



GRADUATE EDUCATION COURSE DESCRIPTIONS

GCED 600 Educational Leadership and Professional Development

The primary focus of professional development and instructional leadership is the enhancement of classroom learning coupled with other dedicated settings, in which students grow and develop to their maximum potential. Educational leadership is established within the context of the master teacher and professional educator. Self-study projects and human development workshops foster the school and community leadership potential of the master teacher. Multiple assessments are used to develop career goal objectives leading to the Master's Degree in Curriculum and Instruction. Three credits.

GCED 605 Statistics and Research Design

This course enables the educator to read and interpret empirical research as it is reported in periodic literature and to design educational research instruments and projects. This advanced course includes instruction in educational test and measurements that will provide the educator with the prerequisite mathematical skills to compute, read, and interpret statistical data as reported on standardized achievement tests, group and individual tests, and research monographs. The major emphasis of the course is to develop the observational, investigative, and interpretive skills of a reflective educator/practitioner. Three credits.

GCED 610 Current Issues and Trends in Education

This course is designed to involve the student in an examination and analysis of significant contemporary issues in education. Current literature and research studies are explored through independent research assignments and seminar-type group discussions. Students are encouraged to develop substantiated personal positions regarding topics such as school reform initiatives, charter schools, school violence, problems in urban/rural schools, and the integration of technology into the classroom. Research projects can be initiated in this course. Three credits.

GCED 615 Curriculum and Systems Design

This course is designed to include theories of curriculum, instruction, and the design of instructional systems. Emphasis will be on translating theory into practice, particularly for curriculum implementation in public or private schools and/or in industry training. Students will have an opportunity to design curricula for use in an educational setting. This course will involve field trips, in-field experiences, classroom lectures, technological training, and project assignments. Three credits.

GCED 620 Assessment and Diagnostics

The fundamental principles of diagnostic theory and practice are analyzed with an emphasis on the application of said principles in a variety of educational settings. Students become acquainted with the guidelines and techniques for diagnosing students' needs and abilities by implementing and interpreting developmentally appropriate assessments, both quantitative and qualitative. Procedures and problems in test construction and in the analysis, summarization, and reporting of student outcomes are examined. Three credits.

GCED 625 Instructional Technology

Students will explore the use of technology as an important education resource. They will develop the knowledge, technical expertise, and instructional strategies necessary for effective application of technology in a variety of educational and professional settings. Hands-on experience is emphasized. Three credits.

GCED 630 Managing Financial and Material Resources

This course will examine the changing financial realities facing schools, especially as they relate to effective and efficient management of fiscal and material resources of schools. The influences of state, city or municipality, and the school district, with its specific governance structure will be addressed. The management principles and managerial problems of public/private education settings will be studied. Students will research various philosophies regarding resource management including: technology services, personnel, busing, facilities, etc. Budgeting methods and school maintenance will be considered. Three credits.

GCED 635 Instructional Methodology

Students will examine the rationale for and development of viable theories of instructional design; apply instructional models to various learning environments, evaluate the learning outcomes; develop an expanded and integrated repertoire of teaching strategies and techniques for use in their classrooms. Three credits.

GCED 640 Classroom Management

This course provides an overview of management models and practical techniques that foster the creation and maintenance of a functional, effective classroom learning environment. It focuses on behavior analysis, management strategies, and the legal and/or policy constraints affecting implementation. Students examine the use of techniques in a variety of settings and apply procedures in their own classes. Three credits.

GCED 645 Philosophical and Ethical Perspectives in Education

The course will explore the idea that education reflects the wider society in which we live. Students will examine schools and classrooms and try to understand how what goes on in schools is related to the values, beliefs, and structures of the world outside school walls. During the course students will consider why children succeed or fail; the process of tracking and labeling children; what it is that we learn in school—both explicitly and covertly; how factors such as gender, social class, race and ethnicity, and sexual orientation affect our educational experiences. Students will also explore historical philosophical perspectives in American education, and how various other philosophies have developed in education. Three credits.

GCED 650 Human Learning

Brain research and the psycho/social bases of learning from infancy to adolescence are investigated in this course. The study of cognitive learning theory, intelligence, instrumental and generative learning, the contributions of differential psychology, information processing, and expectancy theory help the educational practitioner to individualize and differentiate instructional strategies for diverse learners. Learning styles, shaping and pacing strategies, contingency management, concept learning, and problem solving strategies are applied to lesson planning and the enhancement of instruction. The course's major emphasis is on the systematic application of the principles of learning within the learning environment. Three credits.

GCED 655 Educational Jurisprudence

This course investigates a wide range of legal issues that influence the lives of teachers, students, parents, administrators, and school boards. The legal aspects of teaching and teacher and student rights receive extensive treatment. Contract law, conditions of employment, collective bargaining, liability, child abuse, copyright law, and constitutional provisions of the law affecting the school, the child, and the teacher are investigated. Controversial and emerging legal issues are also examined. Three credits.

GCED 660 Adult Learning

This course defines adult education and distinguishes it from other adult-learning activities. The historic, social, and pedagogic origins of adult education are surveyed, and contrasted to other types of education.

Examples of curricula, selected goals and objectives, and learning activities are reviewed, and consideration is given to how these educational components are influenced by theories of adult learning. Three credits.

GCED 665 Creative Message Design and Motivation

This course examines creativity in the learning setting from all sides: education administrators, teachers, instructional designers, presenters, and learners. Topics include a concentrated study on motivation, creativity in the classroom, innovative media presentation, divergent thinking skills, creative problem solving methods, analogous reasoning and much more. This class is geared toward both K-12 educators and related educational professionals that work or desire to work with learners of all ages and abilities. Students are expected to participate in creative activities, demonstrate mastery of creative methods, use technology, and relate classroom topics and assignments to their personal settings. Three credits.

GCED 670 Visual Thinking and Learning

This course introduces the students to the study and use of the instructional visual modalities within the curriculum. The course emphasizes how students learn and benefit from instructionally balanced picture-based media (film, television, photography, graphic arts, computer-based instruction, 3-D imagery, and the Internet). Topics include: visual interpretation, creativity and imagination studies, instructional image manipulation and presentation techniques, social/political influences of visual imagery on children, and the role of the visual media in education. Three credits.

GCED 675 Inclusionary Education

This course offers students an introduction to inclusive environments and services. Students learn the techniques and skills needed to address current inclusive classroom management issues as well as how to develop effective teaching strategies for an inclusive classroom. This course involves practical application and discussion. Three credits.

GCED 680 Supervision of Instruction

Students are introduced to the basic concepts and theories of instructional supervision. Emphasis is placed on the roles, tasks, and processes involved in supervisory practice based on theory and research in education and ancillary fields such as psychology, social work, human resources management, communications, and organizational/ business administration. Prerequisite: Five or more years of teaching experience. Three credits.

GCAD 676 Internship in School Administration: Fall Term

Students participate in 80 hours of fieldwork in collaboration with a curriculum supervisor and/or K-12 administrator or similar professional mentor from an approved educational setting. The student is required to generate and professionally submit a project within the field of curriculum and supervision to the educational setting in which the 80 hours are served. Supervision orientation, practical hands-on curriculum examination, shadowing and professional development opportunities are encouraged. Class meets seven (7) sessions during a 14-week semester. On-site mentor evaluations, journal entries, and other written assignments are required. Prerequisites: GCED 680 and five or more years of professional experience and teaching certification. One credits.

GCAD 686 Internship in School Administration: Spring Term

Interns perform 140 hours of shadowing and performing duties in curriculum supervision or K-12 administration (all levels: central office and school building) under a mentor advisor(s) from the sponsoring K-12 school district. Candidates seeking supervision of curriculum certification may be asked to perform different fieldwork duties than those seeking K-12 school principal certification. Students are required to complete journal entries and assignments as well as attend seven (7) campus meetings during the fourteen-week semester. Interns are supervised at the site and evaluated by both the college instructor and the

mentor(s). Prerequisites: GCED 680 and five or more years of professional experience with teaching certification. One credits.

GCAD 696 Internship in School Administration: Summer Term

Interns perform 140 hours of shadowing and performing duties in curriculum supervision or K-12 administration (all levels: central office and school building) under a mentor advisor(s) from the sponsoring K-12 school district. Candidates seeking supervision of curriculum certification may be asked to perform different fieldwork duties than those seeking K-12 school principal certification. All students will be required to complete journal entries and assignments as well as attend seven (7) campus meetings during the summer semester. Interns are supervised at the site and evaluated by both the college instructor and the mentor(s). Prerequisites: GCED 680 and five or more years of professional experience with teaching certification. One credits.

GCED 705 Museums in Education

This course assists students of history and educators in developing awareness and confidence in using museum resources as a planned and significant aspects of curriculum. Opportunities to examine learning styles, learning contexts, and teaching methods around the object, exhibit, and site-based visual and interactive experiences are provided. Research and development of exhibits along with teaching methods and materials are expected of students. Students participate in traditional classroom instruction as well as field visits to historical places. Three credits.

GCED 710 School Planning and Classroom Design

This course instructs how design and planning impacts cognitive learning and student performance. Students investigate how to properly design classrooms and learning settings that meet the needs of 21st century students. Issues around safety, accreditations, codes, and curriculum are discussed as well as maximizing resources in fundraising and donations. Space usability and retrofitting of older settings to meet the newer instructional technology-rich classrooms are addressed. Last, students are expected to consider their own settings and devise plans to improve learning and management. Model PreK through secondary education settings are examined. Three credits.

GCSE 607 Family and Professional Collaboration

This course focuses on the special education teacher as a team member within the field of education. Students learn about family centered practices and how to work with families from culturally and linguistically diverse backgrounds. Various models of collaboration and career consultation techniques for disabled individuals within the general community are discussed. Finally, the creation of classroom plan(s) and simulated practices for proper diffusion and implementation of professional strategies to foster public collaboration for the special education population are required. Three credits.

GCSE 617 Diagnosis and Evaluation of Students with High Incidence Disabilities

This course concentrates on diagnostic and evaluation techniques to use with students who have high incidence disabilities. The use of formal and informal assessment tools in areas specific to reading, writing, and mathematics are emphasized. Students acquire knowledge of various assessment procedures used to identify students for special education and for individual education program designs implemented within the traditional or non-traditional classroom. This course requires students to perform simulated hands-on and practical implementation of assessment tools to monitor students' academic progress. Three credits.

GCSE 627 Theory and Practice of Teaching Students with High Incidence Disabilities

This course addresses various strategies and techniques for successful teaching of students with high incidence disabilities. Concentration on the special education curriculums of reading, written and spoken language, and mathematics is studied. Students are exposed to the practice of subsidiary curriculums such as

sensory (art, music, physical education) and daily life (family and consumer sciences). Course requirements include practice teachings and field experiences, lesson planning and curriculum development, consultation and research of available journals and resources for teaching, and membership to in a national special education organization. Three credits.

GCSE 637 Methods of Instruction and Assessment for Students with Significant and Multiple Disabilities

This course focuses on methods teachers use to organize curriculum and implement assessment and instruction to ensure maximum learning for students with moderate and/or severe disabilities. Students are exposed to the curriculum needs with of those significant and multiple disabilities such as life, vocational, and social skills, and functional academics. Students are required to complete a significant action research project with a learner and present findings in manuscript and poster forms. Three credits.

GCSE 647 Educating Students with Emotional and Behavioral Disorders

This course informs students about techniques for the instruction of students with emotional impairments, the principles of applied behavior analysis, and the use of behavior assessments in the classroom. Students learn how to conduct a functional behavior assessment and develop a behavior intervention plan. This course focuses on the implementation of various positive behavior techniques in order for special educators to ensure maximum learning and class management. Students are required to complete a significant action research project with a learner and present findings in manuscript and poster forms. Three credits.

GCSE 657 Technological Applications for Differentiated Instruction

This course provides exposure and hands-on experience with software applications and instructional medias used to improve the education and meeting needs of diverse learners. Additional course concentrations include accessing, managing, purchasing, and recommending software and emerging technologies for today's classroom. Students are required to plan a budget, and prepare technological training for professionals and aides. Three credits.

GCSE 667 Advanced Intervention Strategies in Reading, Writing, and Mathematics

This course provides an advanced application of recent research and reviews of interventions for individuals with disabilities, including mild disabilities and learning disabilities. Topics include the following: recent intervention research, effective instructional practices, learning strategies approaches, attention interventions, motivation interventions, reading instruction strategies, written expression strategies, math instruction strategies, content area accommodations, testing accommodations, and early intervention methods. Prerequisite: GCSE 627. Three credits.

GCSE 677 Introduction to American Sign Language

Students engage in conversations, provide and obtain information, express feelings and emotions, and exchange opinions to an audience of listeners or readers on a variety of topics. Students demonstrate an understanding of the relationship between practices, perspectives and products of the Deaf culture. Students demonstrate an understanding of the nature of language through comparisons of American Sign Language and their own language. Students demonstrate the concept of culture through comparisons of the Deaf culture with their own culture. Three credits.

GCSE 697 Teaching Culturally Diverse Student with Limited English Proficiencies in the Classroom

This course is designed to build pre-service and in-service teachers' capacity to design effective content area instruction for K-12 English language learners (ELLs). Students learn research-based instructional methods and strategies that support ELLs in acquiring academic English and academic literacy skills while learning grade-level content area concepts. Students learn to make adaptations and modifications to instruction,

appropriate to ELLs' grade level and English language proficiency level. Course activities and assignments are interactive and inquiry-based. This course is aligned to the PA Department of Education Accommodations for Diverse Learners Guidelines. In addition to learning and applying effective techniques for simultaneously teaching content and academic language to ELLs, students explore laws and policies that govern educating ELLs, cultural influences on learning, assessment issues, and print, web-based, and community resources for supporting this fast-growing population of students and their families. Three credits

GCSE 707 Internship in Special Education

Internship in Special Education is a course that focuses on observation and demonstration of teaching competencies as well as participation in seminars that discuss the current issues in transition and special education. Students refine and increase their sophistication of teaching competencies with a qualified special educator in both a public and private school setting for a minimum of 150 hours. Students will have opportunities for practical experience in collaboration, design, and implementation of instruction for both high and low incidence disorders in the least restrictive environment. Students are expected to demonstrate competency in professional and ethical practice as well as the overall pedagogy of special education including transition services. A college supervisor will observe the practicum periodically and students are expected to keep a log of activities and submit a final written report regarding the experience. Seminar topics include: current legal issues, educational and community systems available to assist individuals with disabilities, professional and ethical practices related to special education, procedural safeguards afforded to individuals with disabilities, and transition planning. Three Credits.

GCEL 612 Early Learning Leadership

This graduate level course is designed for early childhood professionals functioning in an administrative role. Basic business practices and skill sets unique to early learning/school age programs are covered. Broad areas of study and application include: Childcare/school age care as a business, fiscal management, risk management and strategic planning, marketing, human resources, data/technology management, facilities operation and management, fund development, and management strategies. Required for Pa Director Credential/Credential Renewal. Three credits.

GCCE 601 Psychological Services & Technological Applications for Counselor Education

This course provides candidates with the technical skills and theoretical knowledge needed to integrate technology into their work with today's students and their families. Topics for the course include: locating, interpreting and using Internet information (e-mail, WWW, newsgroups, mailing lists, chats); using databases to monitor student progress and promote academic achievement; creating and maintaining a school counseling web site; creating and hosting on-line forums for students and families; creating presentations using specialized presentation software; evaluating software and hardware; creating a technology plan for the school counseling department and program; addressing legal and ethical issues related to the use of technology and the internet by students; and using technology to monitor student progress and identify areas that require improvement. Additionally, school counselors become familiar with web sites and technology resources to support career awareness and development and the post-secondary planning process. Three Credits.

GCCE 611 Career and Lifestyle Counseling

Theories of vocational choice, psychology and sociology of work and use of information in decision-making are presented. Particular attention is given to identification, evaluation, and utilization of resource information in guidance and orientation to occupational and educational information, and community resources. Three Credits.

GCCE 621 Counseling of Children and Young Adults

This course provides an introduction to the process of counseling children and adolescents as a means of facilitating healthy development and promoting academic achievement in school. The course is designed to help graduate candidates specializing in school counseling focus on the knowledge base, skills, theories, research, models, and critical issues of contemporary school counseling. Current issues facing youth in the contemporary world are explored. Three Credits.

GCCE 631 Theory and Practices of Group Counseling

This course is designed to provide counselors with training opportunities to explore basic theoretical and practical concepts regarding the group counseling process; the behavioral dynamics that occur in groups; and the role, essential skills, and techniques of group leadership. Three Credits.

GCCE 641 Counseling Techniques for Violent, Addictive, & Abusive Behaviors

This course explores the theories and clinical applications of addressing violent, addictive, and abusive behaviors. A focus is placed on creation of psychological safety, assessment, and ethics surrounding reporting and outreach procedures. Three Credits.

GCCE 651 Practicum in School Counseling Administration PreK-6 or 7-12

Counseling administration experience with students from elementary, middle, and secondary schools under the direction of a certified school counselor and college supervisor. Direct administrative counseling, supervisory conferences, weekly seminars, preparation of leadership and case reports, and analyses of tape recordings are essential elements. Prerequisite: GCCE 611; One Credit.

GCCE 661 Internship in Counselor Education: Fall Term

Fall internship experience as a counselor (PreK-6 or 7-12) in an elementary or secondary school under the mentorship of an experienced certified school counselor and college supervisor. A total of 150 clock hours are required. Prerequisite GCCE 651 One Credit.

GCCE 671 Internship in Counselor Education: Spring Term

Spring internship experience as a counselor (PreK-6 or 7-12) in an elementary or secondary school under the mentorship of an experienced certified school counselor and college supervisor. A total of 150 clock hours are required. Prerequisite GCCE 651 One Credit.

GCCE 681 Counselor Education: Dual Certification

This course provides a crosswalk between certification in elementary and secondary school counseling. Candidates must have completed Saint Vincent College counselor education coursework and have obtained one certification in counseling to enroll in this course. The instructor will tailor course requirements to address preparation gaps between the existing and desired certification. Factors that influence course requirements are, but not limited to, experience in the desired certification area, date of initial counselor certification, changes at the State level, and candidate's likeliness for success in the desire area. A second portfolio is required in which artifacts aligned to the desired grade-band certification competencies will be assessed. Three Credits.

GCLS 603 Introduction to Multimodal Research and Information Literacy

This course provides an introduction to multimodal reference services and information literacy as it pertains to a media specialist working with students or school personnel. It includes methods for integrating skills into interactions with students and/or staff to create opportunities for learning, awareness, and further technology-enriched resource adoption. In addition, media specialists are instructed how to consult reputable online-resources, evaluate authenticity and effectively retrieve data as an end-use. Students are asked to develop a training workshop to instruct learners how to use a given reference source. Three credits.

GCLS 613 Electronic Library Automation and Cataloging

This course will survey newer methods for electronic storing, classifying, and retrieving library information. Students learn the processes for proper cataloging using Library of Congress Subject Headings, MARC Records, Microlif Protocols, and other database features necessary for on-line catalog management. The use and implementation of various library automation software and systems, rather than their design and technical operations is emphasized. Creation of information, its flow to users, troubleshooting, and the school librarian's role in improving information services is covered. Three credits.

GCLS 623 Creative Programs for Children and Young Adults

This course concentrates on how creative programming for children and young adults can enhance public relations and school students' life-long interest in education. Students develop skills for book talking, storytelling, poetry reading, puppetry, reader's theater, and other creative theatrical methods for encouraging interdisciplinary academics. The course addresses sponsoring clubs, reading competitions, fundraising, and other promotions that schools and libraries can employ to cultivate school community and students' awareness and excitement toward education. Three credits.

GCLS 633 Advanced Studies in Children's Literature

This course will address confident selection, evaluation, and use of literature for children. The role of literature in the K-12 curriculum, reading supplementation, and as an examination of the changing social and cultural pattern in children's reading will be covered. Students become evaluators of children's literature and are able to expand their current knowledge of children's literature to become well-informed school librarians. (Required) Three credits.

GCLS 643 School Library Administration and Management

This course emphasizes principles of school library organization and management: acquisition of materials, personnel administration, budgeting and finance, housing and equipment, student record keeping, district public relations, preparation of teaching guides and forms, use of basic statistics for usage and reporting. Students are asked to prepare a portfolio of resources and materials necessary for the development a strong school library program. Three credits.

GCLS 653 Internship in the School Library

This course allows students to observe and work with a qualified elementary and secondary school librarian for a total of 100 hours. Students gain experience in school library services, perform bibliographic instruction, and have opportunities for practical experience in selection of materials, processing, classification, administration, and working with other libraries. A college supervisor observes this internship. The student keeps a log of activities and submits a final written report about the experience. Prerequisites or co-requisites: GCEM 643 and advanced graduate standing. Three credits.

GCLS 663 Literature and Reading for Young Adults

This course studies young adult literature. A critical study and evaluation of the genre; pedagogical techniques for the promotion of young adult reading; study of the relationship of the genre to literature for children and adults is covered. The course also examines the librarians' and/or teachers' role in establishing criteria and selection related to student interests, reading levels, quality of materials, and psychological, historical, cultural, political and social issues. Three credits.

GCIT 614 Emergent Information Management and Instructional Technologies

This course examines new technologies in training and education. In addition to embracing modern technological advancements and interfaces, it examines the issues and troubleshooting techniques for today's technological applications. Networking and infrastructure design for supporting modern instructional technologies and applications is discussed. Last, development of a technological vision document and budget

is explained through the assessment of needs and purpose for the intended audience albeit adult learners, industry, or education. Three credits.

GCIT 684 Advanced Instructional Design for Online Education

This course uses a systems design based approach to developing online or computer-delivered education. Students engage in authentic instructional design activities and project management to produce online instruction using course management and module authoring tools. Students analyze instructional design problems, access to a wide range of software tools and research, work with diverse teams and individuals, create real instructional design products, and give and receive constructive feedback. Students anticipate cost-benefits and training needs for delivering online instruction. Prerequisites: GCED 615 and GCED 625. Three credits.

GCIT 694 Practicum in Instructional Technology

Students participate in 75 hours of field-based experiences in instructional technology and class seminars. Class seminars include discussions of management of instructional technology services, developing technology plans, creating in-service workshops or classes for school personnel, and budgeting for technology. Prerequisite or co-requisite: GCEM 683. Three credits.

GCEE 608 Environmental Education: An Integrated Approach

This course introduces the concepts of environmental education by providing candidates with the knowledge for resource management and sustainable development. This course encompasses environmental education awareness by presenting new perspectives, values, knowledge and skills, through formal and informal processes used in education. Overall, this course seeks to incorporate environmental goals into mainstream society while valuing and linking other legitimate social and economic objectives. Three credits.

GCEE 618 Soil Science, Agriculture and Terrestrial Ecosystems

This course studies the impacts of humankind on urban and rural terrestrial ecosystems, soil and agriculture. This course will raise awareness of the issues that surround agricultural practices and multiple-use policies that lead to a sustainable environment. Topics for this course include pest management, agricultural techniques, forest and land management, nutrient cycles, soil composition and chemical/physical properties, urban and rural sprawl, solid waste disposal, pollution clean-up methods, and wildlife management techniques. Three credits.

GCEE 628 Meteorology and Air Quality

This course studies the impacts of humankind on air quality and climatic factors and the use of environmental field methods to measure the impact. Awareness of the issues that surround outdoor and indoor air quality that lead to a sustainable environment are raised. Topics include early atmospheric composition and history, meteorology, air pollution and control mechanisms, regulatory measures related to the Clean Air Act, indoor and outdoor air pollution, global atmospheric issues such as the Greenhouse effect and ozone depletion and local atmospheric issues such as acid precipitation and ozone. Three credits.

GCEE 638 Groundwater Hydrology, Aquatic Ecosystems and Resources

This course studies the impacts of humankind on groundwater hydrology, aquatic ecosystems and its resources and raises awareness of the issues that surround water quality that lead to a sustainable fresh water supply. Topics include water quality, stream assessment, wastewater management, groundwater flow as it is related to lithospheric composition, flood control, water pollution including acid mine drainage and acid precipitation, and regulatory measures related to the Clean Water Act. Three credits.

GCEE 648 Environmental Law and Ethics

This course examines the legislative and regulatory process, discussing the bases, guidelines, and proceedings

involved in the creation, implementation, oversight and enforcement of environmental laws, rules and regulations. A brief review of the legislative process is covered, followed by an explanation and examination of the Administrative Procedures Act (APA), which is the foundation for all actions and proceedings by and before regulatory agencies. Students engage in discussions about the Clean Air Act and the differences between legal and ethical decision-making. Three credits.

GCEE 658 Social Issues and the Environment

This course investigates a wide range of social issues and their relation to the environment. Homelessness, famine, world population, violence, and environmental protection are considered. The course examines the link between the social and global environment through case studies, philosophies, theories, environmental models, and research. Students explore current, emerging, and controversial local and global social problems, and learn how to implement sensitive environmental and social issues into instruction. Three credits.

GCEE 668 Field Institute for Environmental Learning

This course offers field-based experiences in environmental science on fresh water ecosystems. Participants conduct field monitoring and data analysis as well as develop a five-day field and classroom unit plan meeting standards in the area of fresh water ecosystems. May be repeated. One credit.

GCSC 608 Principles, History and Issues of Science Education

This course introduces and redefines today's science pedagogy with respect to constructivism, questioning skills, traditional and non-traditional science assessment, science curriculum development, science learning cycles, textbook analysis, teacher centered versus student centered activities and inquiry based science education. This course investigates a wide range of historical, social and religious issues and their relationship to science education. Students explore current classroom science-education problems and learn how to overcome these issues. Three credits.

GCSC 618 Forestry and Wildlife Management and Field Techniques

This course explores the concepts and theories of sustainable forestry and wildlife management practices. Topics include temperate forest ecology and conservation, roles of wildlife in forest ecosystems, key concepts in forest and wildlife conservation, impacts of forestry practices and landscape modification on wildlife populations, ecology and viability of wildlife populations and human uses and abuses of our natural resources. Three credits.

GCSC 628 Materials Science and Engineering

This course introduces the basic concepts of materials science and engineering. The concepts of atomic, crystal, micro- and macrostructure, and their control and effects on chemical, electrical, magnetic, optical, and mechanical properties. Furthermore, students study the effects of stress and temperature on structures, mechanical properties, characteristics of metals, ceramics and polymers, materials processing, electrical and optical materials, and materials selection. Three credits.

GCSC 638 Cell Systems and Functions

This course examines cellular regulation with a focus on macromolecular events and themes centered on: cellular communication, homeostasis and response to stress. Topics cover receptor function, cell adhesion and migration, dynamics of the cellular cytoskeleton, intracellular transport, and regulation of endocrine responses. Emphasis is placed on regulation of these processes with a focus on basic properties, mechanisms, historical discoveries where relevant, and current models and controversies. Three credits.

GCSC 648 Science Classroom Management and Laboratory Experiences

This course introduces and refines classroom management skills specifically related to teaching science in the classroom and laboratory setting. Topics of discussion include classroom and laboratory safety, current

science safety rules and regulations, chemical storage and disposal, laboratory room design and laboratory reports. Students explore science education technology related to their specific certification. Three credits.

GCSC 658 Science Practicum

The practicum provides students with a research experience of working on a large project emphasizing the synthesis of material covered in previous courses. The practicum is an off-campus field experience/laboratory based course where students work independently or in a small group on a project of realistic magnitude. The project involves the following: problem definition and design, implementation, validation, documentation, written and oral communication. Although each project will be supervised, the students are to manage their project in an independent atmosphere to insure that project segments are completed in the time imposed. Three credits.