Focus on teaching young children pre-K through third grade. Fieldwork required in a pre-K, kindergarten, first grade or second grade classroom.

EDU 640 CONFLICT RESOLUTION

3, 3/0

Conflict resolution in the public school context; foundations of peacemaking; emotional intelligence; teaching tolerance; cooperative learning. Presents a model for incorporating peaceable schools curricula into existing school programs.

Equivalent Course: EDL 640

EDU 642 LITERACY ASSESSMENT AND EVALUATION

3, 3/0

Prerequisites: Graduate standing, EDU 513 and one other graduate literacy course. This course focuses on the administration and interpretation of a variety of assessments to determine the strengths and needs of birth-grade 12 students in literacy in order to make data driven instructional recommendations for increased literacy learning and achievement in the context of multi-tiered support systems. Provides an examination of the role of language variation in assessment and culturally responsive assessments.

EDU 643 TEACHING STRATEGIES FOR READING AND WRITING INTERVENTION

3, 3/0

Prerequisite: EDU 642. Planning and implementing instructional programs for students with reading/writing difficulties based on data-driven instruction; reading/writing interventions through strategy instruction that fosters motivation, metacognition, and the ability to analyze literacy tasks; methods and materials for interventions in the context of multi-tiered support systems; working with families and teachers of children with reading/writing challenges.

EDU 646 LITERACY LEADERSHIP

3, 3/0

Prerequisite: EDU 642. Corequisite: EDU 643. Instruction and experience in the various facets of being a literacy leader, including literacy coaching and supporting classroom teachers, program evaluation, professional development, and data compilation and

analysis for the purpose of providing appropriate literacy instruction for students from birth to grade 12. Advocating for equity on behalf of students, teachers, and families.

EDU 647 PRACTICUM IN LITERACY

3-6, 3/0

Prerequisites: EDU 643. Integration of theoretical and practical aspects of the literacy program in a supervised school-based setting. Literacy specialist candidates are required to develop, implement, and evaluate diagnostic literacy programs for youth referred to the program. Summer only.

EDU 649 ADVANCED PRACTICUM IN READING

3, 3/0

Prerequisites: EDU 647 and instructor permission. Further integration of theoretical and practical aspects of the reading/writing program in a supervised clinical setting. Students extend their clinical experience to pupils at a different age level, younger or older, than those in EDU 647. Students develop, implement, and evaluate diagnostic and remedial reading/writing programs for pupils referred to the Literacy Center.

EDU 650 LITERACY THEORY AND RESEARCH

3, 3/0

Corequisites: EDU 647 and EDU 655. Overview of literacy-related theories and models and their impact on practice and research. Discussion of recent research and seminal pieces in the field of literacy. Introduction to research designs and methods related to literacy education. Prepares literacy specialist candidates to analyze, evaluate, and critique research.

EDU 651 THEORY, RESEARCH, AND PRACTICE IN MATHEMATICS INSTRUCTION

3, 3/0

Modes of instruction; development of diagnostic skills; needs of slow and rapid learners; selection and use of appropriate teaching materials in elementary school mathematics programs.

EDU 654 THEORY RESEARCH AND PRACTICE IN SOCIAL STUDIES INSTRUCTION

3, 3/0

A study of goals in elementary social studies and their relationships to organizational concerns, approaches, methods, techniques, media and evaluation; the review and development of appropriate research for application to elementary social studies teaching.

EDU 655 TEACHING OF LITERACY: GRADUATE SEMINAR

3, 3/0

Prerequisite: EDU 647. Literacy specialist majors identify important aspects in the field that they feel need further critical review and deliberative discussion. Literacy specialist candidates complete a master's project and exchange findings in the context of current research and course topics. Fall only.

EDU 670 PRINCIPLES OF CURRICULUM DESIGN

3, 3/0

Basic principles of curriculum design; sources of curricula and factors that influence curricular decisions; curricular thinking of experts in the field; multiple dimensions in curriculum decision making.

EDU 671 THEORY, RESEARCH, AND PRACTICE IN SCIENCE INSTRUCTION

3, 3/0

Construction of science ideas in informal and formal social settings; demonstration and evaluation of exemplary science teaching methods; research focusing on elementary students' formal and naive science understanding.

EDU 672 ADVANCED EDUCATIONAL TECHNOLOGY FOR K-6 CLASSROOMS

3, 3/0

Application and integration of microcomputers in the instructional program; proficiency in the educational uses of microcomputers; tool-based software use; software evaluation; curricular integration; educational skill; process enhancement through microcomputers; communication tools; professional development; the Internet and electronic mail; issues and ethics surrounding technology in schools; lesson and unit design incorporating computer applications; technology for students with disabilities.

EDU 682 TEACHING MATHEMATICS IN THE ELEMENTARY SCHOOL

6, 5/0

Pre-requisites: EDU 501 and either EDU 546 or EDU 513. Mathematics curriculum course for elementary teachers. Students participate in elementary classroom practice, exploring in-depth curricular, theoretical, and practical educational frameworks. Students plan, implement, and evaluate mathematics lessons incorporating the state and national standards for mathematics; explore science and technology; practice and evaluate assessment tools and processes; become reflective practitioners; demonstrate effective techniques for instructional organization in an elementary school. Students will complete an action research project on a selected topic in elementary mathematics. Offered every spring.

EDU 690 MASTER'S PROJECT

3, 3/0

Prerequisites: EDU 501 and a minimum 12 hours of graduate-level coursework. Production of a curriculum or research-based project in a topic of special interest to the student; project must be approved by the instructor prior to execution. The final product must follow APA guidelines in its written form. Oral presentation required.

EDU 695 THESIS

1-3, 0/0

Thesis.

EDU 721 THESIS/PROJECT CONTINUATION

0, 0/0

EDU 722 THESIS/PROJECT EXTENDED

0, 0/0

EDU 783 BSC LED STUDY AWAY PROGRAM

1-15, 0/0

Acceptance into the program required.

Engineering Technology (ENT, SAF, TEC)

Engineering Technology (ENT)

ENT 581 RENEWABLE DISTRIBUTED GENERATION AND STORAGE

3, 2/1

Prerequisites: ENT 331 Electric Circuits or equivalent, and ENT 671 Power Systems Analysis I or equivalent, or instructor's permission. This course introduces renewable and efficient electric power systems. It encourages self-teaching by providing numerous practical examples requiring quantitative analysis. Topics include historical, regulatory, and utility industry perspectives of the electric system as well as most of the electricity, thermodynamics, and engineering economics background needed to understand new power technologies.

ENT 582 SMART GRID FROM SYSTEMS PERSPECTIVE

3, 2/1

Prerequisites: ENT 331 Electric Circuits or equivalent, and ENT 671 Power Systems Analysis or equivalent, or instructor's permission. A comprehensive understanding of smart grid is needed for stakeholders to enable them to develop systems prospective of Smart Grid and its technologies, increase modeling of Smart Grid from multiple perspectives, to increase economic understanding and decision making around current and future technologies, to integrate the role of policy and politics in the advancement of Smart Grid over time, to understand how to educate others in Smart Grid, and to analyze basic subsystems of the Smart Grid.

ENT 590 INDEPENDENT STUDY

1-3, 0/0

ENT 591 OPERATIONS AND MANAGEMENT OF MODERN GRID

3, 3/0

Prerequisites: Instructor's permission. This course introduces and explains operations of electric utilities including generation, transmission, distribution, and consumption of electric power, defines system operations and their drivers; discusses impact of deregulation and impact of smart grid technologies on systems operations; introduces concepts of business of system operations, and discusses various management systems used by modern utilities.

ENT 622 MACHINE LEARNING FOR MATERIALS SCIENCE IN CLEAN ENERGY

3, 3/0

Prerequisite: ENT 621 or instructor permission. Cover broad guidelines and best practices regarding obtaining and treatment of data in materials science and device physics related directly to Clean Energy. Feature engineering, model training, validation, evaluation and comparison. Include interactive Jupyter notebooks with example Python code to demonstrate important concepts, workflows, and best practices in the field. Offered every spring.

ENT 671 POWER SYSTEMS ANALYSIS I

3, 2/3

Prerequisites: Undergraduate degree in engineering, engineering technology, or related field. Basic elements of power systems. Energy sources. Balanced three-phase circuits. Power factor correction. Voltage regulation. Transmission line modeling. Per-unit system. Balanced fault analysis. Load flow analysis using numerical methods. Electric power distribution economics.

ENT 672 POWER SYSTEMS ANALYSIS II

3, 2/3

Prerequisites: ENT 671 Power Systems Analysis I. Calculate electric demand of a power system. Solve line faults using symmetrical components. Use equal area criterion to solve simple stability problems. System protection. Electromechanical and numeric relays and their applications. Voltage quality and reliability. Design of a power distribution system for industrial facility.

Safety Studies (SAF)

SAF 560 DRIVER AND TRAFFIC SAFETY EDUCATION

6, 6/30

Prerequisites: Acceptable driving record; valid New York State driver's license; minimum of two years' driving experience. Classroom and behind-the-wheel instruction; instructional methods/techniques; setting up approved programs; three-hour pre-licensing course content; theory and maintenance of the automobile; devices and aids for teaching in the classroom and automobile. Successful completion satisfies State Education Department requirements for provisional approval to teach driver and traffic safety education in all secondary schools, colleges, and universities; also qualifies an individual to teach in a commercial driving school.

SAF 565 TRENDS AND PROBLEMS IN DRIVER AND TRAFFIC SAFETY EDUCATION

3, 3/0

Prerequisites: SAF 417 and SAF 425. Teaching, administration, and supervision of driver education and traffic safety; programs, methods, and materials; resource people and agencies; critical analysis of existing procedures; discussion of problems. Lectures and/or field trips for expert information from the field. Required for permanent approval of driver education instructors.

SAF 590 INDEPENDENT STUDY

1-3, 0/0

Graduate independent study in Safety Studies.

SAF 594 GRADUATE WORKSHOP

1-3, 0/0

Graduate workshop in Safety Studies.

Technology (TEC)

TEC 590 INDEPENDENT STUDY

1-3, 0/0

TEC 594 GRADUATE WORKSHOP

1-3, 0/0

Graduate workshop in Technology.

TEC 690 MASTER'S PROJECT

3, 0/0

TEC 695 MASTER'S THESIS

3, 0/0

TEC 721 THESIS/PROJECT CONTINUATION

0, 0/0

English (ENG)

ENG 501 FIELD EXPERIENCE IN SECONDARY ENGLISH EDUCATION

3, 3/0

Introduction to the secondary school as an institution and to the teaching of English as a profession; required observations of secondary English Language Arts teaching and other content areas; limited experimentation with teaching secondary English. Offered occasionally.

ENG 512 METHODS AND RESEARCH IN TEACHING LANGUAGE

3, 3/0

Study of research and pedagogical approaches to teaching language use in secondary English classrooms; grammar usage and mechanics; primary and secondary language development; sociopolitical dimensions of language; "correctness" within a range of discourse levels; instruction in literacy learning in and out of school, action research in schools. Offered occasionally.

ENG 556 METHODS, MATERIALS AND PROFESSIONAL DEVELOPMENT FOR TEACHERS OF ENGLISH

6, 6/0

Prerequisites: ENG 501; minimum cumulative GPA of 3.0 in program. Methods and materials necessary to become an effective teacher of English; secondary school curriculum, New York State standards for the language arts, planning, assessment, and classroom management; required field experience with emphasis on professional development, on-site observations, practice teaching sessions, interactions with public-school teachers and personnel, and classroom research. Offered occasionally.

ENG 557 ENGLISH EDUCATION STUDENT TEACHING IN MIDDLE SCHOOL

6, 0/0

Prerequisites: ENG 501; GPA 3.0. Corequisites: ENG 558; ENG 559. Full-time student teaching, five days a week for seven weeks in a middle school/junior high school placement; implementation of pedagogical-content knowledge, instructional planning, classroom management, knowledge of student development, collaboration with school professionals, and reflective practice. College supervision biweekly. Offered occasionally.

ENG 558 ENGLISH EDUCATION STUDENT TEACHING IN HIGH SCHOOL

6, 0/0

Prerequisites: ENG 501; GPA, 3.0. Corequisites: ENG 557; ENG 559. Full-time student teaching, five days a week for seven weeks in a high school placement; implementation of pedagogical-content knowledge, instructional planning, classroom management, knowledge of student development, collaboration with school professionals, and reflective practice. College supervision biweekly. Offered occasionally.

ENG 559 SEMINAR IN ENGLISH EDUCATION STUDENT TEACHING FOR ENGLISH EDUCATION

3, 3/0

Prerequisite: Instructor Permission; Corequisite: ENG 557; ENG 558. Planning, instruction, assessment, reflective practice and classroom management strategies for the secondary English Education teacher. Offered occasionally.

ENG 569 LITERATURE AND PROJECT--BASED LEARNING IN ENGLISH 7-12

3, 3/0

Approaches to teaching literature in grades 7-12 through project-based learning; examination of the role literature plays in supporting adolescent inquiry and content production in secondary English classrooms.

ENG 587 SPECIAL TOPICS

3, 3/0

Prerequisite: Instructor permission. Special topics in advanced graduate study, to be determined by the instructor. Offered occasionally.

ENG 590 INDEPENDENT STUDY

1-3, 0/0

ENG 594 GRADUATE WORKSHOP

1-3, 0/0

Graduate Workshop.

ENG 601 RESEARCH IN LITERATURE AND LANGUAGE

3, 3/0

Prerequisites: Graduate status; English or English Education major or permission of instructor. Theory and practice in methods of research essential to the historical and critical analysis of literature. Should be taken in the student's first or second semester. Offered fall only.

ENG 612 SELECTED TOPICS IN BRITISH LITERATURE

3, 3/0

Prerequisite: Graduate standing; English or English Education major or permission of instructor. Selected periods, writers, forms, and cultural and theoretical movements in British literature. Course subject and content may be historically or thematically based. Offered every semester.

ENG 621 AMERICAN LITERATURE

3, 3/0

Prerequisites: Graduate status; English or English Education major or permission of instructor. Selected periods, writers, forms, movements, and theoretical approaches. Offered annually.

ENG 623 LITERATURE OF CONTINENTAL EUROPE

3, 3/0

Prerequisites: Graduate status; English or English Education major or permission of instructor. Selected periods, writers, forms, movements, and theoretical approaches. Offered annually.

ENG 630 CHAUCER

3, 3/0

Prerequisites: Graduate status; English or English Education major or permission of instructor. Selections from the major and minor works. Offered occasionally.

ENG 631 SHAKESPEARE

3, 3/0

Prerequisites: Graduate status; English or English Education major or permission of instructor. One aspect of Shakespeare's work (e.g., the tragedies or the sonnets). Offered in alternate years.

ENG 638 STUDIES IN INDIVIDUAL WRITERS

3, 3/0

Prerequisites: Graduate status; English or English Education major or permission of instructor. In-depth study of one writer, or a limited combination of writers, from English, American, or other literature. Offered annually.

ENG 639 STUDIES IN LITERARY GENRES

3, 3/0

Prerequisites: Graduate standing or permission of the instructor. Introduction to studies in a particular literary genre, such as the novel, poetry, drama, or film. Course content may be organized around the historical development of a genre or the recurrence of a specific theme across several examples of a particular genre. May be taken up to three times if the content varies. Offered annually.

ENG 644 IDEOLOGY AND LITERATURE

3, 3/0

Prerequisites: Graduate status; English or English Education major or permission of instructor. The study of literature from a major modern perspective. Topics in the ideological analysis of literature (e.g., the Emersonian influence, individualism, colonialism, and postcolonialism). Offered in alternate years.

ENG 645 LITERATURE AND SOCIAL JUSTICE

3, 3/0

Prerequisite: Graduate status; English or English Education major or permission of instructor. The study of the intersection between literature and social justice movements throughout the world; examination of modes of literary presentation for social justice discourse. Offered in alternate years.

ENG 652 LITERARY CRITICISM

3, 3/0

Prerequisites: Graduate status; English or English Education major or permission of instructor. Modern theoretical approaches to literature and its social, political, and ideological contexts. Offered alternate years.

ENG 670 ADVANCED LINGUISTICS

3, 3/0

Prerequisites: Graduate status; English or English Education major or permission of instructor. Selected topic (e.g., applied linguistics, social or regional dialectology, English as a second language, grammar, aspects of the history of the English language, languages of the world). Offered every three years.

ENG 690 MASTER'S PROJECT

3, 3/0

Prerequisite: Graduate status; English, English Education major, or permission of instructor. Student's accumulated skills brought to focus through individual study with faculty member's approval and guidance. Investigation of a particular problem related to literature, the teaching of literature, or the English language arts resulting in a written, research-based paper. Offered every semester.

ENG 691 ADVANCED STUDY IN THE TEACHING OF ENGLISH (7-12)

3, 3/0

Prerequisites: Graduate status; English or English Education major or permission of instructor. Advanced course in the teaching of English language arts (middle school through senior high) that includes methods and materials for teaching literature, language, and writing, with emphasis on the integration of the language arts; explores current theory and research in the content, methods, materials and evaluation of English. Offered annually.

ENG 692 THE TEACHING OF WRITING

3, 3/0

Prerequisite: Graduate status; English, English Education major, or permission of instructor. Advanced course in the teaching of writing discussing the philosophical, psychological, and sociological foundations needed to teach writing; the relation of forms of thinking, rhetoric, and communication theory to writing; the management of a writing program; introduction to research in the teaching of writing. Offered annually.

ENG 693 RESEARCH IN THE TEACHING OF ENGLISH (7-12)

3, 3/0

Prerequisite: Graduate status; English, or English Education major. Introduction to research and research methodology. Students write a project or thesis proposal as part of class activities. Offered annually.

ENG 694 TEACHING LITERATURE (7-12)

3, 3/0

Prerequisites: Graduate status; English, English Education major, or permission of instructor. Intensive study of the theoretical and pragmatic concerns of developing a response-based, student-centered literature classroom. Students explore different types of literature and critical perspectives and apply this knowledge in the creation of lessons and in teaching sessions. Offered occasionally.

ENG 695 MASTER'S THESIS

3-6, 0/0

Prerequisite: Graduate status; English or English Education major, completion of comprehensive exam (for MA candidates); permission of instructor, and approval of program coordinator. An original inquiry into a literary question (writer, theme, ideology, etc.), or a linguistic or critical question resulting in an essay of at least 40-60 pages.

ENG 721 THESIS/PROJECT CONTINUATION

0, 0/0

ENG 722 THESIS/PROJECT EXTENDED

0, 0/0

Exceptional Education (BXE, EXE)

Bilingual Exceptional Edu (BXE)

BXE 590 INDEPENDENT STUDY

1-3, 0/0

Individualized study. Instructor permission required.

BXE 623 FOUNDATIONS AND THEORY OF BILINGUAL GENERAL AND SPECIAL EDUCATION

3, 3/0

Prerequisite: Undergraduate/Graduate level status or enrollment in BXE 4+1 program. Theories of bilingual education and bilingualism; sociolinguistics and psycholinguistics. History, legal foundations, and current practices in bilingual general and bilingual special education. Multicultural perspectives in education, including an overview of linguistics and English grammar. Issues and trends in the education of multilingual learners with and without disabilities. Offered every fall and summer and as needed.

BXE 625 TEACHING LITERACY IN BILINGUAL GENERAL AND SPECIAL EDUCATION

3, 3/0

Prerequisites: Undergraduate/Graduate Status or enrollment in BXE 4+1 program. Current and emerging philosophies and methods of teaching bi-literacy to English language learners/Multilingual learners (ELLs/MLLs) with and without disabilities. Includes review of curriculum materials, strategies for teaching reading and writing skills, including native/home language arts, and important considerations for transfer of native/home language to English literacy skills. Offered every J-term and summer and as needed.

BXE 626 ASSESSMENT TECHNIQUES IN BILINGUAL GENERAL AND SPECIAL EDUCATION

3, 3/0

Prerequisite: BXE major or enrollment in BXE 4+1 program. Assessment methodologies for English language learners/Multilingual learners (ELLs/MLLs) with and without disabilities. Models, issues, basic terminology, test administration, scoring procedures, score interpretation, and test construction. Teacher candidates will design and implement an assessment plan that addresses cultural and linguistic considerations in classification and instructional planning. Offered every fall and summer and as needed.

BXE 627 TEACHING CONTENT AREAS IN BILINGUAL GENERAL AND SPECIAL EDUCATION

3, 3/0

Prerequisites: BXE major status. Current and emerging philosophies and methods of teaching core subjects (i.e., math, science, social studies) to English language learners/Multilingual learners (ELLs/MLLs) with and without disabilities. Includes review of curriculum materials, strategies for teaching in the content areas using both English and the native/home language. Offered every J-term and summer and as needed.

BXE 628 BILINGUAL SPECIAL EDUCATION FIELD PRACTICUM

6, 0/6

Prerequisites: Bilingual special education program major; BXE 627. Field-based practicum experience. Direct involvement with English-language learners with disabilities in a local setting. Students assess needs, plan lessons, and teach children with disabilities. Includes weekly seminar.

Equivalent Course: SLP 611

BXE 682 FIELD EXPERIENCE IN BILINGUAL GENERAL AND SPECIAL EDUCATION

2-3, 0/0

Prerequisite: Instructor permission. Graduate field placement comprised of college-supervised field experience providing bilingual education to English language learners/Multilingual learners (ELLs/MLLs) with and without disabilities as appropriate to the teaching certificate. Application of theories and practices in bilingual general and special education. Offered every fall and spring semester.

Exceptional Education

EXE 500 INDIVIDUALS WITH SPECIAL NEEDS

3, 3/0

Traditional and evolving concepts of exceptionalities; characteristics of individuals with exceptionalities; implications for schools and society.

EXE 501 EDUCATIONAL ASSESSMENT TECHNIQUES FOR SPECIAL EDUCATION

3, 3/0

Prerequisite: Graduate standing. Provides special education teacher candidates foundational knowledge in effective assessment practices for students with disabilities. Understanding of different types of assessment and how to interpret assessment information to make educational based decisions. Purposes, models, practices, and issues are included. Offered every semester.

EXE 502 MANAGING CLASSROOM ENVIRONMENT AND POSITIVE BEHAVIOR SUPPORTS

3, 3/0

Prerequisite: EXE 500 or equivalent. Understanding the nature of behavior for students with and without disabilities. Managing the classroom environment to facilitate classroom instruction with a focus on prevention of undesirable classroom behavior; assessment and remediation of challenging student behaviors. Offered every semester.

EXE 503 INSTRUCTIONAL STRATEGIES FOR STUDENTS WITH DISABILITIES

3, 3/0

Prerequisite: EXE 100 or EXE 500 or equivalent. Foundational knowledge in effective instructional practices for students with disabilities. Understanding essential principles of effective instruction including implementation of curricular concepts and evidenced-based teaching practices like explicit instruction, cognitive strategy instruction, and learning strategies. Additional focus is on the role of technology integration within direct/explicit instruction. Offered every semester

EXE 504 GRADUATE PRACTICUM IN SPECIAL EDUCATION

6, 0/6

Prerequisite: EXE 500 or EXE 100 or equivalent; EXE 501 or equivalent; EXE 502 or EXE 362 or equivalent; EXE 503 or EXE 367 or equivalent; minimum cumulative GPA of 3.0 in prerequisite coursework; program coordinator permission. A 10-week graduate student teaching experience (unpaid) with individuals needing special education services, completed in public school classrooms, private agency classrooms, or classrooms in residential settings. Required for graduate students seeking certification as a teacher of special education.

Equivalent Course: EXE 580

EXE 510 COGNITION AND EMERGENT LITERACY IN YOUNG CHILDREN WITH DISABILITIES

3, 3/0

Prerequisite: EXE 500 or EXE 100 or completion of the requirements for provisional/initial certification as an early childhood teacher. Cognitive and active learning, problem-solving skills, and academic readiness in young children with disabilities; encouraging development of literacy in young children with disabilities.

EXE 511 WRITING IEPs ACROSS THE P-12 GRADE SPAN

3, 3/0

Prerequisite: EXE 500 or equivalent. Learning to create and implement effective and legally compliant Individualized Education Plans (IEPs) which provide services and supports to learners with disabilities, ages 3-21. Key concepts include relevant legislation and NYS mandates, best practices in IEP development, and the importance of transition planning at all ages. Offered every semester.

EXE 519 FOUNDATIONS OF EFFECTIVE ASSESSMENT AND INSTRUCTION IN SPECIAL EDUCATION

3, 3/0

Prerequisites: Graduate standing. Develops knowledge necessary to identify, assess, and diagnose students with and at-risk for disabilities; builds understanding of how data informs the selection and application of effective instructional practices for students with and at-risk for disabilities; understands different types of formal and informal evaluation approaches and how to interpret data to form goals and objectives related to individualized instruction.

EXE 520 TEACHING OF INDIVIDUALS WITH SEVERE/MULTIPLE DISABILITIES AND AUTISM SPECTRUM DISORDERS

3, 3/0

Prerequisite: Graduate status. This course offers an overview of etiologies, theories, and teaching applications for students with severe/multiple disabilities and autism spectrum disorders (ASD). Topics include development of appropriate learning goals, teaching approaches, and environmental arrangements. Inclusion in schools and successful transition within communities, selection and use of adaptive equipment and assistive technologies, and alternate assessment are also discussed. This course is offered every semester.

EXE 521 FOUNDATIONS OF LITERACY FOR STUDENTS WITH DISABILITIES (PART I)

3, 3/0

Prerequisites: EXE 503 or equivalent. Preparing teacher candidates to apply identify and/or adapt developmentally appropriate curricular and interpret literacy assessment; use of assessment data to plan instruction for students who demonstrate significant difficulties in reading and other essential literacy skills, including students with disabilities and those who are linguistically diverse. Offered every semester.

EXE 522 BEHAVIORAL ASSESSMENT, INSTRUCTION AND INTERVENTION

3, 3/0

Prerequisites: Graduate standing. Equips teacher candidates with theories and strategies related to positive and proactive classroom management; develops techniques for the assessment, instruction, and intervention of student behavior; cultivates awareness and expertise about the effects of classroom environments on student behavior and engagement to create a safe and supportive environment conducive to learning.

EXE 524 SIGN LANGUAGE FOR STUDENTS WITH AUTISM AND DEVELOPMENTAL DISABILITIES

3, 3/0

Prerequisite: Graduate level status. Communication skills for individuals with Autism Spectrum Disorder (ASD) and/or other developmental disabilities/delays using functional sign language and other communication modalities. Overview of the nature and characteristics of ASD and the impact communication has on behavior, social-emotional development, and activities of daily living. Evidence-based assessments/interventions for communication/behavioral aspects of ASD. Offered every spring.

EXE 530 PARENT AND FAMILY INVOLVEMENT IN SPECIAL EDUCATION PROGRAMS

3, 3/0

Prerequisite: EXE 500 or EXE 100 or equivalent or provisional/initial certification in early childhood teacher. Research on parent and family reactions and needs in regard to the family member with a disability; communication skills for collaborative work with parents.

EXE 534 UNDERSTANDING STUDENTS WITH BEHAVIOR PROBLEMS IN THE CLASSROOM

3, 3/0

Prerequisite: EXE 500 or EXE 100. Personal, social, and emotional factors related to individuals with behavioral and emotional disorders in an educational setting; methods of identification, assessment, and instructional planning.

EXE 544 BEHAVIORAL INTERVENTIONS FOR STUDENTS WITH CHALLENGING BEHAVIORS

3, 3/0

Historical treatment approaches for those exhibiting challenging behavior. Variations within Applied Behavioral Analysis in the assessment and treatment of challenging behaviors often encountered by behavior analysts. Particular focus on behaviors often exhibited by people with autism spectrum disorders. Offered every semester.

EXE 561 INTRODUCTION TO DEAF AND HARD-OF-HEARING STUDENTS

3, 3/0

Prerequisite: EXE 500. Study of the physical, educational, psychological and cultural standards/norms of Deaf and Hard-of-Hearing (D/HOH) students. Examination of the spectrum of physical hearing loss, types of schooling, classroom modifications for D/HOH students and the cultural values shared among this community will be discussed. Offered every fall.

EXE 572 TEACHING ADOLESCENTS WITH DISABILITIES

3, 3/0

Prerequisite: EXE 500 or equivalent. Focus on instructional procedures necessary for effective teaching of adolescent students with disabilities and those with diverse or complex support needs. Adaptations and management strategies for supporting the academic, social-emotional, and behavioral needs of adolescent students with disabilities. Offered occasionally.

EXE 573 FOUNDATIONS OF TEACHING MIDDLE SCHOOL STUDENTS WITH DISABILITIES

3, 3/0

Prerequisite: EXE 500 or equivalent. Exploration of the special developmental considerations of middle school learners with and without disabilities. Focus on instructional procedures necessary for effective teaching of middle school students with disabilities and those with complex learning support needs. Adapting middle school curricular content to ensure accessibility and success for students with disabilities. Offered occasionally.

EXE 579 FIELD EXPERIENCE: SPECIAL EDUCATION

3, 0/0

Prerequisite: Instructor permission. Program graduate field placement designed for those in first initial certification program; comprised of on-site hours working with individuals with disabilities, completed in public, private, or charter school classrooms, private agency classrooms, or classrooms in residential settings. Evidence-based instructional strategies, guided by current standards and learners' individual needs, will be developed and implemented. Offered every semester.

EXE 580 PRACTICUM IN EARLY CHILDHOOD SPECIAL EDUCATION

3, 3/0

Prerequisites: EXE 500 or equivalent; EXE 501 or equivalent; EXE 502 or equivalent; one methods course in early childhood students with disabilities; minimum cumulative GPA of 3.0 in prerequisite coursework; program coordinator permission. Graduate student teaching experience with young children ranging from birth to 2nd grade (age 8), needing special education services, completed in public, private, or charter school classrooms, private agency classrooms, child care, or classrooms in residential settings. Required for graduate teacher candidates seeking certification as a teacher of special education. Offered every semester.

Equivalent Course: EXE 504

EXE 581 PRACTICUM IN EARLY CHILDHOOD/CHILDHOOD SPECIAL EDUCATION

6, 3/0

Prerequisites: EXE 500 or equivalent; EXE 501 or equivalent; EXE 502 or equivalent; minimum cumulative GPA of 3.0 in prerequisite coursework; instructor permission. Graduate student teaching experience with children ranging from grades PK-6, needing special education services, completed in public, private, or charter school classrooms, private agency classrooms, or classrooms in residential settings. Required for graduate teacher candidates seeking certification as a teacher of special education. Offered every semester.

EXE 582 PRACTICUM IN INTERMEDIATE/HIGH SCHOOL SPECIAL EDUCATION

6, 3/0

Prerequisites: EXE 500 or equivalent; EXE 501 or equivalent; EXE 502 or equivalent; minimum cumulative GPA of 3.0 in prerequisite coursework; instructor permission. Graduate student teaching experience with children ranging from grades 7-12, needing special education services, completed in public, private, or charter school classrooms, private agency classrooms, or classrooms in residential settings. Required for graduate teacher candidates seeking certification as a teacher of special education. Offered every semester.

EXE 583 PRACTICUM IN HIGH SCHOOL SPECIAL EDUCATION

6, 3/0

Prerequisites: EXE 501 or equivalent; EXE 502 or equivalent; minimum cumulative GPA of 3.0 in prerequisite coursework; program coordinator permission. Graduate student teaching experience with children in grades 7-12 needing special education services; completed in public, private, or charter school classrooms, private agency classrooms, or classrooms in residential settings. Required for graduate teacher candidates seeking certification as a teacher of special education. Offered every semester.

EXE 590 INDEPENDENT STUDY

1-4, 1/0

Individualized study. Instructor permission required.

EXE 594 GRADUATE WORKSHOP

1-3, 1/0

Course offered occasionally.

EXE 612 MANAGING THE BEHAVIOR OF YOUNG CHILDREN WITH DISABILITIES

3, 3/0

Prerequisite: EXE 502 or EXE 362. A framework for guiding social-emotional development and responsible behavior in young children: matching the child's current social, emotional, and behavioral status with specific goals and objectives; behavior management strategies; curriculum materials, activities, and evaluation procedures.

EXE 617 COLLABORATIVE TEAM-BASED APPROACHES IN SPECIAL EDUCATION

3, 3/0

Prerequisites: Graduate standing. Models and methods for working within team contexts to meet the needs of students with and at risk for disabilities. Strategies and skills for co-teaching, consultation, communication, collaboration, and working with families/caregivers.

EXE 619 ADVANCED LITERACY FOR STUDENTS WITH DISABILITIES (PART II)

3, 3/0

Prerequisites: EXE 521 or equivalent. Prepares candidates for working with students who demonstrate significant struggles in literacy, including those with disabilities and linguistically diverse learners. Candidates learn to use a cognitive model of reading to interpret diagnostic assessment information and plan targeted instruction. Offered every semester.

EXE 620 ADVANCED TEACHING OF INDIVIDUALS WITH SEVERE/MULTIPLE DISABILITIES AND AUTISM SPECTRUM DISORDERS

3, 3/0

Prerequisite: EXE 520 or EXE 364 or equivalent. Advanced and rigorous coursework designed to deepen educators' skills and knowledge base when working with students who have severe/multiple disabilities and autism spectrum disorders (ASD) and their families. This course focuses on the disciplined inquiry, informed practice, and comprehensive methods required to teach and support individuals and families within this population of students. Offered every spring.

EXE 623 ASSESSMENT AND INSTRUCTION IN MATH FOR STUDENTS WITH DISABILITIES

3, 3/0

Prerequisites: EXE 501 and EXE 503. Identify the learning characteristics of students with disabilities in math; assess and plan evidence-based math instruction to address skill deficits and conceptual understanding in standards-based mathematics and functional programming for grades Pre-K-12. Offered every semester.

EXE 627 TRANSITION FROM SCHOOL TO ADULT COMMUNITY LIFE

3, 3/0

Prerequisite: EXE 500 or EXE 100 or equivalent. Strategies for planning and implementing career education curricula in secondary and postsecondary programs; transitioning students with disabilities from school programs to satisfying adult lives in the community, including supported and nonsupported competitive employment.

EXE 628 COLLABORATION AND CONSULTATIVE PRACTICES IN INCLUSIVE SETTINGS

3, 3/0

Prerequisite: EXE 500 or EXE 100 or equivalent or provisional/initial certification in an adolescence (content area grades 7-12), elementary, or special education. Skills needed to collaborate as consultants: role and responsibilities of the consultant teacher; development of strategies for enhancing effectiveness of collaborative efforts on behalf of students with special needs, their families, and their general education teachers.

EXE 629 ASSESSMENT AND INSTRUCTION IN WRITING FOR STUDENTS WITH HIGH INCIDENCE DISABILITIES

3, 3/0

Prerequisites: EXE 519, EXE 521 – concurrent or prerequisite. Identifying the learning characteristics of students with disabilities in writing; assessing and planning evidenced-based writing instruction to address compositional and mechanical problems related to the writing process. Offered every semester.

EXE 631 ADAPTING LANGUAGE ARTS AND READING INSTRUCTION FOR STUDENTS WITH MILD DISABILITIES

3, 3/0

Prerequisites: Provisional/initial certification in special education or EXE 501 or EXE 365; EXE 503 or EXE 367. Designed to help special education teachers teach language arts and reading to students with special needs at the elementary and middle school levels: effective collaboration with elementary teachers, remedial teachers, and parents to promote the establishment of literate environments at home and school for students with special needs; effective use of technology as a tool of literacy learning and instruction.

EXE 632 DIRECT INSTRUCTION INTERVENTION MODELS FOR STUDENTS WITH SPECIAL NEEDS

3, 3/0

Prerequisites: Provisional/initial certification in elementary or special education and EXE 503 or EXE 367. Designing and implementing effective instruction for students who need more intensive instructional support in order to master the academic standards and obtain functional skills is essential. The course will focus specifically on general principles of effective instruction and explicit teaching procedures. It also includes a current range of instructional and adaptive technologies; factors relating to curricular integration of technology within the general and special education classroom; hands-on experience with the use of instructional software, Web sites, and adaptive/assertive technology.

EXE 633 ADAPTING CONTENT AREA INSTRUCTION FOR CHILDREN AND ADOLESCENTS WITH DISABILITIES

3, 3/0

Prerequisite: EXE 503 or EXE 367 and Provisional/initial certification in elementary or special education. Content area adaptations for children and adolescents with disabilities; instructional planning, delivery, and assessment.

EXE 634 APPLIED BEHAVIOR ANALYSIS

3, 3/0

Prerequisites: EXE 500 or EXE 100 and graduate student status. Applied behavior analysis in the education of students: principles and procedures for reinforcing existing behaviors, teaching new behaviors; progress monitoring through use of student performance data; contingency management procedures for including in regular education settings. Offered each fall and spring semester.

EXE 636 PROMOTING EFFECTIVE SOCIAL INTERACTIONS IN THE SCHOOLS

3, 3/0

Prerequisite: EXE 500 or EXE 100 or equivalent or certification in elementary or special education. Skills needed to enhance the quantity and quality of interactions enjoyed by students with disabilities: curricular and instructional approaches that may be used to teach social skills, including those related to sexuality issues, so that students with disabilities can exhibit self-enhancing behaviors in response to societal attitudes and actions as represented by educational and community settings. Addresses ways in which participants can increase the effectiveness of their own interactions with members of the educational community.

EXE 638 COLLABORATION AND SOCIAL SKILLS

3, 3/0

Prerequisite: EXE 100 or EXE 500 (or equivalent). Prepare teacher candidates to support students with disabilities and those at risk across diverse educational settings. Cover effective teaching approaches for meeting their academic, social, emotional and behavioral needs, collaboration strategies, and working with families. Emphasize team models, co-teaching, and communication. Offered every semester.

EXE 641 ADOLESCENT LITERACY AND STUDENTS WITH MILD DISABILITIES

3, 3/0

Prerequisite: EXE 521. Includes methods, strategies, and resources for teaching students with disabilities in grades 6 -12 who struggle to read complex narrative and expository text. Offered every semester.

EXE 643 ADVANCED METHODS IN TEACHING MATH TO SECONDARY STUDENTS WITH DISABILITIES

3, 3/0

Prerequisites: EXE 501, EXE 502, and EXE 503. Effective math instruction for students with disabilities at the secondary level. Emphasis on application of research-based math strategies across domains of math content knowledge. Differentiated instruction, technology integration, and effective mindsets to meet the needs of diverse learners. Offered every semester.

EXE 644 ADVANCED APPLIED BEHAVIOR ANALYSIS

3, 3/0

Prerequisites: EXE 634. Exploration of advanced concepts and principles of Applied Behavior Analysis (ABA) through the design of interventions for students with Autism Spectrum Disorders (ASD), moderate or severe disabilities, and others. Advanced procedures for increasing desired behaviors, teaching replacement behaviors, evaluating progress through use of performance data. Offered every semester.

EXE 645 EFFECTIVE PRACTICES FOR SUPPORTING INDIVIDUALS WITH AUTISM SPECTRUM DISORDER

3, 3/0

Foundational knowledge in how to select, assess, and implement evidence-based practices relating to individuals with Autism Spectrum Disorder (ASD) and related disorders; impact on all developmental domains. Foundational skills for supporting students with Autism Spectrum Disorder and related disorders, and collaborating with stakeholders in the community, home, and school settings. Offered every fall and spring.

EXE 646 CULTURE, DIVERSITY, DISABILITY, AND EDUCATION

3, 3/0

Impact of culture and diversity on individuals with various disabilities including Autism Spectrum Disorders (ASD) and related disorders. Historical, philosophical, and legal foundations for diversity and special education; pedagogical approaches; program design considerations including multicultural, sociocultural and psycholinguistic factors to promote diversity and equity in special education. Offered every fall and spring.

EXE 650 ASSESSMENT OF YOUNG CHILDREN WITH DISABILITIES

3, 3/0

Prerequisite: Provisional/initial certification in early childhood special education or EXE 501 or equivalent infancy course approved by advisor. Research-based, theoretical, and practical applications of educational assessment of infants and preschoolers with disabilities or with conditions that place them at risk for becoming disabled; procedures and utility of norm-referenced, criterion-referenced, and multidimensional behavioral assessment strategies empirically validated with young children with disabilities.

EXE 652 INTERVENTION IN EARLY CHILDHOOD SPECIAL EDUCATION

3, 3/0

Prerequisite: Provisional/ initial certification in early childhood special education or instructor permission. Empirically validated and practical educational interventions with infants and preschoolers with disabilities or with conditions that place them at risk for becoming disabled; best-practice intervention methods across relevant curricular domains; organizational strategies for use in center- and home-based programs for infants/preschoolers with special needs.

EXE 659 ADAPTING CURRICULUM AND INSTRUCTION TO MEET THE NEEDS OF STUDENTS WITH DISABILITIES

3, 3/0

Prerequisite: EXE 521 and EXE 623. Corequisite: EXE 504. Prepares educators to design and implement specially designed and systematic instruction. Candidates will learn how to support students with varying support needs across a continuum of settings by providing accommodations, creating modifications, and using assistive technology to increase access and mastery within general and alternative curriculums. Offered every semester.

EXE 673 PERSONNEL SUPERVISION AND MANAGEMENT

3, 3/0

Prerequisite: EXE 644. Preparation for effective personnel supervision and management in the field of applied behavioral analysis. This training program is based on the Behavioral Analyst Certification Board (BACB) Supervisor Training Curriculum Outline (2.0), but is offered independently of the Board Certified Behavior Analyst (BCBA) certification. Offered every semester.

EXE 679 PRACTICUM: SPECIAL EDUCATION ALL GRADES

3, 0/0

Prerequisite: Instructor Permission. Graduate practicum; focus on program-specific pedagogical core requirements for Students with Disabilities (All Grades) certificate; comprised of on-site hours working with individuals with disabilities; completed in a variety of educational settings. Evidence-based instructional strategies, guided by current standards and learners' individual needs, will be developed and implemented. Offered every semester.

EXE 681 CLINICAL RECORDS AND ETHICAL PRACTICES FOR BEHAVIORAL ANALYSIS

3, 3/0

Storing, archiving, and general maintenance of client records; federal and state standards for best practice in the office; implications for remote work/telepractice; ethical practices including ethics for social media, advertising, and research. Offered every fall and spring

EXE 682 INSTRUCTIONAL FIELD EXPERIENCE IN SPECIAL EDUCATION

3-9, 0/3

Prerequisites: EXE 504 or equivalent, minimum cumulative GPA of 3.0, and program coordinator permission. Application of theories and principles to practice in special education and related settings. Students are assigned to fieldwork settings in which program competencies will be assessed. With the approval of their advisers, students may choose to pursue experiences based on their professional goals, past experiences, and specific courses of study.

EXE 683 SUPERVISED PRACTICUM: PERSONNEL SUPERVISION AND MANAGEMENT

3, 1/0

Prerequisite: EXE 673. Application of theories and principles of applied behavior analysis in special education and related settings. Focus on field supervision skills for personnel supervision and management. Required for BCBA Certification. This training program is based on the Behavioral Analyst Certification Board (BACB) Supervisor Training Curriculum Outline (2.0), but is offered independently of the BCBA. Offered every semester.

EXE 684 PRACTICE-BASED RESEARCH IN EXCEPTIONAL EDUCATION

3, 3/0

Prerequisites: Instructor permission. Candidates explore the research process in classroom contexts. Collaboratively, candidates identify educational needs, study literature, and plan a case design study. The outcome is a proposal essential for EXE 690's Master's Project. Offered every semester.

EXE 685 SUPERVISED PRACTICUM IN ABA I: MEASUREMENT AND INTERPRETATION

6, 0/0

Prerequisite: EXE 645. Application of theories and principles of applied behavior analysis in special education and related settings. First in a series of 5. Focuses on measurement and interpretation. Designed to help candidate meet the required field hours in New York State as a Behavior Analyst and Board Certified Behavioral Analyst (BCBA) certification. Offered every semester.

EXE 686 SUPERVISED PRACTICUM ABA II: ANALYSIS OF BEHAVIOR CHANGE

6, 0/0

Prerequisite: EXE 685. Application of theories and principles of applied behavior analysis in special education and related settings. Second in a series of 5. Focus evaluating behavior change. Designed to help candidate meet the required field hours for New York State licensure as a Behavior Analyst and Board Certified Behavior Analyst (BCBA) certification. Offered every semester.

EXE 687 SUPERVISED PRACTICUM IN ABA III: CHANGING BEHAVIOR

6, 0/0

Prerequisite: EXE 686. Application of theories and principles of applied behavior analysis in special education and related settings. Third in a series of 5 courses. Focus on changing behavior. Designed to help candidates meet the required field hours for New York licensure as a Behavior Analyst and Board Certified Behavior Analyst certification. Offered every semester.

EXE 688 SUPERVISED PRACTICUM IV: DEVELOPING NEW BEHAVIORS

6, 0/0

Prerequisite: EXE 687. Application of theories and principles of applied behavior analysis in special education and related settings. Fourth in a series of 5 courses, focuses on developing new behaviors. Designed to help candidate meet the required field hours for New York licensure as a Behavior Analyst and Board Certified Behavior Analyst certification. Offered every semester.

EXE 689 SUPERVISED PRACTICUM IN ABA V: SYNTHESIS

6, 0/0

Prerequisite: EXE 688. Application of behavior analysis theories and principles in applied settings. Final in a series of 5. Focus on synthesizing key skills from coursework. Designed to help candidate meet the required field hours for licensure in New York State (NYS) as a Behavior Analyst and Board Certified Behavior Analyst (BCBA) certification. Offered every semester.

EXE 690 MASTER'S PROJECT IN EXCEPTIONAL EDUCATION

3, 0/3

Prerequisites: EXE 684; instructor permission. Teacher candidates will implement, report, and disseminate the single case study designed in EXE 684 the previous semester. This data-based, applied project is directly related to each candidate's program area of study and will be implemented in educational settings. Offered every semester.

EXE 691 APPLIED MASTER'S PROJECT IN SPECIAL EDUCATION

3, 3/0

Prerequisite: Instructor permission. To demonstrate special education pedagogical and content knowledge and skills, candidates design and execute student-centered, evidence-based interventions based on professional literature. They implement, interpret results, and make data-driven decisions in applied settings, aiming to impact academic, behavioral, functional, or social outcomes. Culminates in a written project. Offered every semester.

EXE 695 MASTER'S THESIS

6, 6/0

Prerequisites: Completion of all courses except the research requirement; program coordinator permission. Individual investigation of an original problem submitted in acceptable form according to directions given by the Graduate School.

EXE 721 THESIS/PROJECT CONTINUATION

0, 0/0

EXE 722 THESIS/PROJECT EXTENDED

0, 0/0

Fashion & Textile Technology (FTT)

FOR 588 TOPICS COURSE

3, 3/0

Geosciences (GEG, GES)

Geography (GEG)

Geosciences (GES)

Government, Planning, and Philosophy (PHI, PLN, PSC)

Philosophy (PHI)

PHI 601 ETHICS IN PROFESSIONAL APPLIED SCIENCES

3, 3/0

Ethical theories and professional ethics in the applied sciences. Ethical reasoning and its application to practical problems. Ethical issues in fields such as computer science, engineering, genetics, and ecology.

Planning (PLN)

PLN 590 INDEPENDENT STUDY

1-3, 0/0

PLN 610 SEMINAR

3, 3/0

Prerequisite: 12 credit hours of geography or planning coursework or instructor permission. Investigation, examination, and discussion of topics of current interest to geographers and planners. Topics to be announced.

PLN 690 MASTER'S PROJECT

3, 0/0

Research or investigation of a particular problem, planned and carried out by the student in consultation and guidance from the instructor, submitted in acceptable form according to the directions given by the Department of Geography and Planning.

PLN 721 THESIS/PROJECT CONTINUATION

0, 0/0

PLN 722 THESIS/PROJECT EXTENDED

0, 0/0

Political Science (PSC)

PSC 605 POLITICS OF THE THIRD WORLD

3, 3/0

Leading issues and challenges found in the developing world. Examination of development in terms of democratization; religion and politics; cultural pluralism, ethnic and national identity, and nationalism; women and development; agrarian reform; urbanization; revolution; the military; political economy; and globalization. Special focus on development aid, trade, and the UN Millennium Goals.

PSC 606 INTERNATIONAL RELATIONS

3, 3/0

Theories of international relations; statecraft and diplomacy; international organizations and international law; peace and security.

PSC 610 SEMINAR

3, 3/0

SEMINAR

PSC 612 CONTEMPORARY MIDDLE EAST

3, 3/0

Characteristic cultural features of the Middle Eastern countries, with emphasis on Islam; interaction with the Western world; cultural and social changes under way; fundamentalism; problems typical of the developing countries.

Equivalent Course: HIS 602

Higher Education and Adult Education

Adult Education (ADE)

ADE 500 INTRODUCTION TO ADULT EDUCATION

3, 3/0

Prerequisites: Graduate Standing. An exploration of the field of adult education as it exists today in a variety of formal and non-formal settings. The core elements of the discipline will be examined from past, present, and future trend perspectives. Topics covered include: evolution of the field, major providers and programs, teaching methods and planning approached, mini-teaching delivery, and review of the literature.

ADE 575 FAMILY VIOLENCE AND ADULT EDUCATION

3, 3/0

Prerequisites: Graduate status. An in-depth examination of the impact of family violence on adult education, with a focus on interpersonal violence and rape/sexual assault. Through weekly discussions, personal journal writing, small group dialog, and independent research, students gain an understanding of the dynamics of violence against women and families, and best practices for addressing such violence within adult education settings.

ADE 580 PARENTING/SEXUALITY EDUCATION PRACTICES IN HEALTH

3, 3/0

Prerequisite: Graduate Status. Undergraduate coursework in health or human sexuality. Parenting/sexuality curricula and the utilization of technology in teaching health education; theories and practices in sexuality education in American school systems; appropriate course content specific to different grade levels and cultural settings.

Equivalent Course: HEW 580

ADE 582 INTRODUCTION TO ADULT LITERACY EDUCATION IN THE U.S.

3, 3/0

Prerequisites: Graduate status. Examination of the adult literacy education system in the United States from historical and modern perspectives; exploration of research, theory, and professional wisdom of the field; reflection on, discussion of, and critique of the current policy, instructional, philosophical, and social issues that affect the adult literacy education field.

ADE 584 LITERACY SKILLS AND THE ADULT LEARNER

3, 3/0

Prerequisite: Graduate status. Theories, practice, curricula, and content of instruction appropriate for adult learners; the theories of Paulo Freire, Ira Shor, and Henry Giroux; collaboratively participate in the design and implementation of an action research project focusing on adult literacy.

Equivalent Course: EDU 584

ADE 590 INDEPENDENT STUDY

1-3, 3/0

Individualized study. Instructor permission required.

ADE 594 SELECTED TOPICS

3, 3/0

ADE 598 MICROCOURSE-SELECTED TOPICS

3, 0/0

Micorcourse. Selected Topics.

ADE 600 ADULTHOOD AND DEVELOPMENT

3, 3/0

Prerequisite: Graduate status. Study of adulthood and development during the adult years; consideration of the physiological and psychological development of the individual from young adulthood through old age-changing roles, conflicts, adjustments, dilemmas, aspirations, ethnicity, potentials, responsibilities, rights, and freedoms-as indicated in theory and research.

ADE 602 MANAGEMENT: ADMINISTRATIVE BEHAVIOR

3, 0/3

Prerequisite: Graduate status. Basic administrative theories; managerial behavior as expressed through conceptual, human, and technical skills. Observation of field managers.

ADE 603 HUMAN RESOURCE MANAGEMENT

3, 3/0

Prerequisite: Graduate Status: Personnel-related functions and the utilization of resources to support these functions within organizations: design of in-service training programs; supervisory skills for enhancing motivation and productivity; employee benefit packages; grievance and labor relations plans; proposals to obtain funding and training.

Equivalent Courses: BUS 603, SWK 603

ADE 605 HISTORICAL, SOCIAL, AND PHILOSOPHICAL FOUNDATIONS OF ADULT EDUCATION

3, 3/0

Prerequisite: Graduate status. Historical antecedents, social movement characteristics, and philosophical foundations of adult education, with perspectives on why and where the adult learner and others fit into this evolving field of professional practice.

ADE 608 INSTRUCTIONAL DESIGN AND ASSESSMENT

3, 0/0

Prerequisite: Graduate status. Designing instruction to achieve specific learning outcomes; systematic models that facilitate planning, developing, revising, and evaluating instruction; planning instruction that incorporates educational technology.

ADE 610 METHODS OF ADULT EDUCATION

3, 3/0

Prerequisite: ADE 608 and Graduate status. Principles, practices, and evaluation of adult learning across the full spectrum of settings in which adult education is conducted.

ADE 615 ISSUES AND PERSPECTIVES IN ADULT EDUCATION

3, 3/0

Prerequisite: Graduate status. Nature of adult education and the various programs and situations in which it occurs; key issues in the field and various approaches to adult learning theory; nature of participation; inclusion of ethnic minorities, women, individuals with disabilities, and distance learners; adult learning environments nationally and internationally; emerging trends.

ADE 618 INTRODUCTION TO ONLINE TEACHING AND LEARNING IN ADULT EDUCATION

3, 3/0

Prerequisites: Graduate Status and ADE 608. An introduction to procedures for and approaches to teaching adults in online environments. Encompasses a range of online educational contexts in which teaching and learning for adults occur: corporate, technical/career, governmental and higher education. Topics include the theory and culture of online learning for adults; assessment in online education; instructional design and delivery, including full range of instructional media; promotion of interaction and collaboration in online environments; the legal ramifications of online education for adults. Offered annually each Fall semester.

ADE 620 APPLICATION OF INSTRUCTIONAL TECHNOLOGY TO ADULT EDUCATION

3, 3/0

Prerequisite: Graduate status. Methods of teaching adult learners using traditional and contemporary modes; use of technology-teleconferencing, distance education, and online instruction in the present delivery systems for teaching and learning.

ADE 624 INTERNSHIP

3, 3/0

Prerequisite: Graduate status. Supervised internship experience in an adult education setting.

ADE 625 DESIGNING AND EVALUATING PROGRAMS FOR ADULT LEARNERS

3, 3/0

Prerequisite: Graduate status. Planning, designing, and assessing training outcomes for adult learners; methods and materials in program planning in adult education; review of types of programs, community services, and developing funded proposals.

ADE 634 WORKPLACE LITERACY

3, 3/0

Prerequisite: Graduate status. Designing, teaching in, and assessing workplace-literacy and job-readiness programs. Methods of developing customized curricula and teaching literacy and ESL via a sociocultural literacy framework. Analysis and critique of case studies that focus on (1) federal, state, and local workforce policies; (2) educating, training, and re-skilling an underskilled workforce in a global economy; and (3) issues of diversity in the workplace.

ADE 640 HUMAN RESOURCE DEVELOPMENT

3, 3/0

Prerequisite: Graduate status. Preparation to conduct educational and training programs for workers and volunteers to improve organizational effectiveness. Key competencies and principal roles of human resource development professionals: human performance analysis; training needs assessment; organizational development; career development; program and instructional design; learning materials design; program evaluation; ethical and human diversity issues in training and development.

ADE 641 ORGANIZATION DEVELOPMENT

3, 3/0

Prerequisite: Graduate Status. Systemic approaches to sustainable planned change in organizations. Emphasizes the interrelatedness of social and technical systems; individual-level interventions. Application of theories from adult education and human resource development to practical problems facing organizations, including performance improvement, diversity & Inclusion, and organizational learning. Offered every spring.

ADE 645 PROGRAM DESIGN FOR ORGANIZATIONAL EMPLOYEES

3, 3/0

Prerequisites: Graduate Status: Admission to the Adult Education Master's Degree Program or Multidisciplinary Master's Degree Program or permission of instructor. Instructional design and assessment coursework or experience. A practical approach in a simulated environment, integrating adult learning and instructional design theories for the analysis, design and development of employee/volunteer programs for targeted organizational learners; use of authentic evaluation and assessment concepts to design programs and workforce learner assessments.

ADE 655 DIVERSITY ISSUES IN ADULT EDUCATION AND TRAINING

3, 3/0

Prerequisite: Graduate status. Teaching and learning implications of diversity for adult educational achievement and career opportunities. Implications for course content and classroom management styles when adult educators are sensitive to race, ethnicity, gender, sexual orientation, class, and physical ability. Methods for structuring course content, designing curricula, and educating learners by promoting and embracing a diverse population of colleagues, learners, workers, and clients.

Equivalent Course: CTE 655

ADE 660 GRANT WRITING

3, 3/0

Prerequisites: Graduate Standing. This course provides an in-depth examination of the strategies for writing a successful grant funding application in the field of education. Students participate in all aspects of the grant development process, including identifying agency strengths, researching potential funding sources and opportunities, writing application materials, developing budgets, and creating evaluation plans.

ADE 675 POSTSECONDARY TEACHING PRACTICUM

3, 2/0

Prerequisites: Graduate status, ADE 610 or CTE 536, and instructor permission. Promotes expertise in teaching in human resource development adult education, workforce training, community colleges, and GED program settings. Extended teaching assignments with coach/mentor assistance. Seminar-type discussions reflecting on learning and development of learners as they taught, principles of teaching, their teaching behaviors, strategies promoting continuing growth as teachers. Analyze issues in teaching: diversity, technology, exceptionality, promoting social justice.

Equivalent Course: CTE 675

ADE 688 LEADERSHIP IN ORGANIZATIONS

3, 3/0

Theories of leadership; organizational contexts and culture for leadership; the role of the leader in organizations; leadership competencies for organizational effectiveness; the leader's role in mentoring and coaching for effective performance; the leader's role in achievement of organizational mission and goals.

Equivalent Courses: BUS 688, SPF 688

ADE 690 MASTER'S PROJECT

3, 3/0

Prerequisite: Graduate status. A study undertaken by one or more individuals on a problem of special interest, submitted in acceptable form according to directions from the Educational Foundations Department.

ADE 695 METHODS AND TECHNIQUES OF EDUCATIONAL RESEARCH

3, 3/0

Background of educational research; selection and development of research problems; sources of information and data; methods, tools, and techniques; collection, treatment, application, and interpretation of research data; organizing and writing a research report.

Equivalent Course: SPF 689

ADE 715 MANAGEMENT PRACTICES AND TECHNIQUES

3, 3/0

Prerequisites: Graduate Status. Major management theories and factors affecting organizational systems; managing conflict and negotiating agreements; effective interpersonal skills for managers; defining problems and generating creative alternatives; types and sources of information needed by managers; relation of leadership style to staff productivity and development; relating effectively to upper-level management.

Equivalent Course: SPF 715

ADE 721 THESIS/PROJECT CONTINUATION

0, 0/0

ADE 722 THESIS/PROJECT EXTENDED

0, 0/0

Higher Ed & Stud Affairs Admin (HEA)

HEA 504 COMMUNITY COLLEGE ADMINISTRATION

3, 3/0

Prerequisite: Graduate status. Purposes, functions, and characteristics of the community/two-year college: profile of student populations; historical and philosophical evolution; organization and leadership; finance, governance, and management of academic and support services; and relationship to the surrounding community.

HEA 588 TOPICS IN HIGHER EDUCATION

3, 3/0

HEA 590 INDEPENDENT STUDY

1-6, 0/0

Prerequisites: Graduate status and SPA program faculty member approval. Involvement in scholarly and special project/program development.

HEA 591 GENDER, INTERSECTIONALITY, AND HIGHER EDUCATION

3, 3/0

Prerequisites: Graduate student. This course provides a critical examination of gender and intersectionality in higher education. The course explores the experiences of students, faculty, and leaders with attention to interlocking systems of oppression, identity development, transgender issues, and campus climate and policies. Offered every other fall semester.

HEA 594 WORKSHOP

3, 3/0

Graduate workshop in Higher Education and Student Affairs Administration.

HEA 615 SURVEY DESIGN FOR PROFESSIONALS

3, 0/3

Prerequisite: Graduate Status. The fundamentals of survey methodology, including designing, administering, and analyzing surveys; principals of quality survey design to support research and data collection needs of organizations and institutions. Offered fall semester.

HEA 616 AMERICAN HIGHER EDUCATION

3, 3/0

Prerequisite: Graduate status. Examination of the historical and philosophical context of institutions of higher education in the United States, impact of race, gender and ethnicity on the development of higher education, as well as the influence of social, political and economic movements and policies. Offered every semester.

HEA 617 STUDENT DEVELOPMENT AND LEARNING

3, 3/0

Prerequisite: Graduate status. Assessing and meeting the needs of diverse student populations; theories of college student development and learning; college student characteristics, attributes, values, and learning styles; impact of the college experience on students; designing educational and programming interventions to directly enhance the student learning environment.

HEA 618 STUDENT AFFAIRS ADMINISTRATION

3, 3/0

Prerequisite: Graduate status. Philosophy, organization, management, and emergence of student services; evolution of specialized student affairs programs and their impact on institutional culture and campus ecology; "model" student affairs programs in four-year and two-year, public and private, religious and secular, large and small colleges and universities.

HEA 619 MANAGEMENT SYSTEMS AND LEADERSHIP IN HIGHER EDUCATION

3, 3/0

Prerequisites: Graduate status. HEA 618 recommended. Management systems theory and practice in higher education and academic and student affairs; partnerships; organizational culture; motivation and evaluation; authority and leadership. Students apply course concepts to institutional situations and problems faced in the day-to-day administration of services, programs, facilities, and staff.

HEA 620 STRATEGIC PLANNING AND BUDGETING IN HIGHER EDUCATION

3, 3/0

Prerequisites: Graduate status. Fundamentals of strategic planning and budgeting, higher education college and university finance and the impact of social, economic and political trends; Data informed decision making, resource allocation, and budget justification; Strategic thinking and inclusive leadership for equity centered practice. Offered spring only.

HEA 622 INCLUSIVE ADVISING AND SUPPORTING

3, 3/0

Prerequisites: Graduate student status. Fundamental skills of advising and supporting college student populations; needs assessment and design of inclusive interventions, strategies and programs; facilitating individual and organizational pathways to success. Offered every fall and spring.

HEA 623 COUNSELING TECHNIQUES FOR DIVERSE CULTURES

3, 3/0

Prerequisites: Graduate Standing. This course is designed to provide the application and integration of basic counseling skills appropriate for diverse groups and cultures. Factors such as ethnicity, race, gender, sexual orientation, family structures, religion/spirituality, disability, class, competency development, self-assessment, intervention strategies and future trends are examined.

HEA 624 SUPERVISED PRACTICE I

3, 3/0

Prerequisites: Graduate student status. Supervised practice in higher education or related setting that provides substantive experience and professional supervision; seminar focused on awareness and development of professional competencies and goals; development of professional portfolio. Completion of 120 hours of supervised practice is required. Offered fall and spring.

Equivalent Course: ADE 624

HEA 625 SUPERVISED PRACTICE II

3, 3/0

Prerequisites: Graduate student status and HEA 624. Supervised practice in higher education or related setting that provides substantive experience and professional supervision; capstone seminar focused on career planning and professional development; continuation of HEA 624 and further development of professional portfolio. Completion of 120 hours of supervised practice is required. Offered fall and spring.

HEA 630 GROUP COUNSELING

3, 3/0

Prerequisite: Graduate status. Group counseling theory, research, and practice; group dynamics; psychological processes operating in groups; leadership styles; therapeutic interventions and techniques as applied in various staff, team, and group settings; applications of theories and methods for effective group functioning and counseling leadership.

HEA 632 CAREER DEVELOPMENT

3, 3/0

Prerequisite: Graduate status. Theories of career development and occupational decision making through the life span; career patterns and school-to-work transitions; administration of career information resources and specialized client services; computers and career-related assessment instruments for career counseling in educational and community settings.

HEA 650 ASSESSMENT IN HIGHER EDUCATION AND STUDENT AFFAIRS

3, 3/0

Prerequisite: Graduate status. Fundamentals of designing assessments and plans; assessment methodologies; ethical principles; selection and creation of assessment instruments; articulating and measuring student learning and development outcomes; program review and accreditation processes.

HEA 651 THE LAW AND HIGHER EDUCATION

3, 3/0

Prerequisite: Graduate status. College students and the law; academic freedom and First Amendment issues; trends in contemporary litigation; risk management; legislative, regulatory, and compliance issues; affirmative action, equal education and employment opportunity; real and simulated administrative situations; legal potentialities and implications for liability; ethical practice in serving student and institutional interests.

HEA 655 INTERCOLLEGIATE ATHLETICS AND THE STUDENT ATHLETE

3, 3/0

Prerequisite: Graduate status. History and philosophy of intercollegiate athletics, student-athlete characteristics and development, role and relationship between colleges and intercollegiate athletics, current issues and compliance, critical needs and other specialized functions of athletic programs are explored. Offered every other fall.

HEA 670 MOVEMENTS OF RESISTANCE: COLLEGE STUDENT ACTIVISM

3, 3/0

Prerequisite: Graduate student status. Examination of college student activism as strategy for social and institutional change; relation of social identities to student movements; impact of social media on activism; historical to modern day movements such as DACA, #MeToo, and Black Lives Matter are studied. Offered occasionally.

HEA 689 RESEARCH METHODS IN HIGHER EDUCATION

3, 3/0

Prerequisites: Graduate status. Foundations of educational research including selection and development of research problems, sources of information and data, methods, tools and techniques. Students will apply and interpret research data through a social-critical lens and organize and write a research proposal that includes a critical review of literature. Offered every semester.

HEA 690 MASTER'S PROJECT

3, 0/0

A study undertaken by one or more individuals on a problem of special interest submitted in acceptable form according to directions given by the department.

HEA 694 CURRENT ISSUES IN HIGHER EDUCATION

3, 3/0

Prerequisites: Graduate Standing. This course focuses on current issues in higher education and student affairs administration. Through this course, students will develop an understanding of the ever changing landscape of higher education and the skills necessary to meet current challenges in higher education administration.

HEA 695 MASTER'S THESIS

3, 0/0

Individual investigation of an original problem, submitted in acceptable form according to directions given by the Graduate School.

HEA 703 PROFESSIONAL DEVELOPMENT AND COMMUNITIES OF PRACTICE IN HIGHER EDUCATION

3, 3/0

Prerequisite: graduate standing. Communication skills in diverse settings for professionals in higher education; Discourse facilitation and conflict resolution; examination of the intersection of social justice education and professional practice based on current social justice and social agency issues; and the integration of action theories and reflective practice in daily professional life.

HEA 721 THESIS/PROJECT CONTINUATION

0, 0/0

HEA 722 THESIS/PROJECT EXTENDED

0, 0/0

HEA 725 FUNDAMENTALS OF INSTITUTIONAL RESEARCH

3, 3/0

Prerequisites: Graduate Student Status, HEA650, HEA689. The course provides an overview of institutional research practices and processes, as well as approaches to data management and decision support. It focuses on the relationships of institutional researchers and assessment professionals to various internal and external organizational functions and to the emerging field of knowledge management. Offered each semester.

HEA 730 DATA VISUALIZATION AND STORYTELLING

3, 3/0

Prerequisites: Graduate status, HEA 725, Instructor permission. The fundamentals of effective data-driven storytelling; how to analyze data, detect stories within datasets and communicate findings in oral, written and interactive visual delivery modes.

HEA 750 STUDENT AFFAIRS ASSESSMENT CAPSTONE

3, 3/0

An applied assessment course involving a supervised assessment project; students will develop and implement an applied assessment project, analyze and interpret data, and report findings.

HEA 783 BSC LED STUDY AWAY PROGRAM

1-15, 0/0

Acceptance into the program required.

HEA 789 ADVANCED DATA ANALYSIS TECHNIQUES IN HIGHER EDUCATION

3, 3/0

Prerequisites: Graduate Student Status, HEA 689 or equivalent. Advanced knowledge of research design and skill development in statistical analysis applied to the generation of new knowledge, as well as the interpretation of existing higher education research. Topics include analysis of variance, correlations, linear and logistic regression, analysis of categorical data, factor analysis, and other data analysis techniques commonly used in higher education research. Offered annually each semester.

History (HIS, SSE)

History (HIS)

HIS 500 STUDIES IN AMERICAN HISTORY

3, 3/0

Aspects of American life: significant trends, policies, and ideas in politics, diplomacy, and national culture. Topics for study dictated by student needs and interests.

HIS 501 STUDIES IN EUROPEAN HISTORY

3, 3/0

Prerequisite: Graduate status. Cultural, political, and economic perspectives on European history.

HIS 536 THE AMERICAN ENTERPRISE SYSTEM

3, 3/0

Problems and issues relating to the free enterprise system functioning within a modern industrial society; analysis of the interrelationships of basic business concepts with the decision-making processes of corporate management; historical trends and their futuristic implications.

Equivalent Course: BUS 536

HIS 588 TOPICS COURSE

3, 3/0

HIS 590 INDEPENDENT STUDY

1-3, 0/0

Prerequisite: Instructor permission. Independent inquiry into a specific topical area of U.S., European, or third-world history.

Equivalent Course: MST 590

HIS 602 CONTEMPORARY MIDDLE EAST

3, 3/0

Characteristic cultural features of the Middle Eastern countries, with emphasis on Islam; interaction with the Western world; cultural and social changes under way; fundamentalism; problems typical of the underdeveloped nations of the world today.

Equivalent Course: PSC 612

HIS 603 SOCIAL AND INTELLECTUAL HISTORY OF THE UNITED STATES

3, 3/0

Social roots of thought; effect of ideas on American society; continuing patterns of thought, such as Puritanism, liberalism, democracy; contributions of intellectual leaders.

HIS 605 STUDIES IN AMERICAN COLONIAL HISTORY

3, 3/0

Comparison of colonial policies pursued by European powers in the new world; modification in a new environment of such transplanted elements as the family, church, schools, economy, and government.

HIS 606 PROBLEMS IN BRITISH HISTORY

3, 3/0

Major constitutional, political, social, and intellectual factors that shaped Britain during one of the following periods: medieval England; Tudor Stuart; the eighteenth century; Victorian; the twentieth century.

HIS 607 THE UNITED STATES IN CONTEMPORARY WORLD AFFAIRS

3, 3/0

U.S. foreign policy; United States and the United Nations; Atlantic and Pacific commitments; internal problems (defense, production, inflation, taxation).

HIS 608 REFORM AND REFORMERS IN AMERICAN CIVILIZATION

3, 3/0

Economic and social milieu creating need for reform; personality characteristics of reform leaders; structure and operations of reform movements; selected reform movements and periods of widely sponsored reform sentiment; changes wrought in American society.

HIS 609 HISTORY OF RUSSIAN DIPLOMACY

3, 3/0

Problems of Russian and Soviet foreign policy, with special emphasis on the post-revolutionary period.

HIS 610 BLACK AMERICAN HISTORY

3, 3/0

Slavery, Northern free blacks, and American racial thought from colonial era to Civil War; Northern blacks and the Civil War; black thought during Reconstruction and post-Reconstruction eras; "Black Reconstruction"; problems of American blacks from 1895 to World War II; leadership; urban migration; twentieth-century black thought; American segregationist thought.

HIS 612 AMERICAN FOREIGN POLICY IN THE FAR EAST

3, 3/0

The concept of the United States as a Pacific power; American reaction to European penetration of China; the "open door" policy and dollar diplomacy; American initiative in opening of Japan; World War I and disarmament; events leading to Pearl Harbor; World War II and American "containment" policy; the Korean War and American security pact system in the Pacific; war and peace in Southeast Asia; examination (evaluation) of the Nixon doctrine in the Pacific.

HIS 613 LATIN AMERICA IN THE TWENTIETH CENTURY

3, 3/0

Social and political conditions in Latin American in the early twentieth century; the Latin American economies and the industrial world; nationalism, reform, and revolution (1900-1945); economic, political, and international problems (from World War II to Castro); major issues in Latin America today; the United States and Latin America.

HIS 614 PROBLEMS IN CLASSICAL AND MEDIEVAL HISTORY

3, 3/0

Particular cultural, intellectual, social, economic, and historiographical problems. Consult with instructor prior to registration for information on specific topics.

HIS 615 MODERN EUROPEAN POLITICAL MOVEMENTS

3, 3/0

Function, structure, behavior, and ideological basis of major European political movements since the turn of the twentieth century.

HIS 616 PROBLEMS IN MODERN EUROPEAN HISTORY

3, 3/0

Prerequisite: Graduate status. Major trends, movements, and ideas that determined the course of European history from 1500 to the present.

HIS 617 MODERN EUROPEAN IMPERIALISM AND COLONIALISM

3, 3/0

Historical theories and social science; theories of imperialism; origins of World War I as a test case of theories; colonialism in Africa, Asia, and Oceania; colonialism in the new world; breakup of the colonial empires.

HIS 618 STRANGERS IN THE LAND: TWENTIETH-CENTURY IMMIGRANTS IN THE UNITED STATES

3, 3/0

The role of the United States in world population movements during the twentieth century; shifts in governmental policy; major groups of twentieth-century immigrants; how and why they came; patterns of settlement; American nativism; assimilation and alienation of immigrants.

HIS 620 EXCEPTIONAL HISPANIC INDIVIDUALS: HISTORICAL AND CULTURAL CONCERNS

3, 3/0

A panorama of Hispanic history and culture as it pertains to the major Hispanic populations of the United States, with a concentration on the Puerto Rican and Mexican American populations. Emphasizes the relationship of language and culture, the ultimate implications for bilingual special education, and the Hispanic exceptional child.

HIS 622 NORTH AND SOUTH AMERICAN FRONTIERS AND BORDERLANDS

3, 3/0

Prerequisite: Graduate status. Examination of frontiers in the Western Hemisphere from the beginning of European encounter and conquest in 1492 to the twentieth century. The conceptualization of the borderlands and frontiers in historical scholarship. Altering notions of gender, race and class on the frontier.

HIS 623 PROBLEMS IN U.S. HISTORY

3, 3/0

Prerequisite: Graduate status. Critical and in-depth examination of specific topics or periods in U.S. history within the context of larger interpretations of American historical development. The student may use the course to explore subjects for an eventual master's project. May be taken more than once but not with the same professor; it must be taken with another professor in a different historical specialization. Check with individual professors for topics covered in any given semester.

HIS 630 TOPICS IN ASIAN HISTORY

3, 3/0

Origins, historical development, cultural achievements, and interrelationships of the major civilizations of East Asia, Southeast Asia, and India.

HIS 640 TOPICS IN THIRD WORLD HISTORY

3, 3/0

Prerequisite: Graduate status. Social, economic, and political conditions of Africa, Asia, and Latin America under Western colonialism; reform and revolution in the non-Western world; challenge of nation-building in the third world; relations between the developed nations and the third world; cold war and the third world; the United States and the third world.

HIS 645 GENDER, SEXUALITY AND IMPERIALISM

3, 3/0

Prerequisite: Graduate status. Comparative examination of the role and impact of western and indigenous women in colonial societies; "Destructive Female" and "Black Peril" myths; miscegenation; constructions of gender and sexuality and their effect on traditional as well as colonial culture and society; women as agents of political, social and cultural reform and reaction; women in anti-colonial resistance movements.

HIS 646 TOPICS IN CANADIAN HISTORY

3, 3/0

Selected themes in Canadian history from the precontact period to the present: settlement; emergence as an independent state; nature of Canadian federalism; role in the modern world.

HIS 688 INTERNSHIP

1-12, 0/0

Prerequisites: Graduate status; minimum cumulative GPA of 3.0; background of courses or experience within the area of interest; permission of adviser and department chair. Guided and supervised field experiences to complement the student's academic program.

Equivalent Course: MST 688

HIS 690 MASTER'S PROJECT

3, 3/0

Research or investigation of a particular historical topic or issue, planned and carried out by the student in consultation with the instructor.

Equivalent Course: MST 690

HIS 695 MASTER'S THESIS

1-6, 0/0

Individual investigation of an original problem submitted in acceptable form according to directions given by the Graduate School.

HIS 700 SEMINAR IN THE BIBLIOGRAPHY OF AMERICAN HISTORY

3, 3/0

Sources, monographs, and general histories in the bibliography of American history; collections of historical materials; historical organizations and services; analysis of selected topics and authors.

HIS 701 SEMINAR IN THE BIBLIOGRAPHY OF EUROPEAN HISTORY

3, 3/0

Sources, monographs, and general histories in the historical bibliography of selected European countries; collections of historical materials; historical organizations; problems of research; analysis of selected topics and authors.

HIS 702 SEMINAR IN MODERN RUSSIAN AND EASTERN EUROPEAN HISTORY

3, 3/0

Research in the problems of the former Soviet Union, from the establishment of Marxism on Russian soil to the present, emphasizing ideological problems and Russian foreign policy, particularly toward Europe.

HIS 703 READING SEMINAR IN HISTORY

3, 3/0

Prerequisite: Graduate status. Readings on topics and historical periods in American, European, and third world history. Topics vary each session.

HIS 704 RESEARCH SEMINAR IN HISTORY

3, 3/0

Prerequisite: Graduate status. Preparation of individual research papers on some undeveloped aspect of American, European, or third world history; guidance in the location and use of source materials, bibliographical tools, and writing technique. Topics vary each session. May be taken up to three times.

HIS 709 LOCAL HISTORY: RESEARCH METHODS AND TECHNIQUES

3, 3/0

Preparation of individual research papers on some undeveloped aspect of local history; guidance in historical research and writing techniques. Topics vary each session. May be taken up to three times.

HIS 711 SEMINAR IN AMERICAN HISTORY

3, 3/0

Problems in American social, intellectual, or diplomatic history as determined by student needs and staff; historical methodology; the philosophy of history and historical writing; individual projects and seminar discussion. Topics vary each session. May be taken up to three times.

HIS 721 THESIS/PROJECT CONTINUATION

0, 0/0

HIS 722 THESIS/PROJECT EXTENDED

0, 0/0

HIS 795 MASTER'S THESIS

1-6, 0/0

Individual investigation of an original problem submitted in acceptable form according to directions given by the department.

Equivalent Course: MST 795

Social Studies Education (SSE)

SSE 500 INTRODUCTION TO SOCIAL STUDIES EDUCATION

3, 3/0

Classroom and field experiences designed to help students make better-informed decisions regarding careers in secondary social studies education. The definition and purpose of social studies; current research trends in social studies education. Required for social studies education majors. Offered annually.

Equivalent Course: SST 500

SSE 502 TEACHING SOCIAL STUDIES

3, 3/0

This course must be taken concurrently with a History content course designated by the department, except for MAT candidates and non-majors. Social studies content and methodology; trends in curriculum; evaluation; instructional resources.

SSE 513 SEMINAR IN SECONDARY SOCIAL STUDIES

3, 3/0

Review of the literature and curriculum of the social studies; philosophical, historical, and sociological aspects of the social studies. Introductory course for secondary social studies graduate students. Required for all social studies students.

SSE 524 SECONDARY SOCIAL STUDIES INSTRUCTION

1, 1/0

Prerequisite: Exceptional education or secondary education major. Teaching methods and materials used in secondary social studies education; laboratory sessions with social studies materials; construction of tests and evaluative instruments.

SSE 540 BEGINNING TEACHER MENTORING SEMINAR IN THE SOCIAL STUDIES

3, 3/0

Application of the theory learned in teacher preparation experiences to the practice of classroom teaching: application of educational theory in the first-year classrooms; reflective activities to improve classroom practices in light of a pedagogical theory; utilization of teacher teams to improve classroom practices and develop problem-solving strategies. Review of theory learned in certification programs. Designed to support first-year social studies teachers.

SSE 588 TOPICS COURSE

3, 3/0

SSE 590 INDEPENDENT STUDY

1-3, 0/0

Prerequisite: Instructor permission. Independent inquiry into a specific topic area of social studies education.

SSE 595 RESEARCH METHODS IN SECONDARY SOCIAL STUDIES

3, 3/0

Development of research problems: resources and tools of educational research; research methods and preparation of a research paper; assessment of national social studies curriculum projects.

SSE 602 HIGH SCHOOL SOCIAL STUDIES INSTRUCTION

3, 3/0

Prerequisites: Graduate standing and cumulative GPA of 3.0 or higher. Purposes, goals, curricular materials, methodologies, and instructional techniques of high school social studies education. Students develop competency in designing and practicing instructional strategies drawn from methodologies and of the curricular materials of high school social studies education and the disciplines of history and the social sciences. Offered each semester.

SSE 603 MIDDLE SCHOOL SOCIAL STUDIES INSTRUCTION

3, 3/0

Prerequisites: Cumulative 2.75 GPA, SSE 500, and SSE 602. The purposes, goals, curricular materials, methodologies, and instructional techniques of middle school social studies education; students develop competency in designing and practicing

instructional strategies drawn from methodologies and of the curricular materials of middle school social studies education and the disciplines of history and the social sciences. Offered each semester.

Equivalent Course: SST 603

SSE 605 TOPICS FOR IN-SERVICE EDUCATION

1-6, 0/0

Prerequisite: Provisional/initial certification. Topical seminar to meet in-service needs. Topics may be selected from any area of instructional and curricular concerns appropriate for the secondary school. Lectures, discussions, microteaching, and projects according to the topics selected. 1-6 credit hours, commensurate with the nature of the topic and the extent of the study. Graduate credit for any secondary education program.

SSE 609 STUDENT TEACHING OF SOCIAL STUDIES IN THE MIDDLE SCHOOL

6, 6/0

Prerequisites: Minimum cumulative GPA of 3.0, Grade of C+ or higher in SSE 603, successful completion of content and pedagogical coursework. Supervised teaching experience for five full days a week for eight consecutive weeks in a middle school classroom (grades 7-9 only). Effective demonstration of content knowledge, pedagogical preparation, instructional delivery, classroom management, knowledge of student development, collaboration with school professionals, and reflectivity of practice required. Offered each semester.

SSE 610 THE STUDY OF PEACE AND WAR IN THE SECONDARY SCHOOL

3, 3/0

Possible approaches for achieving peace, strategies for teaching them, and criteria for judging them. Requires the teaching of a unit on peace at a site chosen by the student and instructor.

SSE 611 STUDENT TEACHING OF SOCIAL STUDIES IN THE HIGH SCHOOL

6, 6/0

Prerequisites: Minimum cumulative GPA of 3.0, Grade of C+ or higher in SSE 603, successful completion of content and pedagogical coursework. Supervised teaching experience for five full days a week for eight consecutive weeks in a high school classroom (grades 9-12 only). Effective demonstration of content knowledge, pedagogical preparation, instructional delivery, classroom management, knowledge of student development, collaboration with school professionals, and reflectivity of practice required. Offered each semester.

SSE 632 TEACHING WITH HISTORIC PLACES

3, 3/0

Prerequisites: Graduate status. Provides a foundation for those seeking to develop and implement educational materials related to historic places. Service-learning at the sites that famous people lived in, where historical events took place, and their teaching potential. Using one historic site as a case study; touring and meeting representatives to find out more about the historic place; determining the educational needs of the facility; creating curricular materials appropriate for the site.

Equivalent Course: MST 632

SSE 640 SOCIOHISTORICAL CONTEXT AND ISSUES OF DIVERSITY IN U.S. SCHOOLING

3, 3/0

Issues of diversity, multiculturalism, equity, justice, and participatory democracy in society, schools, and classrooms; historical development of multicultural education; response of society, schools, and teachers to calls for multicultural education; in-depth study and analysis of a multicultural program.

SSE 655 SOCIAL STUDIES LABORATORY

3, 3/0

Prerequisite: Graduate status; SSE 513 recommended. This course must be taken concurrently with a history content course designated by the department, except for MAT candidates and non-majors. Interaction with fellow professionals and development of skills to design, implement, and evaluate curriculum materials as required by newer approaches to the social studies.

SSE 670 EXPERIENCES IN SIMULATION AND ROLE PLAYING FOR THE SOCIAL STUDIES TEACHER

1-3, 1/0

Prerequisite or corequisite: SSE 513. Techniques of simulation and role playing: creating models of social situations and translating them into dynamic simulation and role-playing episodes.

SSE 671 TECHNOLOGY IN THE SOCIAL STUDIES CLASSROOM

3, 3/0

Familiarizes students with relevant technology, software, and methodology for their use in the social studies classroom. The course will allow students to be scholar-practitioners in this field focusing on both researched based best practices and practical applications to use in a P-12 setting. Offered fall semester.

SSE 688 INTERNSHIP

1-3, 0/0

Prerequisites: Graduate status; 6 credit hours of graduate coursework in major courses of history and social studies education; minimum cumulative GPA of 3.0; minimum 3.0 GPA in major and background of courses and experience within area of interest. Guided and supervised field experiences to complement the student's academic program. Approval of the placement from student's adviser and department chair.

SSE 689 RESEARCH METHODS AND TECHNIQUES IN SECONDARY SOCIAL STUDIES

3, 3/0

Prerequisites: One social studies elective. Quantitative and qualitative research in the social studies; development of research problems; data collection in the social studies; format of a research paper.

SSE 690 MASTER'S PROJECT

3, 3/0

Prerequisite: Written approval of faculty adviser and department chair. Research or investigation of a particular problem, planned and carried out under the guidance of a qualified member of the graduate faculty, submitted in acceptable form according to directions given by the History and Social Studies Education Department.

SSE 695 MASTER'S THESIS

3, 0/0

SSE 721 THESIS/PROJECT CONTINUATION

0, 0/0

SSE 722 THESIS/PROJECT EXTENDED

0, 0/0

SSE 730 PRACTICUM: INNOVATIONS IN THE SOCIAL STUDIES

3, 3/0

Practical experiences in identifying, selecting, and field testing curricular and instructional innovations in secondary social studies. Required for all degree students.

SSE 795 MASTER'S THESIS

1-6, 0/0

Individual investigation of an original problem submitted in acceptable form according to directions given by the Graduate School.

Social Studies Education (SST)

SST 500 INTRODUCTION TO SOCIAL STUDIES EDUCATION

3, 3/0

Classroom and field experiences designed to help students make better-informed decisions regarding careers in secondary social studies education. The definition and purpose of social studies; current research trends in social studies education. Required for social studies education majors. Offered annually.

Equivalent Course: SSE 500

SST 603 MIDDLE SCHOOL INST

3, 3/0

Prerequisites: Cumulative 3.0 GPA, SSE 500, and SSE 524. The purposes, goals, curricular materials, methodologies, and instructional techniques of middle school social studies education. Developing competency in designing and practicing instructional strategies drawn from methodologies and of the curricular materials of middle school social studies education and the disciplines of history and the social sciences. Offered every semester.

Equivalent Course: SSE 603

SST 671 TECHNOLOGY IN THE SOCIAL STUDIES CLASSROOM

3, 3/0

Familiarizes students with relevant technology, software, and methodology for their use in the social studies classroom. The course will allow students to be scholar-practitioners in this field focusing on both researched based best practices and practical applications to use in a P-12 setting. Offered fall semester.

Mathematics (AMT, DSA, MAT, MED)

Applied & Computational Math (ACM)

ACM 587 TOPICS COURSE

1-4, 1/0

In-depth examination of rapidly and significantly changing disciplinary issues, topics, or practices; offered occasionally.

ACM 600 MATHEMATICAL MODELING AND APPLICATIONS I

1, 1/0

Prerequisites: Instructor permission or admission to the Professional Applied and Computational Mathematics (PACM) Program. Processes of mathematical modeling, use of dimensional analysis, scaling, and elementary perturbation methods; constrained and unconstrained optimization, sensitivity analysis, derivation and analysis of system of discrete dynamical models.

ACM 601 MATHEMATICAL MODELING AND APPLICATIONS II

1, 1/0

Prerequisites: Instructor permission or admission to the Professional Applied and Computational Mathematics (PACM) Program. Mathematical modeling and applications of differential equations, simulation of dynamical systems, and partial differential equations.

ACM 602 MATHEMATICAL MODELING AND APPLICATIONS III

1, 1/0

Prerequisites: Instructor permission or admission to the Professional Applied and Computational Mathematics (PACM) Program. Applications of series and integral transforms, and the study and simulations of probability models.

ACM 604 TOPICS IN STATISTICAL INFERENCE

1, 1/0

Prerequisites: Instructor permission. Topics include continuous distributions, sampling distributions, point and interval estimation, and tests of hypotheses. Offered occasionally.

ACM 610 CONTINUOUS FOUNDATIONS OF APPLIED MATHEMATICS FROM A PROBLEM SOLVING PERSPECTIVE

1, 1/0

Prerequisite: Admission to program or instructor permission. Problem solving and applications of continuous mathematics, including real analysis, single and multivariable calculus, differential equations, optimization, and Fourier analysis. Emphasis on team building and group management through problem-solving activities.

ACM 611 DISCRETE FOUNDATIONS OF APPLIED MATHEMATICS FROM A PROBLEM SOLVING PERSPECTIVE

1, 1/0

Prerequisite: Admission to program or instructor permission. Problem solving and applications of discrete mathematics, including combinatorics, graph theory, logic, linear algebra, number theory, and set theory. Emphasis on team building and group management through problem-solving activities.

ACM 612 COMPUTATIONAL FOUNDATIONS OF APPLIED MATHEMATICS FROM A PROBLEM SOLVING PERSPECTIVE

1, 1/0

Prerequisite: Admission to program or instructor permission. Introduction to algorithm design to implement mathematical models, procedural, and functional programming, programming paradigms, higher-level languages; statistical and visualization software, typesetting software for science and mathematics.

ACM 613 SPREADSHEETS AND DATABASES FOR MATH

1, 1/0

Prerequisites: Instructor permission. Applications of spreadsheet and database software programming to solve real life problems in computational mathematics. Analysis of data to produce reports and presentations for diverse audiences.

ACM 614 STATISTICAL AND DATA ANALYSIS SOFTWARE FOR MATH AND SCIENCE PROFESSIONALS

1, 1/0

Prerequisite: Instructor permission. Survey of statistical and data programming software and applications to real life problems in computational mathematics. Analysis of data to produce reports and presentations for diverse audiences with a focus on understanding the syntax and use of statistical programming languages.

ACM 620 OPTIMIZATION OF DISCRETE MODELS

1, 1/0

Prerequisite: Admission to the program or instructor permission. Mathematical analysis and solution of real-world problems that optimize linear objective functions subject to systems of linear inequalities; the two-phase revised simplex method; applications in diverse areas such as business management, industry, economics, finance, and game theory.

ACM 621 EMPIRICAL MODEL BUILDING

1, 1/0

Prerequisite: Admission to program or instructor permission. Exploratory data analysis, polynomial interpolation, curve fitting, least squares, cubic splines, minimax polynomial, Taylor and Chebyshev series, applications to fitting experimental data.

ACM 622 MODELING CHANGE WITH DYNAMICAL SYSTEMS

1, 1/0

Prerequisite: Admission to program or instructor permission. Difference equations, systems of differential equations, Euler and Runge-Kutta methods, error analyses, logistic models; applications to ecology, finance, conflicts, natural and social sciences.

ACM 630 NUMERICAL LINEAR ALGEBRA

1, 1/0

Prerequisite: Admission to program or instructor permission. Numerical algorithms for linear algebra problems, matrix operations, matrix decompositions, solving systems of linear equations, selected problems from applied settings.

ACM 631 EIGENVALUE PROBLEMS

1, 1/0

Prerequisite: Admission to program or instructor permission. Numerical algorithms for eigenvalue problems, matrix factorization, matrices, vectors, eigenvalues, eigenvectors, eigenspaces, eigenvalue algorithms, selected problems from applied settings.

ACM 632 NUMERICAL CALCULUS

1, 1/0

Prerequisite: Admission to program or instructor permission. Numerical methods and algorithms for finding roots of non-linear equations, numerical integrals, Fourier series and Laplace transform; selected problems from applied settings.

ACM 640 LINEAR REGRESSION AND CORRELATION

1, 1/0

Prerequisite: Admission to program or instructor permission. Simple linear regression and correlation, multiple linear regression, multicollinearity, multiple and partial correlations, confounding and interaction, sequential methods of model selection.

ACM 641 DESIGN AND ANALYSIS OF EXPERIMENTS

1, 1/0

Prerequisite: Admission to program or instructor permission. Design of experiments (one, two and three factors), multiple comparisons, randomized complete block designs, Latin square design.

ACM 642 NONPARAMETRIC STATISTICS

1, 1/0

Prerequisite: Admission to program or instructor permission. Introduction to nonparametric tests such as sign-test, signed rank test, rank sum test, two-way analysis of variance by ranks, tests of randomness, rank correlation coefficient.

ACM 650 RANDOM WALKS AND BROWNIAN MOTION

1, 1/0

Prerequisite: Admission to program or instructor permission. Symmetric random walks, ballot theorem, returns to origin and arcsine laws, gambler's ruin, Brownian motion, conditional distributions, hitting times and maxima.

ACM 651 MARKOV CHAINS

1, 1/0

Prerequisite: Admission to program or instructor permission. Transition matrices, classification of states, limiting probabilities, applications.

ACM 652 CONTINUOUS-TIME STOCHASTIC PROCESSES

1, 1/0

Prerequisite: Admission to program or instructor permission. Exponential distribution, Poisson, Yule, pure birth, birth and death processes, applications.

ACM 653 MARKOV CHAIN MODELS IN CREDIT RISK MANAGEMENT

1, 1/0

Prerequisites: Graduate standing. Practical introduction to mortgage lending and the practice of measuring and managing consumer credit risk. Introduction to Markov chain theory and transition roll rate modeling through extensive case study of the collapse of the U.S. mortgage industry in 2007 - 2008 and the origins of the Great Recession. Risk reporting and segmenting; probability of default; loss given default; house price dynamics; loss forecasting with consideration of micro and macro-factors. Use of statistical software package SAS to analyze loan-level datasets. Suggested preparation: previous coursework or experience in calculus, linear algebra, linear regression, and introduction to programming.

ACM 654 MATHEMATICS OF FINANCE I: MODELING, ANALYSIS AND NUMERICAL METHODS

1, 1/0

Prerequisites: Instructor permission or admission to the Professional Applied and Computational Mathematics Master program. In-depth study of probability, differential equations and numerical analysis and their connections to finance and economics; put-call parity equation; risk-neutral probability; binomial tree analysis.

ACM 655 MATHEMATICS OF FINANCE II: MODELING, ANALYSIS AND NUMERICAL METHODS

1, 1/0

Prerequisites: Instructor permission or admission to the Professional Applied and Computational Mathematics Master program. Additional study of probability, differential equations and numerical analysis and their connections to finance and economics; Black-Scholes equation, risk-neutral probability, Brownian motion, hedging, continuous and discrete stochastic models.

ACM 660 LOGISTIC REGRESSION

1, 1/0

Prerequisite: ACM 640 or instructor permission. Comparison of linear and logistic regression, multiple logistic regression, regression diagnostics, indicator variables, multicollinearity, confounding and interaction, model selection, maximum likelihood techniques, polychotomous logistic regression.

ACM 661 SURVIVAL ANALYSIS

1, 1/0

Prerequisite: ACM 640 or instructor permission. Survival and hazard functions, life tables, Kaplan-Meier survival analysis, Cox regression proportional hazards model and Cox regression with time-dependent variables; comparison with logistic regression approaches.

ACM 662 TIME SERIES ANALYSIS AND FORECASTING

1, 1/0

Prerequisite: ACM 640 or instructor permission. Time and frequency domain techniques including autocorrelation, spectral analysis, autoregressive moving average and integrated moving average models, Box-Jenkins methodology, fitting, forecasting and seasonal adjustments.

ACM 690 INTERNSHIP IN APPLIED AND COMPUTATIONAL MATHEMATICS

1-3, 1/0

Prerequisite: Written approval of faculty adviser and department chair. Research or investigation of a particular problem, planned and carried out under the guidance of a qualified member of the graduate faculty, submitted in acceptable form according to directions given by the Mathematics Department.

ACM 721 THESIS/PROJECT CONTINUATION
0, 0/0

ACM 722 THESIS/PROJECT EXTENDED
0, 0/0

Data Science and Analytics (DSA)

DSA 501 DATA ORIENTED COMPUTING AND ANALYTICS
3, 3/0

Prerequisite: Instructor permission. Practical hands-on introduction to Data Science and Data Analytics tools and acquiring, storing, manipulating, and exploring data - both big and small. Examples from bioinformatics (e.g., genomics), health care informatics, urban and regional planning, astronomy and data journalism. Extensive writing of formal reports. Offered every spring.

DSA 512 INTRODUCTION TO DATA SCIENCE AND ANALYTICS
3, 3/0

Prerequisites: Graduate standing. Introduction to Data Science and Analytics; modern analytical techniques; application to academia, industry and business needs. Fundamental concepts and terms; methods, tools, and techniques; identification of “big data” problems; data sources; analytical approaches; algorithm implementations; interpretation and reporting of results. Offered annually in the Fall semester.

DSA 587 TOPICS IN DATA SCIENCE AND ANALYTICS
1-6, 1/0

In-depth examination of rapidly and significantly changing disciplinary issues, topics, or practices. Offered occasionally

DSA 590 INDEPENDENT STUDY
3, 3/0

Independent investigation into a specific area of Data Science and Analytics; topic selected by the student in consultation with a faculty member. Offered occasionally

DSA 600 MACHINE LEARNING FOR DATA SCIENCE
3, 3/0

Prerequisites: CIS 512 or DSA 512 or equivalent. Introduction to Machine Learning Techniques for Data Science; mathematical methods; algorithms; application to academia, industry and business problems. Fundamental concepts and terms; methods, tools, and techniques. Supervised and unsupervised learning; identification of learning problems; data sources; analytical approaches; algorithm implementation; interpretation and reporting. Offered annually in the Fall semester.

DSA 601 MACHINE LEARNING MODELS IN PYTHON
3, 3/0

Prerequisites: MAT 126, MAT 311, CIS 512, or Instructor Permission. Applied introduction to building predictive, machine-learning models for real-world problems; learning Python computing environment, basic data analysis, management; data visualization and reporting using machine learning methods, including k-nearest neighbor, linear models, naïve Bayesian models, decision trees, random forests, and neural networks. Sample data sets from across industry professions. Offered occasionally.

DSA 610 DATABASES AND THE DATA SCIENCE INFORMATION LIFE CYCLE
3, 3/0

Prerequisites: Graduate standing. Introduction to an understanding of data flow for strategic, data-driven decision making, including data storage, data organization, data gathering and preparation, exploratory data analysis, and meaningful visualizations and communication. Emphasis on hands-on practice. Offered occasionally

DSA 616 ELEMENTS OF MATHEMATICS, PROGRAMMING AND COMPUTER SCIENCE FOR DATA SCIENCE
3, 3/0

Prerequisite: Instructor permission. Introductory topics in calculus, optimization, linear algebra and discrete mathematics useful for data scientists. Networking concepts relevant to data analytics approached from a mathematical point of view. Mathematical programming to implement a variety of numerical methods. Offered every fall semester.

DSA 621 DATA SCIENCE TOOLS IN ENERGY ENGINEERING
3, 3/0

Prerequisite: Instructor permission. Tools and techniques needed to collect, clean, analyze and present data specific to the field of Energy Engineering in large datasets; statistical models to describe data; visualization of data; spreadsheets; databases; data analysis software. Offered occasionally.

DSA 646 INTRODUCTION TO STATISTICS FOR DATA SCIENCE

3, 3/0

Prerequisite: Instructor permission. Descriptive statistics, probability concepts, discrete and continuous probability distributions, sampling distributions, interval estimation and hypothesis testing of one and two population means, proportions and variances, non-parametric tests, simple linear regression and correlation, one-way analysis of variance. Offered every fall semester.

Equivalent Course: MAT 646

DSA 650 DATA STRATEGY AND GOVERNANCE

3, 0/3

Prerequisite: Instructor permission. Elements, methods and tools of an organization's data strategy and its governance. Components of a data strategy for each phase in the data lifecycle, tools for executing the strategy, and aligning the data strategy with the emerging needs of the organization. Policies, procedures, standards, and training for establishing authority over the ownership and use of data assets and its security. Offered every fall semester.

DSA 652 APPLIED TIME SERIES ANALYSIS IN BANKING RISK MANAGEMENT

1, 1/0

Prerequisites: Undergraduate courses in MAT 126, MAT 311 and CIS 151 or instructor permission. Introduction to key concepts and applications of time series analysis for bank risk management data-driven decision-making. Analysis, decomposition, segmentation, model selection and estimation, statistical and hypothesis testing, and forecasting and sensitivity testing. Use of actual datasets for applied analysis; revenue forecasting future scenarios; interactive classroom instruction in SAS programming environment. Offered occasionally.

DSA 687 ADVANCED TOPICS IN DATA SCIENCE AND ANALYTICS

1-3, 1/0

Current advanced topics in Data Science and Analytics. Offered occasionally.

DSA 688 EXPERIENTIAL LEARNING IN DATA SCIENCE AND ANALYTICS

3, 0/0

Prerequisites: Graduate standing, instructor permission, 3.0 minimum GPA. Internship and team project (aka Professional Labs). In the internship, students participate in activities within an industry setting to solve real world data science problems and to learn how to be part of the real-world work environment. In the Professional Lab, students become part of a problem-solving team to learn how to solve real-world data science problem and learn typical roles in a data science team. Offered every semester.

DSA 690 MASTER'S PROJECT

3, 0/0

Master's Project.

DSA 721 THESIS/PROJECT CONTINUATION

0, 0/0

DSA 722 THESIS/PROJECT EXTENDED

0, 0/0

Mathematics (MAT)

MAT 501 MATH FOR TEACHERS: ALGEBRA

3, 3/0

Prerequisite: 24 credit hours of undergraduate mathematics. Operational systems, number systems, groups, rings, fields, ordered fields, functions over fields, algebraic properties of the trigonometric functions.

MAT 521 MATH FOR TEACHERS: GEOMETRY

3, 3/0

Formal and informal geometry, congruence, measurement, constructions, similarity, transformations, coordinate geometry, trigonometric functions.

MAT 552 MATHEMATICS FOR TEACHERS: NUMBER THEORY

3, 3/0

Prerequisites: MAT 121 and MAT 122. Structure of the integers; divisibility; primes; congruence classes; linear congruences; Diophantine equations; Fibonacci numbers; selected topics.

MAT 581 MATHEMATICS FOR TEACHERS: PROBABILITY AND STATISTICS

3, 3/0

Prerequisites: Two semesters of calculus and MAT 325 or MAT 311 or equivalent. Probability, probability distributions, sampling, design of experiments, hypothesis testing, regression, analysis of variance, nonparametric statistics.

MAT 587 TOPICS IN MATHEMATICS

3, 3/0

In-depth examination of rapidly and significantly changing disciplinary issues, topics, or practices; offered occasionally.

MAT 588 TOPICS COURSE

3, 3/0

MAT 590 INDEPENDENT STUDY

1-3, 0/0

MAT 593 MATHEMATICS FOR TEACHERS: DISCRETE MATHEMATICS

3, 3/0

Prerequisites: MAT 121 and MAT 122. Partitions; permutations; probability measure; conditional probability; vectors; matrices; operations and properties; linear programming applications.

MAT 598 MICROCOURSE

1-3, 1/0

Examination of significant disciplinary issues, topics, or practices

MAT 601 TOPICS IN MODERN ALGEBRA

3, 3/0

Prerequisite: Acceptance to the mathematics master's degree program. Groups, semigroups, and monoids; homomorphisms; subgroups and cosets; Abelian groups; the symmetric group; actions and the Sylow theorems; rings, subrings, and ideals; ring homomorphisms; integral domains, division rings, and fields; ring and field extensions; Galois theory.

MAT 611 TOPICS IN REAL ANALYSIS

3, 3/0

Prerequisites: Three semesters of an undergraduate calculus sequence. Real numbers; basic topology; continuous functions; differentiation; the Riemann-Stieltjes integral; sequence and series of functions; some special functions; the Lebesgue theory.

MAT 616 ELEMENTS OF MATHEMATICS, PROGRAMMING AND COMPUTER SCIENCE FOR DATA SCIENCE

3, 3/0

Prerequisite: Instructor permission. Introductory topics in calculus, optimization, linear algebra and discrete mathematics useful for data scientists. Networking concepts relevant to data analytics approached from a mathematical point of view. Mathematical programming to implement a variety of numerical methods. Offered every fall semester.

MAT 620 MODERN GEOMETRY:SELECTED TOPICS

1-3, 1/0

Prerequisite: MAT 322. Foundations; axiomatic projective geometry; real projective geometry; linear projective geometry; finite geometries; non-Euclidean geometries.

MAT 631 FOUNDATIONS OF MATHEMATICS

3, 3/0

Prerequisite: 12 credit hours of mathematics coursework beyond calculus. Axiomatic method; theory of sets and infinite sets; real number system and linear continuum; the complex number system; groups and their significance for the foundations; development of various viewpoints on foundations.

MAT 646 INTRODUCTION TO STATISTICS FOR DATA SCIENCE

3, 3/0

Prerequisite: Instructor permission. Descriptive statistics, probability concepts, discrete and continuous probability distributions, sampling distributions, interval estimation and hypothesis testing of one and two population means, proportions and variances, non-parametric tests, simple linear regression and correlation, one-way analysis of variance. Offered every fall semester.

MAT 651 THEORY OF NUMBERS

3, 3/0

Prerequisite: 12 credit hours of mathematics coursework beyond calculus. Counting and recording of numbers; properties of numbers; Euclid's algorithm; prime numbers; the aliquot parts; indeterminate problems and their theory; Diophantine problems; congruences; analysis of congruences; Wilson's theorem; Euler's theorem; theory of decimal expansions; the converse of Fermat's theorem; the classical construction problems.

MAT 670 DISCRETE MATHEMATICS AND FOUNDATIONS OF COMPUTER SCIENCE

3, 3/0

Prerequisite: Acceptance to the mathematics master's degree program. Problems, theorems, and discrete structures commonly used in mathematics and computer science; mathematical analysis of algorithmic/computer solutions to problems in mathematics; mathematical problems that are not solvable by computer.

MAT 681 INTERMEDIATE PROBABILITY

3, 3/0

Prerequisite: MAT 381. Advanced probability theory; combinatorial analysis; the laws of large numbers; theory of stochastic processes.

MAT 683 STATISTICAL THEORY

3, 3/0

Prerequisite: MAT 381. Probability; estimation; confidence sets; tests of hypotheses; decision theory; Bayesian methods; linear models; nonparametric methods.

MAT 690 MASTER'S PROJECT

3, 3/0

Prerequisite: Written approval of the faculty member and the department chair. Research study or investigation of a mathematical problem or topic, conducted under the guidance of a graduate faculty member of the Mathematics Department.

MAT 695 MASTER'S THESIS

3, 0/0

MAT 696 HISTORY OF MATHEMATICS

3, 3/0

Prerequisite: 12 credit hours of mathematics coursework beyond calculus. Chronological study of the development of mathematics; contributions of nations, ages, or periods; selected biographies, appraisals, and critiques; problem studies.

MAT 699 SELECTED ADVANCED TOPICS

3, 3/0

Prerequisite: Instructor permission. Seminar considering an advanced branch of contemporary mathematics such as combinatorics, game theory, automata theory, or intensive study of an advanced topic in mathematical research.

MAT 701 MODERN ALGEBRA I

3, 3/0

Prerequisite: MAT 301. Cyclic groups; transformation groups; factor groups; groups with operators; isomorphism theorems; composition series; direct products of groups; Sylow theorems; residue class rings; operations on ideals; extensions of rings.

MAT 721 THESIS/PROJECT CONTINUATION

0, 0/0

MAT 722 THESIS/PROJECT EXTENDED

0, 0/0

MAT 795 MASTER'S THESIS

3, 3/0

Individual investigation into an area of mathematics, under the guidance of a faculty member.

Mathematics Education (MED)

MED 500 PRACTICUM I: GRADUATE FIELD EXPERIENCE IN SECONDARY MATHEMATICS EDUCATION

3, 1/4

Current school mathematics practices; related mathematics teaching periodicals and policy documents; affective and societal issues surrounding teaching; reflective observation of teaching and learning and the classroom, school, and community contexts in which they occur.

MED 501 PRACTICUM II: PRACTICE TEACHING MATHEMATICS IN THE MIDDLE SCHOOL

3, 0/6

Prerequisites: Admission to the MS. Ed. Adolescence Education certification program; successful completion of all coursework preceding student teaching; Introduction to the practice of classroom teaching for the prospective middle school mathematics teacher. Eight weeks (40 days) of classroom practice including experiences with classroom discipline, instructional planning, curriculum, assessment and testing, field observation, peer presentations, construction and critique of lesson plans, unit designs, uses of technology and media, and research and use of successful teaching strategies for the mathematics classroom in early and middle adolescence.

MED 502 PRACTICUM III: PRACTICE TEACHING MATHEMATICS IN THE HIGH SCHOOL

3, 0/6

Prerequisites: Admission to the MS. Ed. Adolescence Education certification program; successful completion of all coursework preceding student teaching; Introduction to the practice of classroom teaching for the prospective high school mathematics teacher. Eight weeks (40 days) of classroom practice including experiences with classroom discipline, instructional planning, curriculum, assessment and testing, field observation, peer presentations, construction and critique of lesson plans, unit designs, uses of technology and media, and research and use of successful teaching strategies for the mathematics classroom for mid and late adolescence.

MED 524 MATHEMATICS INSTRUCTION AT THE SECONDARY LEVEL

1, 1/0

Prerequisite: Education major or mathematics education postbaccalaureate certification program major. Content, teaching methods, activities, and evaluation procedures typically used in mathematics instruction at the secondary level.

MED 588 TOPICS COURSE

3, 3/0

MED 590 INDEPENDENT STUDY

1-3, 0/0

MED 595 RESEARCH METHODS AND TECHNIQUES IN MATHEMATICS EDUCATION

3, 3/0

Prerequisite: 9 credit hours of graduate-level coursework in mathematics. Nature of educational research; problem analysis; descriptive and inferential statistics; experimental design; strategy of historical, descriptive, and experimental studies.

MED 598 MICRO COURSE

1-3, 0/0

Examination of significant disciplinary issues, topics, or practices

MED 600 CONTEMPORARY MATHEMATICS CURRICULUM DEVELOPMENT

3, 3/0

Contemporary mathematics curricular developments in the United States and other countries, and the forces that shape these developments; historical background influencing current curricular developments; mathematics curricula and their relation to school and society.

MED 601 SEMINAR IN THE TEACHING OF MATHEMATICS

3, 3/0

This course provides an introduction to the theory and practice of classroom teaching for prospective secondary mathematics teachers. Topics include learning theory, construction and critique of lesson and unit plans, use of technology, research on teaching and learning that includes addressing the needs of students with diverse mathematical abilities and English Language Learners, assessment, classroom management, state and national standards, and curricular issues.

MED 602 MATHEMATICS FOR THE SECONDARY SCHOOL TEACHER: SELECTED TOPICS

3, 3/0

This selected topics course will focus on the classroom implementation of high quality mathematics materials that include assessment of prior knowledge, development of conceptual understanding and procedural knowledge, and provide ongoing opportunities for formative assessment through a problem-based approach to teaching and learning mathematics.

MED 604 TEACHING OF GEOMETRIC CONCEPTS

3, 3/0

Prerequisite: Acceptance to the mathematics master's degree program. Traditional Euclidean approach; transformational, computer-based, and integrated approaches to the teaching and learning of geometric concepts in high school; learning theory, pedagogy, mathematical models, and new developments specific to the teaching of geometric concepts in the high school curriculum.

MED 605 TEACHING OF ALGEBRAIC CONCEPTS

3, 3/0

Prerequisite: Acceptance to the mathematics master's degree program. Structuralist, intuitive, historical, and applied approaches to the teaching of concepts of algebra; learning theory, pedagogy, mathematical models, and new developments specific to the teaching of algebraic concepts in the high school curriculum.

MED 606 LOGO AND MATHEMATICS LEARNING

3, 3/0

History of LOGO language development; use of LOGO in the secondary and elementary schools; turtle graphs and the use of LOGO in problem solving. Appropriate for teachers of math and science, as well as teachers of other subjects.

MED 607 TECHNOLOGY IN MATHEMATICS EDUCATION

3, 3/0

Use and evaluation of equipment and software for the mathematics classroom: developing classroom lessons using technology for mathematics; investigating the uses of adaptive technology in mathematics. Student produce projects for use in their classrooms and learn how to assess accessibility in software design.

MED 683 PROBLEM SOLVING AND PROBLEM POSING

3, 3/0

Prerequisite: Acceptance to the mathematics master's degree program. Techniques of problem solving and problem posing in mathematics: role of teaching problem solving in the high school setting.

MED 690 MASTER'S PROJECT

1-9, 0/0

Study undertaken by one or more individuals, under the supervision of a member of the graduate mathematics faculty, on a problem of special interest submitted in acceptable form according to directions given by the Mathematics Department.

MED 721 THESIS/PROJECT CONTINUATION

0, 0/0

MED 722 THESIS/PROJECT EXTENDED

0, 0/0

MED 795 MASTER'S THESIS IN MATHEMATICS EDUCATION

3, 3/0

Individual investigation of original problem, conducted under the supervision of a member of the graduate mathematics faculty, submitted in acceptable form according to directions given by the Graduate School.

Modern and Classical Languages (FRE, ITA, MCL, SPA)

French (FRE)

FRE 501 STRUCTURES OF MODERN FRENCH

3, 3/0

Provides in-and pre-service teachers the knowledge and skills required to analyze the linguistics structures of the French language and the appropriate means to teach these structures to foreign language students; focus on syntactic, morphological, phonological, semantic and discourse features of French; taught in French. Offered occasionally.

FRE 516 LITERACY FOR FRENCH TEACHERS

3, 3/0

Prerequisites: Graduate status or instructor permission. Development of literacy in French and proficiency in literacy-centered language teaching practices. Taught in French. Offered occasionally.

FRE 590 INDEPENDENT STUDY

1-3, 0/0

Offered occasionally.

FRE 594 GRADUATE WORKSHOP

1-3, 0/0

Special graduate offering. Topic chosen by instructor. Offered occasionally.

FRE 600 HISTORY OF THE FRENCH LANGUAGE

3, 3/0

Prerequisites: Graduate standing or instructor permission. History of the origins of modern French. Specific emphasis given to French's evolution from Vulgar Latin, social and political influences on language change, and standardization movements in the 17th century. Offered occasionally.

FRE 610 THE AGE OF ENLIGHTENMENT

3, 3/0

Prerequisites: Must be admitted into master of science K-12 foreign language teaching program (French) and have completed an appropriate undergraduate course in French literature, or instructor permission. Detailed text-based study of works by Montesquieu, Voltaire, Diderot, and Rousseau that characterized and shaped the Enlightenment. Offered occasionally.

FRE 620 GEORGE SAND SEMINAR

3, 3/0

Prerequisites: Must be admitted into master of science K-12 foreign language teaching program (French) and have completed an appropriate undergraduate course in French literature, or instructor permission. Detailed study of a selection of George Sand's romantic, feminist, pastoral, and socialist novels; excerpts from Sand's autobiography and correspondence; major critics of her works. Offered occasionally.

FRE 630 FRENCH AND FRANCOPHONE POPULAR NOVELS SINCE THE NINETEENTH CENTURY

3, 3/0

Prerequisites: Must be admitted into master of science K-12 foreign language teaching program (French) and have completed an appropriate undergraduate course in French literature, or instructor permission. Extensive reading of selected French and/or Francophone popular novels; in-depth study of how each reflects its society, epoch, and author. Offered occasionally.

FRE 640 EXPERIMENTAL LITERATURE OF THE TWENTIETH CENTURY

3, 3/0

Prerequisites: Must be admitted into master of science K-12 foreign language teaching program (French) and have completed an appropriate undergraduate course in French literature, or instructor permission. Detailed study of experimental literature of the twentieth century, especially surrealism, the theater of the absurd, and the nouveau roman. Offered occasionally.

FRE 650 MOLIÈRE AND THE SUN KING

3, 3/0

Prerequisite: must be admitted into master of science K-12 foreign language teaching program, or instructor permission. Taught in French. Analysis of the life and works of Molière, the milieu for which he wrote, the conventions of 17th-century French drama, the influence of his times on his work, his legacy. Offered occasionally.

FRE 660 HAITIAN LITERATURE IN SOCIO-CULTURAL CONTEXT

3, 3/0

Prerequisites: Graduate standing or instructor permission. Taught in French. The novel as vehicle for social activism and venue for exploring the syncretic nature of Haitian identity. Exploration of the ideology, objectives, rhetoric, and literary symbolism of key Haitian activist authors. Offered occasionally.

Modern and Classical Languages (MCL)

MCL 590 INDEPENDENT STUDY

1-3, 0/0

MCL 594 GRADUATE WORKSHOP

1-3, 0/0

MCL 690 MASTER'S PROJECT

3, 0/0

MCL 695 MASTER'S THESIS

3, 0/0

MCL 721 THESIS/PROJECT CONTINUATION

0, 0/0

MCL 722 THESIS/PROJECT EXTENDED

0, 0/0

Spanish (SPA)

SPA 500 SPANISH LINGUISTICS AND PEDAGOGY

3, 3/0

Prerequisites: Graduate status. Exploration of the Spanish professional literature on applied linguistics and its implications for Spanish teaching and learning. Offered occasionally.

SPA 502 SEMINAR IN LATIN AMERICAN LITERATURE: SELECTED TOPICS

3, 3/0

Prerequisites: Graduate status or undergraduate senior with an average of B or better in upper-level Spanish courses and permission of instructor, department chair, and dean of Graduate School. In-depth treatment of a selected topic; analysis of selected works, with readings in history and literary criticism; research into specific problems. Offered occasionally.

SPA 510 INTRODUCTION TO TRANSLATION

3, 3/0

Prerequisites: Admission to the Graduate Certificate in Spanish-English Translation or Instructor Permission. Undergraduate GPA of at least 3.0. Taught in Spanish with some English course content. An introduction to Translation Studies (TS) through an overview of the major translation theories. Students explore the role of the translator as a mediator and the importance of cultural awareness. Case studies allow students to consider concepts, strategies, and skills necessary to produce a professional translation. Offered every fall.

SPA 516 LITERACY FOR SPANISH TEACHERS

3, 3/0

Prerequisites: Graduate status or instructor permission. Development of literacy in Spanish and proficiency in literacy-centered language teaching practices. Taught in Spanish. Offered occasionally.

SPA 594 GRADUATE WORKSHOP

1-3, 0/0

Special graduate offering. Topic chosen by instructor. Offered occasionally.

SPA 602 SPANISH SOCIOLINGUISTICS AND PRAGMATICS

3, 3/0

Prerequisites: Graduate standing or instructor permission. Exploration of research and methodology in the study of Spanish sociolinguistics and pragmatics. Offered occasionally.

SPA 606 CONTEMPORARY CIVILIZATION AND CULTURES OF SPAIN

3, 3/0

Prerequisite: Must be admitted into Master of Science K-12 Foreign Language Teaching program, or instructor permission.

Development of cultures in Spain since the country's emergence as a modern nation state; their implications for Spain's future within the European community. Offered occasionally.

SPA 609 CIVILIZATIONS AND CULTURES OF LATIN AMERICA

3, 3/0

Prerequisite: Must be admitted into Master of Science K-12 Foreign Language Teaching program, or instructor permission. Challenges faced by the emerging nations of Latin America from the nineteenth century to the present; emphasis on the relationships between these diverse cultures and the rest of the world. Offered occasionally.

SPA 617 DON QUIXOTE

3, 3/0

Prerequisite: Must be admitted into Master of Science K-12 Foreign Language Teaching program, or instructor permission. Cervantes' Don Quixote in its historical context; multiple levels of interpretive reading; questions of genre relationships. Offered occasionally.

SPA 620 TRANSLATION EDITING AND QUALITY CONTROL

3, 3/0

Prerequisites: Admission to the Graduate Certificate in Spanish Translation or Instructor Permission. Basics of copy editing and proofreading and aspects of quality control, including quality assurance and quality management. Case studies allow students to consider concepts, strategies, and skills necessary to edit a translation and assure its quality. Offered every other fall.

SPA 621 SCIENTIFIC TRANSLATION

3, 3/0

Prerequisite: Admission to the Graduate Certificate in Spanish Translation or instructor permission. Taught in Spanish. Some English used in course presentation. An introduction to translating medical, scientific, and technical texts and documents. Topics covered include understanding and applying terminology pertaining to body systems, illnesses, scientific journals, and technical manuals. Case studies allow students to consider concepts, strategies, and skills necessary to produce a professional translation. Offered every spring.

SPA 622 LEGAL TRANSLATION

3, 3/0

Prerequisite: Admission to the Graduate Certificate in Spanish-English Translation or Instructor Permission. Taught in Spanish and English. Spanish used is standard Spanish utilized in legal settings in all Spanish speaking contexts observing regional differences. Students learn to manage the terminology, style and register of legal documents. Topics covered include civil and criminal law, business correspondence, and documents related to contracts. Focus on concepts, strategies, and skills necessary to produce a professional translation. Offered every spring.

SPA 623 TRANSLATION TECHNOLOGIES AND PROJECT MANAGEMENT

3, 3/0

Prerequisite: Admission to the Graduate Certificate in Spanish-English Translation or Instructor Permission. Taught in Spanish and English. Topics covered include translation memory, machine translation, website localization, terminology management, human resources, file formatting and project planning, workflow and delivery. Exploration of concepts, strategies, and skills necessary to utilize translation technologies and manage a translation project. Offered every fall.

SPA 631 CINEMA OF SPAIN

3, 3/0

Aspects of the cinema of Spain as a reflection of Spanish cultures; individual directors, periods of film production; influence of politics and culture on the cinema. Offered occasionally.

Music (MUS)

MUS 588 TOPICS COURSE

3, 3/0

MUS 590 INDEPENDENT STUDY

1-3, 0/0

Individualized study. Instructor Permission Required. Offered as needed.

MUS 601 FOUNDATIONS OF MUSIC EDUCATION

3, 3/0

Prerequisites: Matriculation in Masters of Music Education Degree Program. An overview of the historical, cultural and philosophical foundations that have shaped and directed music education in the United States. An examination of aesthetic, sociological and psychological foundations of music education.

MUS 602 ADVANCED TOPICS IN MUSIC HISTORY

3, 3/0

Prerequisites: Matriculation in Masters of Music Education Degree Program. Central themes of historical style and compositional structure in Western art music from the Medieval to Modern eras. Investigate essential artistic values through aspects of historical context, musical analysis, and scholarly commentary, and apply those methodologies in a comprehensive research paper.

MUS 608 JAZZ STYLES AND ANALYSIS

3, 3/0

Prerequisite: Instructor Permission. Study and analyze jazz music from 1900-1960. Students will develop a comprehensive understanding of jazz standard repertoire and performance practice through listening, transcribing, analyzing, performing, improvising, and composing. Offered occasionally.

MUS 615 PIANO PEDAGOGY FOR CHILDREN

3, 3/0

Prerequisite: Acceptance into M.M.Ed. graduate program. Theoretical and applied training for students wishing to develop effective piano teaching strategies for young children. Evaluation of various piano method series. Developing healthy technique. Hearing the score and error detection. Lesson observation. Piano Pedagogy resource development. Must have access to a keyboard and the ability to video record themselves. Offered every other summer.

MUS 620 ADVANCED TOPICS IN MUSIC THEORY

3, 3/0

Prerequisites: Instructor permission. Explores philosophical, pedagogical, and practical approaches to teaching music theory. Develop analytical tools and use critical thinking skills analyze articles, texts, and pedagogical models through the lens of a historically, sociologically and technologically informed perspective. Offered summer only.

MUS 624 SOCIAL COMMENTARY IN MUSICAL THEATRE

3, 3/0

Prerequisites: Matriculation in Masters of Music Education Degree Program. Overview of the history, evolution, and impact of musical stage entertainment as it relates to specific social and political issues and causes; development of prominent stage forms in relation to their intended or unintended social contributions, moral lessons, political purposes, and artistic symbolism.

MUS 625 CURRICULUM AND ASSESSMENT

3, 3/0

Prerequisite: Matriculation in Masters of Music Education Degree Program. Current trends in curriculum and assessment and the effect on music instruction. Introduces a standards- and repertoire-based curriculum model as a framework to facilitate development of pre-K-12 curriculum for ensembles and general music classes.

MUS 630 CONTEMPORARY ISSUES IN MUSIC EDUCATION

3, 3/0

Prerequisites: Matriculation in Masters of Music Education Degree Program. Students will gain an overview of the historical and intellectual foundations of contemporary music education in the United States. Additionally, students will examine curricular trends and areas of concern for music education in the United States.

MUS 640 RESEARCH METHODS IN MUSIC EDUCATION

3, 3/0

Prerequisite: Matriculation in Masters of Music Degree Program. Study of historical, descriptive, qualitative, and experimental research in music education. Students study various research methodologies and analyze example studies in order to facilitate understanding of music education research.

MUS 641 REPERTOIRE AND ENSEMBLE LEADERSHIP

3, 3/0

Prerequisites: Matriculation in Masters of Music Education Degree Program. An in-depth overview of the leadership, conducting, and programming skills required for music educators, with added emphasis on ensemble psychology, rehearsal management, score preparation and concert planning.

MUS 644 SECONDARY GENERAL MUSIC METHODS

3, 3/0

Prerequisites: Admission to the Masters of Music Education Degree or Instructor Permission. An overview of the development and execution of secondary level general music curricula, with a focus on creativity and improvisation in both elective and mandatory general music courses for all types of music learners. Offered every summer.

MUS 645 INCLUDING STUDENTS WITH EXCEPTIONALITIES IN MUSIC CLASSROOMS, ENSEMBLES, AND STUDIOS

3, 3/0

Prerequisite: Matriculation in Master's of Music in Education Program. This course provides foundation of knowledge related to successfully including students with exceptionalities in PK-12 music classrooms, ensembles, and studios. Specifically, strategies that facilitate participation, music skill development, and student enjoyment will be discussed. Behaviors of students with exceptionalities related to sensory, behavior, and social challenges are addressed. Offered occasionally.

MUS 665 METHODS OF EARLY CHILDHOOD MUSIC AND MOVEMENT

3, 2/0

Prerequisites: Instructor Permission. Exploring the methods used to guide young children's music and movement development within a wide variety of early childhood music education settings. Field placement activities that support course objectives are required, approximately 12-15 hours. Offered annually.

MUS 687 TOPICS COURSE

3, 3/0

Prerequisite: Graduate status. Advanced graduate topics course in Music. Offered occasionally.

MUS 690 MASTER'S PROJECT

3,6, 0/0

A study undertaken by an individual on a problem of professional significance to demonstrate an area of mastery in the field. Offered every semester.

MUS 695 THESIS

3-6, 0/0

Individual investigation of an original problem representing a significant contribution to the literature of the field. Offered every semester.

MUS 721 THESIS/PROJECT CONTINUATION

0, 0/0

MUS 722 THESIS/PROJECT EXTENDED

0, 0/0

Physics

PHY 500 PHYSICS EDUCATION RESEARCH SEMINAR

3, 3/0

Designed for practicing or future high school physics teachers. Includes reading and discussion of current research in physics education, evaluation and discussion of the application of this research to the New York State physics core curriculum, and the exploration and practice of assessment techniques in high school physics.

PHY 502 INITIAL PHYSICS TEACHING EXPERIENCE FOR ALTERNATIVE CERTIFICATION

3-6, 3/0

Prerequisite: Acceptance to the alternative certification in physics program. Full-time physics teaching with college supervision and school supervision: lesson and unit design, classroom management, designing and implementing student assessment, participation in school community.

PHY 507 ENERGY AND FORCE INTERACTIONS FOR K-8 TEACHERS

3, 1/4

Designed for elementary teachers to better understand physics and the nature of science. Focus on interactions and energy: energy, force, friction, gravity, magnetic fields, light, and electricity. Not appropriate for students with extensive physics background.

PHY 510 REGENT'S PHYSICS SCIENCE PRACTICES

4, 2/4

Prerequisites: Graduate standing, Introductory physics sequence or permission of instructor. Students apply the Next Generation Science Standards (NGSS Lead States, 2013) practices of asking questions, developing and using models, planning and carrying out investigations, analyzing and interpreting data, using mathematics, constructing explanations, and engaging in argument from evidence. Students apply these practices to physics concepts. Offered summer sessions.

PHY 511 COMPUTATIONAL PHYSICS FOR TEACHERS

3, 3/0

Prerequisites: PHY 111, PHY 112 and PHY 213 or instructor permission. Study of problems from various physics content areas using a variety of computational tools (e.g. spreadsheets, computer programming) and techniques (Newton's method, Runge-Kutta). Physical systems including harmonic oscillator with damping, gravitational force (orbits, central force problem), electric and magnetic field and potential calculations, thermal and statistical physics, motion with air friction, wave motion, quantum mechanical tunneling and scattering. Pedagogical issues associated with using computation in the high school classroom.

PHY 518 WAVE PHENOMENA AND OPTICS FOR TEACHERS

3, 3/0

Wave phenomena, including types, motion, interaction, and propagation; diffraction and interference; geometrical optics. Emphasizes research-based profiles of student conceptual difficulties and instructional strategies to remedy them.

PHY 520 MODERN PHYSICS FOR TEACHERS

3, 3/0

Major developments in twentieth and twenty-first century physics and how they changed our understanding of the nature of space and time and the structure of matter. Application of physics education research to teaching relativity and quantum physics in a high school physics course.

PHY 521 EXPERIMENTS IN MODERN PHYSICS FOR TEACHERS

3, 0/6

Prerequisite: PHY 520 or equivalent. Hands-on activities and advanced experiments chosen from the areas of optics, modern physics, nuclear physics, and solid state physics with the goals of learning modern laboratory techniques, data analysis, and lab report writing.

PHY 522 ENERGY: SUSTAINABILITY AND RENEWABILITY FOR TEACHERS

3, 2/2

Prerequisites: PHY 107 and PHY 108. Different energy sources, their global supply, and physical laws governing their present use in the world. Topical energy sources and physical laws for the hydrogen fuel cell, solar cell and wind turbine; using them in applications and devices.

PHY 525 NUCLEAR AND PARTICLE PHYSICS FOR TEACHERS

3, 3/0

Major developments in nuclear and particle physics in the twentieth and twenty-first century, culminating in the standard model. Discussion of how these developments changed our understanding of the structure of matter.

PHY 588 TOPICS COURSE

3, 3/0

PHY 590 INDEPENDENT STUDY

1-3, 0/0

PHY 594 GRADUATE WORKSHOP

1-3, 0/0

In-depth study of a current issue in physics for grade school physics teachers culminating in a professional presentation or manuscript. Offered occasionally.

PHY 596 GRADUATE CONFERENCE

1-3, 0/0

Prepare and conduct a scholarly presentation (poster or paper) on physics for school teaching at a regional, national or international professional academic conference. Offered occasionally.

PHY 620 MECHANICS FOR HIGH-SCHOOL TEACHERS

6, 3/6

Prerequisites: PHY 111 and PHY 510, or instructor permission. Designed for practicing or future high school physics teachers. Activities and laboratory experiences develop ideas in force, motion, and energy. Exemplary pedagogical techniques are modeled and examined. Offered every alternate summer.

PHY 622 ELECTRICITY AND MAGNETISM FOR HIGH SCHOOL TEACHERS

6, 3/3

Prerequisites: PHY 510 and PHY 112, or instructor permission. Designed for high school physics teachers. Activities and laboratory experiences develop ideas in electricity and magnetism. Exemplary pedagogical techniques are modeled and examined. Offered summer only.

PHY 690 MASTER'S PROJECT

1-3, 0/0

Study of a problem of special interest, preapproved by the physics graduate committee and submitted in acceptable form according to directions given by the Physics Department.

PHY 721 THESIS/PROJECT CONTINUATION

0, 0/0

PHY 722 THESIS/PROJECT EXTENDED

0, 0/0

Psychology (PSY)

PSY 590 INDEPENDENT STUDY

1-3, 0/0

PSY 690 MASTER'S PROJECT

3, 3/0

Research or investigation of a specific psychological topic, planned and carried out by the student with the approval, consultation, and guidance of a graduate faculty member of the Psychology Department.

PSY 715 MANAGEMENT PRACTICES AND TECHNIQUES

3, 3/0

Prerequisites: PSY 101 and instructor permission. Major management theories and factors affecting organizational systems; managing conflict and negotiating agreements; effective interpersonal skills for managers; defining problems and generating creative alternatives; types and sources of information needed by managers; relation of leadership style to staff productivity and development; relating effectively to upper-level management.

PSY 721 THESIS/PROJECT CONTINUATION

0, 0/0

PSY 722 THESIS/PROJECT EXTENDED

0, 0/0

Social & Psychol Found of Ed (SPF)

SPF 500 MULTICULTURAL EDUCATION

3, 3/0

Cultural foundations of education; application of relevant findings of the social sciences to problems and issues of education in culturally plural (multiethnic) settings.

SPF 503 EDUCATIONAL PSYCHOLOGY

3, 3/0

Psychological theories and principles of teaching and learning and their application to the classroom; effects of student and classroom characteristics on effective instruction; utilization and interpretation of assessments of learning.

SPF 520 EDUCATIONAL STATISTICS I (DESCRIPTIVE AND INFERENTIAL)

3, 3/0

Basic statistical concepts and their application to inferential statistics. Students develop a statistical frame of reference in dealing with educational and psychological problems.

SPF 525 PHILOSOPHY OF EDUCATION

3, 3/0

Prerequisite: EDU 410 or equivalent. Principles underlying educational practices; changing concepts of education; education in a democratic society; teaching procedures as determined by a democratic concept of education.

SPF 528 HUMAN RELATIONS

3, 3/0

Intergroup problems relating to race, sex, religion, national origin, etc.; dividing and integrating factors affecting communications and understanding between individuals and within/between groups.

SPF 529 ADOLESCENT PSYCHOLOGY

3, 3/0

Characteristics and problems of adolescents; early adolescent development and the application of diverse instructional strategies in middle childhood education; relationship of adolescent behavior to earlier development; child and adolescent development as a continuum; special characteristics of successful practices in the early secondary school including relationship of adolescent development to different models of instruction; explores current and historical models of interdisciplinary teaching and teaming of students and faculty to maximize student learning.

SPF 546 CHILD ABUSE AND NEGLECT: SCHOOL AND COMMUNITY COOPERATION

3, 0/0

Role of the teacher in relation to child abuse and neglect: nature and causation of abuse and neglect; workings of the current child protection system and the specific role of the teacher in that system; broader role of the school in remedying child maltreatment.

SPF 556 GROUP DYNAMICS IN EDUCATION

3, 3/0

Prerequisite: Instructor consultation recommended. Theory and practice of group procedures in the school; development of understandings, skills, and attitudes conducive to successful group leadership and participation; group study and evaluation; experiential groups; the school group in its sociological, psychological, and philosophical setting.

SPF 590 INDEPENDENT STUDY

1-6, 0/0

SPF 594 THEMES AND ISSUES IN URBAN EDUCATION

3, 3/0

The contemporary social contexts of urban education; theory, schooling, and strategies for improved ways of teaching in relation to the community are explored.

SPF 596 GRADUATE CONFERENCE

1-3, 1/0

SPF 598 MICROCOURSE

3, 0/0

SPF 602 MANAGEMENT: ADMINISTRATIVE BEHAVIOR

3, 3/0

Prerequisite: Graduate status. Basic administrative theories; managerial behavior as expressed through conceptual, human, and technical skills. Observation of field managers.

Equivalent Course: ADE 602

SPF 603 HUMAN RESOURCE MANAGEMENT

3, 3/0

Personnel-related functions and the utilization of resources to support these functions within organizations: design of in-service training programs; supervisory skills for enhancing motivation and productivity; employee benefit packages; grievance and labor relations plans; proposals to obtain funding and training.

Equivalent Courses: ADE 603, BUS 603, SWK 603

SPF 611 EVALUATION IN EDUCATION

3, 3/0

Background and current status of evaluation; principles, purposes, and procedures of evaluation; effective interpretation and use of evaluative data; methods of recording and reporting pupil progress.

SPF 612 DATA ANALYTICS IN EDUCATION

3, 3/0

Prerequisite: Instructor permission. Developing and conducting school and district data analytics processes. Building a data-driven culture for improving instruction, establishing learning goals, and meeting school, district, and government objectives. Using education data mining and learning analytics strategies for informing goal setting, improving practice, and reporting at all levels of education. Offered annually in the fall.

SPF 615 FOUNDATIONS OF SOCIAL CHANGE

3, 3/0

Prerequisites: Graduate Student Status. An overview of social justice perspectives on social change. Transformations within the global economy have contributed to new structural and cultural expressions of injustice and have inspired interest in alternative policies and frameworks that can address these developments. This course provides students with an in-depth examination of current conceptualizations of social change and practical alternatives to contemporary economic, institutional, and nature-society relations from a social justice perspective. Offered every semester.

SPF 619 PARENT EDUCATION AND COUNSELING

3, 3/0

Parent education counseling approaches for schools and other settings: effective parent relations; fundamentals of effective parenting; parenting skills; program development and counseling procedures for various settings and populations; ways to involve parents in school/agency activities.

SPF 632 METHODS AND TECHNIQUES OF DATA ANALYTICS RESEARCH

3, 3/0

Prerequisite: 9 credits of graduate courses or instructor permission. Research concepts and terms; identifying and addressing issues in industry; sources of information and data; choosing methods, tools, and techniques for professional sciences data analytics; interpretation of findings; organizing, writing, and presenting a professional report. Field experience. Offered annually in the spring.

SPF 641 SOCIAL FOUNDATIONS OF EDUCATION

3, 3/0

Relationships of school to society; contemporary social problems affecting education, social groups, and institutions; school and community relations; national, state, and community organizations affecting educational programs and the development of social understandings in pupils.

SPF 646 SEX EDUCATION AND COUNSELING

3, 3/0

Fundamentals of human sexuality throughout the life cycle; sex education methods and materials for various age groups and special populations; sex counseling strategies; parent-community involvement. Designed for teachers and other helping professionals.

SPF 665 INSTRUCTIONAL DESIGN AND ASSESSMENT

3, 3/0

Prerequisite: Graduate Status. Designing instruction to achieve specific learning outcomes; systematic models that facilitate planning, developing, revising, and evaluating instruction; planning instruction that incorporates educational technology.

SPF 686 SEMINAR IN INNER-CITY EDUCATION

3, 3/0

Nature and scope of education in the inner city; social research informing public policy on education of minorities; culture of minority children and the inner-city school; role of the teacher and the administrator; curriculum development and the needs of inner-city students; quest for educational equity; community/parent involvement.

SPF 688 LEADERSHIP IN ORGANIZATIONS

3, 3/0

Prerequisite: BUS/EDF/PSY 715. Theories of leadership; organizational contexts and culture for leadership; the role of the leader in organizations; leadership competencies for organizational effectiveness; the leader's role in mentoring and coaching for effective performance; the leader's role in achievement of organizational mission and goals.

Equivalent Courses: ADE 688, BUS 688

SPF 689 METHODS AND TECHNIQUES OF EDUCATIONAL RESEARCH

3, 3/0

Prerequisites: Graduate status. Background of educational research; selection and development of research problems; sources of information and data; methods, tools, and techniques; collection, treatment, application, and interpretation of research data; organizing and writing a research report. Special Note: For all teacher candidates seeking initial certification at the master's level, this course will include readings and projects with a special focus on exploring the history, philosophy, and role of education and the rights and responsibilities of stakeholders in the schooling process on a national and international scale.

Equivalent Courses: ADE 695, BME 601, MUL 689

SPF 690 MASTER'S PROJECT

1-3, 3/0

A study undertaken by one or more individuals on a problem of special interest submitted in acceptable form according to directions from the Educational Foundations Department.

SPF 695 MASTER'S THESIS

3, 0/0

An individual investigation of an original problem submitted in acceptable form according to directions given by the Graduate School.

SPF 712 MANAGING PROGRAM EVALUATION

3, 3/0

Management and technical skills required for program evaluation in the public and private sectors; establishing evaluation standards and criteria; developing evaluation instruments and designs; statistical analysis of evaluation data; computer-based statistical analyses; report preparation and follow-up studies.

Equivalent Courses: BUS 712, PAD 712, SWK 712

SPF 715 MANAGEMENT PRACTICES AND TECHNIQUES

3, 3/0

Prerequisites: PSY 101 Grade of C, and instructor permission. Major management theories and factors affecting organizational systems; managing conflict and negotiating agreements; effective interpersonal skills for managers; defining problems and generating creative alternatives; types and sources of information needed by managers; relation of leadership style to staff productivity and development; relating effectively to upper-level management.

Equivalent Course: ADE 715

SPF 721 THESIS/PROJECT CONTINUATION

0, 0/0

SPF 722 THESIS/PROJECT EXTENDED

0, 0/0

Social Work (SWK)

SWK 519 COMMUNICATION FOR LEADERS AND MANAGERS

3, 3/0

Theories of effective communication; face-to-face communication; group problem solving; public speaking; power and leadership in organizational settings; persuasive messages and campaigns that public relations practitioners design for a variety of publics.

Designed for graduate students interested in improving their workplace communication skills.

Equivalent Course: BUS 519

SWK 546 CHILD ABUSE AND NEGLECT: SCHOOL AND COMMUNITY COOPERATION

3, 3/0

Prerequisites: Graduate status and experience in school/school-related setting or instructor permission. Role of the teacher in cases of child abuse and neglect; nature and causation of abuse and neglect; workings of the current child protection system; specific role of the teacher in that system; broader role of the school in remedying and preventing child maltreatment.

SWK 590 INDEPENDENT STUDY

1-3, 0/0

SWK 594 GRADUATE WORKSHOP

1-3, 0/0

Graduate Workshop.

SWK 603 HUMAN RESOURCE MANAGEMENT

3, 3/0

Personnel-related functions and the utilization of resources to support these functions within organizations: design of in-service training programs; supervisory skills for enhancing motivation and productivity; employee benefit packages; grievance and labor relations plans; proposals to obtain funding and training.

Equivalent Course: BUS 603

SWK 643 SUPERVISION IN THE HUMAN SERVICES

3, 3/0

Prerequisite: Graduate status. Roles and functions of supervisors in a variety of work settings; supervisory role in coordinating agency functions and meeting clients' needs; worker role and responsibilities; leadership, organizational, and systems theory; application of theory to practice situations.

SWK 645 PROGRAM PLANNING IN THE HUMAN SERVICES

3, 3/0

Use of data for program planning in human service organizations. Students design a study pertinent to human services management.

SWK 690 MASTER'S PROJECT

3, 3/0

Study undertaken by one or more individuals on a problem of special interest submitted in acceptable form according to directions given by the Social Work Department.

SWK 695 MASTER'S THESIS

3, 0/0

SWK 712 MANAGING PROGRAM EVALUATION

3, 3/0

Prerequisite: Graduate standing or instructor permission. Management and technical skills required for program evaluation in the public and private sectors; establishing evaluation standards and criteria; developing evaluation instruments and designs; statistical analysis of evaluation data; computer-based statistical analyses; report preparation and follow-up studies.

Equivalent Courses: BUS 712, PAD 712, SPF 712

SWK 715 MANAGEMENT PRACTICES AND TECHNIQUES

3, 3/0

Prerequisites: PSY 101 Grade of C, and instructor permission. Major management theories and factors affecting organizational systems; managing conflict and negotiating agreements; effective interpersonal skills for managers; defining problems and generating creative alternatives; types and sources of information needed by managers; relation of leadership style to staff productivity and development; relating effectively to upper-level management.

Equivalent Courses: ADE 715, SPF 715

SWK 721 THESIS/PROJECT CONTINUATION

0, 0/0

Sociology (SOC)

SOC 501 CONTEMPORARY SOCIAL PROBLEMS

3, 3/0

Prerequisite: SOC 100. Problem areas of American society; sources of information; techniques for discovering and analyzing social problems; analysis of several major problems, selected in accordance with student needs and interests.

SOC 505 TECHNOLOGY, SOCIETY, AND SELF

3, 3/0

Prerequisite: SOC 100. Interplay between society, technology, and science; social organization of research; social factors fostering research and development; consequences of science and technology for society, various institutions, subgroups within society, and individuals in society.

SOC 506 MINORITY GROUPS IN AMERICAN CULTURE

3, 3/0

Prerequisite: SOC 100. Current and historical sociocultural characteristics, experiences, and development of major religious, racial, and ethnic minorities; social conflict, current trends, and recent issues in minority-majority social relationships.

SOC 587 TOPICS IN SOCIOLOGY

1-4, 1/0

Examination of emerging disciplinary issues, topics, or practices; offered occasionally.

SOC 590 INDEPENDENT STUDY

1-3, 0/0

SOC 594 GRADUATE WORKSHOP

1-3, 0/0

SOC 690 MASTER'S PROJECT

3, 0/0

SOC 695 MASTER'S THESIS

3, 0/0

SOC 721 THESIS/PROJECT CONTINUATION

0, 0/0

SOC 722 THESIS/PROJECT EXTENDED

0, 0/0

Speech Language Pathology (SLP)

SLP 501 CLINICAL METHODS

2, 2/0

Prerequisite: Graduate status in speech-language pathology program; corequisite: SLP 515. Techniques used in the clinical management of speech, language, and swallowing disorders across cultures and throughout the life span; professional issues in speech-language pathology.

SLP 505 GRADUATE PRACTICUM IN AN EDUCATIONAL SETTING

6, 0/30

Prerequisites: Graduate status in speech-language pathology program; minimum grade of B in previous clinical practica; minimum of 48 hours of professional coursework; instructor permission; prerequisite or corequisite: SLP 424 or equivalent. Supervised clinical experience in an educational setting providing diagnosis and therapy for a variety of communication disorders. Meets the student teaching requirement for the New York State Education Certification of Teachers of the Speech and Hearing Handicapped.

SLP 507 INTRODUCTION TO SIGNED LANGUAGE SYSTEMS

3, 3/0

Prerequisite: Graduate-level standing. Fundamentals of American Sign Language (ASL), Pidgin Signed English (PSE), and Signed Exact English (SEE), including basic grammatical features, language functions and fingerspelling. Provide students with receptive and expressive skills for ASL, PSE, and/or SEE communication with Deaf and Hard-of-hearing individuals. Additional content in Deafness, Deaf culture, and signed languages. Offered fall semester only.

SLP 508 AUDIOLOGY AND ASSISTIVE TECHNOLOGY IN THE SCHOOLS

3, 3/0

Prerequisite: Graduate status. Introduction to educational audiology and support of students who are hard-of-hearing/have an auditory processing disorder in the classroom; hearing aids and hearing aid listening checks, FM systems, cochlear implants, auditory processing disorders, classroom acoustics, classroom accommodations, and interprofessional collaboration. Offered every spring.

SLP 511 NEURAL PROCESSES OF COMMUNICATION

3, 3/0

Pre-requisite: graduate status in the Speech-Language Pathology program. Basic concepts of neuroanatomy and neurophysiology as the foundation for diagnosis and treatment of communication and swallowing disorders of neurologic origin.

SLP 515 CLINICAL PRACTICUM

1-8, 0/0

Prerequisites: Graduate status in speech-language pathology program, SLP 501, and completion of 25 hours of supervised observation. Supervised on-campus clinical practicum for graduate students in speech-language pathology as necessary to meet state licensure and national certification requirements; policies and procedures of Buffalo State College Speech-Language-Hearing Clinic. Required for all graduate students prior to enrollment in SLP 505 or SLP 611.

SLP 516 DIAGNOSTIC PRINCIPLES AND PROCEDURES

2, 0/2

Prerequisite: Graduate status in speech-language pathology program. Exploration and implementation of diagnostic procedures in speech-language pathology. Emphasis is on the problem-solving principles and the importance of evidence-based and culturally appropriate practice in the clinical evaluation of individuals with communication and swallowing disorders. Offered every fall..

SLP 518 EXTENDED APPLICATIONS IN COMMUNICATION SCIENCES AND DISORDERS

1, 0/2

Pre-requisite: graduate status in Speech-Language Pathology program. This lab will provide students with hands-on experience using various formal and informal assessment procedures, and with the diagnostic and therapeutic application of instrumentation commonly used in Communication Sciences and Disorders (CSD).

SLP 541 LANGUAGE DISORDERS: BIRTH TO AGE 5

3, 3/0

Prerequisites: Graduate status in speech-language pathology and a course in language development/disorders. Communicative and social interactions of children from birth to age 5; team approaches to the assessment of the communication patterns of infants, toddlers, and preschoolers from a range of culturally and linguistically diverse backgrounds; the development of appropriate intervention programs; theoretical, evidence-based, and practical applications.

SLP 580 RESEARCH METHODS IN SPEECH-LANGUAGE PATHOLOGY

2, 2/0

Prerequisite: Graduate status in speech-language pathology program. Research questions and methodologies used in communication disorders and sciences that include cultural and ethical considerations: quantitative and qualitative research models; literature review techniques; research-question formation; methods of data collection; critical analysis. Students formulate a research question in consultation with program faculty and review pertinent literature.

SLP 587 TOPICS COURSE

3, 3/0

In-depth examination of rapidly and significantly changing disciplinary issues, topics, or practices; offered occasionally.

SLP 590 INDEPENDENT STUDY

1-3, 0/0

Independent study arranged between a graduate faculty member and a student. See the Independent Study section of this catalog for the independent study policy.

SLP 594 GRADUATE WORKSHOP

1-3, 0/0

Graduate workshop in Speech-Language Pathology.

SLP 605 CONTEMPORARY ISSUES IN CLINICAL INTERACTIONS: FAMILIES AND CULTURE

2, 2/0

Prerequisite: Graduate status in speech-language pathology program. Multicultural considerations within the framework of family systems theory; working effectively with families from a variety of multicultural backgrounds; developing strategies for enhancing communication with families across diverse cultures; assessment and intervention techniques for various communication and swallowing disorders in multicultural populations; understanding relevant policies for multicultural speech-language pathology.

SLP 606 FLUENCY DISORDERS

3, 3/0

Prerequisite: Graduate status in speech-language pathology program. Etiologic, psychologic, sociologic, clinical, and multicultural information relative to the assessment and treatment of individuals with disfluent speech; theoretical, evidence-based, and practical applications. Discussion of decision making for individuals with fluency disorders presented. Offered annually.

SLP 607 DYSPHAGIA ACROSS THE LIFE SPAN

2, 2/0

Prerequisites: Graduate status in speech-language pathology program, SLP 511 or equivalent. Congenital and acquired swallowing disorders, their neurological and physical bases, differential diagnoses, prevention, treatments, and associated cultural and ethical issues across the life span; theoretical, evidence-based, and practical applications.

SLP 608 NEUROMOTOR SPEECH DISORDERS ACROSS THE LIFE SPAN

3, 3/0

Prerequisites: Graduate status in Speech-Language Pathology program, SLP 511 or equivalent. Child and adult neuromotor speech disorders including neurological bases, differential diagnoses, prevention, and treatments across the life span and with culturally and linguistically diverse populations; theoretical, evidence-based, and practical applications. Offered every spring.

SLP 609 DISORDERS OF VOICE AND RESONANCE

3, 3/0

Prerequisite: Graduate status in speech-language pathology program. Nature, etiology, diagnosis, and intervention of voice and resonance disorders across the life span and in multicultural populations: theoretical, evidence-based, and practical applications. Offered every fall.

SLP 610 EVALUATION AND TREATMENT OF PHONOLOGICAL DISORDERS

3, 3/0

Pre-requisite: graduate status in Speech-Language Pathology program. Various approaches to the evaluation and treatment of phonological disorders, including theoretical issues, evidence based assessment and treatment approaches, and cultural and linguistic issues.

SLP 611 EXTERNSHIP IN COMMUNICATION DISORDERS

3-12, 0/15

Prerequisites: Graduate status in speech-language pathology program; minimum grade of B in previous clinical practica; minimum of 48 hours professional coursework; instructor permission. Supervised clinical practicum in community speech-language-hearing clinics and/or hospitals providing diagnosis and therapy for a variety of communication disorders across the life span. Required for ASHA certification and NYS license in speech-language pathology. Required for all speech-language pathology majors.

Equivalent Course: BXE 628

SLP 621 AUGMENTATIVE AND ALTERNATIVE COMMUNICATION

3, 3/0

Prerequisites: Graduate status in either the department of Speech-Language Pathology or Exceptional Education. Present the needs and experiences of individuals who are nonspeaking. Description of alternative and augmentative communications systems, techniques, and strategies. Assessment and intervention strategies for alternative and augmentative communication provided. Offered every spring.

SLP 622 LANGUAGE DISORDERS OF SCHOOL-AGED INDIVIDUALS

3, 3/0

Prerequisite: Graduate status in speech-language pathology program. Culture-based approaches and procedures applied to assessment and intervention of language disorders of school-aged children; theoretical, evidence-based, and practical applications.

SLP 623 ACQUIRED LANGUAGE DISORDERS

3, 3/0

Prerequisites: Graduate status in speech-language pathology program, SLP 511 or equivalent. Acquired neurogenic language disorders in adults; differential diagnosis and treatment of the varieties of cognitive/communicative disorders associated with acquired brain damage, with consideration for cultural and linguistic background; theoretical, evidence-based, and practical applications.

SLP 625 ADVANCED TOPICS AND ISSUES IN COMMUNICATION SCIENCES AND DISORDERS

3, 3/0

Prerequisite: Graduate status in speech-language pathology program. In-depth examination of contemporary professional and clinical topics, and new and emerging issues in the field of communication sciences and disorders. Relevant, timely course content will vary to keep pace with current issues that have an impact on the discipline.

SLP 690 MASTER'S PROJECT

3, 3/0

Prerequisite: SLP 580 or equivalent. Study undertaken by one or more individuals on a problem of special interest submitted in acceptable written form according to guidelines provided by the Speech-Language Pathology Department.

SLP 695 MASTER'S THESIS

1-3, 0/0

Individual investigation of an original problem submitted in acceptable form according to guidelines provided by the Graduate School.

SLP 721 THESIS/PROJECT CONTINUATION

0, 0/0

SLP 722 THESIS/PROJECT EXTENDED

0, 0/0

Television and Film Arts (FLM)

Film Arts (FLM)

FLM 501 SURVEY OF TELEVISION, FILM, AND STREAMING MEDIA

3, 3/0

Prerequisite: Admission to the MFA Television, Film, and Streaming Media program. First year graduate seminar focusing on cultural, historical, and critical constructs of television, film, and streaming media; exploration of academic research avenues and professional opportunities in the field; analysis of current trends and practices in motion picture storytelling. Offered fall only.

FLM 510 WRITING THE SHORT FILM

3, 3/0

Prerequisite: Admission to the MFA Television, Film and Streaming Media program. Hands on screenwriting course explores development of structure, character, theme, and style of the short film; storytelling in a variety of script genres; screenplay analysis; development of voice. Offered every fall.

FLM 511 PRINCIPLES OF IMAGE AND SOUND PRODUCTION

3, 2/2

Prerequisite: Admission to the M.F.A. Television, Film, and Streaming Media program. Exploration and application of concepts and processes of image and sound pre-production, production, and post-production including budget and legal planning, casting, lighting and camera technique, video editing, and audio editing. Offered every fall.

FLM 520 SCREENPLAY ANALYSIS

3, 3/0

Prerequisite: Admission to the MFA Television, Film, and Streaming Media program. Analysis of television and feature film screenplays – focusing on theory, story structure, conflict, characters, dialogue, theme, and professional script coverage. Offered every fall.

FLM 530 WRITING THE FEATURE SCREENPLAY PART I

3, 3/0

Prerequisites: FLM 501, FLM 510, and FLM 520. Construction of a pitch for an original feature film, character sketches, treatment, and the first act of a screenplay. Part one of a two-part Writing the Feature Screenplay sequence. Offered every spring.

FLM 540 WRITING THE TV SPEC SCRIPT

3, 3/0

Prerequisites: FLM 501, FLM 510, and FLM 520. Construction of two speculation (spec) scripts for a TV series currently on a broadcast television, cable network, or streaming service. Offered every spring.

FLM 550 THE BUSINESS OF TELEVISION, FILM, AND STREAMING MEDIA

3, 3/0

Prerequisites: FLM 501, FLM 510, and FLM 520. Examines current business models for television, film, and streaming media – including pre-production, production, and post-production, business and legal affairs, finance, and marketing and distribution. Part one of a two-part business of Television, Film, and Streaming Media sequence. Offered every spring.

FLM 587 SPECIAL TOPICS

1-6, 1/0

Prerequisite: Instructor permission. Special topics in graduate study, to be determined by the instructor. Offered occasionally.

FLM 590 INDEPENDENT STUDY

1-6, 0/0

Prerequisite: Instructor permission. Graduate independent study in Television, Film, and Streaming Media.

FLM 610 PRODUCING THE SHORT FILM

3, 3/0

Prerequisite: FLM 510. Hands on producing course explores script development, budgeting, location scouting, casting, production, post-production, and marketing; partner with undergraduate and / or graduate students to produce short film scripts. Offered every fall.

FLM 611 PRODUCTION/POST-PRODUCTION WORKSHOP

3, 3/0

Prerequisite: FLM 511. Hands-on advanced techniques in areas of production and post-production. Upcoming topics will be announced each fall and change with each offering. May be taken for credit up to three times. Offered every spring and summer.

FLM 612 SCREENWRITING WORKSHOP

3, 3/0

Prerequisites: FLM 501 and FLM 510. Advanced theory, analysis, and writing in different Screenwriting genres and platforms. This elective is topical and since topics change each semester, the course may be taken for credit up to three times. Offered every summer.

FLM 620 TELEVISION, FILM, AND STREAMING MEDIA SEMINAR

3, 3/0

Prerequisites: FLM 501, FLM 510. Examines style and influence of key contemporary writers, producers, and directors for film and television. Topics examined through a historical, theoretical, and practical lens. May be taken up to three times. Offered every spring and Summer.

FLM 621 DIRECTING

3, 2/2

Prerequisite: FLM 501. Examination of the art and responsibilities of directing for film and television, through lecture and practical application. Students will envision scene work from the director's perspective and direct actors. Offered every spring.

FLM 630 WRITING THE FEATURE SCREENPLAY PART II

3, 3/0

Prerequisite: FLM 530. Construction of the second and third acts of a screenplay and development of a marketing plan. Part two of a two-part Writing the Feature Screenplay sequence. Offered every fall.

FLM 631 POST-PRODUCTION FOR TELEVISION, FILM, AND STREAMING MEDIA

3, 2/2

Prerequisite: FLM 501. Exploration and application of history, theories and techniques of post-production for film and television including video editing, audio editing, color grading, and visual effects. Offered every spring.

FLM 640 WRITING THE TV PILOT

3, 3/0

Prerequisite: FLM 540. Hands on screenwriting course explores development of structure, character, theme, and style of the TV pilot; storytelling in a variety of script genres; screenplay analysis; development of voice; developing characters over multiple episodes. Offered every spring.

FLM 641 SOUND DESIGN

3, 2/2

Prerequisites: FLM 501, FLM 511. Exploration of film sound and its use in furthering the dramatic impact of cinematic storytelling. Focus on both production and post-production processes of sound design. Offered every summer.

FLM 650 THE BUSINESS OF TELEVISION, FILM, AND STREAMING MEDIA PART II

3, 3/0

Prerequisite: FLM 550. Evaluates relevant business models for television, film, and streaming media – focusing on advanced theories and practices for business and legal affairs, finance, and marketing and distribution. Part two of a two-part business of Television, Film, and Streaming Media sequence. Offered every fall.

FLM 651 CINEMATOGRAPHY

3, 2/2

Prerequisite: FLM 501. Exploration and application of the principles of cinematography. Emphasis on aesthetics, composition theory, exposure, lighting, and selection of camera. Offered spring only.

FLM 687 ADVANCED SPECIAL TOPICS

1-6, 1/0

Prerequisite: Instructor permission. Advanced special topics in graduate study, to be determined by the instructor. Offered occasionally.

FLM 690 MASTER'S PROJECT

1-6, 0/0

Prerequisite: Instructor permission. Exploration and development of a special-interest television, film, or streaming media project, planned and executed in consultation and advisement from the instructor and the student's project committee.

FLM 695 MASTER'S THESIS

1-6, 0/0

Prerequisites: FLM 621 or FLM 630, FLM 650. Individual led ideation and execution of a new creative work. Must be planned and executed in consultation with the student's thesis advisor and thesis committee.

FLM 721 THESIS/PROJECT CONTINUATION

0, 0/0

FLM 722 THESIS/PROJECT CONTINUATION

0, 0/0

Theater Arts (DAN, THA)

Dance (DAN)

DAN 590 INDEPENDENT STUDY

1-3, 0/0

Graduate level Independent Study course in Dance based on individual student interest. Offered occasionally.

DAN 690 MASTERS PROJECT

3, 0/0

Graduate level Masters Project course in Dance based on individual student interest. Offered occasionally.

DAN 695 THESIS

3, 0/0

Graduate level Masters Thesis course in Dance based on individual student interest. Offered occasionally.

DAN 721 THESIS/PROJECT CONTINUATION

0, 0/0

DAN 722 THESIS/PROJECT EXTENDED

0, 0/0

Theater Arts (THA)

THA 590 INDEPENDENT STUDY

1-3, 0/0

Graduate level Independent Study course in Theater Arts based on individual student interest. Offered occasionally.

THA 690 MASTER'S PROJECT

3, 0/0

Graduate level Masters Project course in Theater Arts based on individual student interest. Offered occasionally.

THA 695 THESIS

1-3, 0/0

Graduate level Masters Thesis course in Theater Arts based on individual student interest. Offered occasionally.

THA 721 THESIS/PROJECT CONTINUATION

0, 0/0

THA 722 THESIS/PROJECT EXTENDED

0, 0/0