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Curriculum Committee Report - January 16, 2014

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**Graduate Curriculum Committee Report
Black Cultural Center
Thursday, January 16, 2014**

Members present: Eric Boder (Chair), David Bemis, Hans Desmidt, Leslee Fisher, Robert Fuller, Sibyl Marshall, Andreas Nebenfuhr, Damien Pitts (Graduate Student Senate), Avigail Sachs, Jeannine Studer, Matthew Theriot, Christian Vossler, Candace White.

Representatives from Colleges: Ben Allen (Bredesen Center), Mary Gunther, R.J. Hinde, Masood Parang, Carol Parker, Mike Simpson (Bredesen Center), Anne Smith, John Stier, Dixie Thompson,

Also in attendance: Don Hodges, Carolyn Hodges, Catherine Cox, Cheryl Norris.

The meeting was called to order by Eric Boder, Chair, at 2:00p.m.

The following colleges submitted curriculum proposals:

College of Agricultural Sciences and Natural Resources

Course adds: 13
Course drops: 4
Course revisions: 29

Department of Biosystems Engineering and Soil Science

Drop Certificate: Land Surveying

Department of Food Science and Technology

Add participation in Food Safety certificate

Department of Forestry, Wildlife and Fisheries

Add concentration: Bio-based products and Wood Science and Technology / Natural Resources major, PhD

College of Architecture and Design

Course adds: 7
Course drops: 6
Course revisions: 0

School of Architecture

Drop concentrations: Architecture major, MArch

Track I - Conservation and Stewardship
Track I - High Performance Buildings
Track I - Sustainable Design
Track I - Urban Design

Track II - Conservation and Stewardship
Track II - High Performance Buildings
Track II - Sustainable Design
Track II - Urban Design n

Track III - Conservation and Stewardship
Track III - High Performance Buildings
Track III - Sustainable Design
Track III - Urban Design

Add concentrations: Architecture major, MArch

Conservation and Stewardship
High Performance Buildings
Sustainable Design
Urban Design

College of Arts and Sciences

Course adds: 5
Course drops: 8
Course revisions: 39

Department of Philosophy

Add 5-year BA/MA Program – Philosophy major
Add Dual JD-MA Program – Philosophy major, MA and College of Law, JD

College of Business Administration

Course adds: 28
Course drops: 21
Course revisions: 16

Department name change: *Department of Statistics, Operations, and Management Science changing to:
Department of Business Analytics and Statistics*

Drop Academic Discipline and courses for: Operations Management Science (OMS)

Add new Academic Discipline, subject code and courses for: Business Analytics (BZAN)

Drop Dual MS-MBA Program: Business Administration major / Recreation and Sport Management major

Add concentration: Human Resource Management (Business Administration major, MBA)

College of Communication and Information

Course adds: 3
Course drops: 0
Course revisions: 1

College of Education, Health, and Human Sciences

Course adds: 27
Course drops: 9
Course revisions: 14

Department of Educational Psychology and Counseling

Drop concentrations for Education major, EdS
Instructional Technology
School Counseling
School Psychology

Department of Kinesiology, Recreation, and Sport Studies

Drop Dual MS-MBA Program: Recreation and Sport Management major / Business Administration major

Department of Public Health

Add Certificate: Food Safety

Department of Theory and Practice in Teacher Education

Drop concentration: Foreign language/ESL (Teacher Education major, MS – Track 1 non-licensure)

Drop concentration: English Language Learning (Teacher Education major, MS – Track 2 initial licensure)

Drop concentration: Modified and Early Childhood Special Education (Teacher Education major, MS – Track 2 initial licensure)

Drop concentration: Foreign language/ESL (Teacher Education major, EdS)

Drop concentration: Special Education (Education major, PhD)

Add concentration: World Language/ESL Education (Teacher Education major, MS, Track 1 non-licensure)

Add concentration: English as a Second Language Education (Teacher Education major, MS, Track 2 Initial Licensure)

Add concentration: Special Education (Teacher Education major, MS, Track 2 Initial Licensure)

Add concentration: World Language Education (Teacher Education major, MS, Track 2 Initial Licensure)

Add concentration: World Language/ESL Education (Teacher Education major, EdS)

Add concentration: Special Education, Deaf Education, and Interpreter Education (Teacher Education major, PhD)

College of Engineering

Course adds: 45

Course drops: 16

Course revisions: 36

Department of Chemical and Biomolecular Engineering

Drop concentrations: Chemical Engineering major, MS

Advanced Control Systems concentration

Chemical Bioengineering concentration

Chemical Engineering concentration

Polymer Science and Engineering concentration

Drop concentrations: Chemical Engineering major, PhD

Advanced Control Systems concentration

Chemical Bioengineering concentration

Chemical Engineering concentration

Polymer Science and Engineering concentration

Department of Electrical Engineering and Computer Science

Add Certificate: Fire Protection Engineering

Department of Mechanical, Aerospace, and Biomedical Engineering

Drop Certificate: Computational Fluid Dynamics

College of Law

Course adds: 17

Course drops: 0

Course revisions: 12

Add Dual JD-MA Program –College of Law, JD and Philosophy major, MA

College of Nursing

Course adds: 0

Course drops: 5

Course revisions: 2

Add concentrations: Nursing major, DNP

Mental Health Practitioner

Nursing of Women and Children

Nurse Anesthesia

College of Social Work

Course adds: 0
Course drops: 0
Course revisions: 1

Intercollegiate – UT Space Institute

Drop major and degree: Aviation Systems major, MS

Intercollegiate – Comparative and experimental Medicine

Course adds: 32
Course drops: 32
Course revisions: 0

Drop Academic Discipline and courses: Comparative and Experimental Medicine – Graduate School of Medicine (CMMD)

Drop Academic Discipline and courses: Comparative and Experimental Medicine – Veterinary Medicine (CMVM)

Add new Academic Discipline, subject code and courses: Comparative and Experimental Medicine (CEM)

College of Arts and Sciences – questions from Curriculum Committee members

Course Changes: MUVC 590 was revised for repeatability (from maximum of 8 hours to maximum of 20). The rationale indicated the revision was to allow hours to be used for two music degrees. The following questions were asked: (1) why the repeatability jumped so high and (2) if it might be a good idea to indicate the hours that would be allowed for each master's degree. R.J. Hinde will share the committee members' questions with the School of Music and get answers. ***The revision was approved pending clarification at the Graduate Council meeting on January 30, 2014.***

Program Changes: Chemistry major, PhD: added the following requirement: "Graduation with a PhD in Chemistry requires the publication of a minimum of one article in a peer-reviewed journal describing research performed during graduate studies." This proposal raised questions and a discussion about requirements for graduation. Some concerns were: (1) forcing this on a doctoral student before graduating and (2) having external people/readers in the approval process of our graduation requirements. After discussion, the Committee suggested R.J. Hinde ask the Department of Chemistry to do one of the following: (1) to change the word "publication" to "submission" (2) strike the sentence from the submission proposal, (3) have the doctoral committee approve the paper "deemed to be publishable." ***The revision was approved pending clarification at the Graduate Council meeting on January 30, 2014.***

The Curriculum Committee approved the above proposals (pending clarification from the College of Arts and Sciences) and is presented for recommendation to the Graduate Council. The meeting was adjourned at 4:00p.m.

- > Identifies academic disciplines being dropped/added
- Identifies certificates/minors being dropped/added
- ▲ Identifies concentrations being dropped/added
- # Identifies majors/degrees being dropped/added
- Identifies renaming of department

COLLEGE OF AGRICULTURAL SCIENCES AND NATURAL RESOURCES

All Changes Effective Fall 2014

I. COURSE CHANGES

DEPARTMENT OF AGRICULTURAL LEADERSHIP, EDUCATION AND COMMUNICATIONS

(ALEC) Agricultural Leadership, Education and Communications

ADD

ALEC 545 Program Planning in Agriscience Education (3) Overview of the historical and philosophical aspect of agriculture education, the role of teacher and learner.

Credit Restriction: Students may not use 545 towards their graduate degree requirements if they received credit for 345.

Registration Restriction(s): Graduate standing.

ALEC 551 Agricultural Leadership Development (3) Theoretical underpinnings based on servant leadership and the development of a servant leader; servant leadership in business, education and foundations; servant leader responsibility; America and world leadership; and ethical considerations for leaders. A broad-based review of the primary disciplines in agriculture with an emphasis on servant leadership.

Credit Restriction: Students may not apply 551 towards their graduate degree requirements if they received credit for 450.

Registration Restriction(s): Graduate standing.

DEPARTMENT OF ANIMAL SCIENCE

(ANSC) Animal Science

REVISE PRIMARY COURSE TO CHANGE THE ACADEMIC DISCIPLINE NAME OF THE SECONDARY CROSS-LIST

ANSC 652 – Disorders of the Endocrine System (2)

(Same as Comparative and Experimental Medicine 652.)

Formerly: (Same as Comparative and Experimental Medicine – Veterinary Medicine 652.)

DEPARTMENT OF BIOSYSTEMS ENGINEERING AND SOIL SCIENCE

(BSET) Biosystems Engineering Technology

REVISE TO ADD REGISTRATION RESTRICTION

BSET 506 Engineering Principles (3)

Registration Restriction(s): Minimum student level – graduate.

DEPARTMENT OF ENTOMOLOGY AND PLANT PATHOLOGY

(EPP) Entomology and Plant Pathology

ADD

EPP 508 Plant Health Diagnostics (3) Practical experience diagnosing plant health problems caused by insects, nematodes, microbial pathogens, and abiotic stresses. Students will use modern plant health diagnostics tools and techniques both in the laboratory and field in diverse ecosystems including field, vegetable, and orchard crops, forests, and urban landscapes.

Contact Hour Distribution: One week summer workshop at the Soil, Plant and Pest Center in Nashville, TN.

EPP 551 Biological Control (3) Examines the concepts, ecological principles, fundamentals, history, and applied practices of biological control of arthropod pests, plant pathogens, and weeds; investigate the role of biological control in natural biological processes, as well as in integrated pest management programs directed at pests and pathogens affecting agricultural production, landscapes, turfgrass, natural areas, forests, and human and animal health; examine the biology, role and implementation of microbial antagonists, entomopathogens, predators and parasitoids in suppressing populations of plant pathogens, arthropods, and weeds; discuss examples of successful and unsuccessful biological control programs.

EPP 565 Career Skills, Communications, Ethics, and Professionalism for Scientists (1) Application of speaking, writing, and organizational skills in preparation and presentation of scientific material to both scientific and general audiences.

EPP 606 Advanced Topics in Nematology (1-3) Specialized instruction on systematics, physiology, ecology, genetics, genomics, and evolution of nematodes, plant, insect, mollusk, medical and veterinary nematology, nematode biodiversity, entomopathogenic nematodes, nematode-microbe interactions, plant-nematode interactions, and biological control.

Repeatability: May be repeated. Maximum 12 hours.

Registration Restriction(s): Minimum student level – graduate.

EPP 620 Nematode Biodiversity Analysis for Ecosystem Sustainability and Resilience (3) Use of nematode community as a model system to examine the structure and function of soil food webs and the role of biodiversity in ecosystem processes, sustainability and resilience. Students will design and carry out a team research project to reveal subtle human impacts on nematode biodiversity and its role in the production of ecosystem services by comparison of different habitats or across urban-rural gradients. Course and project components will include discussion of ecological principles, biodiversity, environmental bioindicators, soil health, ecosystem services, ecosystem sustainability and resilience, and a well-written scientific paper.

(DE) Prerequisite(s): 520 or permission of the instructor.

Contact Hour Distribution: 1 hour lecture and 2 weekly labs.

Registration Restriction(s): Minimum student level – graduate.

EPP 630 Advanced Integrated Pest and Pathogen Management (3) Use of principles and concepts of IPM to focus on real-life, practical applications of IPM programs. Builds on EPP 530/PLS 530: Integrated Pest Management [IPM]), where students are introduced to principles and concepts of pest and plant disease management and investigate its importance as an environmentally sound practice based on economic, ecological and sociological consequences. EPP 630 extends these concepts to focus on real-life, practical applications of IPM programs. Will have a seminar-type format with presentations, guest lecturers, and field trips to both regulatory centers and businesses that have implemented IPM programs.

(DE) Prerequisite(s): 530 or Plant Sciences 530.

Registration Restriction(s): Minimum student level – graduate.

DROP

EPP 533 Concentrated Study in Entomology (1-3)

EPP 560 Advanced Integrated Pest Management (2)

EPP 608 Advanced Topics in Integrated Pest Management (1-3)

Rationale: Content of 608 was rolled into two new courses, EPP 550 and EPP 630. Impact on other units: N/A. Financial impact: N/A.

REVISE TITLE, HOURS, DESCRIPTION, AND CONTACT HOUR DISTRIBUTION

EPP 520 Nematology (3) Survey of the phylum Nematoda, including free-living, insect-parasitic, vertebrate-parasitic, and plant-parasitic groups. Emphases will be on identification, collecting methodologies, economic importance, and applications to pest management and soil health.

Contact Hour Distribution: 2 lectures, 1 lab.

REVISE HOURS

EPP 521 Plant Virology (3)

EPP 561 Insect Physiology (3)

REVISE TITLE, DESCRIPTION AND ADD REGISTRATION RESTRICTION

EPP 525 Advanced Medical and Veterinary Entomology (3) Identification, biology, and control of arthropod parasites of humans and animals. Will focus on arthropods and their biology, life histories, habitats, hosts, and options for management. Review and discussion of sampling/monitoring methods and decision-making guidelines to managing vector-borne diseases also will be addressed. Includes an in-depth research experience requiring a manuscript submission for publication.

Registration Restriction(s): Minimum student level – graduate.

REVISE TITLE

EPP 514 Phytobacteriology (3)

EPP 528 Molecular Techniques in Entomology, Nematology, and Plant Pathology (3)

EPP 531 Special Problems in Entomology, Nematology and Plant Pathology (1-3)

EPP 675 Scientific Writing and Grantsmanship (3)

REVISE DESCRIPTION

EPP 604 Advanced Topics in Plant Pathology (1-3) Biological control, disease diagnosis and management, epidemiology, fungal plant pathogens, integrated pest management, molecular plant-microbe interactions, plant pathogenesis, plant pathogenic bacteria, soil- and seed-borne pathogens, and virology.

DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY

(FDST) Food Science and Technology

ADD

FDST 592 Internship in Food Science and Technology (1-3) Practical experience in a selected setting under the supervision of a local professional and departmental representative.

Grading Restriction: Satisfactory/No Credit.

Repeatability: May be repeated. Maximum 3 hours.

Registration Restriction(s): Must be within the Department of Food Science and Technology. Minimum student level – graduate.

Registration Permission: Consent of Instructor.

FDST 690 Innovations in Food-related Technologies (1) Will focus on procedures and regulations related to intellectual property.

Registration Restriction(s): Minimum student level – graduate.

REVISE GRADING RESTRICTION (FROM S/NC GRADING TO LETTER GRADE ONLY)

FDST 501 Seminar (1)

FDST 601 Seminar (1)

REVISE REGISTRATION RESTRICTION

FDST 514 Food Colloids.

Registration Restriction(s): Minimum student level – graduate.

REVISE RECOMMENDED BACKGROUND

FDST 530 Food Biochemistry (3)

Recommended Background: Food chemistry.

REVISE TO ADD REGISTRATION RESTRICTION

FDST 593 Directed Studies (1-3)

Registration Restriction(s): Minimum student level – graduate.

DEPARTMENT OF FORESTRY, WILDLIFE AND FISHERIES

(WFS) WILDLIFE AND FISHERIES SCIENCE

REVISE HOURS

WFS 531 Wildlife Physiology/Nutrition (3)

REVISE PRIMARY COURSE TO CHANGE THE ACADEMIC DISCIPLINE NAME OF THE SECONDARY CROSS-LIST

WFS 530 Wildlife Diseases (2)

(Same as Comparative and Experimental Medicine 530.)

DEPARTMENT OF PLANT SCIENCES

(PLSC) Plant Sciences

ADD

PLSC 542 Turfgrass Root-zone Construction (3) Construction and management of root-zones for home lawns, golf courses, and athletic fields.

Credit Restriction: Students may not apply 542 towards their graduate degree requirements if they received credit for 442.

Registration Restriction(s): Minimum student level – graduate.

PLSC 543 Turfgrass Entomology (3) Biological study and collection of arthropods that challenge maintenance of healthy grasses, turf, and sod. Review and discussion of sampling/monitoring strategies and decision-making guidelines to help manage turfgrass pests.

Credit Restriction: Students may not apply 543 towards their graduate degree requirements if they received credit for 443.

Comments: Spring semester. Alternate, Even-numbered Years.

Registration Restriction(s): Minimum student level – graduate.

PLSC 556 Turfgrass Weed Science (2) Identification of turf adult and seedling weeds, applied chemical control strategies, integrated weed management (including mechanical and cultural practices). Concepts discussed will include turfgrass weed ecology and invasiveness, herbicide regulations and an overview of select herbicidal modes of action.

Credit Restriction: Students may not apply 556 towards their graduate degree requirements if they received credit for 456.

Comments: Spring semester. Alternate, Odd-numbered Years.

Registration Restriction(s): Minimum student level – graduate.

DROP 400-LEVEL COURSE FOR GRADUATE CREDIT

PLSC 442 Turf Root-zone Construction (2)

REVISE DESCRIPTION

PLSC 435 Field and Forage Crops (3) Agronomic principles of forage and field crop production, establishment, fertilization and management practices will be discussed using forage crops as the primary model.

REVISE TO ADD COMMENTS

PLSC 410 Nursery Management and Production (3)

Comment(s): Will be taught Spring semester and then offered Alternate, Odd-numbered years

PLSC 430 Greenhouse Management (3)

Comment(s): Will be taught Spring semester and then offered Alternate, Even-numbered Years

PLSC 511 Seed Biology and Physiology (1)

Comment(s): Will be taught Spring semester and then offered Alternate, Even-numbered Years

PLSC 532 Environmental Plant Ecophysiology (3)

Comment(s): Will be taught Fall Semester and then offered Alternate, Even-numbered Years.

PLSC 553 Introduction to Plant Breeding (3)

Comment(s): Will be taught Spring semester and then offered Alternate, Odd-numbered Years.

REVISE TO ADD REGISTRATION RESTRICTION

PLSC 515 Agroecology (3)

Registration Restriction(s): Minimum student level – graduate.

PLSC 552 Plant Biotechnology and Genetics (3)

Registration Restriction(s): Minimum student level – graduate.

PLSC 554 Plant Biotechniques (3)

Registration Restriction(s): Minimum student level – graduate.

PLSC 561 Statistics for Biological Research (3)

Registration Restriction(s): Minimum student level – graduate.

REVISE PRIMARY COURSE TO ADD ANOTHER SECONDARY CROSS-LIST

PLSC 525 Research Ethics for the Life Sciences (1)

(Same as Animal Science 525 and Comparative and Experimental Medicine 525.)

Formerly: (Same as Animal Science 525.)

Rationale: Plant Sciences' Graduate Director (Bill Klingeman) has corresponded with instructors of record and CEM Graduate Director and Plant Sciences approves CEM 525 to become a secondary cross-list to PLSC 525. Course format and location: Journal club format, on campus. Impact on other units: Increases course availability to CMVM students, will enhance interaction among diverse fields of science, and will provide higher enrollments, thus may necessitate adding a course section. Financial Impact: Sections will be taught with additional support provided by existing CEM-CMVM faculty.

II. PROGRAM CHANGES

REVISE REQUIREMENTS – WATERSHED MINOR

In the 2014-15 *Graduate Catalog* revise courses as indicated below:

Add to WATERSHED CORE course list

- ESS 524 Environmental Stormwater Management (3)
- ENVE 516 Watershed Monitoring and Assessment (3)
- ENVE 530 Urban Hydrology and Stormwater Engineering (3)

Add to SCIENCE / ENGINEERING course list

- ESS 442 Soil Genesis and Classification(3)
- ESS 512 Pedology (3)
- ESS 524 Environmental Stormwater Management (3)
- ENVE 515 Open Channel Hydraulics (3)
- ENVE 516 Watershed Monitoring and Assessment (3)
- ENVE 527 Stream Restoration Design (3)
- ENVE 545 Advanced GIS Applications for Hydrology (3)
- ENVE 615 Sediment Transport (3)
- ENVE 620 Advanced Hydrodynamic Modeling (3)

Delete from SCIENCE / ENGINEERING course list

- ENVE 521 Climate Impacts on Water Resources (3)

Rationale: Reflects changes in course offerings and desire to increase flexibility. Impact on other units: None. Financial impact: None.

DEPARTMENT OF AGRICULTURAL AND RESOURCE ECONOMICS

REVISE TEXT AND REQUIREMENTS – NATURAL RESOURCES MAJOR (AE), PHD, NATURAL RESOURCE ECONOMICS CONCENTRATION

In the 2013-2014 *Graduate Catalog*, under Requirements heading, first paragraph make the following changes:

Complete 72 semester hours of graduate course work beyond the bachelor's degree. Forty-eight hours must be in graduate course work approved by the student's doctoral committee. Up to 24 hours of course work completed for a master's degree may be applied to the 48-hour requirement. A minimum of 12 of the remaining 24 (or 30 of the 48 if no master's degree) hours must be graded A-F. If approved by the Faculty Committee, graduate level courses taken at another institution may be used to meet specific coursework requirements. A minimum of 6 hours of 600-level coursework, exclusive of dissertation hours, must be completed at UTK. Students are required to complete a minimum of 24 hours of AREC 600, Doctoral Research and Dissertation.

Formerly: Complete 72 semester hours of graduate course work beyond the bachelor's degree. Forty-eight hours must be in graduate course work approved by the student's doctoral committee. Up to 24 hours of course work completed for a master's degree may be applied to the 48-hour requirement. A minimum of 12 of the remaining 24 (or 30 of the 48 if no master's degree) hours must be graded A-F. A minimum of 6 hours must be taken in UT courses at the 600-level, exclusive of dissertation hours. Students are required to complete a minimum of 24 hours of AREC 600, Doctoral Research and Dissertation.

In the 2013-2014 *Graduate Catalog*, under Requirements heading, second paragraph, delete course FWF 610 (2 hours) from list.

Rationale: FWF 610 is no longer required for the Natural Resources PhD major. Impact on other Units: None. Financial Impact: None.

In the 2013-2014 *Graduate Catalog*, under Requirements heading, third paragraph revise the third and fourth bullets as follows:

- Quantitative Methods by completion of ECON 581 with a grade of B or better and completion of ECON 582 and ECON 583 with a combined average grade of B or better.

Revise the first sentence of the fourth bullet by adding a word (written). The first sentence of the fourth bullet should read:

- Natural Resource Economics by written comprehensive examination.

In the 2013-2014 *Graduate Catalog*, under Requirements heading, fourth paragraph: remove the words June and August and replace with "the summer."

Written qualifying and comprehensive examinations will be given in the summer.

Also in fourth paragraph, revise the last sentence as follows: The sentence should read:

Failing a qualifying or comprehensive examination for a third time or not meeting the aforementioned minimum Quantitative Methods grade requirements will result in dismissal from the doctoral program.

Formerly: Failing a qualifying or comprehensive examination for a third time will result in dismissal from the doctoral program.

Rationale: The first three changes simply correct inaccurate information. The last change clearly states the consequences of not meeting the minimum grade requirements in Quantitative Methods. Impact on other units: None. Financial Impact: None.

DEPARTMENT OF BIOSYSTEMS ENGINEERING AND SOIL SCIENCE

● DROP CERTIFICATE – LAND SURVEYING

Supporting Information: Rationale: Changes in teaching responsibilities and lack of interest in the certificate indicate no reason to continue it. Impact on other units: None. Financial Impact: None. This will require a SACS teach-out plan. A teach-out plan is required when dropping/closing a program and SACS considers Certificates a Program – per Mary Albrecht, SACS representative.

DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY

ADD PARTICIPATION IN THE FOOD SAFETY GRADUATE CERTIFICATE

In the 2013-2014 *Graduate Catalog*, add participation for new certificate.

Food Safety Certificate

The Department of Public Health (College of Education, Health, and Human Sciences, UTK) and the Department of Food Science and Technology (College of Agricultural Sciences and Natural Resources, UTIA) jointly offer a Graduate Certificate in Food Safety. The certificate will prepare public health and food industry leaders, researchers, educators, and practitioners to understand and apply knowledge and skills to enhance food safety and prevent food-related disease. The Center for Agriculture and Food Security and Preparedness and the Department of Biomedical and Diagnostic Sciences, College of Veterinary Medicine are partners supporting this certificate. The certificate offering is coordinated through the Tennessee Integrated Food Safety Center of Excellence and will be administratively housed in the Department of Public Health. The certificate program is designed to build upon and expand concepts from core courses of the curriculum of each discipline's Master's degree programs and the previous experiences and interests of students. The 12 graduate hours required for the certificate may also count as graduate degree hours. The certificate is also designed for the current workforce in public health or food industry-related employment to acquire additional training and expertise relevant to their job functions. Certificate candidates must currently be admitted to a degree-granting graduate program at the university or hold an undergraduate degree and be admitted to the certificate program by submitting an online application for the Food Safety certificate through the Graduate Admissions Office. Course experiences will foster the examination and application of current policy research and the development of skills related to policy analysis, research, program evaluation, and advocacy.

Required Courses (9 hours):

- FDST 421; 3 hours
- Web-based course (CEM 508; 2 hours) OR web-based course (CEM 507; 2 hours)
- PUBH 540; 3 hours
- PUBH 541, 1 hour (PUBH 541 is cross-listed with FDST 541 and CEM 541).

Electives (3 hours):

- Students will choose from a list of approved electives, which will be maintained by the Department of Public Health.

Supporting Information: Rationale: Food safety is a critical element for both public health and emergency/bioterrorism preparedness. With foodborne disease outbreaks on the rise, greater attention is being paid to prevention through stronger links between industry, practice, and academia. Preventing and investigating foodborne diseases outbreaks requires cross-disciplinary involvement, and the graduate certificate in Food Safety is by design a multi-disciplinary program. The certificate is also in response to interests from the Tennessee Department of Health, and through them, the Centers for Disease Control and Prevention. The lead faculty in public health and food safety are included within the CDC-funded Tennessee Center of Excellence in Food Safety.

Impact: The certificate will involve, and thus impact, the Department of Food Science and Technology (College of Agricultural Sciences and Natural Resources, UTIA). There is no anticipated negative impact on that or any other academic unit. In its initial offering as a special topics course, what is being proposed as PUBH 541 enrolled its maximum number of students (20). It is anticipated that some of these students will go on to complete the certificate, if approved. The short-term impact will be a positive one in not only engaging students from multiple disciplines, but also being able to involve the current workforce in public health and the food industry.

Financial impact: The CDC-funded project mentioned above provides seed funding to establish new courses as a part of the certificate. Once established, there will be no additional on-going financial impact beyond the time investment of current faculty to offer the courses described. There is adequate capacity to do so.

DEPARTMENT OF FORESTRY, WILDLIFE AND FISHERIES

▲ ADD CONCENTRATION - NATURAL RESOURCES MAJOR - PHD

Bio-based products and Wood Science and Technology concentration

In the 2013-2014 *Graduate Catalog*, after the description of requirements for the major, add heading and text for new concentration.

Bio-based Products and Wood Science and Technology Concentration

The concentration in bio-based products and wood science and technology is designed to prepare graduate students for analytical, research, and academic careers in the public, private, and university sectors. This concentration is intended to accommodate students with interests in the traditional field of forest products and wood science, as well as the more contemporary fields of bio-based materials (including bio-energy and biofuels), nanotechnology, and industrial process control. The same requirements as specified for the major hold for the concentration. The student's doctoral committee will assist the student in developing a program of graduate course work that will meet these requirements.

REVISE TEXT NATURAL RESOURCES MAJOR (FWF), PHD

In the 2014-2015 *Graduate Catalog*, revise the last sentence in the introductory paragraph to include the new concentration.

Optional, formal concentrations in natural resource economics, wildlife health, and bio-based products and wood science and technology are also available for interested students.

Under "Core Subject areas" revise subhead and third bullet as follows:

Professional Development revise to 5 hours (revised from 7 hours to 5 hours)

And revise the third bullet by removing the last sentence.

Supporting Information: Rationale: Will allow students more flexibility in structuring their program and meeting the required hours of 600-level classes. Impact on other units: None. Financial Impact: minimal – course will continue to be offered but will not be required.

DEPARTMENT OF PLANT SCIENCES

REVISE REQUIREMENTS – PLANT SCIENCES MAJOR, MS

In the 2014-2015 *Graduate Catalog*, revise second bullet, make second sentence of bullet two – bullet three, and add a fourth bulleted item as follows:

- Approval of the academic program by the master's committee.
- Successful completion of 12 hours of course work in the major at the graduate level (400 or above), exclusive of Plant Sciences PLSC 502 and PLSC 503.
- With agreement of the graduate student's committee, six of these hours may be satisfied by ART 481; BCMB 522, BCMB 523; EDPY 559; EEB 414, EEB 433, EEB 560; ESS 434, ESS 544, ESS 511, ESS 516; GEOG 439; INSC 560; or SOCI 633.
- If approved by the graduate student's committee, graduate level courses taken at another institution (that were not used to meet degree requirements for a previous degree) may be used to meet specific coursework requirements.

REVISE REQUIREMENTS – PLANTS, SOILS, AND INSECTS MAJOR (PS), PHD

In the 2014-2015 *Graduate Catalog*, under the Requirements heading, revise second paragraph to add the following sentence as the next to last sentence as follows:

..., excluding PLSC 602. If approved by the graduate student's committee, graduate level courses taken at another institution may be used to meet specific coursework requirements. In addition, 24 hours of course PLSC 600 Doctoral Research and Dissertation are required.

Supporting Information: Rationale: Provides clear guidance within MS and PhD catalog text to inform students about current existing and acceptable policies. Impact on other units: None. Financial impact: None.

COLLEGE OF ARCHITECTURE AND DESIGN

All changes effective Fall 2014

I. COURSE CHANGES

LANDSCAPE ARCHITECTURE PROGRAM

Landscape Architecture (LAR)

ADD

LAR 525 Special Topics. (1-6) Instructor-initiated course.

Grading Restriction: Satisfactory/No Credit or letter grade.

Repeatability: May be repeated. Maximum 9 hours.

Rationale: Currently using Arch 425/525. We need a course under our program academic discipline (LAR). Impact on other units: None. Financial Impact: None.

LAR 526 Directed Readings in Landscape Architecture (3) Faculty-guided independent readings on topics of interest: primary texts, history, theory, urban issues, technology and professional practice. Products determined by instructor. Proposal required prior to registration.

Repeatability: May be repeated. Maximum 6 hours.

Registration Permission: Consent of instructor

Rationale: Revised description better describes LA course content and organization, new number and aligns numbering sequence with parallel graduate course series in other CoAD disciplines. Impact on other units: None. Financial Impact: None.

LAR 551 Design Studio I (6) introduces students to techniques, concepts, and practices of landscape architecture and landscape planning with particular emphasis on development of representational and communication skills using digital and analog media. Strategic and formal design concepts are introduced as vehicles for the exploration of a wide range of media and techniques for analyzing landscapes, projecting design alternatives, and communicating design ideas.

Credit Restriction: Students may not receive credit for both Landscape Architecture 551 and Architecture 474.

Registration Restriction(s): Landscape architecture major.

LAR 552 Design Studio II (6) Focuses on issues of space and form in landscape architectural design. Working at small and intermediate scales, students explore contemporary and historical theories of space and form through a range of analog and digital media with a particular emphasis on 3-dimensional modeling. Students work rapidly across several projects in order to explore multiple formal and spatial concepts and practice new techniques.

Credit Restriction: Students may not receive credit for both Landscape Architecture 552 and Architecture 475.

(RE) Prerequisite(s): 551.

Registration Restriction(s): Landscape architecture major.

LAR 553 Design Studio III (6) Explores intermediately complex themes and issues of site-oriented design and planning. Studio work focuses primarily on a range of explorations of medium-scale projects using a mixture of analog and digital media.

(RE) Prerequisite(s): 552.

LAR 554 Design Studio IV (6) Focus on large scale community and site planning and land use issues. Particular emphasis on both urban and rural development through sustainable design for both human health and natural environments. Exploration of topical/thematic issues using a mixture of analog and digital media.

(RE) Prerequisite(s): 553.

LAR 555 Design Studio V (6) Advanced studio with a focus on urban-scale sites and issues. Particular emphasis on design of urban projects and infrastructure that enhance human knowledge of and sensual engagement with regional civic, cultural, and ecological aspects of urban place while sustaining sustain human health and natural environments. Exploration of topical/thematic issues using a mixture of analog and digital media.

(RE) Prerequisite(s): 554.

DROP

LAR 515 Directed Readings in Landscape Architecture (3)

LAR 541 Landscape/Site Design I (3)

LAR 542 Landscape/Site Design II (4)

LAR 543 Landscape Architecture Design I (6)

LAR 544 Landscape Architecture Design II (6)

LAR 545 Landscape Architecture Design III (6)

Equivalency Chart

Current Courses	Equivalent Course Effective Fall 2014
LAR 515	LAR 526

II. PROGRAM CHANGES

SCHOOL OF ARCHITECTURE

▲ DROP CONCENTRATIONS – ARCHITECTURE MAJOR, MASTER OF ARCHITECTURE

Track I - Conservation and Stewardship
 Track I - High Performance Buildings
 Track I - Sustainable Design
 Track I - Urban Design

Track II - Conservation and Stewardship
 Track II - High Performance Buildings
 Track II - Sustainable Design
 Track II - Urban Design n

Track III - Conservation and Stewardship
 Track III - High Performance Buildings
 Track III - Sustainable Design
 Track III - Urban Design

▲ ADD CONCENTRATIONS – ARCHITECTURE MAJOR, MASTER OF ARCHITECTURE

Conservation and Stewardship
 High Performance Buildings
 Sustainable Design
 Urban Design

REVISE ARCHITECTURE MAJOR, MASTER OF ARCHITECTURE DEGREE

In the 2014-2015 *Graduate Catalog*, revise the Architecture major in the following areas:

- 1) second paragraph, last sentence - remove "a 6-year" and replace with "an 8-year."
- 2) third paragraph – remove "program (Tracks 2 and 3)" and replace with "Master of Architecture, Advanced Placement (AP), and Master of Architecture, Post-professional (PP) programs"
- 3) fourth paragraph – delete and replace with the following: The School of Architecture offers three curricular paths leading to the Master of Architecture degree and one curricular path leading to a Master of Science in Architecture (*pending THEC approval*).
- 4) delete the 3 bulleted items and replace with the following 4 bullets:
 - The Master of Architecture program is a 3.5-year professional degree program for students who already hold a bachelor's degree in another field other than architecture. Some students may be considered for advanced standing if previous coursework is accepted for credit.
 - Master of Architecture (Advanced Placement) is a two-year path in the professional degree program for students with a 4-year pre-professional bachelor's degree in architecture in which students are placed in upper level coursework based on previously completed coursework in a pre-profession.
 - The Master Architecture (Post-Professional) is a 3-semester post-professional degree for students who have already earned an accredited professional degree in architecture, and who seek to develop an area of specialization.
 - **Pending THEC approval** (expected start AY 2014) the Master of Science in Architecture will replace the current MArch, Post-Professional degree. This program will be a 3-semester degree for students of diverse backgrounds and experience who share a passion for the role of architecture in society and who seek to develop an area of specialization in the field.

- 5) under Concentrations heading, 2nd paragraph, delete "Track 2 and 3" and replace with "and MArch (AP)"
- 6) under Concentrations heading, 3rd paragraph, delete "Track 1" and replace with "(PP)"
- 7) under Admissions heading, subtitle "For applicants to all Tracks:" revise to: "For applicants for all degree programs:"
- 8) under Admissions heading, subtitle "For Track 1 applicants" revise to: "For MArch (PP) applicants:"
- 9) admissions subtitle "For all applicants to MArch, Tracks 2 and 3" revise to "For all applicants to MArch and MArch (AP)"
- 10) admissions subtitle, "For Track 2 applicants, additionally" revise to "For MArch (AP) applicants additionally"
- 11) admissions subtitle, "For both Track 2 and 3 applicants additionally" revise to "For both MArch and MArch (AP)"
- 12) admissions subtitle, "For Track 3 applicants additionally" revise to "For MArch (PP) applicants, additionally:"
- 13) Requirements heading, 1st paragraph, first 2 words remove (Track 1) and replace with "MArch (PP)"
- 14) Requirements heading, 2nd paragraph, remove "Track 1" and replace with "(PP)"
- 15) Requirements heading, 3rd paragraph, remove "Track 2" and replace with "MArch (AP)"
- 16) Requirements heading, 4th paragraph, remove "Track 3" and replace with "MArch"
- 17) Under Requirements for High Performance Buildings concentrations, 2nd paragraph, remove Track 1 and replace with MArch (PP).

Rationale: These revisions are necessary as we are dropping "Tracks" from our concentration names. The catalog text needs to reflect the concentration name changes and to indicate the Advanced Placement and Post-professional path designations. Impact on other units: None. Financial Impact: None.

LANDSCAPE ARCHITECTURE PROGRAM

REVISE LANDSCAPE ARCHITECTURE MISSION STATEMENT TEXT

In the 2014-2015 *Graduate Catalog*, revise the 5th and 7th paragraphs of the Mission Statement as follows:

Mission Statement

The Master of Landscape Architecture (MLA) is a design-based professional degree that concludes with a design thesis or a capstone design project. The MLA has a first-professional track (MLA-Track 1) that is designed to prepare students as critically-engaged practitioners, and a post-professional track (MLA-Track 2) that provides opportunities for research-oriented studies in sub-disciplines, as well as self-directed research in alternate areas of interest

Students pursuing the MLA-Track 2, the MALA, or the MSLA will work primarily with faculty members engaged in research and scholarship relevant to current issues and opportunities in the field. Faculty interests that contribute to curricular specialization areas focus on issues of environmental stewardship and include: civic infrastructure, natural resources and urban environments, history and theory/criticism, visualization/representation, among others.

REVISE LANDSCAPE ARCHITECTURE, MLA

In the 2014-15 *Graduate Catalog* under the heading: Master of Landscape Architecture – Track 1 (First Professional Degree) revise bullet 2 and add a new bullet 3 as follows:

- Path B is designed to accommodate students with a bachelor's degree in landscape design or students in related design fields like architecture, urban design or interior design. Advanced standing is determined on a case by case basis dependent upon the specific courses and content a student has already completed. Once advanced standing is determined, as little as two years may be required to complete the Path B program.
- Path B – Advanced Standing Option is designed for students in the BArch program at the University of Tennessee, Knoxville. To pursue this option, students must apply for acceptance to the Landscape Architecture Program in the Spring Term of their 4th year. This application must include all of the materials listed below which are required for admission to this degree track (see Admissions to MLA – Track 1 (First Professional Degree)).

In the 2014-15 *Graduate Catalog*, after the heading and text "Admission to MLA – Track 1 (First Professional Degree) add a new heading and text for Path B Advanced Standing option as shown below.

Admission to MLA - Track 1 – Path B – Advanced Standing Option (First Professional Degree)

Students in the Advanced Standing Option at UTK must submit an online application to the Graduate Admissions Office in the spring of their 5th year. At this time students must meet the Graduate School's minimum requirements.

Candidates with a GPA less than 3.0 may be considered for conditional admission when evidence of exceptional promise is identified.

REVISE REQUIREMENTS – LANDSCAPE ARCHITECTURE, MLA

In the 2014-15 *Graduate Catalog*, under the heading: Requirements for the MLA – Track 1 (First Professional Degree) Path B, add heading and text for the Advanced Standing Option as follows:

Path B

Advanced Standing Option: Requires a minimum of 63 hours of graduate course work including 6 hours of either LAR 500 (Thesis) or LAR 570 (Capstone Studio).

REVISE ELECTIVES – LANDSCAPE ARCHITECTURE, MLA

In the 2014-15 *Graduate Catalog*, under the Electives heading, remove the first sentence and replace with the following:

Electives

Path A and Path B options require five directed electives chosen from an approved list of courses as well as two open, unrestricted electives.

COLLEGE OF ARTS AND SCIENCES

All changes effective Fall 2014

PART I. COURSE CHANGES

DEPARTMENT OF ANTHROPOLOGY

(ANTH) Anthropology

ADD

ANTH 650 – Research Design and Proposal Writing (3) Practicum in research design and proposal writing for advanced graduate students. Classes will consist of seminar-style discussions and presentations to aid students in thesis and grant proposal preparation.

Registration Restriction(s): Minimum student level – graduate.

SCHOOL OF ART

(ART) Art

DROP

ART 513 – Graduate Painting I (2-6)

ART 514 – Graduate Painting II (2-6)

REVISE TITLE

ART 511 – Graduate Painting and Drawing I (2-6)

ART 512 – Graduate Painting and Drawing II (2-6)

(ARTC) Art Four-Dimensional Arts

ADD NEW 400-LEVEL COURSE FOR GRADUATE CREDIT

ARTC 437 – Internship (1-12) On-site work experience in the media production field. Pre-approval in the 4D Arts Program required.

Repeatability: May be repeated. Maximum 12 hours.

(RE) Prerequisite(s): 236.

Registration Restriction: Departmental approval.

(ARTD) Art Design/Graphic

REVISE (RE) PREREQUISITE

ARTD 400 – Typography (3)

(RE) Prerequisite(s): 252 and 405.

Formerly: (RE) Prerequisite(s): 252 and 350.

REVISE TITLE AND DESCRIPTION

ARTD 405 – Interaction Design (3) Exploration of current technologies and their significance to interactive and screen-based design.

REVISE DESCRIPTION

ARTD 451 – Advanced Graphic Design (4) Advanced design investigations into the theory and techniques of visual problem-solving as applied across many applications of design. Emphasis on the study of identity and systems.

ARTD 456 - Graphic Design Practicum (1-12) On-site, practical work designed to bridge the university experience with the workplace prior to graduation. Must be pre-arranged with the department.

REVISE TITLE AND DESCRIPTION

ARTD 452 – Graphic Design Capstone (4) Student-led project under faculty direction including advanced application of research, project-development and execution. Includes individual presentations to professional panels.

REVISE DESCRIPTION, ADD COMMENT, DELETE REGISTRATION PERMISSION

ARTD 459 – Special Topics in Graphic Design (3) Student- or instructor-initiated course offered at discretion of department that examines a particular perspective within design.

Comment(s): Prerequisites determined by department for individual topic.

DEPARTMENT OF BIOCHEMISTRY AND CELLULAR AND MOLECULAR BIOLOGY

(BCMB) Biochemistry and Cellular and Molecular Biology

REVISE TITLE, DESCRIPTION, AND (RE) PREREQUISITE

BCMB 403 – Neurogenetics Laboratory (3) Experiments and lectures illustrating methods in modern genetics and neurobiology using model organisms, especially *Drosophila* or *Caenorhabditis elegans*.

(RE) Prerequisite(s): Biology 240.

DEPARTMENT OF EARTH AND PLANETARY SCIENCES

(GEOL) Geology

REVISE TITLE AND RECOMMENDED BACKGROUND (PRIMARY COURSE)

GEOL 450 – Geomorphology (3)

Recommended background: Two introductory geology or physical geography courses and high school or college physics.

Cross-listed: Same as Geography 450.

DEPARTMENT OF ECOLOGY AND EVOLUTIONARY BIOLOGY

(EEB) Ecology and Evolutionary Biology

DROP

EEB 460 – Evolution (3)

Rationale: Course is being replaced by Biology 280 and Biology 281. Impact on other units: Will be taught in Biology. Financial impact: None.

DEPARTMENT OF ENGLISH

(ENGL) English

REVISE TITLE AND DESCRIPTION

ENGL 406 – Shakespeare's Contemporaries I: Renaissance Drama (3) English theatre between 1590 and 1640. Representative plays by Shakespeare's contemporaries—Marlowe, Webster, and Jonson.

ENGL 409 – Shakespeare's Contemporaries II: Renaissance Poetry and Prose (3) Principal achievements in poetry and prose of 16th-century authors—More, Wyatt, Marlowe, Spenser, Sidney, and Donne.

ENGL 410 – Donne, Milton, and Their Contemporaries (3) Principal achievements in poetry and prose of the first two-thirds of the 17th century. Includes such writers as Donne, Herbert, Lanyer, Bacon, Browne, Marvell, and Milton.

ENGL 435 – American Fiction to 1900 (3) Explores the development of American novels and short fiction published between the Revolutionary era and the end of the nineteenth century. Includes such writers as Rowson, Cooper, Poe, Hawthorne, Melville, Stowe, James, Twain, and Chesnutt.

DEPARTMENT OF GEOGRAPHY

(GEOG) Geography

REVISE DESCRIPTION AND DELETE (DE) PREREQUISITE

GEOG 415 – Quantitative Methods in Geography (4) Fundamental concepts in geographic research. Spatial thinking and reasoning. Experimental and non-experimental research design (from generating research questions to formulating hypotheses and developing research plans). Concepts of statistics (nonparametric and parametric methods, analysis of variance, regression, patterns in space and time, and use of statistical software). A required course for geography majors.

REVISE TITLE (SECONDARY CROSS LISTED COURSE)

GEOG 450 – Geomorphology (3)

Cross-listed: See Geology 450.

DEPARTMENT OF HISTORY

(HIST) History

ADD

HIST 517 – Classic and Contemporary Readings in African-American History (3) Introduces some of the most recent as well as standard scholarship in the field of African-American history from slavery to the present. Examines the relationship of African-American history to United States history and other "minority" histories.

DEPARTMENT OF MODERN FOREIGN LANGUAGES AND LITERATURES

(ASLN) Asian Languages

➤ DROP ACADEMIC DISCIPLINE AND ALL COURSES

ASLN 431 - Readings in Chinese Literature

ASLN 451 - Readings in Pre-Modern Japanese Literature

ASLN 452 - Readings in Modern Japanese Literature

Supporting Information: Rationale: Asian Language academic discipline is being dropped. All courses are being moved to Chinese and Japanese. Impact on other units: To be less confusing, Chinese and Japanese will be the primary (and only) listing for these courses. Financial impact: None.

(CHIN) Chinese

REVISE TO DELETE CROSS-LISTING AND MAKE PRIMARY

CHIN 431 – Readings in Chinese Literature (3)

Repeatability: May be repeated. Maximum 9 hours.

Supporting Information: Rationale: We are dropping the Asian Languages courses so the Chinese course needs to have full entry. Impact on other units: ASLN academic discipline and all courses are being dropped. Financial impact: None.

(JAPA) Japanese

REVISE TO DELETE CROSS LISTING AND MAKE PRIMARY

JAPA 451 – Readings in Pre-Modern Japanese Literature (3)

(RE) Prerequisite(s): 252.

JAPA 452 – Readings in Modern Japanese Literature (3)

(RE) Prerequisite(s): 252.

Supporting Information: Rationale: These were previously cross listed ASLN courses. Asian Languages is being dropped and the Japanese courses need to have full listings. Impact on other units: ASLN is being dropped. Financial impact: None.

SCHOOL OF MUSIC

(MUSC) Music General

REVISE TO ADD REPEATABILITY

MUSC 501 – Graduate Recital (2)

Repeatability: May be repeated. Maximum 4 hours.

(MUVC) Music Voice

DROP

MUVC 530 – Opera Performance (1)

Supporting Information: Rationale: MUVC 530 and MUVC 520 are the same course with different titles. Dropping 530 omits an unnecessary course listing. Impact on other units: None. Financial impact: None.

REVISE REPEATABILITY

MUVC 590 – Advanced Choral Conducting (2)

Repeatability: May be repeated. Maximum 20 hours.

Comment: Only students pursuing two or more Master's degrees in Music may apply more than 8 hours of MUVC 590 to degree requirements.

Formerly: May be repeated. Maximum 8 hours.

Rationale: A minimum of 8 hours of MUVC 590 are required for the Choral Conducting concentration, but MUVC 590 is also required for the Music Education concentration, Choral Music Track. Could also be applied to Music Elective requirements in other Master's degree programs.

DEPARTMENT OF PHYSICS AND ASTRONOMY

(ASTR) Astronomy

REVISE TITLE AND DESCRIPTION, DROP (RE) PREREQUISITE AND REGISTRATION PERMISSION, ADD RECOMMENDED BACKGROUND

ASTR 411 – Stellar Structure and Stellar Evolution (3) An introduction to stars and the physical principles governing stellar structure and stellar evolution. Topics include equations of state for stars, hydrostatic equilibrium, energy production and energy transport in stars, the birth of stars, extrasolar planets, main sequence stars, solar neutrinos and neutrino oscillations, red giants and post main-sequence evolution, pulsating variable stars, white dwarfs, neutron stars and pulsars, accretion in binary star systems, novae, X-ray bursts, supernovae, and production of the elements in various stellar processes.

Recommended Background: Physics 136 or 138; Physics 250; Physics 321; Astronomy 151-152 or 218; or permission of instructor.

(PHYS) Physics

REVISE DESCRIPTION

PHYS 411 – Introduction to Quantum Mechanics (3) Fundamental principles of quantum mechanics. The Uncertainty Principle. Solutions of the Schrödinger equation in one dimension. Bound states. Angular momentum. The Hydrogen atom. Required course for all physics majors.

PHYS 431 – Electricity and Magnetism (3) Electrostatics and magnetostatics in vacuum and in matter. Time-dependent electric and magnetic fields. Maxwell's equations. Required course for all physics majors.

REVISE TITLE AND DESCRIPTION

PHYS 412 – Introduction to Quantum Mechanics II (3) Methods of calculation: perturbation theory, the variational principle, and the WKB approximation. Introduction to scattering theory. Quantum statistics. Applications to atomic, molecular, nuclear, and condensed matter physics. This course is targeted toward students who intend to pursue graduate studies in physics.

PHYS 432 – Electricity and Magnetism II (3) Methods of calculation in electrostatics and magnetostatics. Conservation laws. Potentials. Electromagnetic waves. Relativistic electrodynamics. Radiation. This course is targeted toward students who intend to pursue graduate studies in physics.

DEPARTMENT OF POLITICAL SCIENCE

(POLS) Political Science

ADD

POLS 579 – College Teaching in Political Science (1) Pedagogical, technical, practical and ethical issues associated with teaching political science at the college level.

DROP

POLS 641 – Special Topics in Courts and Judicial Processes (3)

DEPARTMENT OF PSYCHOLOGY

(PSYC) Psychology

ADD

PSYC 664 – Practicum in Counseling Supervision (3) The purpose of this course is to assist the supervisor-in-training to develop knowledge and skills for the administration and supervision of the practice of counseling.
Registration Restriction(s): Minimum student level – graduate and Permission of instructor.

REVISE TITLE, DESCRIPTION AND (RE) PREREQUISITE

PSYC 400 – Advanced Cognitive Psychology (3) Explores the frontiers of cognitive psychology in areas such as attention, language use, memory, problem-solving, and concept formation.
(RE) Prerequisite(s): 314.

REVISE (RE) PREREQUISITE (PRIMARY COURSE)

PSYC 440 – Organizational Psychology (3)
(RE) Prerequisite(s): 110 or 117 and 295 or STAT 201, or equivalents.
Cross-listed: Same as Management 440.

REVISE (RE) PREREQUISITE

PSYC 461 – Physiological Psychology (3)
(RE) Prerequisite(s): 110, 117 or equivalent and 301.

REVISE TO REMOVE GRADING RESTRICTION (FROM S/NC TO LETTER GRADE ONLY)

PSYC 528 – College Teaching in Psychology (3)

REVISE DESCRIPTION

PSYC 670 – Psychotherapy I (3) Introduction to psychotherapy: case conceptualization and treatment.

PSYC 671 – Psychotherapy II (3) Advanced theories and techniques of psychotherapy.

REVISE TO REMOVE GRADING RESTRICTION (FROM S/NC TO LETTER GRADE ONLY) AND ADD (RE) COREQUISITE

PSYC 678 – Theory and Practice of Counseling Supervision (3) Theory and practice of supervision in counseling.
(RE) Corequisite(s): 664.

DEPARTMENT OF RELIGIOUS STUDIES

(REST) Religious Studies

REVISE TO ADD (RE) PREREQUISITE

REST 405 – Modern Jewish Thought (3)
(RE) Prerequisite(s): ENGL 102 or equivalent.

REST 425 – Seminar in Western Religions (3)
(RE) Prerequisite(s): ENGL 102 or equivalent.

REST 430 – Seminar in North American Religions (3)

(RE) Prerequisite(s): ENGL 102 or equivalent.

REST 440 – Seminar in Comparative Religion (3)

(RE) Prerequisite(s): ENGL 102 or equivalent.

REST 499 – Advanced Seminar in the Study of Religion (3)

(RE) Prerequisite(s): ENGL 102 or equivalent.

Supporting Information: Rationale: The department plans to submit these courses to the Gen Ed committee as WC courses and that requires the ENGL 102 prerequisite. Impact on other units: None. Financial impact: None.

DEPARTMENT OF THEATRE**(THEA) Theatre****REVISE TITLE AND DESCRIPTION**

THEA 430 – Directing for the Stage (3) The stage director's craft: principles of staging, textual integrity, conceptualization, visualization, collaboration and process from pre-production to opening.

PART II. PROGRAM CHANGES**DEPARTMENT OF CHEMISTRY****REVISE CHEMISTRY MAJOR, MS, REQUIREMENTS, 2ND BULLET**

- Required participation in seminar (CHEM 501) at the beginning of the period of graduate study until 3 hours of satisfactory credit has been obtained.

REVISE CHEMISTRY MAJOR, PHD, REQUIREMENTS, 2ND BULLET

- Required participation in seminar (CHEM 501) at the beginning of the period of graduate study until 6 hours of satisfactory credit has been obtained.

REVISE CHEMISTRY MAJOR, PHD, REQUIREMENTS TO ADD ADDITIONAL BULLET

- Graduation with a PhD in Chemistry requires the publication of a minimum of one article in a peer-reviewed journal describing research performed during graduate studies.

Supporting Information: Rationale: This additional requirement was supported by the chemistry faculty to emphasize the importance of scientific publication and ensure the quality of doctoral research. Impact on other units: None. Financial impact: None.

DEPARTMENT OF EARTH AND PLANETARY SCIENCES**REVISE REQUIREMENTS – GEOLOGY MAJOR, MS**

In the 2014-15 *Graduate Catalog* remove the current requirements and replace with the following:

Requirements

The department offers only a thesis option in its master's program. Successful completion of the master's degree requires a minimum of 24 hours approved coursework, and six hours of thesis credit, an approved written thesis proposal, successful oral defense of a written thesis, and a minimum cumulative 3.0 GPA in all graded graduate course work. The department also has separate course requirements in addition to University requirements. Students pursuing a MS degree must enroll in GEOL 595 every semester they are in residence unless course or teaching conflicts preclude a student from being present. Students must also enroll in GEOL 596 one time during their residency. Taking courses from outside the department is encouraged. Before receiving an MS degree, students must demonstrate committee-approved proficiency in field-based Earth Sciences.

Formerly: The department offers a thesis option in the master's program. Successful completion of the master's degree requires a minimum of 30 hours of approved graduate credit, including six hours of thesis credit, an approved written thesis proposal, successful oral defense of a written thesis, and a minimum 3.0 GPA in all graduate course work.

REVISE REQUIREMENTS - GEOLOGY MAJOR, PHD

In the 2014-15 *Graduate Catalog* remove the current requirements and replace with the following:

Requirements

Successful completion of the PhD requires a minimum of 24 hours of approved coursework beyond that required for the master's degree (i.e., a student entering the PhD program with a bachelor's degree must complete 48 hours of approved coursework), an additional 24 hours of dissertation credit, approval of a written dissertation proposal, completion of a comprehensive examination, and successful oral defense of a written dissertation.

Students are required to pass a comprehensive examination. The examination includes both written and oral components in which individuals are tested on their knowledge of their intended research area and related fields. The candidate is expected to be conversant across a wide range of the geological sciences. Students entering the PhD program with a Master's degree must complete the comprehensive examination by no later than the end of the student's third semester. Students entering the PhD program with a Bachelor's degree (but without a Master's degree) must complete the comprehensive examination by no later than the end of the student's fourth semester.

The written dissertation will demonstrate high-quality, original research by the student. Research results will be presented orally in a departmental seminar open to the public, and will be defended in a private defense restricted to the Dissertation Committee and interested departmental faculty.

In addition to University requirements, the Department has several compulsory additional course work requirements for the PhD. All students pursuing a PhD degree must enroll in course number GEOL 595 every semester they are in residence unless course or teaching conflicts preclude a student from being present. Each student must also enroll in course GEOL 596 one time during their residency. A student may apply a maximum of 4 credits of GEOL 595/596 toward graduation. All PhD students are required to enroll in a minimum of 9 hours of graded approved coursework at the 600-level (this requirement supersedes the University requirement). Before receiving a PhD degree, students must demonstrate committee-approved proficiency in field-based Earth Sciences. A minimum cumulative 3.0 GPA is required in all graded graduate course work, and taking courses from outside the department is encouraged.

Formerly: The prerequisite for the PhD program, in addition to that for the MS program, is either a master's degree with a major in geology or a bachelor's degree plus completion of 24 hours of graded course work with at least one course from any three of the groups listed in the third bullet above. These courses may be taken while completing other course requirements.

Successful completion of the PhD requires a minimum of 24 hours of graded course work beyond that required for the master's degree, an additional 24 hours of dissertation credit, approval of a written dissertation proposal, completion of a comprehensive examination, and successful oral defense of a written dissertation. A minimum 3.0 GPA is required in all graduate course work, and taking courses from outside the department is encouraged. After a written dissertation proposal is approved, students are required to pass a comprehensive examination, which is usually taken by the end of the second year. The examination includes both written and oral components in which individuals are tested on their knowledge of their intended research area and related fields. The candidate is expected to be conversant across a wide range of the geological sciences. The written dissertation will demonstrate high-quality, original research by the student. Research results will be presented orally in a departmental seminar open to the public, and will be defended in a private defense restricted to the Dissertation Committee and interested departmental faculty.

Supporting Information: Rationale: Revisions to the Master's and PhD degree descriptions result from the realization that the descriptions as written are a hybrid between present departmental rules and those circa 2001. As written in the current catalog the rules are internally inconsistent. The new descriptions are internally consistent and in line with current departmental rules. Impact on other units: None. Financial impact: None.

DEPARTMENT OF MATHEMATICS

REVISE MATHEMATICS MAJOR, MS, APPLIED MATHEMATICS CONCENTRATION

In the 2014-15 *Graduate Catalog*, 3rd bullet, item #5, remove current text and replace with the following:

5. Statistics – MATH 525, MATH 527, STAT 537, EEB 560.

Formerly: MATH 525, MATH 527, STAT 571, EEB 560.

Supporting Information: Rationale: College of Business is dropping STAT 571 so the reference here needs to be changed. Impact on other units: This is a change already made in Statistics. Financial impact: None.

DEPARTMENT OF PHILOSOPHY

ADD NEW 5-YEAR PHILOSOPHY BA/MA PROGRAM

5-Year BA-MA Program - Philosophy

The Department of Philosophy offers a program in which qualified students may earn both a BA and MA in philosophy in five years. This is accomplished by applying 9 hours of approved graduate courses to both the BA and MA. Interested students typically apply for conditional admission to the program during, or immediately following, their third year of undergraduate study. A student will be conditionally admitted to the program only if he or she:

- is a declared Philosophy major;
- has completed at least 90 hours overall with a minimum GPA of 3.25; and
- has completed at least 15 hours in Philosophy with a minimum GPA of 3.5.

Applicants must also provide three letters of recommendation. Applicants are strongly encouraged, but not required, to have completed PHIL 235 and at least one 400-level Philosophy course. The Department may consider other relevant factors, such as an applicant's work experience and level of academic promise, in deciding whether to conditionally admit students to the BA/MA program. Both the Department of Philosophy and the Graduate School must approve all conditional admissions into the BA/MA program. The Department will inform applicants of its decisions by the beginning of their fourth and final year of undergraduate study.

Both the Department Head (or designee) and the Graduate School must approve any course taken for graduate credit before the student satisfies all requirements for the BA. A student conditionally admitted to the BA/MA program may complete up to 9 hours of graduate credit to count toward both the BA and MA requirements. Only graduate courses taken after conditional admission into the BA/MA program may be used to satisfy the requirements of both degrees.

Conditional admission to the BA/MA program does not guarantee acceptance into either the Graduate School or the MA program in Philosophy. Students conditionally admitted into the BA/MA program at the start of their fourth year must apply that year for admission to both the MA program and the Graduate School. Such applicants must follow standard application procedures; in particular, they must submit GRE scores and a writing sample. If the student is accepted by both the MA program and the Graduate School, they will be fully admitted to the BA/MA program; they must then complete the standard curriculum for the MA program.

Students are ineligible for graduate assistantships until they satisfy all requirements for the BA degree.

Supporting Information: Rationale: UT Philosophy students stand a much better chance of admission to a top PhD program if they apply with an MA and a Master's Thesis writing sample in hand. The proposed BA/MA puts them in a position to do so in five rather than six years. The proposal mirrors similar successful programs at other well-regarded universities. Impact on other units: None. Financial impact: None.

ADD NEW DUAL DEGREE PROGRAM – JD-MA – PHILOSOPHY MAJOR AND COLLEGE OF LAW

Dual JD-MA Program

The College of Law and the Department of Philosophy in the College of Arts and Sciences offer a coordinated dual degree program leading to the conferral of both the Doctor of Jurisprudence and Master of Arts (Philosophy) degrees. In this program, a student may earn the JD and MA in about four years rather than the five years that otherwise would be required.

Admission

Applicants for the JD-MA (Philosophy) program must make separate application to, and be independently accepted by, the College of Law for the JD and the Department of Philosophy and Office of Graduate Admissions for the MA (Philosophy) degree. Applicants must also be accepted by the dual degree committee (the membership of which will include a program coordinator from both the College of Law and the Department of Philosophy). Upon petition, an applicant's LSAT score may be accepted by the Department of Philosophy as a substitute for the normally required GRE score. Application to the dual degree program may be made prior to or after matriculation in either the JD or the MA (Philosophy) program, but application must be made prior to the last 29 hours required for the JD and prior to the last 15 hours required for the MA (Philosophy).

Requirements

A dual degree candidate must satisfy the requirements for both the JD and MA (Philosophy) degrees, as well as the requirements of the dual degree program. The College of Law will award a maximum of 9 hours of credit toward the JD degree for successful completion of approved graduate level courses (500 or 600 level) offered in the Department of Philosophy. The Department of Philosophy will award a maximum of 15 hours of credit toward the MA degree for successful completion of approved courses offered in the College of Law. All courses for which such cross-credit is awarded must be approved by the JD-MA (Philosophy) program coordinators in the College of Law and Department of Philosophy. Upon admission to the dual degree program, a dual degree candidate will take, if he or she has not already taken, the required first year courses in the College of Law.

Philosophy offers both a non-thesis and thesis MA. Each requires a total of 30 hours of credit, at least 12 of which must be graduate level courses (other than PHIL 500 thesis hours) in Philosophy. For a dual degree candidate up to 15 of the

30 required hours will come from approved law school courses. For dual degree candidates, the ordinary distribution and proseminar requirements for the Philosophy MA are waived.

For a non-thesis MA student, the remaining 15 hours in Philosophy will be coursework (500 or 600 level) in Philosophy. The non-thesis MA student must, however, satisfy the non-thesis MA requirement for a “culminating academic experience” (normally the presentation of a philosophical paper at a professional meeting or departmental colloquium). The non-thesis MA student will take an MA comprehensive examination administered as if the student had a “minor” in law (so, a member of the law faculty will be on the examination committee and candidate examination questions will be solicited from the instructors of the law courses counting toward the student’s MA).

A student electing to pursue the thesis MA track must take 12 hours of graduate level coursework in Philosophy as well as 6 thesis hours of PHIL 500. The thesis topic must be approved by the program coordinators and dual degree committee, and the student’s thesis committee must include a faculty member from the College of Law. A student electing to pursue the thesis MA track will thus earn from Philosophy 18 hours of the required 30 hours for the MA and thus need credit from Philosophy for only 12 hours of coursework in the College of Law.

Dual degree students who withdraw from the program before completion of the requirements for both degrees will not receive credit toward either the JD or the MA (Philosophy) degree for courses taken in the other program except as such courses qualify for credit without regard to the dual degree program.

Awarding of Grades

For grade recording purposes in the College of Law and Department of Philosophy, grades awarded in the other unit will be converted to either Satisfactory or No Credit and will not be computed in determining a student’s GPA or class standing. The College of Law will award a grade of Satisfactory for an approved Philosophy course in which the student earns a grade of B or higher and a grade of No Credit for any lower grade. The Philosophy Department will award a grade of Satisfactory for an approved law course in which the student earns a grade of 2.3 or higher and a grade of No Credit for any lower grade. The official academic record of the student maintained by the Office of the University Registrar shall show the actual grade assigned by the instructor without conversion.

Supporting Information: Rationale: Dual degree JD/MA programs are attractive to philosophy students interested in careers requiring professional training (corporate ethics officers, service in various governmental agencies, and so on) and to law students interested in careers enhanced by training in philosophy (academic positions, work in various advocacy organizations, and so on). This program will not only serve student demand for such an option, it will continue to build intellectual ties between the UT philosophy department and the college of law. Impact on other units: Dual degree with college of law. Financial impact: None.

DEPARTMENT OF POLITICAL SCIENCE

REVISE FIVE YEAR BA-MPPA TEXT AND REQUIREMENTS

In the 2014-15 *Graduate Catalog*, revise as follows: the first two paragraphs and two bullets remain the same with no changes. Delete the next 5 paragraphs and replace the following six paragraphs.

Five-Year BA/MPPA Program – Public Policy and Administration major

Applicants are strongly encouraged, but not required, to have completed ECON 201, POLS 240, and POLS 201. The Department may consider other relevant factors such as an applicant’s work experience and level of maturity before conditionally admitting a student to the BA-MPPA program.

Conditional admission of a student into the 5-year BA-MPPA program must be obtained before taking a graduate course that is to be used to satisfy the requirements of both the BA degree and the MPPA degree. Students will be informed of the outcome of their application for conditional admission prior to the beginning of their fourth year of undergraduate study.

A student who is conditionally admitted to the BA-MPPA program may, during his or her fourth year of undergraduate study, complete up to 9 hours of graduate credit that count towards the BA and towards the MPPA requirements, provided that these graduate credit hours were approved both by the Department head (or designee) and by the Graduate School prior to satisfying all requirements for the BA degree.

Conditional admission into the BA-MPPA program does not guarantee acceptance into either the Graduate School or the MPPA program. Students who have been conditionally admitted to the BA-MPPA program must apply for admission to the Graduate School and to the MPPA program during their fourth year of undergraduate study, following the standard application procedure. A GRE score must be submitted as part of the application for admission into any graduate program in the Department of Political Science. Students will be fully admitted to the BA-MPPA program after they have been accepted both by the Graduate School and by the MPPA program.

Once fully admitted to the MPPA program, BA-MPPA students are required to complete the standard curriculum for the MPPA program.

A student will not be eligible for a graduate assistantship until the student has satisfied all of the requirements for the BA degree.

Formerly:

Applicants are strongly encouraged, but not required, to have completed ECON 201, POLS 340, and POLS 401. The Department may consider other relevant factors such as an applicant's work experience and level of maturity before conditionally admitting a student to the BA-MPPA program.

Conditional admission of a student into the 5-year BA-MPPA program must be approved by both the Department of Political Science and the Graduate School. Students will be informed of the outcome of their application prior to the beginning of their fourth year of undergraduate study.

Any course taken for graduate credit prior to satisfying all requirements for the BA degree must be approved both by the Department head (or designee) and by the Graduate School. UT's Senior Privilege rule imposes a maximum limit of 9 hours on the number of graduate-level hours that an undergraduate student may complete before completing an undergraduate degree and being formally admitted to the Graduate School. A student who is conditionally admitted to the BA-MPPA program, completes 9 hours of graduate credit during the student's fourth year of undergraduate study, and applies those 9 hours to satisfy BA degree requirements may also apply the 9 hours towards MPPA degree requirements.

Conditional admission into the BA-MPPA program does not guarantee acceptance into either the Graduate School or the MPPA program. Students in the BA-MPPA program must apply for admission to the Graduate School and to the MPPA program during their fourth year of undergraduate study, following the same procedures that all other students follow. A GRE score must be submitted as part of the application for admission into any graduate program in the Department of Political Science. Students will be fully admitted to the BA-MPPA program after they have been accepted both by the Graduate School and by the MPPA program.

Once fully admitted to the MPPA program, BA-MPPA students are required to complete the same curriculum as other students enrolled in the MPPA program.

Supporting Information: Rationale: This is part of the restructuring of the Political Science major in tandem with the new Arts and Sciences curriculum being deployed in Fall 2014. Impact on other units: None. Financial impact: None.

COLLEGE OF BUSINESS ADMINISTRATION

All changes effective Fall 2014

PART I: COURSE CHANGES

(BUAD) Business administration

ADD

BUAD 592 Global Business Travel (1) Taught in conjunction with BUAD 591. Provides MBA students with the opportunity to apply their knowledge of global business through an international travel experience. Students will complete assignments on key aspects of international business as well as attend an international travel seminar.

(RE) Corequisite(s): BUAD 591.

Registration Restriction: Requires admission to MBA program or consent of MBA Program Director.

REVISE DESCRIPTION AND HOURS; ADD (RE)COREQUISITE AND REGISTRATION RESTRICTION

BUAD 591 Global Business Seminar (2) Designed to familiarize MBA students with content needed to manage in a global business environment. Students will complete in-class coursework on key aspects of international business and related projects and assignments. Taught in conjunction with BUAD 592, where students have the opportunity to apply their knowledge through an international travel experience.

(RE) Corequisite(s): BUAD 592.

Registration Restriction: Requires admission to MBA program or consent of MBA Program Director.

Supporting Information: Rationale: These two changes separate the current 3-hour BUAD 591 course into two courses: BUAD 591 (2) (on campus) and BUAD 592 (1) (off campus). These changes make the MBA international course offering consistent with the Center for International Education policies and requirements. Staffing Impact: None. Financial Impact: None. Impact on other units: None.

REVISE HOURS AND COMMENTS; ADD REPEATABILITY

BUAD 551 Executive Core I (1-12)

Repeatability: May be repeated. Maximum 12 hours.

Comments: Executive MBA admission required. Load of less than 12 hours available only by prearrangement with supervising faculty member. Consent of program director required for course enrollment of less than 12 hours.

REVISE HOURS; ADD REPEATABILITY AND COMMENTS

BUAD 552 Executive Core II (1-12)

Repeatability: May be repeated. Maximum 12 hours.

Comments: Executive MBA admission required. Load of less than 12 hours available only by prearrangement with supervising faculty member. Consent of program director required for course enrollment of less than 12 hours.

BUAD 553 Executive Core III (1-12)

Repeatability: May be repeated. Maximum 12 hours.

Comments: Executive MBA admission required. Load of less than 12 hours available only by prearrangement with supervising faculty member. Consent of program director required for course enrollment of less than 12 hours.

Supporting Information: These changes provide flexibility if needed for a student to customize the speed at which s/he progresses through the Executive MBA core. Most students choose a full-time load (12 credit hours per semester). But a student who needs to take longer to complete the program and has permission in advance to register for a part-time load can do so with this change. Staffing Impact: None. Financial Impact: None. Impact on other units: None.

DEPARTMENT OF ACCOUNTING AND INFORMATION MANAGEMENT

(ACCT) Accounting

ADD

ACCT 508 Business Combinations (3) Application of accounting theory to business combinations and related topics, including mergers and acquisitions, equity investments, and foreign currency issues.

Comment(s): Or consent of instructor.

Registration Restriction(s): Master of Accountancy – accounting major.

Supporting Information: Rationale: The course has been offered for many years under ACCT 593 Individual research in accounting course. The course has successfully drawn students and the department wants to give the course its own number and accurate description. Staffing Impact: None. Financial Impact: None. Impact on other units: None.

(INMT) Information Management

ADD

INMT 545 E-Enterprise (3) Introduces students to transaction processing basics, the flow of data in businesses, business application software, and key information management trends and challenges. Students use corporate application software to learn more about transaction processing (ERP) systems, CRM, SCM, and BI systems used by organizations.

Credit Restriction: Students may not receive credit for both 442 and 545.

Comments: Or permission of instructor.

Registration Restriction(s): Admission in College of Business Administration. Minimum student level- graduate.

INMT 546 Business Application logic and tools (3) A hands-on, project-based course introduces students to business application logic and object programming. Topics include fundamentals of business application logic, business application architectures, and applied project management. Students learn to apply advanced tools associated with spreadsheet and databases (using Visual Basic algorithms).

Credit Restriction: Students may not receive credit for both 443 and 546.

Comments: Or permission of instructor.

Registration Restriction(s): Admission in College of Business Administration. Minimum student level- graduate.

Supporting Information: Rationale: These two courses are delivering content that is currently lacking in graduate studies in the College of Business. Staffing Impact: None. Financial Impact: None. Impact on other units: None.

DEPARTMENT OF FINANCE

(FINC) FINANCE

ADD

FINC 585 Investment Fund Management (1-6) Members of an investment team manage portfolios of financial assets on behalf of The University of Tennessee (known as the Haslam Torch Fund) or LaPorte Family Trust (known as the LaPorte Fund). Goals are to beat their stated benchmark, earn a positive total rate of return, and outperform the competing investment team. Professional ethics emphasized.

Repeatability: May be repeated. Maximum 6 hours.

Registration Permission: Consent of instructor only.

Supporting Information: Rationale: Revision needed to better reflect the instruction received by the students participating in managing the two Torch Funds. The finance department already offers this course as a Special Topics course and has done so for many years. Giving this course a number will mean that students' transcripts now will show the content of the course. Also, the donors who make these funds available will also be able to see that the students are taking a specific course rather than just a special topic. Financial impact: None (has been taught as special topics course FINC 599 for several years) Impact on other units: None.

REVISE DESCRIPTION

FINC 525 Investment Analysis and Portfolio Management (3) Investment process, portfolio applications. Asset allocation decision in global setting; organization and functioning of financial markets, equity and bond valuation; asset valuation models; equity and bond portfolio management; options, forwards and futures contracts; evaluation of portfolio performance; review of alternative economies and emerging markets; and professional ethics.

DEPARTMENT OF MANAGEMENT

(HRM) Human Resource Management

DROP SECONDARY CROSS-LISTED COURSE

HRM 595 Special Topics in Current Management Issues (3)

Supporting Information: Rationale: This secondary course is cross-listed with MGT 595. There is no reason to have these courses cross-listed. Has led to registration confusion for students. Financial impact: None. Impact on other units: None.

REVISE TO ADD REPEATABILITY

HRM 592 Internship (3)

Repeatability: May be repeated. Maximum 6 hours.

Supporting Information: Rationale: The revision is needed for students to have the option to sign up for a second semester of internship. Financial Impact: None. Impact on other units: None.

(MGT) Management

REVISE TITLE AND DESCRIPTIONS

MGT 624 Advanced Strategy I (3) Examines strategic management literature that addresses managers at the apex of an organization; the cognition, behavior, and processes undertaken to form strategic direction; who is involved, their strategic actions, processes, and decision making over time; and performance/strategic outcomes.

MGT 625 Advanced Strategy II (3) Examines foundational and contemporary research in the field of strategic management. Primary emphasis will be given to the major content areas of corporate strategy, strategic leadership and innovation.

REVISE PRIMARY COURSE TO REMOVE CROSS-LIST

MGT 595 Selected Topics in Current Management Issues (6)

Formerly: Cross-listed (Same as Human Resource Management 595)

Supporting Information: Rationale: There is no reason to have these courses cross-listed. Has led to registration confusion for students.
Financial impact: None. Impact on other units: None.

REVISE (RE) PREREQUISITE (SECONDARY CROSS-LISTED COURSE)

MGT 440 – Organizational Psychology (3)

(RE) Prerequisite(s): 110 or 117 and 295 or STAT 201, or equivalents.

Cross-listed: See Psychology 440.

DEPARTMENT OF MARKETING AND SUPPLY CHAIN MANAGEMENT

(SCM) Supply Chain Management

REVISE TITLE AND DESCRIPTION

SCM 599 Special topics in Supply Chain Management (3-6) Seminar designed to study specific current problem areas in supply chain management. Topic announced prior to offering.

■ INFORMATIONAL ITEM: DEPARTMENT NAME CHANGE

FORMER DEPARTMENT: DEPARTMENT OF STATISTICS, OPERATIONS, AND MANAGEMENT SCIENCE (SOMS)

NEW DEPARTMENT: DEPARTMENT OF BUSINESS ANALYTICS AND STATISTICS (BAS)

TO:	Provost Susan Martin Chancellor Jimmy Cheek
FROM:	Jan Williams, Dean College of Business Administration
DATE:	January 16, 2013
SUBJECT:	Departmental Name Change
The Department of Statistics, Operations, and Management Science is requesting a name change to the Department of Business Analytics and Statistics. This letter explains our request and indicates my support of the change.	

To:	Jan Williams, Dean
From:	Provost Susan Martin:
Date:	February2, 2013 (4:54pm)
Provost Martin responded in email to Dean Jan Williams of approval and to “go ahead” and initiate the name change.	

DEPARTMENT OF BUSINESS ANALYTICS AND STATISTICS (MGSC) MANAGEMENT SCIENCE

DROP

MGSC 500 Thesis (1-15)

MGSC 505 Descriptive Modeling (1.5)

MGSC 506 Prescriptive Modeling (1.5)

MGSC 526 Advanced Applications of Systems Modeling and Simulation (3) (Secondary course, Primary is IE 526)

MGSC 530 Business Skills Development (1)

MGSC 531 Decision Optimization (3)

MGSC 532 Simulation and Decision Analytics (3)

MGSC 533 Systems Optimization (3)

MGSC 534 Business Analytics Experience (1-6)

MGSC 535 Business Process Optimization (3)

MGSC 551 Leveraging Information through Descriptive and Prescriptive Modeling (3)

MGSC 593 Management Science Problems (1-6)

Supporting Information: Rationale: All these courses have replacements except for MGSC 535. The renaming of these courses is part of the name change for the department. Staffing Impact: None. Financial Impact: None, in fact there is a 3-hour course MGSC 535 that is not being replaced. Impact on other units: The Full-Time MBA director has been contacted; MBA concentrations that have listed MGSC courses have been changed to BZAN courses (see program changes section in this document for Business Analytics and Operations Management MBA concentrations). MBA office has notified dual degree programs of MGSC course number changes. The Thesis course (MGSC 500) can be dropped because Business Analytics masters does not require a thesis.

(OMS) OPERATIONS AND MANAGEMENT SCIENCE

➤ DROP ACADEMIC DISCIPLINE, SUBJECT CODE, AND ALL COURSES

OMS 505 - Operations Management (1.5)

OMS 541 - Operations Management (3)

Supporting Information: Rationale: The renaming of these courses is part of the name change for the department. Staffing Impact: None. Financial Impact: None because these courses have been given a BZAN course number. Impact on other units: The Full-Time MBA director has been contacted; MBA concentrations that have listed OMS courses have been changed to BZAN courses (see program changes section in this document for Business Analytics and Operations Management MBA concentrations).

(STAT) Statistics

DROP

STAT 544 Business Cases in Data Mining (3)

STAT 565 Quantitative Methods for Business Analytics (5)

STAT 566 Introduction to Data Management and Directed Process Studies (3)

STAT 571 Statistical Methods for Business (3)

STAT 572 Applied Regression Analysis for Business (3)

STAT 587 Graduate Seminar (1)

Supporting Information: Rationale: As part of the department name change from Statistics, Operations, and Management Science, we are renaming many courses Business Analytics, employing a "BZAN" academic discipline code. Thus, we are eliminating many 500-level MGSC and STAT courses and all OMS courses. However, because of the Intercollegiate Graduate Statistics Program (IGSP), we will leave unchanged all courses that serve that program. Financial impact: None, Impact on other units: STAT 571 was still listed in three places in the 2013-2014 Graduate Catalog outside of the College of Business. The two department heads and one director of graduate studies were contacted to alert them that the STAT 571 course was no longer offered and were provided a substitute course (BZAN 535). STAT 566 was also used in a College of Engineering Nuclear Engineering elective; the department indicated that deleting this course was not a problem. The COB Full-Time MBA listed STAT 544 and STAT 571 for two concentrations; the Full-Time MBA director was contacted to make adjustments to the requirements for these two concentrations (see program changes section in this document for Business Analytics and Marketing MBA concentrations).

REVISE (RE)PREREQUISITES

STAT 573 Design of Experiments (3)

(RE) Prerequisite(s): 538 or BZAN 540 or permission of instructor.

STAT 574 Data Mining Methods for Business Applications (3)

(RE) Prerequisite(s): BZAN 535 or consent of instructor.

STAT 576 Multivariate and Data Mining Techniques (3)

(RE) Prerequisite(s): 574 and BZAN 540.

REVISE TO ADD AS SECONDARY CROSS-LISTED COURSES

STAT 573 Design of Experiments (3)

Cross-listed: (See BZAN 553.)

STAT 574 Data Mining Methods for Business Applications (3)

Cross-listed: (See BZAN 542.)

STAT 576 Multivariate and Data Mining Techniques (3)

Cross-listed (See BZAN 552.)

Supporting Information: Rationale: Course may continue to serve both IGSP and Business Analytics masters program. Staffing Impact: None. Financial Impact: None. Impact on other units: None. (See below: We are requesting that BZAN courses are the primary, and STAT 573, 574, and 576 are cross-listed as secondary.)

➤ **ADD NEW ACADEMIC DISCIPLINE, SUBJECT CODE, AND COURSES**

(BZAN) BUSINESS ANALYTICS

BZAN 502 - Registration for Use of Facilities (1-15) Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed.

Grading Restriction: Satisfactory/No Credit grading only. Repeatability: May be repeated.

Credit Restriction: May not be used to meet degree requirements for the Business Analytics major. Credit Level

Restriction: Graduate credit only.

Registration Restriction(s): Minimum student level – graduate.

BZAN 505 – Operations Management (1.5) Principles and techniques for managing operations in a supply chain. Emphasis on process improvement techniques such as lean thinking and the theory of constraints using hands-on simulations.

Comment(s): Or consent of instructor.

Registration Restriction(s): Master of Business Administration or Master of Science – Business Analytics major admission. Minimum student level – graduate.

BZAN 506 – Prescriptive Modeling (1.5) Principles and methodology for prescriptive modeling including optimization techniques and advanced decision models and analysis.

Registration Restriction(s): Master of Business Administration admission. Minimum student level – graduate.

BZAN 520 – Operations and Lean Supply Chain Management (3) Systems thinking and its application in operations, using constraint management techniques to build and manage lean supply chains with emphasis on applications in operations, project management and distribution/replenishment, modeling and analyzing real-world systems using the "Thinking Process".

Credit Level Restriction: Graduate credit only.

Registration Restriction(s): Minimum student level – graduate.

BZAN 521 – Leveraging Information Through Descriptive and Prescriptive Modeling (3)

Concepts and tools for emulating business operations (descriptive modeling) and for determining optimal operational or tactical strategies (prescriptive modeling). Visualization, optimization, and simulation concepts reinforced through hands-on experience with technologies: geographic information systems (GIS), spreadsheet-based models, simulation packages, and supply chain optimization software.

Credit Restriction: May not be used to meet degree requirements for the Business Analytics major.

Registration Restriction(s): Minimum student level – graduate.

BZAN 522 – Business Cases in Data Mining (3) Application of analytic tools in the context of business problems. Data management, exploratory data analysis and visualization, predictive modeling, design of experiments, segmentation and clustering, text mining. Use of computing software.

Credit Restriction: May not be used to meet degree requirements for the Business Analytics major.

Registration Restriction(s): Minimum student level – graduate.

BZAN 530 – Business Skills Development (1.5) Designed to build skills that MSBAs need to successfully apply knowledge in the business world. Business communications and career development.

Registration Restriction(s): Master of Science - Business Analytics major. Minimum student level – graduate.

BZAN 531 – Decision Optimization (3) Linear programming decision models, solutions, duality, sensitivity analysis, linear and integer optimization models, transportation and selected network flow models, along with application issues of these models.

Recommended Background: Fundamentals of matrix algebra course.

Registration Restriction(s): Minimum student level – graduate or permission of instructor.

BZAN 533 – Quantitative Methods for Business Analytics (5) Probability and probability models, random variables (univariate and multivariate), moments and moment generating functions, likelihood inference and maximum likelihood estimation. Mathematical methods for probability and statistical inference.

Recommended Background: Basic calculus.

Registration Restriction(s): Minimum student level – graduate.

BZAN 535 – Statistical Methods for Business (3) Data collection strategies including simple design of experiments. Structured querying language. Descriptive statistics. Estimation and hypothesis testing. Importance of assumptions. Quantile plots and goodness of fit. Prediction intervals. ANOVA, linear regression, chi-square tests for categorical data, logistic regression. Use of statistical and database software.

Registration Restriction(s): Minimum student level – graduate or permission of instructor.

BZAN 540 – Applied Regression Analysis for Business (3) Matrix approach to multiple linear regression. Normal equations, interaction and confounding, use of dummy variables, model selection. Leverage, influence and collinearity. Autocorrelated errors. Logistic regression, maximum likelihood estimation, analysis of deviance, retrospective studies. Tree based models for discrete and continuous outcomes. Robust regression, and weighted least squares. Applications involving predictive modeling for credit risk and customer acquisition. Case studies from accounting, finance, and marketing.

(RE) Prerequisite(s): 535 and matrix algebra.

Registration Restriction(s): Minimum student level – graduate.

BZAN 543 – Data Management for Business Analytics (1.5) Focuses on software to manage and manipulate data in preparation for analysis, using the SAS data step, PROC SQL, and the SAS macro language. Brief attention will be given to other SQL tools.

Registration Restriction(s): Minimum student level – graduate.

BZAN 544 – Decision Support Systems for Business Analytics (1.5) Building integrated analytic models with graphical user interfaces to support business decision-making processes using the VBA structured programming language.

Registration Restriction(s): Minimum student level – graduate.

BZAN 546 – Simulation Modeling (1.5) Monte Carlo and discrete-event simulation models for business decision-making, simulation of business processes, random variables and random number generators, input and output data analysis.

Registration Restriction(s): Minimum student level – graduate.

BZAN 547 – Directed Process Studies (1.5) Sampling and subgrouping methods for directed study of process variation. Topics include common/special cause models, components of variance, spatial variation, and reliability studies.

Registration Restriction(s): Minimum student level – graduate.

BZAN 548 – Time Series Forecasting (1.5) Forecasting with Box-Jenkins Autoregressive Integrated Moving Average (ARIMA) models. Topics include model identification, model validation, seasonal models and intervention effects.

Registration Restriction(s): Minimum student level – graduate.

BZAN 550 – Business Analytics Experience (3) Application of the principles of decision analytics through experiential descriptive and prescriptive model design and implementation.

Repeatability: May be repeated. Maximum 6 hours.

Registration Restriction(s): Master of Science - Business Analytics major.

BZAN 556 – Systems Optimization (3) Team-based Business Analytics case analyses through the discovery, problem definition, data acquisition, data cleaning, modeling, model interpretation, recommendation, implementation and maintenance phases of business process modeling.

(RE) Prerequisite(s): 531.

Comment(s): Prior knowledge may satisfy prerequisite with consent of instructor.

Registration Restriction(s): Minimum student level – graduate.

BZAN 583 - Special Topics in Business Analytics (1-3)

Repeatability: May be repeated. Maximum 9 hours.

Registration Restriction(s): Minimum student level – graduate.

BZAN 593 - Independent Study (1-3) Faculty directed readings and investigation of specified topic in analytics. Written report and oral presentation required.

Grading Restriction: Satisfactory/No Credit or letter grade.

Repeatability: May be repeated. Maximum 6 hours.

Registration Restriction(s): Minimum student level – graduate.

Registration Permission: Consent of a departmental director of graduate studies.

Equivalency Chart

Current Courses	Equivalent Courses Effective Fall 2014 (BZAN) Business Analytics
MGSC 502	BZAN 502
OMS 505	BZAN 505
MGSC 506	BZAN 506
OMS 541	BZAN 520
MGSC 551	BZAN 521
STAT 544	BZAN 522
MGSC 530	BZAN 530
MGSC 531	BZAN 531
STAT 565	BZAN 533
STAT 571	BZAN 535
STAT 572	BZAN 540
STAT 566	Split into BZAN 543 and 547
MGSC 532	Split into BZAN 544 and 546
MGSC 534	BZAN 550
MGSC 533	BZAN 556

ADD AS PRIMARY COURSES AND CROSS-LIST

BZAN 542 – Data Mining Methods for Business Applications (3) Understanding and application of data mining methods. Data preparation; exploratory data analysis and visualization; cluster analysis; logistic regression; decision trees; neural networks; association rules; model assessment; and other topics. Applications to business problems. Use of standard computer packages.

Cross-Listed: (Same as Statistics 574.)

(RE) Prerequisite(s): 535.

BZAN 552 – Multivariate and Data Mining Techniques (3) Multivariate normal distribution, data visualization, handling missing data, dimension reduction techniques, supervised learning, clustering, outlier detection, including a team-based project and common data mining software.

Cross-List: (Same as Statistics 576.)

(RE) Prerequisite(s): 540 and 542

Comment(s): Prior knowledge may satisfy prerequisite with consent of instructor.

BZAN 553 – Design of Experiments (3) Factorial experiments. Design principles: randomization, replication, and blocking. Split unit designs. Optimal design. Orthogonal arrays, fractional factorials and response surface methodology. Conjoint analysis. Experimentation in business applications emphasized.

Cross-list: (Same as Statistics 573.)

(RE) Prerequisite(s): 540 or Statistics 538 or permission of instructor.

Supporting Information: Rationale: These courses continue to serve both IGSP and Business Analytics masters program. Staffing impact: None. Financial impact: None Impact on other units: None. The primary audience of these courses are masters students in Business Analytics. We are requesting that BZAN courses become primary, and STAT 573, 574, and 576 become secondary.

PART II: PROGRAM CHANGES

REVISE INTRODUCTORY TEXT, COLLEGE OF BUSINESS ADMINISTRATION

In the 2014-2015 *Graduate Catalog*, fifth paragraph, seventh bullet, delete current text and replace with:

The Master of Business Administration degree with concentrations in business analytics, entrepreneurship and innovation, finance, human resources management, marketing, operations management, and supply chain management.

Formerly: The Master of Business Administration degree with concentrations in business analytics, entrepreneurship and innovation, finance, marketing, operations management, and supply chain management.

REVISE TEXT, BUSINESS ADMINISTRATION MAJOR, MBA

In the 2014-2015 *Graduate Catalog*, revise description in the following three areas:

- 1) second paragraph, delete the third sentence and replace with:

In addition to the regular full-time program, there are full-time dual-degree programs – the JD-MBA with the College of Law and the MS-MBA program with the College of Agricultural Sciences and Natural Resources; the College of Business Administration; and the College of Engineering.

Formerly: In addition to the regular full-time program, there are full-time dual-degree programs – the JD-MBA with the College of Law and the MS-MBA program with the College of Agricultural Sciences and Natural Resources; the College of Business Administration; the College of Engineering; and the College of Education, Health and Human Sciences.

- 2) Under Full-Time MBA heading, fourth paragraph, replace second and third sentences with:

All MBA students are required to participate in two courses to fulfill this requirement, BUAD 591 and BUAD 592. Students who are granted a waiver for BUAD 591 and BUAD 592 take an additional 3-credit hour elective to satisfy the program's overall credit requirements of 48 hours.

Formerly: All MBA students are required to participate in a 3-credit hour international seminar, BUAD 591. Students who are granted a waiver for BUAD 591 take an additional 3-credit hour elective to satisfy the program's overall credit requirements of 48 hours.

- 3) Under concentrations and electives heading, second paragraph,

For the specific courses required in concentration areas, see the appropriate department: Business Analytics concentration, Business Administration Major, MBA; Entrepreneurship and Innovation concentration, Business Administration Major, MBA; Finance concentration, Business Administration Major, MBA; Human Resources Management concentration, Business Administration Major, MBA; Marketing concentration, Business Administration Major, MBA; Operations Management concentration, Business Administration Major, MBA; and Supply Chain Management concentration, Business Administration Major, MBA.

Formerly: For the specific courses required in concentration areas, see the appropriate department: Business Analytics concentration, Business Administration Major, MBA; Entrepreneurship and Innovation Concentration, Business Administration Major, MBA; Finance Concentration, Business Administration Major, MBA; Marketing Concentration, Business Administration Major, MBA; Operations Management Concentration, Business Administration Major, MBA; and Supply Chain Management Concentration, Business Administration Major, MBA.

Supporting Information: Rationale: To reflect dropping of dual MS/MBA program in sport management, change to international courses for MBA, and addition of Human Resources Management concentration. Staffing impact: None. Financial impact: None. Impact on other units: None.

REVISE DUAL MS-MBA PROGRAM – BUSINESS ANALYTICS/BUSINESS ADMINISTRATION

In the 2014-2015 *Graduate Catalog*, revise text in the following three areas:

- 1) The first paragraph, first sentence – revise to delete the name of the former department and replace with name of new department (Department of Business Analytics and Statistics).
- 2) The third paragraph, delete the last sentence and do not replace with any text.

Formerly: In their course of study, students will choose from the following four areas of emphasis: business process optimization, data mining, applied statistics, and business intelligence.

- 3) Under the Requirements heading, first paragraph, second sentence – revise to delete the name of the former department and replace with name of new department (Department of Business Analytics and Statistics).

Supporting Information: Rationale: To reflect renaming of department and the elimination of the four emphases in the dual MS-MBA program. Staffing impact: None. Financial impact: None. Impact on other units: None.

DROP DUAL MS/MBA PROGRAM – BUSINESS ADMINISTRATION, RECREATION AND SPORTS MANAGEMENT

In the 2014-2015 *Graduate Catalog*, delete/remove this dual program and all descriptions and showcase.

Supporting Information: Rationale: This change parallels a proposal to discontinue the MBA/MS Recreation and Sports Management dual program that is also being considered by College of Education, Health and Human Sciences. The dual program is no longer desired by the Department of Kinesiology, Recreation, and Sports Studies and this department has voted to discontinue the dual program. Financial impact: None, no courses offered as part of this program are unique to the program. Impact on other units: The Kinesiology, Recreation, and Sports Studies department initiated the change; if the CEHHS does not vote to discontinue the program, then the CBA would not initiate a request discontinue this dual degree.

INTERDEPARTMENTAL

▲ ADD CONCENTRATION – BUSINESS ADMINISTRATION MAJOR, MBA Human Resource Management concentration

In the 2014-2015 *Graduate Catalog*, add concentration, description and course requirements for new concentration as provided below:

The Human Resource Management concentration provides the knowledge and skills necessary for business professionals to recruit, select and reward employees to assist in making a business successful. The HRM concentration will cover HRM foundations, Staffing, Organizational Behavior, Compensation and Benefits. Minimum course requirements are HRM 521, HRM 545, and HRM 550.

Supporting Information: Rationale: The full-time MBA program and Management Department have offered HRM courses to MBA students over the past two years. Due to MBA student interest in the HR courses, the MBA program and the Management Department have agreed to offer a concentration in HRM to MBA students. Financial impact: None, HRM courses already offered with space for further enrollment. Impact on other units: None.

REVISE REQUIREMENTS– BUSINESS ADMINISTRATION MAJOR, MBA - OPERATIONS MANAGEMENT CONCENTRATION

In the 2014-2015 *Graduate Catalog*, delete existing text and replace with:

Minimum course requirements are BZAN 520 and two courses from BZAN 521, BZAN 531, IE 522, IE 526 or an applicable course approved by designated faculty.

Formerly: Minimum course requirements are OMS 541 and two courses from MGSC 531, MGSC 551, IE 522, (IE 526 or MGSC 526) or an applicable course approved by designated faculty.

Rationale: To make changes so that MBA concentration description of courses is in line with changes to course from MGSC to BZAN. Staffing impact: None. Financial impact: None Impact on other units: None.

REVISE REQUIREMENTS -- BUSINESS ADMINISTRATION MAJOR, MBA - BUSINESS ANALYTICS CONCENTRATION

In the 2014-2015 *Graduate Catalog*, delete existing text and replace with:

The MBA concentration in Business Analytics requires a total of 9 hours (3 courses) in Business Analytics. An MBA student pursuing a concentration in Business Analytics should enroll in BZAN 522. In addition, the student must then choose 2 more courses from the following 4 courses: BZAN 520, BZAN 521, BZAN 531, or BZAN 535.

Formerly: The MBA concentration in Business Analytics requires a total of 9 hours (3 courses) in Business Analytics. An MBA student pursuing a concentration in Business Analytics should enroll in STAT 544. In addition, the student must then choose 2 more courses from the following 4 courses: STAT 571, MGSC 531, MGSC 551, or OMS 541.

Rationale: To make changes so that MBA concentration description of courses is in line with changes to course from MGSC to BZAN. Staffing impact: None. Financial impact: None Impact on other units: None.

REVISE REQUIREMENTS -- BUSINESS ADMINISTRATION MAJOR, MBA - MARKETING CONCENTRATION

In the 2014-2015 *Graduate Catalog*, delete existing text and replace with:

Minimum course requirements are BZAN 522, MARK 536, and MARK 537.

Formerly: Minimum course requirements are STAT 544, MARK 536, and MARK 537.

DEPARTMENT OF BUSINESS ANALYTICS AND STATISTICS

REVISE BUSINESS ANALYTICS MAJOR, MS

In the 2013-14 *Graduate Catalog*, revise the Business Analytics major, MS in the following areas:

- 1) second paragraph, to end the last sentence after the word “analytics.” Insert period after “analytics” and delete rest of sentence.
- 2) under Requirements heading, delete current text and replace with the following

Core Requirements*	29
Applied Specialization area (as approved by advisor)	9
Total	38

*Core Requirements: BZAN 530, BZAN 531, BZAN 533, BZAN 535, BZAN 540, BZAN 542, BZAN 543, BZAN 544, BZAN 546, BZAN 547, BZAN 550, and BZAN 548 or BZAN 505

In addition, ACCT 506 is recommended for those who have no prior coursework in cost accounting and SCM 505 is recommended for those with interest in supply chain analytics.

Supporting Information: Rationale: This does not change the required number of credits. It simply reduces elective credits from 12 to 9.
Staffing impact: none. Financial impact: none. Impact on other units: none.

COLLEGE OF COMMUNICATION AND INFORMATION

All changes effective Fall 2014

I. COURSE CHANGES

SCHOOL OF INFORMATION SCIENCES

Information Sciences (INSC)

ADD

INSC 516 Geospatial Technologies (3) Explores the creation, distribution and growth of geospatial data, highlighting their uses and misuses. Structured as an applications-based course where students learn how geospatial technologies are used to turn geospatial data into maps, tables and imagery through hands-on exercises and laboratory work.

Registration Restriction(s): Minimum student level – graduate.

INSC 543 Geographic Information in Information Sciences (3) Introduces the concepts related to geographic information librarianship. To understand geographic/cartographic competencies. To master the basic concepts of geospatial data discovery and collection development of cartographic resources. To practice the metadata creation of geospatial data. To explore issues related to geographic information policy of GIS related services.

Registration Restriction(s): Minimum student level – graduate.

INSC 562 Digital Curation (3) Explores the life-cycle, value-added management and maintenance of scholarly and scientific digital content. Examines the diverse set of skills to select, execute and administer a range of approaches and procedures across the lifecycle of digital objects, from conceptualization, creation, appraisal and selection, and ingest through preservation, storage, access, use and re-use. Digital curation occurs across a broad array of professional, disciplinary and organizational contexts. Introduces principles and practices to inform digital curation planning and practice for application in a variety of organizational settings, including archives, libraries, museums, data centers, and other cultural heritage and information agencies.

Registration Restriction(s): Minimum student level – graduate.

Rationale: The above courses were being taught as "Special Topics" courses. Impact on other units: None. Financial Impact: None.

REVISE TO ADD (RE)PREREQUISITES

INSC 592 Big Data Analytics (3)

(RE) Prerequisite: 584 Consent of instructor.

Rationale: This is an advanced course that requires a pre-existing knowledge of database systems. Impact on other units: None. Financial Impact: None.

COLLEGE OF EDUCATION, HEALTH, AND HUMAN SCIENCES

All changes effective Fall 2014

PART 1. COURSE CHANGES

DEPARTMENT OF CHILD AND FAMILY STUDIES

(CFS) Child and Family Studies

ADD

CFS 535 Couple Relationships (3) Understanding couple relationships through the life course (adolescence to late adulthood); focus on common couple interactions and difficulties from research and clinical perspectives.

CFS 635 International Perspectives on Children, Youth, and Family (3) Advanced exploration of cross-cultural and international research and theory on children, youth, and families, focusing on variations of experience within and between cultural and national contexts.

Registration Restriction(s): Minimum student level – graduate.

REVISE TITLE AND DESCRIPTION

CFS 511 Explorations in Child Development (3) Research and theory in a selected area of child development. Emphasis on development in the context of family and community. Topics vary.

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY AND COUNSELING

(EDPY) Educational Psychology

ADD

EDPY 672 Teaching Practicum in Evaluation, Statistics, and Measurement (1-3) Supervised practice in the teaching of research methods, evaluation, statistics, and measurement. This practicum will provide students with hands-on experience in teaching and related curricular and instructional preparation.

Repeatability: May be repeated. Maximum 12 hours.

Registration Restriction(s): Minimum student level – graduate.

DEPARTMENT OF KINESIOLOGY, RECREATION, AND SPORT STUDIES

(KNS) Kinesiology

ADD

KNS 544 Performance Consulting Skills and Strategies (3) Skills and strategies sport and performance psychology consultants use when working with athletes and other performers (e.g., exercise participants, performing artists, etc.) to help manage their thoughts and emotions under pressure or when faced with challenges.

(RE) Prerequisite(s): 533 and 538.

KNS 545 Psychological Aspects of Sport Injury (3) An examination of the role of psychological factors in the occurrence, prevention, and rehabilitation of sport injury as well as psychological intervention approaches relevant to injury and rehabilitation.

REVISE HOURS AND DROP RECOMMENDED BACKGROUND

KNS 662 Seminar in Biomechanics (1) Selected topics on research in biomechanics and related areas.

Formerly: (1-3)

Recommended Background: 422.

REVISE HOURS AND GRADING RESTRICTION (TO SATISFACTORY/NO CREDIT GRADING ONLY)

KNS 661 Seminar in Exercise and Applied Physiology (1)

Grading Restriction: Satisfactory/No Credit grading only.

Formerly: (1-3)

Grading Restriction: Satisfactory/No Credit or letter grade.

REVISE REGISTRATION RESTRICTION

KNS 480 Physiology of Exercise (3) Lecture and laboratory class dealing with functions of the body in muscular work. Topics include physiological aspects of fatigue, training, and adaptation to environment.

Registration Restriction(s): Kinesiology major, Biological Sciences major, or Animal Science major; minimum student level – junior.

Formerly: Registration Restriction(s): Kinesiology major, Biological Sciences major, or Animal Science major; minimum student level – junior. 2.5 GPA

Supporting Information: Rationale: Banner's inability to enforce GPA restrictions, thus GPA is being enforced at the department level. Course format and location: No change. Impact on other units: None. Financial Impact: None.

(RSM) Recreation and Sport Management

ADD

RSM 556 Sport and Religion (3) Examines the confluence of sport, religion, and spirituality through the critical analysis of religious and spiritual concepts/constructs, social and religious movements, and media influences. The course is centered on a Protestant perspective. The course will also explore other religious traditions and their relation to sport.

Registration Restriction(s): Majors in the Department of Kinesiology, Recreation, and Sport Studies only.

DEPARTMENT OF PUBLIC HEALTH

(PUBH) Public Health

ADD NEW 400-LEVEL COURSE FOR GRADUATE CREDIT

PUBH 401 Global Public Health (3) Discussion of the social, economic, political, environmental, and cultural determinants of health including measurements of health and burden of disease.

(RE) Prerequisite(s): 201.

ADD PRIMARY COURSE AND CROSS-LIST

PUBH 541 Student Outbreak Rapid Response Training (1) Disease outbreak investigation, prevention, and control. Basic instruction on the steps involved in investigating a real disease outbreak, working in partnership with the Tennessee Department of Health, the Knox County Health Department, and the East Tennessee Regional Health Office. Following the initial session, students will be available throughout the semester to assist these public health offices in response to a call for expanded capacity to investigate and address a real disease outbreak. Requires at least four hours of community service learning.

Cross-listed: (Same as Food Science and Technology 541 and Comparative and Experimental Medicine 541.)

Grading Restriction: Satisfactory/No Credit or letter grade.

Repeatability: May be repeated. Maximum 2 hours.

Registration Permission: Students must be in a graduate degree program sponsored by the Department of Public Health, or the Department of Food Science and Technology/UTIA. Students in other graduate degree programs or the Graduate Certificate in Food Safety may be enrolled by consent of instructor.

Supporting Information: Rationale: This 1 hour seminar course will provide students an opportunity to have hands-on training and experience in investigating and managing a food borne disease outbreak. The course will serve as one of the required courses for the Graduate Certificate in Food Safety. The course will be led by Public Health faculty but will also include faculty from the University of Tennessee Institute for Agriculture (Department of Food Science and Technology) and will involve practice partners with the Knox County Health Department and the Tennessee Department of Health. The students will be included in real disease outbreak investigations being conducted by the practice partners. Course format and location: On campus course. Impact on other units: This course will involve faculty from the UTIA/ Department of Food Science and Technology, and will be cross-listed with FDST and CEM. Financial Impact: Funding to initiate this course is being provided through a contract with the Tennessee Department of Health as part of the Tennessee Integrated Food Safety Center of Excellence. Subsequently, courses will be taught by a member of the UT Public Health faculty.

REVISE TITLE AND DESCRIPTION

PUBH 550 Theory, Program Development, and Implementation (3) Theoretical foundations for community health education; opportunities to develop skills in program development and implementation associated with community health education.

Formerly: Principles and Practices of Community Health Education (3). Theoretical foundations for community health education; opportunities for skill development in variety of educational processes; and introduction to community health analysis.

REVISE TITLE, DESCRIPTION, AND (RE) PREREQUISITE(S)

PUBH 552 Community Health Assessment (4) Critical Analysis of Community Health Assessment (CHA), development and implementation of CHA, written and oral presentation of CHA, development of written dissemination tool for the statewide community audience of TN. Requires 25 or more hours of community service learning.
(RE) Prerequisite(s): 530 and 536 or equivalent, or consent of instructor.

Formerly: PUBH 552 Community Health Problem Solving (4) Dynamics of community organization, community needs assessment, educational interventions, and application of program planning and evaluation techniques. Opportunity to practice skills in realistic setting.

(RE) Prerequisite(s): 550 or consent of instructor.

REVISE DESCRIPTION AND (RE) PREREQUISITE(S)

PUBH 536 Research Methods in Health (3) Research design, sampling, basic quantitative and qualitative research techniques. Development of research skills, data collection instruments, and problem identification for research topic. Requires at least 15 hours of community service learning.
(RE) Prerequisite(s): 530, an equivalent, or consent of the instructor.

Formerly: Basic quantitative and qualitative research techniques in a variety of health settings. Development of research skills, data collection instruments, and problem identification for research topic.

(RE) Prerequisite(s): 530 or Statistics 531; and 540.

DEPARTMENT OF THEORY AND PRACTICE IN TEACHER EDUCATION

(EDDE) EDUCATION OF THE DEAF AND HARD OF HEARING

ADD SECONDARY CROSS-LISTED COURSES

EDDE 601 Reading and Applying Research for Diverse Learners: Group and Correlational Approaches I (3)
Cross-listed: (See Special Education 601.)

EDDE 602 Reading and Applying Research for Diverse Learners: Group and Correlational Approaches II (3)
Cross-listed: (See Special Education 602.)

EDDE 603 Reading and Applying Research for Diverse Learners: Single-Subject Approaches I (3)
Cross-listed: (See Special Education 603.)

EDDE 604 Reading and Applying Research for Diverse Learners: Single-Subject Approaches II (3)
Cross-listed: (See Special Education 604.)

EDDE 605 Trends and Inquiry in Diverse Learners: Research Proposal and Grant Writing (3)
Cross-listed: (See Special Education 605.)

REVISE DESCRIPTION

EDDE 425 Introduction to the Psychology and Education of the Deaf and Hard of Hearing (3) Primarily for those planning to work with the deaf and hard of hearing. Research related to psychology, social adjustment, communication methodology, language development, and education of the deaf and hard of hearing. Survey of literature. Visits to programs.

REVISE TITLE AND DESCRIPTION

EDDE 509 Vocational Guidance and Career Planning with Deaf/Hard of Hearing (3) Utilization of psychological, educational, social and vocational, diagnostic materials and resources appropriate for persons who are deaf /hard of hearing to provide guidance in career decisions and individualized rehabilitation plan.

Formerly: Vocational Guidance and Career Planning with Hearing Impaired (3) Utilization of psychological, educational, social and vocational, diagnostic materials and resources appropriate for hearing impaired persons to provide guidance in career decisions and individualized rehabilitation plan.

REVISE DESCRIPTION, DROP (DE) PREREQUISITE(S) AND RECOMMENDED BACKGROUND, ADD COMMENT

EDDE 528 Curriculum Development Applied to Programs for Deaf/Hard of Hearing (3) Current curriculum trends adapted for deaf and hard of hearing individuals. New curriculum options and current educational theories. Development and field-testing of instructional techniques.

Comment(s): Taught in American Sign Language.

(FLED) FOREIGN LANGUAGE EDUCATION

➤ DROP ACADEMIC DISCIPLINE, SUBJECT CODE, AND ALL COURSES

FLED 455 Teaching of Foreign Languages, Grades 7-12 (3)

FLED 466 ESL Assessment and Evaluation (3)

FLED 476 Teaching English as a Second Language (3)

FLED 489 Content-Based ESL Methods (3)

FLED 555 Foreign Language in the Elementary Schools Practicum (3)

FLED 556 English as a Second Language Practicum (3)

FLED 586 Foundations of Bilingual Education: Language, Culture, and Politics (3)

FLED 596 Teaching ELLs in the Mainstream Classroom (3)

FLED 678 Advanced Studies in English as a Second Language (3)

Rationale: Changes are needed because: 1) Initial licensure in Tennessee is changing from a 7-12 foreign language licensure to PreK-12 World Language licensure. Therefore, the program needs to be aligned with these revisions. 2) There will no longer be a secondary minor for foreign language education (7-12); it will be replaced with a PreK-12 World Language Education Minor. Impact on other units: None. Financial impact: None. Present faculty will teach/deliver all required coursework for the new program.

(MEDU) MATH EDUCATION

REVISE TITLE AND DESCRIPTION

MEDU 523 Teaching Students who Struggle with Mathematics (3) Identifying and responding to students' difficulties in learning mathematics. Response to Intervention as it relates to mathematics education. Understanding and drawing on students' thinking in teaching math.

MEDU 583 Teaching Mathematics in Secondary Schools and Community Colleges (3) Topics appropriate for high school and developmental mathematics in community college. Special topics relate to enrichment, problem solving, and the integration of technology into math teaching and learning. Opportunity for special projects.

REVISE DESCRIPTION, DROP (RE) PREREQUISITE(S), AND ADD RECOMMENDED BACKGROUND

MEDU 550 Mathematics Assessment (3) Emphasis will be the use of classroom assessment to inform instruction. Interpretation and use of Response to Intervention screeners, standardized tests and value added measurements will also be addressed.

Recommended Background: Teaching experience or 485, 530, 543, is strongly recommended.

(SPED) SPECIAL EDUCATION

ADD AS PRIMARY COURSE AND CROSS-LIST

SPED 601 Reading and Applying Research for Diverse Learners: Group and Correlational Approaches I (3) Will focus on seminal readings in policy and research related to education of diverse learners using group experimental and quasi-experimental and correlational research designs. Goals of the course are: (1) to increase students' familiarity with policy and seminal readings in educational research focusing on diverse learners, (2) to increase students' understanding of educational research focusing on diverse learners, (3) to develop students' skills for analyzing and critiquing educational research with diverse populations, and (4) to begin development of a research agenda by honing skills in preparing research proposals targeting needs of diverse learners. Course 601 is Part 1 of a two course sequence.

Cross-listed: (Same as Education of the Deaf and Hard of Hearing 601.)

Registration Restriction(s): Minimum student level – graduate.

SPED 602 Reading and Applying Research for Diverse Learners: Group and Correlational Approaches II (3) Will focus on seminal readings in policy and research related to education of diverse learners using group experimental and quasi-experimental and correlational research designs. The goals of this course are: (1) to increase students' familiarity with seminal readings in educational research focusing on diverse learners, (2) to increase students' understanding of educational research focusing on diverse learners, (3) to develop students' skills for analyzing and critiquing educational research with diverse populations, and (4) to further development of a research agenda by honing skills in preparing research proposals targeting needs of diverse learners. This course is Part 2 of a two course sequence.

Cross-listed: (Same as Education of the Deaf and Hard of Hearing 602.)

(DE) Prerequisite(s): 601.

Registration Restriction(s): Minimum student level – graduate.

SPED 603 Reading and Applying Research for Diverse Learners: Single-Subject Approaches I (3) Four goals of course are: (1) to increase students' familiarity with policy and seminal readings in educational research focusing on diverse learners (2) to increase students' understanding of educational research concepts and procedures in the context of education of diverse learners, (3) to develop students' skills for analyzing and critiquing educational research related to diverse learners, and (4) to develop skills in preparing research proposals and manuscripts. Specifically, this course is designed to help students build a research agenda by preparing them to conduct research using single subject methodologies designs within the context of current and/or promising, theoretical, applied and/or evidence-based practices in instruction and/or curriculum related to diverse learners. This course is Part 1 of a two course sequence.

Cross-Listed: (Same as Education of the Deaf and Hard of Hearing 603.)

Registration Restriction(s): Minimum student level – graduate.

SPED 604 Reading and Applying Research for Diverse Learners: Single-Subject Approaches II (3) The purpose of this course is: (1) to increase students' familiarity with policy and seminal readings in educational research focusing on diverse learners. (2) increase students' understanding of educational research concepts and procedures in the context of education of diverse learners, (3) develop students' skills for analyzing and critiquing educational research related to diverse learners, (4) develop skills in preparing research proposals and manuscripts, (5) conduct a single-subject study, and (6) disseminate its findings. Specifically, this course is designed to prepare learners to build a research agenda by conducting research using single subject methodologies designs within the context of current and/or promising, theoretical, applied and/or evidence-based practices in instruction and/or curriculum related to diverse learners. This course is Part 2 of a two course sequence.

Cross-listed: (Same as Education of the Deaf and Hard of Hearing 604.)

(DE)Prerequisite(s): 603.

Registration Restriction(s): Minimum student level – graduate.

SPED 605 Trends and Inquiry in Diverse Learners: Research Proposal and Grant Writing (3) Designed to provide doctoral students with an opportunity to explore a wide range of trends in the field of educating diverse learners and develop effective grant writing skills that are essential to acquire competitive funding from government agencies and private foundations. This course is intended to help students solidify their knowledge, skills, and dispositions related to research design, research methods, and scholarly writing by applying and expanding them in the context of educational research, particularly diverse learners, through grant writing process. This course will also provide students with the background necessary to develop a competitive research funding proposal. This class will focus on the following three parts: Analysis of the literature, research methodologies, and grant writing process.

Cross-listed: (Same as Education of the Deaf and Hard of Hearing 605.)

Registration Restriction(s): Minimum student level – graduate.

(TPTE) THEORY AND PRACTICE IN TEACHER EDUCATION

REVISE TO DROP REGISTRATION RESTRICTION

TPTE 595 Special Topics (1-3)

➤ ADD ACADEMIC DISCIPLINE, SUBJECT CODE, AND COURSES

(WLEL) WORLD LANGUAGE EDUCATION/ENGLISH AS A SECOND LANGUAGE EDUCATION

WLEL 455 Teaching of World Languages (3) ACTFL standards-based instructional methods, resources, integrated technologies, second language theories, research and evaluation for world languages. Required for licensure in World Languages.

Recommended Background: Completion or near completion of world language hours for certification.

Registration Restriction(s): Admission to teacher education or consent of instructor.

WLEL 466 ESL Assessment and Evaluation (3) Highlights the implementation of authentic assessment, specifically, portfolio assessment for ESL students in K-12 settings. Focuses on designing appropriate tools for various assessment purposes. Specific types and different forms of assessment are examined based on their effectiveness and meaningfulness. Required for Tennessee (PreK-12) licensure.

WLEL 476 Teaching English as a Second Language (3) TESOL standards-based ESL pedagogy, practices, research, second language theories, instructional strategies and integrated technologies that accommodate students at all levels of ESL/EFL settings. Required for Tennessee (PreK-12) licensure.

WLEL 489 Content-Based ESL Methods (3) This course focuses on designing and implementing content-based ESL instruction to enhance English language learners' academic achievement. Required for Tennessee (PreK-12) licensure.

WLEL 555 World Language in the Elementary Schools Practicum (3) Experiences designing, implementing and assessing second language instruction in elementary school setting.

WLEL 556 English as a Second Language Practicum (3) Experiences designing, implementing and assessing English instruction to non-native English speakers. Course is required for ESL certification.

WLEL 586 Foundations of Bilingual Education: Language, Culture, and Politics (3) Examines the sociopolitical nature of language and culture, and focuses on critical understanding of intricate power relationships among race, ethnicity, identity, and social class and their impact on education of language minorities in the U.S.

WLEL 596 Teaching ELLs in the Mainstream Classroom (3) Focuses on understanding and meeting the needs of English Language Learners (ELLs) in the mainstream classes. Course participants will learn and practice instructional strategies that specifically address ELLs' academic needs. Offered to all education major students.

WLEL 678 Advanced Studies in English as a Second Language (3) Research, curricula, assessment, trends and issues in English as a second language.

Registration Restriction(s): Minimum student level – graduate.

Supporting Information: Rationale: The requested changes are needed because: 1) Initial licensure in Tennessee is changing from a 7-12 foreign language licensure to PreK-12 World Language licensure. Therefore, the program needs to be aligned with these revisions. 2) There will no longer be a secondary minor for foreign language education (7-12); it will be a PreK-12 World Language Education Minor. The suggested course description edits reflect the change from Foreign Language to World Language Education to be aligned with the new TN World Language Licensure (previously called Foreign Language Licensure) effective fall 2014.

EQUIVALENCY CHART

Current Course Fall 2013 Foreign Language Education /English as a Second Language (FLED)	Equivalent Courses Fall 2014 World Language Education English as a Second Language Education (WLEL)
455	455
466	466
476	476
489	489
555	555
556	556
586	586
596	596
678	678

PART II. PROGRAM CHANGES

DEPARTMENT OF CHILD AND FAMILY STUDIES

REVISE REQUIREMENTS: CHILD AND FAMILY STUDIES MAJOR, MS, TEACHER LICENSURE (PREK-3) CONCENTRATION

In the 2014-2015 *Graduate Catalog*, requirements heading, 1st paragraph, revise the last sentence as follows:

The teacher-licensure (PreK-3) concentration requires 36 hours of course work, a practice-based review of research and the edTPA (Teacher Performance Assessment).

Formerly: The teacher-licensure (PreK-3) concentration requires 36 hours of course work and a written comprehensive exam.

REVISE ADMISSIONS REQUIREMENTS, CHILD AND FAMILY STUDIES MAJOR

In the 2014-2015 *Graduate Catalog*, under admission heading, add a fourth paragraph as follows:

Exceptional applicants with only an undergraduate degree may be considered by the CFS Graduate Committee for direct admittance to the Ph.D. program if they wish. Such applicants must have undergraduate research experience relevant to Child and Family Studies, focused research interests, and a strong academic record. Students who are admitted without a master's degree will complete requirements for the thesis-based M.S. degree as part of their program of study. If in good standing after completing the M.S. program requirements, and under the recommendation of their M.S. committee, these students will proceed directly into the Ph.D. program.

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY AND COUNSELING

DROP MAJOR AND ALL THREE CONCENTRATIONS FOR THE EDUCATION MAJOR, EDS (IN THIS DEPT)

Instructional Technology
School Counseling
School Psychology

In the 2014-2015 *Graduate Catalog*, under the Department of Educational Psychology and Counseling, remove all catalog text for the EdS degree and concentrations.

Supporting Information: Rationale: Low enrollments in each concentration. Current enrolments: Instructional technology – 0, School Counseling – 1 who will graduate Spring 2014, School Psychology – 0. Impact: There is no impact on other academic units. The Department of Educational Leadership and Policy Studies still has an active EdS degree with a major in Education. They anticipate strong enough enrollments without any future students from EPC in the major. Financial Impact: There is no financial impact. The concentrations consisted of courses primarily used by larger majors. Dropping the very low enrolled concentrations should have no impact on the size of those courses.

REVISE RESEARCH REQUIREMENTS - EDUCATIONAL PSYCHOLOGY AND RESEARCH MAJOR, PHD - EVALUATION, STATISTICS, AND MEASUREMENT CONCENTRATION

In the 2014-2015 *Graduate Catalog*, under requirements heading, revise footnote 3 as follows:

- 3 Research courses must include EDPY 581 and EDPY 583 as well as three additional courses as approved by the student's advisor.

Formerly: Research courses must include EDPY 581 and EDPY 583 as well as three additional chosen from the following: EDPY 505, EDPY 506, EDPY 530, EDPY 550, EDPY 659, CSE 625, CSE 660 or COUN 525, or PSYC 521, PSYC 522, PSYC 607, any statistics course above 500, or other approved options (contact program faculty for a complete list of options).

DEPARTMENT OF KINESIOLOGY, RECREATION, AND SPORT STUDIES

DROP DUAL PROGRAM – MASTER OF SCIENCE WITH A MAJOR IN RECREATION AND SPORT MANAGEMENT AND THE MASTER OF BUSINESS ADMINISTRATION

In the 2014-2015 *Graduate Catalog*, drop the Dual MS-MBA program and all related catalog text.

Supporting Information: Rationale: For lack of faculty and student interest, this Program has been discontinued. Impact on other units: MBA program has been made aware of this change. Impact on other units: None. Financial Impact: None.

REVISE REQUIREMENTS - KINESIOLOGY MAJOR, (MS) – BIOMECHANICS CONCENTRATION

In the 2014-2015 *Graduate Catalog*, revise the required courses and recommended electives as follows:

- 1) under the required courses add an additional course (KNS 662) after KNS 634.

Required courses:

KNS 662 – Seminar in Biomechanics (1)

- 2) under the recommended electives, delete course KNS 662, and add two Social Work courses to the list (SOWK 605 and SOWK 606)

Rationale: KNS 662 was added to the required courses so that students will have more exposure to critiquing research studies. The two added statistics courses will provide students with more options. Impact on other units: None. Financial Impact: None.

REVISE REQUIREMENTS - KINESIOLOGY MAJOR, (MS) – EXERCISE PHYSIOLOGY CONCENTRATION

In the 2014-2015 *Graduate Catalog*, revise the required courses to add course KNS 611 and add footnote as follows:

KNS 661 – Seminar in Exercise and Applied Physiology (1)***

*** NOTE: KNS 661 must be taken twice for a total of two (2) credit hours.

Rationale: KNS 661 Seminar added so students will have more exposure to critiquing research studies. Impact on other units: None

REVISE REQUIREMENTS - RECREATION AND SPORT MANAGEMENT MAJOR, (MS) – SPORT MANAGEMENT CONCENTRATION (BOTH THESIS AND NON-THESIS OPTIONS)

In the 2014-2015 *Graduate Catalog*, under both the non-thesis and thesis options add course RSM 556 at footnote 2 as follows:

Sport Management Concentration (Non-Thesis Option)

² Sport Studies Elective or RSM 556 3

Sport Management Concentration (Thesis Option)

² Sport Studies Elective or RSM 556 3

Supporting Information: Rationale: RSM 556 is a new course that has been taught as special topics course and is now being assigned a permanent course number. Impact on other units: None. Financial Impact: None.

DEPARTMENT OF NUTRITION

REVISE ADMISSION REQUIREMENTS – DEPARTMENT OF NUTRITION

In the 2014-2015 *Graduate Catalog*, revise the 1st paragraph beginning with sentence three and add a second paragraph as follows

Admission

Admission into the graduate program in the department is dependent on completion of undergraduate courses that give the necessary background for success in the graduate program, and include: general and organic chemistry, physiological chemistry/biochemistry, physiology, statistics and introductory* nutrition. Details regarding the minimum semester hours expected for each prerequisite are available in the Graduate Student Handbook on the department's website. Applicants to all programs with related research interests and experience will be given preference.

*For those lacking only the introductory nutrition prerequisite, the student will be required to complete this or a similar class upon admission to our program.

Formerly: Admission into the graduate program in the department is dependent on completion of undergraduate courses that give the necessary background for success in the graduate program Required undergraduate courses general and organic chemistry, physiological chemistry/biochemistry, physiology, statistics and advanced nutrition. Applicants to all programs with related research interests and experience will be given preference.

REVISE REQUIREMENTS - NUTRITIONAL SCIENCES MAJOR, PHD

In the 2014-2015 *Graduate Catalog*, revise the 1st and 4th bullets as follows (adding the shaded text):

Coursework (Minimum)

- 16 hours in nutrition; these must include NUTR 511, NUTR 512, NUTR 543, NUTR 545, either NUTR 412 (taken for graduate credit) or NUTR 505, and an additional 2 graduate-level nutrition credits.
- 6 hours of graduate-level statistics

REVISE DUAL MS-MPH PROGRAM – NUTRITION

In the 2014-2015 *Graduate Catalog*, revise as indicated below:

1) under Admission heading, revise first sentence to end the sentence after “for the MPH.” Remove (and also the MPH Academic Program Committee) from the sentence.

2) under Requirements heading, add additional text at the end of the second sentence.
... (depending on the program of interest), which includes core MPH courses and required MS courses.

3) under Requirements heading, revise last sentence as follows:

The Department of Public Health will award a maximum of 14 (non-thesis) -16 (thesis) hours toward the MPH for successful completion of approved courses offered in the Department of Nutrition.

Formerly: The Department of Public Health will award a maximum of 11 hours toward the MPH for successful completion of approved courses offered in the Department of Nutrition.

4) under Approved Dual Credit heading, revise the 1st and 2nd sentences to add the text that is shaded, as follows:

For thesis students, MS courses to be counted toward the MPH program must include 9 hours of NUTR 515, 1 hour of NUTR 509, a maximum of 3 hours of NUTR 543 and NUTR 545, and 3 hours of NUTR 616 (16 credit hours). For non-thesis students, MS courses to be counted toward the MPH program must include a maximum of 10 hours of NUTR 515 and NUTR 519, 1 hour of NUTR 509, and 3 hours of NUTR 616 (14 credit hours). For thesis and non-thesis students MPH courses to be counted toward the MS include PUBH 520, PUBH 530, and PUBH 540.

Rationale: Replaces inaccurate language (the MPH Academic Program Committee does not review applications for admission), and corrects inaccuracies in credit hour counts. Impact: Further clarification of application process. Financial impact: None.

DEPARTMENT OF PUBLIC HEALTH

● ADD CERTIFICATE – FOOD SAFETY

In the 2014-2015 *Graduate Catalog*, add heading and text for new certificate:

Food Safety Graduate Certificate

The Department of Public Health (College of Education, Health, and Human Sciences, UTK) and the Department of Food Science and Technology (College of Agricultural Sciences and Natural Resources, UTIA) jointly offer a Graduate Certificate in Food Safety to prepare public health and food industry leaders, researchers, educators, and practitioners to understand and apply knowledge and skills to enhance food safety and prevent food-related disease. The Center for Agriculture and Food Security and Preparedness and the Department of Biomedical and Diagnostic Sciences, College of Veterinary Medicine are partners supporting this certificate. The certificate offering is coordinated through the Tennessee Integrated Food Safety Center of Excellence and will be administratively housed in the Department of Public Health. The certificate program is designed to build upon and expand concepts from core courses of the curriculum of each discipline's Master's degree programs and the previous experiences and interests of students. The 12 graduate hours required for the certificate may also count as graduate degree hours. The certificate is also designed for the current workforce in public health or food industry-related employment to acquire additional training and expertise relevant to their job functions. Certificate candidates must currently be admitted to a degree-granting graduate program at the university or hold an undergraduate degree and be admitted to the certificate program by submitting an online application for the Food Safety certificate through the Graduate Admissions Office. Course experiences will foster the examination and application of current policy research and the development of skills related to policy analysis, research, program evaluation, and advocacy.

Required Courses (9 hours):

- FDST 421; 3 hours
- Web-based course (CEM 508; 2 hours) OR web-based course (CEM 507; 2 hours)
- PUBH 540; 3 hours
- PUBH 541, 1 hour (PUBH 541 is cross-listed with FDST 541 and CEM 541).

Electives (3 hours):

Students will choose from a list of approved electives, which will be maintained by the Department of Public Health.

Rationale: Food safety is a critical element for both public health and emergency/bioterrorism preparedness. With food borne disease outbreaks on the rise, greater attention is being paid to prevention through stronger links between industry, practice, and academia. Preventing and investigating food borne diseases outbreaks requires cross-disciplinary involvement, and the Graduate Certificate in Food Safety is by design a multi-disciplinary program. The certificate is also in response to interests from the Tennessee Department of Health, and through them, the Centers for Disease Control and Prevention. The lead faculty in public health and food safety are included within the CDC-funded Tennessee Center of Excellence in Food Safety. Impact: The certificate will involve, and thus impact, the Department of Food Science and Technology (College of Agricultural Sciences and Natural Resources, UTIA). There is no anticipated negative impact on that or any other academic unit. In its initial offering as a special topics course, what is being proposed as PUBH 541 enrolled its maximum number of students (20). It is anticipated that some of these students will go on to complete the certificate, if approved. The short-term impact will be a positive one in not only engaging students from multiple disciplines, but also being able to involve the current workforce in public health and the food industry. Financial impact: The CDC-funded project mentioned above provides seed funding to establish new courses as a part of the certificate. Once established, there will be no additional on-going financial impact beyond the time investment of current faculty to offer the courses described. There is adequate capacity to do so.

REVISE ADMISSION APPLICATION DEADLINES - PUBLIC HEALTH MAJOR, MPH

In the 2014-2015 *Graduate Catalog*, revise the application deadlines by adding the shaded text below:

Application deadlines for completed applications are:

February 1, for summer term.

April 1, for fall semester.

October 1 for spring semester – NOTE: Spring admission is open to new part-time students only. New full time students will not be considered for spring admission.

Supporting Information: Rationale: Application deadlines have been revised to allow for spring applications for part-time students only. This replaces the previous policy of no students admitted for spring semester.

REVISE DUAL MS-MPH PROGRAM – PUBLIC HEALTH

In the 2014-2015 *Graduate Catalog*,

1) revise the first sentence by removing the first three words (Also offered is) and replace with (The College of Education, Health, and Human Sciences offers a...:

2) revise the second paragraph to remove the colon after the first sentence, to begin each bullet with a capital letter instead of lower-case, and to remove the semi-colon at the end of each bullet and replace with a period.

3) under the admission heading, first sentence, remove the text “and also the MPH Academic Program Committee” end the sentence after “MPH.”

4) under the Requirements heading, revise first paragraph as indicated below. Remove strikethrough and add shaded text.

A dual degree candidate must satisfy the requirements for both the Master of Science MS (public health nutrition concentration) and the Master of Public Health MPH degree, as well as the requirements for the dual program. All candidates for the dual degree must successfully complete PUBH 510, PUBH 537, and PUBH 555; 2 hours (1 hour each) of PUBH 509 and NUTR 509; and a minimum of 64-67 hours of course work (depending on the program of interest), which includes core MPH courses and required MS courses. The Department of Nutrition will award a maximum of 9 hours of credit toward the MS for successful completion of approved graduate-level public health courses offered in the Department of Public Health. The Department of Public Health will award a maximum of 14 (non-thesis) -16 (thesis) 44 hours of credit toward the MPH for successful completion of approved courses offered in the Department of Nutrition.

5) under the Approved Dual Credit heading, revise paragraph by adding the shaded text, as indicated below.

For thesis students, MS courses to be counted toward the MPH program must include 9 hours of NUTR 515, 1 hour of NUTR 509, a maximum of 3 hours of NUTR 543 and NUTR 545, and 3 hours of NUTR 616 (16 credit hours). For non-thesis students, MS courses to be counted toward the MPH program must include a maximum of 10 hours of NUTR 515 and NUTR 519, 1 hour of NUTR 509, and 3 hours of NUTR 616 (14 credit hours). For thesis and non-thesis students MPH courses to be counted toward the MS include PUBH 520, PUBH 530, and PUBH 540.

Supporting Information: Rationale: Replaces inaccurate language (the MPH Academic Program Committee does not review applications for admission), and corrects inaccuracies in credit hour counts. Impact on other units: Further clarification of application process. Financial impact: None.

DEPARTMENT OF THEORY AND PRACTICE IN TEACHER EDUCATION

▲ DROP CONCENTRATION - TEACHER EDUCATION MAJOR (MS), NON-LICENSURE TRACK 1

Foreign language/ESL education

▲ DROP CONCENTRATION - TEACHER EDUCATION MAJOR (MS), LICENSURE TRACK 2: INITIAL LICENSURE

English Language Learning

In the 2014-2015 *Graduate Catalog*, drop English Language Learning concentration and catalog text.

▲ DROP CONCENTRATION - TEACHER EDUCATION MAJOR (MS), LICENSURE TRACK 2: INITIAL LICENSURE

Modified and Early Childhood Special Education

In the 2014-2015 *Graduate Catalog*, drop Modified and Early Childhood Special Education concentration and related text.

Supporting Information: Rationale: We are dropping the English Language Learning Track 2 Initial Licensure concentration and adding English as a Second Language Education Track 2 Initial Licensure concentration to reflect state requirements.

▲ DROP CONCENTRATION - TEACHER EDUCATION MAJOR (EDS)

Foreign language/ESL education

▲ DROP CONCENTRATION - EDUCATION MAJOR, PHD

Special Education

In the 2014-2015 *Graduate Catalog*, drop Special Education concentration and all catalog text for the Education major, PhD, Special education concentration.

Rationale: Concentrations are being renamed to indicate the growing collaboration between the Special Education Program and the Deaf Education and Interpreter Education programs within TPTE and the natural alliances between the two in the field. Though the Department already attracts a handful of doctoral students with expertise or interest in deafness and/or educational interpreting, expanding the name of the concentration will provide greater visibility to attract and recruit more PhD students, consistent with goals of the University. Impact on other units: This name change is projected to draw in more doctoral students with experience or interest in deafness. Financial Impact: There is no financial impact as the courses in both programs are currently being offered and taught.

▲ ADD CONCENTRATION - TEACHER EDUCATION MAJOR, MS (NON-LICENSURE TRACK 1)
World Language/ESL Education

In the 2014-2015 *Graduate Catalog*, under Teacher Education Major, MS – Content Fields Teaching – Non-Licensure, remove the deleted concentration (Foreign Language/ESL Education) and replace with the new concentration (World Language/ESL Education).

▲ ADD CONCENTRATION - TEACHER EDUCATION MAJOR, MS (LICENSURE TRACK 2: INITIAL LICENSURE)
English as a Second Language Education

In the 2014-2015 *Graduate Catalog*, add heading and text for new concentration:

English as a Second Language Education concentration
TPTE 517; advisor approved electives (9).

▲ ADD CONCENTRATION - TEACHER EDUCATION MAJOR, MS (LICENSURE TRACK 2: INITIAL LICENSURE)
Special Education

In the 2014-2015 *Graduate Catalog*, add heading and text for new concentration:

Special Education concentration
SPED 553, SPED 557; 6 hours of electives (see advisor).

▲ ADD CONCENTRATION - TEACHER EDUCATION MAJOR, MS (LICENSURE TRACK 2: INITIAL LICENSURE)
World Language Education

In the 2014-2015 *Graduate Catalog*, add heading and text for new concentration:

World Language Education concentration
TPTE 517; TPTE 586 (or approved technology course); approved graduate class in the World Language; TPTE 593 or TPTE 595 (Teaching World Languages, PreK-5)

Rationale: We are dropping the English Language Learning and the Modified and Early Childhood Special Education concentrations and adding English as a Second Language Education and Special Education concentrations because the new names more accurately reflect the programs and/or are more inclusive. We are also adding the World Language Education concentration for the following reasons: 1) Initial licensure in Tennessee is changing from a 7-12 foreign language licensure to PreK-12 World Language licensure. Therefore, the program needs to be aligned with these revisions. 2) There will no longer be a secondary minor for foreign language education (7-12); it will be a PreK-12 World Language Education Minor. Impact on other units: None.

▲ ADD CONCENTRATION - TEACHER EDUCATION MAJOR (EDS)
World Language/ESL Education

REVISE TEXT – TEACHER EDUCATION MAJOR, EDS

In the 2014-2015 *Graduate Catalog*, revise first paragraph to remove name of dropped concentration (foreign language/ESL education) and add new concentration (World Language/ESL education).

▲ ADD CONCENTRATION - EDUCATION MAJOR, PHD
Special Education, Deaf Education, and Interpreter Education

In the 2014-2015 *Graduate Catalog*, add heading and text for the new concentration as follows:

Education Major, PhD – Special Education, Deaf Education, and Interpreter Education concentration
Students in the PhD concentrations share a common set of course requirements with hours required as shown below. Doctoral committees may require students to take additional hours to fulfill degree requirements.

	Hours	Credit
¹ Research Area		15
² Core Requirements		8

Concentration/Specialization	15
Cognate	6
Dissertation	24

¹ Must include TPTE 640 (3) or ELPS 615 (3).

² Seminar in primary concentration (3); TPTE 604 , TPTE 605 , TPTE 617 .

Note: Please contact the academic department for additional information on course requirements in each of these areas.

Admission

Students must submit to the University of Tennessee, Knoxville, an online graduate application to the Office of Graduate Admissions. Students must also submit the Theory and Practice in Teacher Education Departmental Application for Graduate Study. Applicants must submit verbal, quantitative, and analytic writing GRE scores that are equal to or higher than the 50th percentile, based on the norms in effect at the time the test was taken. An applicant with either a verbal or quantitative subtest score that is less than the 50th percentile will be expected to submit a proportionally higher, off-setting second subtest score. For details see: <http://www.ets.org/gre/>

Three letters of reference from those who know of the candidate's record and promise are required. An overall GPA of 3.3 in previous graduate study is required for admission to doctoral study and an interview with the faculty may be required. Admissions decisions are made on a holistic basis to discern the candidate's promise for doctoral study and to ascertain the match of the candidate's educational goals with the resources and goals of the department.

REVISE REQUIREMENTS - TEACHER EDUCATION MAJOR, MS, NON-LICENSURE, TRACK 1, SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS CONCENTRATION

In the 2014-2015 *Graduate Catalog*, revise footnote 2 as follows:

Delete SPED 504 and replace with SPED 506, delete TPTE 595 and replace with SPED 574.

REVISE REQUIREMENTS - TEACHER EDUCATION MAJOR, MS, NON-LICENSURE, TRACK 1, SPECIAL EDUCATION CONCENTRATION

In the 2014-2015 *Graduate Catalog*, revise as follows:

- 1) under Thesis option: revise core hours from 9 to 12. Revise concentration hours from 15 to 12.
- 2) Footnote 1, remove course SPED 587 and add course SPED 556.
- 3) Footnote 2, remove current text and replace with: "Select appropriate courses with major advisor."
- 4) revise paragraph under footnotes: remove course TPTE 595 and replace with course SPED 574; remove course SPED 504 and replace with SPED 506..
- 5) under the Non-Thesis option: revise core hours from 9 to 12. Revise concentration hours from 27 to 24.
- 6) Footnote 1, remove course SPED 587 and add course SPED 556.
- 7) Footnote 2, remove current text and replace with: "Select appropriate courses with major advisor."
- 8) Footnote 3: remove/delete footnote 3.
- 9) revise paragraph under footnotes: remove course SPED 504 and replace with SPED 506.

REVISE TEACHER EDUCATION MAJOR, MS, NON-LICENSURE TRACK I CONCENTRATIONS

In the 2014-2015 *Graduate Catalog*, under the Non-Licensure Track 1 heading: remove - foreign language/ESL education concentration and add – World Language/ESL education concentration.

REVISE TEACHER EDUCATION MAJOR, MS, CONTENT FIELDS TEACHING - NON-LICENSURE TRACK 1

In the 2014-2015 *Graduate Catalog*, remove - Foreign language/ELS education concentration and add – World Language/ESL education concentration.

REVISE LICENSURE TRACK 2: INITIAL LICENSURE PROGRAMS

In the 2014-2015 *Graduate Catalog*, revise the fifth and sixth sentences as follows. In the fifth sentence, remove "foreign language arts" and replace with "world language arts." In the sixth sentence – add new concentration "world language education" after "special education concentration."

REVISE INTRODUCTORY COLLEGE TEXT – TEACHER EDUCATION

In the 2014-2015 *Graduate Catalog*, revise the first paragraph under Teacher Education heading as follows:

Remove: “foreign language education” – “modified and early childhood special education K-12” – “and comprehensive special education endorsement.”

Add: “special education (K-12)” – “early childhood special education endorsement” – “gifted education endorsement” – and World Language Education (PreK-12).”

Supporting Information: Rationale: this corrects the names of several concentrations in the majors list and in the department text to match proposed revisions to these concentrations: English as a Second Language Education concentration; World Language Education and Special Education concentration and corrects the name of the early childhood special education endorsement and adds the gifted education endorsement. Impact on other units: None. Financial impact: None.

COLLEGE OF ENGINEERING

All changes effective Fall 2014.

I. COURSE CHANGES

DEPARTMENT OF CHEMICAL AND BIOMOLECULAR ENGINEERING

(CBE) Chemical and Biomolecular Engineering

REVISE PRIMARY COURSE TO DROP SECONDARY CROSS LISTING

CBE 506 Advanced Engineering Mathematics (3)

Formerly: Cross-listed: (Same as Materials Science and Engineering 506.)

Rationale: Cross-listed with MSE 506 (secondary). The two departments have different requirements and expectations on the mathematical skills of their graduate students, with CBE course primarily analytical and MSE course stressing a balanced analytical/numerical approach. MSE will drop this course and add a new mathematical course.

REVISE TO DROP GRADING RESTRICTION (REVISING FROM S/NC GRADING TO LETTER GRADE ONLY)

CBE 611 Chemical and Biomolecular Engineering Journal Club (1)

Formerly: Grading Restriction: Satisfactory/No Credit grading only.

Rationale: This course involves substantial work by the students preparing presentations that are carefully evaluated by the faculty instructor, as well as participating in active discussions of others' presentations. The rigor and importance of the work warrant a more complete evaluation via a letter grade (as opposed to the current S/NC grade), and performance in this course deserves to be included in the student's cumulative GPA. Impact on other units: None. Financial impact: None.

DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

(ENVE) Environmental Engineering

ADD

ENVE 515 Open Channel Hydraulics (3) Introduces basic physical principles that govern the water flows in open channels including steady and unsteady flow, flow behavior through hydraulic structures, and analytical and mathematical skills needed to describe and predict open-channel flow behavior using modern computational tools. These principles and skills are applied to the engineering solutions of open-channel systems problems.

Recommended Background: Fluid mechanics or hydraulics.

ENVE 516 Watershed Monitoring and Assessment (3) Fundamentals of experimental design, monitoring design, instrumentation, sample collection, statistical analysis, data interpretation, and data representation for studies in watershed science and engineering. Class projects and case studies focused on obtaining, analyzing, and presenting quality data sets collected during field-based research.

Recommended Background: Hydrology.

ENVE 527 Stream Restoration Design (3) Stream restoration approaches using natural channel design will be introduced applying principles in fluvial geomorphology, and coupled with an ecohydraulic modeling approach. This course is a project orientated course with design outcomes of bed and bank morphological equilibrium and biological integrity.

(RE) Prerequisite(s): 526.

ENVE 544 Advanced GIS Applications for Hydrology (3) Using GIS spatial analysis tools, advanced techniques for data accrual from spatial databases will be used for incorporation into hydrological engineering models. Skills introduced include: advanced hydrological modeling techniques, statistical analysis of hydrological data, and hydrological modeling.

Recommended Background: Hydrology and prior GIS training.

ENVE 615 Sediment Transport (3) Analysis of the interaction between fluids and solids. Mechanics of sediment transport, incipient motion, bed forms, bed load, suspended load, wash load and total load. Practical applications of sediment transport in open channels and reservoir sedimentation.

(RE) Prerequisite(s): 515.

Registration Restriction(s): Minimum student level – graduate.

ENVE 620 Advanced Hydrodynamic Modeling (3) Applications of multidimensional computational fluid dynamic models in river engineering. Course covers mass and momentum governing equations, numerical methods defining explicit/implicit finite difference schemes and initial and boundary conditions, turbulence closure schemes, model stability; and finite volume method.

(RE) Prerequisite(s): 515.

Registration Restriction(s): Minimum student level – graduate.

ENVE 655 Environmental Systems Biology (3) Inter-disciplinary study of complex interactions from the molecular level (i.e., molecules) up to and including the ecosystem level (e.g., nutrient cycling models). Hands-on analysis and system integration of 'omics' data will be emphasized. Discussion topics will include metabolic and kinetic interactions, signaling networks, control theory, and modeling approaches leading to predictions.

Recommended Background: Previous coursework in microbiology or environmental microbiology.

Registration Restriction(s): Minimum student level – graduate.

DROP

ENVE 521 Climate Impacts on Water Resources (3)

Rationale: The material is included in the newly added courses. Impact on other units: None. Financial impact: None.

REVISE DESCRIPTION AND ADD (RE) PREREQUISITE

ENVE 520 River Mechanics (3) Analysis of rivers, mechanics of water and sediment transport emphasizing alluvial systems, channel stabilization, control, and response. Course topics include: review of steady and unsteady flow in rivers; engineering analysis of fluvial systems associated with river equilibrium and stabilization processes; bed aggradation and degradation; local scour near civil infrastructure, and river engineering using hydraulic and geomorphological models.

(RE) Prerequisite(s): 515.

REVISE DESCRIPTION AND RECOMMENDED BACKGROUND

ENVE 530 Urban Hydrology and Stormwater Engineering (3) Modification of hydrologic methods for urban systems, urban pollutants of concern, stormwater regulations, low impact development, green infrastructure, design of stormwater controls (Best Management Practices, BMPs), and discussions of stormwater control performance. Class projects will be design focused, offer real world challenges, and require the application of a diverse set of methods and tools.

Recommended Background: Hydraulics and Hydrology.

DEPARTMENT OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE

(ECE) Electrical and Computer Engineering

ADD 400-LEVEL COURSE FOR GRADUATE CREDIT

ECE 406 Introduction to Real-time Digital Signal Processing (3) Architectures of programmable digital signal processors. Real-time implementation of digital signal processing algorithms on digital processor chips. Case studies including digital filtering, typical communication applications, speech and image processing. Includes Level 1 design projects.

(RE) Prerequisite(s): 315.

ADD

ECE 563 Introduction to Fire Protection Engineering (3) The application of fire protection engineering principles to the safe design, wiring, and construction of buildings and infrastructure. Topics include safety and performance-based design, fire dynamics, fire hazard and risk analysis, national electrical codes, public fire service operations, detection and alarm systems, and transportation fire safety.

Registration Permission: Consent of Instructor.

ECE 564 Enclosure Fire Dynamics (3) The application of fire protection engineering principles to enclosure fire dynamics. Topics include estimating the energy release rates of a fire, fire plumes characteristics, pressure and flows through openings, fire gas temperatures, smoke filling rates and species production, and fire modeling.

(RE) Corequisite(s): 563.

ECE 567 Forensic Engineering (3) The application of forensic engineering tools to the comprehensive investigation and analysis of materials, products, structures or components that fail or do not operate or function as intended, causing personal injury or damage to property. Tools used include root cause analysis, timelines, fault trees, and failure mode and effects analysis. This is the third prerequisite course for students interested in pursuing the Fire Protection Engineering Graduate Certificate.

(RE) Registration Permission: Consent of Instructor.

Rationale. The above three courses are offered for students interested in pursuing the proposed "Graduate Certificate Program in Fire Protection Engineering." Impact on other academic units: None. Financial impact: These courses are planned to be taught by an existing faculty member with industry support.

ECE 581 High Frequency Power Electronics (3) Addresses the motivations and inherent design issues associated with high frequency switched mode power supply design. Origins and dependencies of frequency dependent losses will be reviewed, with specific emphasis on potential design approaches which reduce energy loss and facilitate high frequency operation. Resonance, and its application to power converter will be discussed. Students will learn steady-state and dynamic modeling techniques which allow the analysis and design of converters containing significant resonant intervals, for which traditional small ripple assumptions do not hold.

(RE) Prerequisites: 481 or Consent of the instructor.

ECE 605 Advanced Topics in Signal Processing (3) Topics of current interests, such as compressed sensing, in-network computation, dictionary learning and sparse coding, supervised and unsupervised unmixing. Applications of signal processing techniques in various fields such as smart grid, sensor networks, remote sensing, will be discussed.

Registration Restriction(s): Minimum student level – graduate.

Registration Permission: Consent of Instructor.

REVISE TITLE, DESCRIPTION AND ADD RECOMMENDED BACKGROUND

ECE 505 Digital Signal Processing (3) Representation, analysis, and design of discrete-time signals and systems. Sampling. Structures for digital filtering. Time-and frequency-domain design techniques for recursive (IIR) and non-recursive (FIR) filters. Discrete Fourier transform, including its computation and FFT algorithms. Multirate systems, filter banks, and wavelets.

Recommended Background: Knowledge in Fourier analysis techniques.

Formerly: Digital Signal Processing I (3) Discrete-time signals and systems, sampling, fast Fourier transform (FFT) and fast convolution, design of FIR filters and IIR filters.

ECE 506 Real-time Digital Signal Processing (3) Real-time implementation of digital signal processing algorithms on digital processor chips. Emphasis is on the tradeoffs between signal quality and implementation complexity. Case studies including digital filtering, typical communication applications, speech and image processing.

Recommended Background: Knowledge in Fourier analysis techniques.

Formerly: Digital Signal Processing II (3) Filter properties in the Z and Fourier transform domains, structures for digital filters, sampling and reconstruction, hardware implementation of digital filters.

REVISE TO DROP RE PREREQUISITES AND ADD REGISTRATION PERMISSION

ECE 531 Advanced Analog Electronics I (3)

Registration Permission: Graduate standing or consent of instructor.

Formerly: (RE) Prerequisite(s): 431 and 432 or consent of instructor.

DEPARTMENT OF INDUSTRIAL AND SYSTEMS ENGINEERING

(ENMG) Engineering Management

REVISE DESCRIPTION

ENMG 532 Productivity and Quality Engineering (3) Productivity and quality measures defined and used to analyze current competitive position of important sectors of American industry with respect to national and international competition. Study of management theories and systems which promote or inhibit productivity or quality improvements.

Formerly: Productivity and quality measures defined and used to analyze current competitive position of important sectors of American industry with respect to national and international competition. Study of management theorists and systems which promote or inhibit productivity or quality improvements.

REVISE CREDIT RESTRICTION

ENMG 537 Analytical Methods for Engineering Managers (3)

Credit Restriction: Credit only for students with undergraduate degrees in industrial engineering.

Formerly: Credit Restriction: No credit for student with undergraduate degrees in industrial engineering.

Rationale: The former credit restriction was a typo. 537 is for students with an Industrial Engineering undergraduate degree. Students without undergraduate degrees in Industrial Engineering are asked to take Industrial Engineering 522 instead. Impact on other courses: None. Financial Impact: None.

(IE) Industrial Engineering

ADD

IE 607 Stochastic Processes (3) Basic models and algorithms in stochastic processes and their Engineering application: the renewal theory, discrete-time and continuous-time Markov Chains, Queuing theory, and Markovian Decision Processes.

(DE) Prerequisite(s): 516.

Recommended Background: Probability.

Registration Restriction(s): Minimum student level – graduate.

IE 608 Advanced Optimization via Simulation (3) Advanced topics in optimization via simulation with applications to areas of business and industry with focus on healthcare systems and supply chain and logistics: agent-based modeling and simulation, system dynamics, and discrete event simulation.

Recommended Background: Discrete-event Simulation.

Registration Restriction(s): Minimum student level – graduate.

IE 609 Stochastic Programming (3) Topics include modeling of uncertainty, two-stage stochastic programs, the value of information, Benders decomposition, L-shaped method, stochastic integer programs and multistage stochastic programs.

Recommended Background: Linear Programming and Probability.

Registration Restriction(s): Minimum student level – graduate.

IE 610 Heuristics in Optimization (3) Heuristic methods and their applications to optimization problems, including neighborhood search and major meta-heuristics methods.

Recommended Background: Linear Programming.

Registration Restriction(s): Minimum student level – graduate.

IE 611 Integer Programming (3) Theoretical foundations of Integer Programming and its application to optimization problems, including branch-and-bound, cutting planes, polyhedral analysis, and complexity.

(DE) Prerequisite(s): 516, 518, and 522.

Recommended Background: Linear Programming.

Registration Restriction(s): Minimum student level – graduate.

Rationale: The departmental increase in faculty provides resources to offer the above (5) advanced Industrial Engineering courses for the growing number of Ph.D. students in this program. Impact on other units: None. Financial Impact: None.

DROP

IE 601 Operations Research in Service and Environmental Systems (3)

REVISE TO ADD REPEATABILITY

IE 550 Graduate Seminar (1)

Repeatability: May be repeated. Maximum 6 hours.

Rationale: Ph.D. students are required to take the one-credit hour 550 for at least three times and M.S. students are required to take it for at least twice. Impact on other courses: None. Financial Impact: None.

REVISE TITLE

IE 604 Network Flow Optimization (3)

REVISE PRIMARY COURSE TO REMOVE CROSS-LIST

IE 526 Advanced Applications of Systems Modeling and Simulation(3)

Formerly: Cross-listed: (Same as Management Science 526.)

DEPARTMENT OF MATERIALS SCIENCE AND ENGINEERING

(MSE) Materials Science and Engineering

ADD AS SECONDARY CROSS-LISTED COURSE

MSE 570 Particle Accelerators: Technology and Applications (3)

Cross-listed: (See Nuclear Engineering 588.)

ADD

MSE 510 Mathematical and Numerical Problem Solving Skills for Materials Scientists and Engineers (3)

Formulation and solution of problems in materials science, including linear and nonlinear algebraic equations, ordinary and partial differential equations, and integral equations. Emphasize on use of modern computational tools.

Rationale: Added to replace a secondary cross-listed course MSE 506, which is being dropped. Primary course is CBE 506. The two departments have different requirements and expectations on the mathematical skills of their graduate students, with CBE course primarily analytical and MSE course stressing a balanced analytical/numerical approach. Addition of this course satisfies MSE requirements. Impact on other units: None. Financial Impact: None.

MSE 613 Modeling and Simulation in Materials Science and Engineering (3) Introduction to and applications of modeling and simulation of advanced materials at electronic, atomic, and microstructural levels of description. Development of structure/property relationships for functional, structural, and energy materials.

Registration Restriction(s): Minimum student level – graduate.

Registration Permission: Consent of instructor.

DROP AS SECONDARY CROSS-LISTED COURSE

MSE 506 Advanced Engineering Mathematics (3)

DEPARTMENT OF MECHANICAL, AEROSPACE, AND BIOMEDICAL ENGINEERING

(AE) Aerospace Engineering

ADD

AE 566 Electric Propulsion (3) Engineering concepts of electric propulsion and its application to modern satellites and deep space probes. Topics include physical principles, practical designs, and performance levels of electrically-powered space propulsion thrusters including: ion engines; pulsed and steady-state (fixed field) plasma and MHD thrusters, including Hall Thrusters, and others.

Recommended Background: Rocket propulsion.

Registration Permission: Consent of Instructor.

Rationale: The course has been offered as a special topics course at UTSL. Impact on other units: None. Financial Impact: None.

AE 569 Plasma Dynamics (3) Fundamental concepts of plasma including electromagnetic theory, collision processes, kinetic theory, microscopic and macroscopic descriptions, transport properties, and magnetohydrodynamic analysis.

Recommended Background: Vector calculus and graduate fluid mechanics.

Registration Permission: Consent of Instructor.

Rationale: This course has been offered as a special topics course at UTSL. Impact on other units: None. Financial Impact: None.

AE 581 Rocket Propulsion I (3) Rocket propulsion fundamentals; thermodynamics of nonreacting and chemically reacting ideal gases, rocket nozzle design; ideal rocket performance parameters; rocket heat transfer; chemistry of propellants; liquid rocket engine systems; ground testing; introduction to solid propellant rockets.

Registration Permission: Consent of Instructor.

Rationale: Mechanical Engineering 581, Rocket Propulsion I, is being dropped. This course should be in the Aerospace Engineering section. Impact on other units: None. Financial Impact: None.

AE 592 Off-Campus Study (3)

Credit Level Restriction: Graduate credit only.

Registration Permission: Departmental approval.

AE 593 Independent Study (3)

Credit Level Restriction: Graduate credit only.

Registration Permission: Departmental approval.

AE 601 Doctoral Research Methodology (3) Methods of planning and conducting original research and proposal writing.

Registration Restriction(s): Minimum student level – graduate / doctoral students.

Registration Permission: Departmental approval.

AE 682 Rocket Propulsion II (3) Solid propellant rocket performance, homogeneous and heterogeneous propellant chemistry and combustion system performance, thermal decomposition and gas phase reaction models; effect of chamber pressure and additives on solid propellant burn rates, erosive burning; analysis of two-phase solid rocket exhaust flow. Introduction to nuclear and electric propulsion; electrical resistance and electric field (ion) engine performance, magnetohydrodynamic thrusters, traveling wave thrusters; exotic propulsion systems.

(RE) Prerequisite(s): 581.

Registration Restriction(s): Minimum student level – graduate.

Registration Permission: Consent of Instructor.

Rationale: Mechanical Engineering 582, Rocket Propulsion II, is being dropped. This course should be in the Aerospace Engineering section. Impact on other units: None. Financial Impact: None.

AE 693 Independent Study (3)

Credit Level Restriction: Graduate credit only.

Registration Restriction(s): Minimum student level – graduate.

Registration Permission: Departmental approval.

REVISE TITLE, DESCRIPTION, DROP ONE OF THE CROSS-LIST, AND ADD RECOMMENDED BACKGROUND

AE 518 Computational Fluid Dynamics (3)

Cross-listed: (See Mechanical Engineering 518.)

Formerly: Computational Fluid-Thermal Systems (3)

Cross-listed: (See Mechanical Engineering 518.)

Rationale: AE 518 is secondary. Primary is revising to remove one of the secondary courses (BME 518) as a secondary course. Impact on other units: None. Financial Impact: None.

(BME) Biomedical Engineering

ADD

BME 503 Biological Numerical Methods (3) The complexity of biomedical systems presents significant mathematical challenges. Therefore, modeling and simulation are essential to understanding these systems and numeric tools are the basis/means for accomplishing this. This course is a survey of essential numeric tools routinely applied to solving biomedical engineering problems that are implemented primarily via Matlab scientific programming language.

Recommended Background: Multivariate calculus, differential equations, MATLAB or other programming language.

Equivalent UT courses include MATH 141, MATH 231, MATH 251, EF 230 or COSC 140.

BME 510 Science Communication (3) Instruction in the fundamentals of technical writing targeted at an academic audience, science writing targeted at a general audience, technical presentation skills, and persuasive presentation skills, all applied to Biomedical Engineering topics.

BME 521 Applied Quantitative Physiology (3) This course is an introduction to mathematical modeling, theoretical analysis, computer simulation, and computer visualization in physiology of systems. Topics may include electrocardiology, circulatory system, respiration mechanisms, muscle functions, renal physiology, retina and vision, immune response, etc. Upon completion of the course, students will grasp fundamental mathematical thinking in systems physiology.

(DE) Prerequisite(s): 503.

BME 560 Tissue Engineering and Regenerative Medicine (3) Develop an understanding of cell-cell interactions and the role of the extracellular matrix in the structure and function of normal and pathological tissues. Topics include the harvesting of stem cells from specific tissues, the use of artificial and natural scaffolds in three-dimensional tissue culture, and the role of maintaining the stem cell state in culture.

(DE) Prerequisite(s): 503, 511, 521.

BME 570 Healthcare Engineering (3) Introduction to fundamentals of health care delivery from an engineering perspective, for example clinical pathway optimization, operating room efficiency, impact of multidisciplinary preoperative patient education and other healthcare policy decisions on healthcare delivery cost and efficacy.

(DE) Prerequisite(s): 503.

Rationale: The biomedical engineering graduate program is being coordinated by the recently established Institute for Biomedical Engineering. We seek to enhance the program's interdisciplinary aspects by making use of interest and expertise in key relevant areas outside of the College of Engineering, in particular the College of Veterinary Medicine and the Graduate School of Medicine. The courses listed above comprise the new required Biomedical Engineering core courses, as well as courses required of a fraction of the students depending on the specialization track chosen by the student (breadth and depth requirements). Each of these courses will involve an inverted classroom model where most lecture material is delivered online by pre-recorded videos. Multiple faculty from all Institute of Biomedical Engineering (iBME) participating departments and colleges will prepare modules for these courses. Impact on other units: None. Financial impact: Development of new courses in the program is undertaken by the new Institute of Biomedical Engineering consisting of several faculty in colleges of Engineering, and Veterinary Medicine, and the Graduate School of Medicine.

BME 601 Doctoral Research Methodology (3) Intensive, individualized experience in reviewing literature, evaluating experimental or theoretical methods, planning a research project, and presenting research project plans orally and in writing.

Registration Permission: Consent of instructor.

Registration Restriction(s): Minimum student level – graduate. PhD students only.

Rationale: Will provide formalized, deep experience in the critical elements of doctoral education and promote student independence and successful progress in thesis research. Will also provide an important mechanism for responding to deficiencies identified in SACS assessment of doctoral student learning outcomes, which mirror the topics listed in the course description.

DROP AS SECONDARY CROSS LISTING

BME 517 Finite Elements for Engineering Applications (3)

Cross-listed: (See Mechanical Engineering 517.)

BME 534 Mechanical Vibrations (3)

Cross-listed: (See Mechanical Engineering 534.)

BME 536 Continuum Mechanics (3)

Cross-listed: (See Mechanical Engineering 536.)

BME 541 Fluid Mechanics I (3)

Cross-listed: (See Mechanical Engineering 541.)

BME 545 Optical Engineering I (3)

Cross-listed: (See Mechanical Engineering 545.)

BME 546 Optical Engineering II (3)

Cross-listed: (See Mechanical Engineering 546.)

BME 547 Modern Linear Controls (3)

Cross-listed: (See Mechanical Engineering 547.)

BME 559 Advanced Mechanics of Materials I (3)

Cross-listed: (See Mechanical Engineering 559.)

BME 565 Structural Dynamics (3)

Cross-listed: (See Mechanical Engineering 565.)

BME 647 Non Linear Control Systems (3)

Cross-listed: (See Mechanical Engineering 647.)

BME 659 Advanced Mechanics of Materials II (3)

Cross-listed: (See Mechanical Engineering 659.)

REVISE TITLE, DESCRIPTION, ADD (DE) PREREQUISITES, AND DROP REGISTRATION PERMISSION

BME 538 Biomedical Instrumentation and Biosensing Techniques (3) Fundamentals of Biomedical Engineering instrumentation and analysis are covered. Topics include measurement principles; fundamental concepts in electronics including circuit analysis, data acquisition, amplifiers, filters, and A/D converters; Fourier analysis; and temperature, pressure, and flow measurements in biological systems.

(DE) Prerequisite(s): 503, 521.

Rationale: Topics in this course will be modified and made more general via participation of faculty in the Graduate School of Medicine. It is a required depth or breadth requirement for the majority of BME graduate students and will assume students have completed the BME 503 core course. Impact on other units: None. Financial impact: None.

REVISE TITLE, DESCRIPTION, AND (DE) PREREQUISITES

BME 574 Medical Imaging (3) Introduction is provided of the basic principles of image acquisition, formation, and processing, along with clinical applications of different imaging modalities for predicting disease outcome and treatment evaluation. Clinical site visits provide experience with imaging modalities covered in class.

(DE) Prerequisite(s): 503.

Rationale: The content of this course is being modified to match the needs of the new BME curriculum. This course will be a foundational requirement (breadth/depth) of the new curriculum.

REVISE DESCRIPTION, ADD (DE) PREREQUISITES AND DROP RECOMMENDED BACKGROUND

BME 511 Biotransport Processes (3) Introduction of an integrative set of computational problem solving tools providing numerical foundations for Biomedical Engineering. This course will apply numerical methods to applications in systems, organs, cellular, and molecular systems.

(DE) Prerequisite(s): 503.

REVISE TITLE AND DESCRIPTION

BME 674 Multidimensional Medical Image Analysis (3) Fundamentals of multidimensional image analysis, computer vision, machine learning, deformable registration, statistical and multidimensional modeling and their applications in analysis and characterization of both functional imaging (fMRI, DTI) and anatomical imaging (CT, MRI and Ultrasound).

(ME) Mechanical Engineering

ADD

ME 569 Principles of Additive Manufacturing (3) Fundamentals of additive manufacturing processes within the context of traditional manufacturing life cycle including the basics of product design, processing mechanics and materials science to highlight the advantages of additive manufacturing.

Credit Restriction: Students cannot receive credit for both 469 and 569.

Recommended Background: Computer-aided design, materials science.

Registration Permission: Consent of Instructor.

Rationale: This course is in the area of two new hires (including a Governor's Chair) with growing research funding and student interest. This course was offered as a special topics course last spring. Impact on other units: None. Financial Impact: None.

ME 570 Numerical Methods for Engineers (3) Review and implementation of basic numerical techniques. Explicit and implicit solution techniques of ordinary differential equations and partial differential equations. Applications include heat transfer and fluid mechanics.

Recommended Background: Numerical analysis, fluid mechanics, heat transfer and differential equations.

Registration Permission: Consent of Instructor.

Rationale: Spring of 2012, offered as a special topics course with enrollment of 22. Impact on other units: none. Financial Impact: none.

ME 592 Off-Campus Study (3)

Credit Level Restriction: Graduate credit only.

Registration Permission: Departmental approval.

ME 593 Independent Study (3)

Credit Level Restriction: Graduate credit only.

Registration Permission: Departmental approval.

ME 601 Doctoral Research Methodology (3) Methods of planning and conducting original research and proposal writing.

Registration Restriction(s): Minimum student level – doctoral student.

Registration Permission: Departmental approval.

ME 693 Independent Study (3)

Credit Level Restriction: Graduate credit only.

Registration Restriction(s): Minimum student level – graduate.

Registration Permission: Departmental approval.

DROP

ME 581 Rocket Propulsion I (3)

ME 582 Rocket Propulsion II (3)

Rationale: These courses were added to the Aerospace Engineering list of courses. Impact on other units: None. Financial Impact: None.

REVISE TITLE, DESCRIPTION, AND ADD RECOMMENDED BACKGROUND

ME 518 Computational Fluid Dynamics (3) Finite difference and finite volume techniques for solving compressible and incompressible fluid flow problems. Classification of partial differential equations and their discrete approximations. Explicit and Implicit techniques for solving unsteady Euler and Navier-Stokes equations including finite volume and finite difference formulations. Formulation of boundary conditions, artificial viscosity and multigrid acceleration. Stability analysis and convergence. Grid generation.

Cross-listed: (Same as Aerospace Engineering 518 and Biomedical Engineering 518)

Recommended Background: Fluid mechanics, differential equations, and compressible flows.

REVISE TITLE, DESCRIPTION, RECOMMENDED BACKGROUND, AND ADD REGISTRATION PERMISSION

ME 567 Smart Materials and Structures (3) Constitutive modeling of piezoelectric materials, electroactive polymers, shape memory alloys, and system modeling for the analysis, design, and control of smart material systems. Energy methods for static and dynamic analysis of piezoelectric bimorph and other smart systems.

Recommended Background: Mechanics of materials and system dynamics.

Registration Permission: Consent of Instructor.

REVISE PRIMARY TO REMOVE ONE SECONDARY CROSS-LISTED COURSE

ME 517 Finite Elements for Engineering Applications (3)

Cross-listed: (Same as Aerospace Engineering 517.)

Formerly: (Same as Aerospace Engineering 517; Biomedical Engineering 517.)

ME 534 Mechanical Vibrations (3)

Cross-listed: (Same as Aerospace Engineering 535.)

Formerly: (Same as Aerospace Engineering 535; Biomedical Engineering 534.)

ME 536 Continuum Mechanics (3)

Cross-listed: (Same as Aerospace Engineering 536.)

Formerly: (Same as Aerospace Engineering 536; Biomedical Engineering 536.)

ME 541 Fluid Mechanics I (3)

Cross-listed: (Same as Aerospace Engineering 541.)

Formerly: (Same as Aerospace Engineering 541; Biomedical Engineering 541.)

ME 545 Optical Engineering I (3)

Cross-listed: (Same as Aerospace Engineering 545.)

Formerly: (Same as Aerospace Engineering 545; Biomedical Engineering 545.)

ME 546 Optical Engineering II (3)

Cross-listed: (Same as Aerospace Engineering 546.)

Formerly: (Same as Aerospace Engineering 546; Biomedical Engineering 546.)

ME 547 Modern Linear Controls (3)

Cross-listed: (Same as Aerospace Engineering 547.)

Formerly: (Same as Aerospace Engineering 547; Biomedical Engineering 547.)

ME 559 Advanced Mechanics of Materials I (3)

Cross-listed: (Same as Aerospace Engineering 559.)

Formerly: (Same as Aerospace Engineering 559; Biomedical Engineering 559.)

ME 565 Structural Dynamics (3)

Cross-listed: (Same as Aerospace Engineering 565.)

Formerly: (Same as Aerospace Engineering 565 and Biomedical Engineering 565.)

ME 647 Non Linear Control Systems (3)

Cross-listed: (Same as Aerospace Engineering 647.)

Formerly: (Same as Aerospace Engineering 647; Biomedical Engineering 647.)

ME 659 Advanced Mechanics of Materials II (3)

Cross-listed: (Same as Aerospace Engineering 659.)

Formerly: (Same as Aerospace Engineering 659; Biomedical Engineering 659.)

Rationale: The new BME curriculum encourages collaboration with other biomedically-related disciplines across the UTK campus and the College of Veterinary Medicine and Graduate School of Medicine. The curriculum therefore introduces a number of new courses and requirements, and many of the concepts covered in the courses to be dropped will be included in these. No biomedical science/engineering-specific sections of the listed courses have been offered to date, and the introduction of our new courses will preclude offering such sections with our existing BME faculty. While a limited number of biomedical engineering graduate students will need the general material that is covered in some of the courses being dropped, all of these courses will still exist in mechanical engineering and will therefore remain available as approved electives to those BME students.

DEPARTMENT OF NUCLEAR ENGINEERING

(NE) Nuclear Engineering

ADD CURRENT 400 LEVEL COURSE FOR GRADUATE CREDIT

NE 427 Honors: Nuclear Engineering Laboratory (4)

ADD SECONDARY CROSS-LISTED COURSE

NE 535 Radio and Nuclear Chemistry (3)

Cross-listed: (See Chemistry 580.)

ADD

NE 570 Nuclear System Design I (1) Design and analysis of a nuclear system. The groundwork will be laid for an actual nuclear engineering design project, including feasibility and cost analysis. Will be taught in conjunction with 471 but with additional requirements for graduate students.

(RE) Prerequisite: 470.

Rationale: Dividing the four hour course into a one hour fall semester course and a three hour spring semester course better meets the timing needs of the faculty and students. The current schedule results in a rushed design project, the new schedule will allow the fall to be used to define the problem, complete information gathering, and plan the design activities which are then completed in the spring. Impact on other units: None. Financial impact: None.

ADD AS PRIMARY AND CROSS LIST

NE 588 Particle Accelerators: Technology and Applications (3) A study of particle accelerators used for research in nuclear, radiological, and materials science and engineering, including linacs, tandems, cyclotrons, synchrotrons, light sources, and neutron facilities. General principles of experiment design at accelerator facilities.

Cross-listed: (Same as Materials Science and Engineering 570.)

REVISE HOURS

NE 402 Nuclear Engineering Lab (4)

Formerly: (3)

Rationale: Course is composed of three hours of lecture and one hour of laboratory each week. Courses of this format have been identified to have three credit hours for in-class contact hours (3) and one credit hour for laboratory contact hours (1) for a total of four credit hours (4). Impact on other units: None. Financial impact: \$57 extra per semester for student engineering fees; None for department.

REVISE PRIMARY TO ADD SECONDARY AND CROSS-LIST

NE 550 Radiation Measurements Laboratory (3)

Cross-listed: (Same as Chemistry 581.)

Formerly: No cross-listing.

Rationale: The Department of Chemistry, in collaboration with Nuclear Engineering, seeks to offer a graduate certificate in radiochemistry to strengthen training in this discipline, which represents a significant research focus at UTK. Impact on other units: Collaborative program with radiochemistry. Students from other departments can also earn this certificate. Financial impact: None.

REVISE TITLE, ADD PREREQUISITE AND DROP REGISTRATION PERMISSION

NE 572 Nuclear System Design II (3)

(RE) Prerequisite(s): 570.

Formerly: 572 Nuclear System Design.

Registration Permission: Consent of instructor.

Rationale: Course is being restructured into a two-semester sequence. 570 is a new 1-hour course that will precede this design course as a prerequisite to provide the framework of the design problem selected for that year, including industrial presentations, software workshops, etc. Impact on other units: None. Financial impact: None.

REVISE TO DROP (RE) PREREQUISITE

NE 579 Empirical Models for Monitoring and Diagnostics (3)

Formerly: (RE) Prerequisite(s): Statistics 571.

Rationale: Statistics 571 is no longer offered. Impact on other units: None. Financial impact: None.

NE 583 Radiation Transport Methods (3)

Formerly: (RE) Prerequisite(s): 406.

Rationale: 406 is no longer required for graduate students, thus prerequisite is obsolete. Impact on other units: None. Financial impact: None.

NE 653 Theory of Information Processing (3)

Formerly: (RE) Prerequisite(s): Statistics 571.

Rationale: Statistics 571 is no longer offered. Impact on other units: None. Financial impact: None.

REVISE REGISTRATION RESTRICTION

NE 600 Doctoral Research and Dissertation (3-15)

Registration Restriction(s): Minimum student level – graduate, major in nuclear engineering.

Formerly: Registration Restriction(s): Minimum student level – graduate.

Rationale: Students registering for NE 600, should be majoring in nuclear engineering. Impact on other units: none.

II. PROGRAM CHANGES

INTERCOLLEGIATE – UNIVERSITY OF TENNESSEE SPACE INSTITUTE

DROP MAJOR AND DEGREE – AVIATION SYSTEMS, MS

In the 2013-14 *Graduate Catalog*, remove all catalog text for the Aviation Systems major, MS. The Aviation Systems major, MS program at the University of Tennessee Space Institute is being dropped.

Rationale: Per letter from Robert Moore (Executive Director at UTSI) to Masood Parang – UTSI is requesting the MS degree in Aviation Systems be dropped. After several years of decline and a lost military market, the decision was made and approved by the AvSys faculty, Bill Hamel, and Wayne Davis to drop the Aviations Systems major. Currently, there are 5 students in the program. SACS representative, Mary Albrecht, has been notified and appropriate paperwork will be submitted. Impact on other units: None. Financial impact: None.

REVISE INTRODUCTORY PARAGRAPH ON COLLEGE PAGE

In the 2013-14 *Graduate Catalog*, under the heading, Programs at the University of Tennessee Space Institute, remove "Aviation Systems" from paragraph:

REVISE PROGRAM SHOWCASE – DUAL MS-MBA PROGRAM – ENGINEERING SCIENCE

In the 2013-14 *Graduate Catalog*, revise the Dual MS-MBA Program – Engineering Science Showcase (Fall – First Year and Spring – First Year) as follows:

1. Fall – First Year Session 1: remove ACCT 506 and replace with ACCT 505; remove ECON 505 and replace with MGT 506
2. Fall – First Year Session 2: remove ACCT 505 and replace with ACCT 506; remove MGMT 505 and replace with FINC 505; remove SCM 505 and replace with ECON 505
3. Spring – First Year Session 1: remove FINC 505 and replace with MGT 505; remove SCM 506 and replace with SCM 505
4. Spring – First Year Session 2: remove MGT 506 and replace with SCM 506

Dual MS-MBA Program – Engineering Science Requirements

Fall – First Year	Hours
Session 1: <u>7½ Weeks</u>	
ACCT 505 – Financial Accounting I	1.5
MGT 506 – Competitive Strategy	1.5
STAT 505 – Quantitative Methods	1.5
MARK 505 – Demand Management I	1.5
BUAD 515 – Business Skills Development I	1.5
Session 2: <u>7½ Weeks</u>	
ACCT 506 – Managerial Accounting I	1.5
FINC 505 – Financial Management I	1.5
MARK 506 – Demand Management II	1.5
ECON 505 – Economics of Strategy	1.5
BUAD 516 – Business Skills Development II	<u>1.5</u>
Total fall hours	15.0

Spring – First Year	
*Engineering Major course	3.0
Session 1: <u>7½ Weeks</u>	
MGT 505 – Leading Complex Organizations	1.5
SCM 505 – Supply Chain Management I	1.5
BZAN 505 – Operations Management	1.5
BZAN 506 – Prescriptive Modeling	1.5
BUAD 517 – Business Skills Development III	1.5
Session 2: <u>7½ Weeks</u>	
SCM 506 – Supply Chain Management II	1.5
FINC 506 – Financial Management II	1.5
BULW 505 – Foundations of Bus. Law and Ethics	1.5
ECON 506 – Market Forces in the Global Environment	1.5
BUAD 518 – Innovation in Practice	<u>1.5</u>
Total spring hours	18.0

Rationale: Revising showcase to follow the teaching schedule of courses. No changes on program requirements. Impact on other units: None. Financial Impact: None.

REVISE PROGRAM SHOWCASE – DUAL MS-MBA PROGRAM – RELIABILITY AND MAINTAINABILITY ENGINEERING

In the 2013-14 Graduate Catalog, revise the Dual MS-MBA Program – Reliability and Maintainability Engineering Showcase (Fall – First Year and Spring – First Year) as follows:

1. Fall – First Year Session 1: remove ACCT 506 and replace with ACCT 505; remove ECON 505 and replace with MGT 506
2. Fall – First Year Session 2: remove ACCT 505 and replace with ACCT 506; remove MGMT 505 and replace with FINC 505; remove SCM 505 and replace with ECON 505
3. Spring – First Year Session 1: remove FINC 505 and replace with MGT 505; remove SCM 506 and replace with SCM 505
4. Spring – First Year Session 2: remove MGT 506 and replace with SCM 506

Dual MS-MBA program – Reliability and Maintainability Engineering

Requirements	
Fall – First Year	Hours
Session 1: <u>7½ Weeks</u>	
ACCT 505 – Financial Accounting I	1.5
MGT 506 – Competitive Strategy	1.5
STAT 505 – Quantitative Methods	1.5
MARK 505 – Demand Management I	1.5
BUAD 515 – Business Skills Development I	1.5
Session 2: <u>7½ Weeks</u>	
ACCT 506 – Managerial Accounting I	1.5
FINC 505 – Financial Management I	1.5
MARK 506 – Demand Management II	1.5
ECON 505 – Economics of Strategy	1.5
BUAD 516 – Business Skills Development II	<u>1.5</u>
Total fall hours	15.0
Spring – First Year	
*Engineering Major course	3.0
Session 1: <u>7½ Weeks</u>	
MGT 505 – Leading Complex Organizations	1.5
SCM 505 – Supply Chain Management I	1.5
BZAN 505 – Operations Management	1.5
BZAN 506 – Prescriptive Modeling	1.5
BUAD 517 – Business Skills Development III	1.5
Session 2: <u>7½ Weeks</u>	
SCM 506 – Supply Chain Management II	1.5
FINC 506 – Financial Management II	1.5
BULW 505 – Foundations of Bus. Law and Ethics	1.5
ECON 506 – Market Forces in the Global Environment	1.5
BUAD 518 – Innovation in Practice	<u>1.5</u>
Total spring hours	18.0

Rationale: Revising showcase to follow the teaching schedule of courses. No changes on program requirements. Impact on other units: None. Financial Impact: None.

DEPARTMENT OF CHEMICAL AND BIOMOLECULAR ENGINEERING

▲ DROP CONCENTRATIONS – CHEMICAL ENGINEERING MAJOR, MS AND PHD

Advanced Control Systems concentration
Chemical Bioengineering concentration
Chemical Engineering concentration
Polymer Science and Engineering concentration

Rationale: Requirements for completing these concentrations are currently undefined. They provide no known benefit to our students or our program and therefore defining requirements is unnecessary. Impact on other units: None. Financial impact: None.

REVISE REQUIREMENTS – CHEMICAL ENGINEERING MAJOR, MS – THESIS OPTION

In the 2013-2014 *Graduate Catalog*, under requirements heading, revise the first bullet, last sentence to include the course numbers:

These courses must include the four core courses (CBE 506, CBE 531, CBE 547, and CBE 579).

REVISE REQUIREMENTS, CHEMICAL ENGINEERING MAJOR, MS, NON-THESIS OPTION

In the 2013-2014 *Graduate Catalog*, under requirements heading, revise as indicated below:

First bullet, revise the last sentence as follows:

At least 18 of those hours must be in the department and must include the four core courses (CBE 506, CBE 531, CBE 547, and CBE 579).

Rationale: Explicitly listing the four core courses (and stating the core course requirement within the non-thesis MS bullet points, where it was previously absent) should better clarify this requirement for our current and prospective students. Impact on other units: None.

Insert a third bullet as follows:

- Active participation in graduate seminars in the department. Resident students must register for CBE 501 or CBE 503 every semester it is offered.

Rationale: The requirement above is already stated for the PhD and thesis-MS degrees. Seminar attendance has been a de facto requirement for all graduate degrees in the CBE department, including the non-thesis MS, and is stated as such in the CBE Graduate Handbook. This revision will make the Graduate Catalog consistent with the existing requirement. Impact on other units: None

REVISE REQUIREMENTS, CHEMICAL ENGINEERING MAJOR, PHD

In the 2013-2014 *Graduate Catalog*, under requirements, revise as follows:

First bullet point, revise last sentence as follows:

These courses must include the four core courses (CBE 506, CBE 531, CBE 547, and CBE 579), and at least 6 hours of courses at the 600 level from the University of Tennessee, Knoxville.

Revise the second bullet point as follows:

A comprehensive examination consisting of a written part and an oral part. The written part consists of a written thesis research proposal, and the oral defense of the thesis research proposal constitutes the oral portion of the exam.

Insert a new (2nd) bullet point as follows:

A qualifying exam that assesses the student's competence in the core areas of chemical and biomolecular engineering, ability to think analytically and creatively, and potential to perform original research.

Rationale: The previous language and absence of an explicit reference to the qualifying exam has created some confusion between our qualifying exam, which currently includes a written portion linked to our core courses, and the comprehensive exam, which takes the form of the thesis proposal. This revision better defines the two examinations to eliminate confusion among our students and faculty and clarify the expected timing for admission to candidacy. Impact on other units: None. Financial impact: None.

Insert a sixth bullet as follows:

- Completion of a minimum of two semesters of service as a teaching assistant in departmental courses.

Rationale: Teaching Assistant service is a highly valuable educational experience for the students that complete it, who currently represent the majority of those in our program. This requirement will insure uniform practice in this area for all PhD students in our program. Impact on other units: None. Financial impact: None.

REVISE PROGRAM SHOWCASE – DUAL MS-MBA PROGRAM – CHEMICAL ENGINEERING MAJOR

In the 2013-14 *Graduate Catalog*, revise the Dual MS-MBA Program Showcase (Fall – First Year and Spring – First Year) as follows:

- Fall – First Year Session 1: remove ACCT 506 and replace with ACCT 505; remove ECON 505 and replace with MGT 506
- Fall – First Year Session 2: remove ACCT 505 and replace with ACCT 506; remove MGMT 505 and replace with FINC 505; remove SCM 505 and replace with ECON 505
- Spring – First Year Session 1: remove FINC 505 and replace with MGT 505; remove SCM 506 and replace with SCM 505
- Spring – First Year Session 2: remove MGT 506 and replace with SCM 506

Dual MS-MBA program – Chemical Engineering Major

Fall – First Year	Hours
Session 1: <u>7½ Weeks</u>	
ACCT 505 – Financial Accounting I	1.5
MGT 506 – Competitive Strategy	1.5
STAT 505 – Quantitative Methods	1.5
MARK 505 – Demand Management I	1.5
BUAD 515 – Business Skills Development I	1.5
Session 2: <u>7½ Weeks</u>	
ACCT 506 – Managerial Accounting I	1.5
FINC 505 – Financial Management I	1.5
MARK 506 – Demand Management II	1.5
ECON 505 – Economics of Strategy	1.5
BUAD 516 – Business Skills Development II	1.5
Total fall hours	15.0
Spring – First Year	
*Engineering Major course	3.0
Session 1: <u>7½ Weeks</u>	
MGT 505 – Leading Complex Organizations	1.5
SCM 505 – Supply Chain Management I	1.5
BZAN 505 – Operations Management	1.5
BZAN 506 – Prescriptive Modeling	1.5
BUAD 517 – Business Skills Development III	1.5
Session 2: <u>7½ Weeks</u>	
SCM 506 – Supply Chain Management II	1.5
FINC 506 – Financial Management II	1.5
BULW 505 – Foundations of Bus. Law and Ethics	1.5
ECON 506 – Market Forces in the Global Environment	1.5
BUAD 518 – Innovation in Practice	1.5
Total spring hours	18.0

Rationale: Revising showcase to follow the teaching schedule of courses. No changes on program requirements. Impact on other units: None. Financial Impact: None.

DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

REVISE PROGRAM SHOWCASE – DUAL MS-MBA PROGRAM – CIVIL ENGINEERING MAJOR

In the 2013-14 *Graduate Catalog*, revise the Dual MS-MBA Program Showcase (Fall – First Year and Spring – First Year) as follows:

1. Fall – First Year Session 1: remove ACCT 506 and replace with ACCT 505; remove ECON 505 and replace with MGT 506
2. Fall – First Year Session 2: remove ACCT 505 and replace with ACCT 506; remove MGMT 505 and replace with FINC 505; remove SCM 505 and replace with ECON 505
3. Spring – First Year Session 1: remove FINC 505 and replace with MGT 505; remove SCM 506 and replace with SCM 505
4. Spring – First Year Session 2: remove MGT 506 and replace with SCM 506

Dual MS-MBA program – Civil Engineering Major

Fall – First Year	Hours
Session 1: <u>7½ Weeks</u>	
ACCT 505 – Financial Accounting I	1.5
MGT 506 – Competitive Strategy	1.5
STAT 505 – Quantitative Methods	1.5
MARK 505 – Demand Management I	1.5
BUAD 515 – Business Skills Development I	1.5
Session 2: <u>7½ Weeks</u>	
ACCT 506 – Managerial Accounting I	1.5

FINC 505 – Financial Management I	1.5
MARK 506 – Demand Management II	1.5
ECON 505 – Economics of Strategy	1.5
BUAD 516 – Business Skills Development II	1.5
Total fall hours	15.0
Spring – First Year	
*Engineering Major course	3.0
Session 1: <u>7½ Weeks</u>	
MGT 505 – Leading Complex Organizations	1.5
SCM 505 – Supply Chain Management I	1.5
BZAN 505 – Operations Management	1.5
BZAN 506 – Prescriptive Modeling	1.5
BUAD 517 – Business Skills Development III	1.5
Session 2: <u>7½ Weeks</u>	
SCM 506 – Supply Chain Management II	1.5
FINC 506 – Financial Management II	1.5
BULW 505 – Foundations of Bus. Law and Ethics	1.5
ECON 506 – Market Forces in the Global Environment	1.5
BUAD 518 – Innovation in Practice	1.5
Total spring hours	18.0

Rationale: Revising showcase to follow the teaching schedule of courses. No changes on program requirements. Impact on other units: None. Financial Impact: None.

REVISE PROGRAM SHOWCASE – DUAL MS-MBA PROGRAM – ENVIRONMENTAL ENGINEERING MAJOR

In the 2013-14 Graduate Catalog, revise the Dual MS-MBA Program Showcase (Fall – First Year and Spring – First Year) as follows:

1. Fall – First Year Session 1: remove ACCT 506 and replace with ACCT 505; remove ECON 505 and replace with MGT 506
2. Fall – First Year Session 2: remove ACCT 505 and replace with ACCT 506; remove MGMT 505 and replace with FINC 505; remove SCM 505 and replace with ECON 505
3. Spring – First Year Session 1: remove FINC 505 and replace with MGT 505; remove SCM 506 and replace with SCM 505
4. Spring – First Year Session 2: remove MGT 506 and replace with SCM 506

Dual MS-MBA program – Environmental Engineering Major	
Fall – First Year	Hours
Session 1: <u>7½ Weeks</u>	
ACCT 505 – Financial Accounting I	1.5
MGT 506 – Competitive Strategy	1.5
STAT 505 – Quantitative Methods	1.5
MARK 505 – Demand Management I	1.5
BUAD 515 – Business Skills Development I	1.5
Session 2: <u>7½ Weeks</u>	
ACCT 506 – Managerial Accounting I	1.5
FINC 505 – Financial Management I	1.5
MARK 506 – Demand Management II	1.5
ECON 505 – Economics of Strategy	1.5
BUAD 516 – Business Skills Development II	1.5
Total fall hours	15.0
Spring – First Year	
*Engineering Major course	3.0
Session 1: <u>7½ Weeks</u>	
MGT 505 – Leading Complex Organizations	1.5
SCM 505 – Supply Chain Management I	1.5
BZAN 505 – Operations Management	1.5
BZAN 506 – Prescriptive Modeling	1.5
BUAD 517 – Business Skills Development III	1.5
Session 2: <u>7½ Weeks</u>	
SCM 506 – Supply Chain Management II	1.5
FINC 506 – Financial Management II	1.5
BULW 505 – Foundations of Bus. Law and Ethics	1.5
ECON 506 – Market Forces in the Global Environment	1.5
BUAD 518 – Innovation in Practice	1.5
Total spring hours	18.0

Rationale: Revising showcase to follow the teaching schedule of courses. No changes on program requirements. Impact on other units: None. Financial Impact: None.

DEPARTMENTAL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE

● ADD GRADUATE CERTIFICATE – FIRE PROTECTION ENGINEERING

In the 2013-14 *Graduate Catalog*, add heading and text for new certificate.

Fire Protection Engineering Graduate Certificate

The field of fire protection engineering applies principles of science and engineering to protect property, people and their environments from the harmful and destructive effects of fire and smoke. This is an interdisciplinary field impacting interest in various majors in the College of Engineering. The 12-credit hour certificate is earned by completing the core fundamental 3-hour course followed by three elective courses. The courses are cross-listed in participating departments and consist of:

- 1) Required core course: ECE 563 Introduction to Fire Protection Engineering (3 hours)
- 2) Technical concentration of the following three courses (9 hours):
 - ECE 564 Enclosure Fire Dynamics (3 hours)
 - ECE 567 Forensic Engineering (3 hours)
 - ECE 575 High Performance Computer Modeling and Visualization (3 hours)

The sole academic prerequisite for the certificate program is a bachelor's degree in engineering. Applicants must meet the minimum admission criteria established by the Graduate Council.

Rationale: a) Current interest and research in this area at EECS Department, b) sponsorship of one Professor of Practice in EECS Department by Underwriters Laboratory (UL), and c) increasing interest by industry (architects, developers, fire investigators, consulting firms) and government agencies to hire engineers with expertise in fire protection are three main reasons for this graduate certificate. Impact on other units: None. Financial impact: None.

REVISE REQUIREMENTS – ELECTRICAL ENGINEERING MAJOR, PHD

In the 2013-14 *Graduate Catalog*, delete paragraph (2, a and b) and replace with a new #2 paragraph as follows:

2. For students holding an MS degree in Electrical Engineering, Computer Engineering or Computer Science from the University of Tennessee will be required to take a minimum of 15 hours of graduate course credit, excluding research and dissertation credit or seminar courses. Other students will be required to take a minimum of 24 hours of graduate course credit. These course credit hours must include a minimum of 9 hours in the department of 600-level course work. At least 3 hours of this work must be in an area other than the student's major area.

Rationale: The requirement for 6 hours of mathematics was seen as too inflexible given the wide variety of topics studied by graduate students in the dept. The adviser and dissertation committee can provide adequate guidance. Impact on other units: None.

REVISE REQUIREMENTS – COMPUTER ENGINEERING MAJOR, PHD

In the 2013-14 *Graduate Catalog*, delete paragraph (2, a and b) and replace with a new #2 a. paragraph as follows:

2. For students holding an MS degree in Electrical Engineering, Computer Engineering or Computer Science from the University of Tennessee will be required to take a minimum of 15 hours of graduate course credit, excluding research and dissertation credit or seminar courses. Other students will be required to take a minimum of 24 hours of graduate course credit. These course credit hours must include the following:
 - a. A minimum of 9 hours in the department of 600-level course work. At least 3 hours of this work must be in an area other than the student's major area.

Rationale: The requirement for 6 hours of mathematics was seen as too inflexible given the wide variety of topics studied by graduate students in the dept. The adviser and dissertation committee can provide adequate guidance. Impact on other units: None.

REVISE REQUIREMENTS – COMPUTER SCIENCE MAJOR, PHD

In the 2013-14 *Graduate Catalog*, under the requirements heading, delete the first paragraph and replace the third paragraph as follows:

All other PhD students will be required to take a minimum of 24 graduate hours. Graduate course work excludes research and dissertation hours as well as seminar courses. Courses COSC 530, COSC 560 and COSC 580 or COSC 581, passed with a grade of at least a B, are required for the degree. At least 6 hours of 600-level graded courses must be taken in computer science at the University of Tennessee, Knoxville. The student's advisor and committee will establish the specific course requirements.

Rationale: The required core courses (COSC 530, 560, and 580 or 581) provide an adequate verification of a student's knowledge of fundamental computer science concepts. A grade of a B or better has been added to the core course requirements to ensure that students who continue in the Ph.D. program have demonstrated a solid grasp of the critical concepts. Impact on other units: none.

REVISE PROGRAM SHOWCASE – DUAL MS-MBA PROGRAM – COMPUTER ENGINEERING

In the 2013-14 Graduate Catalog, revise the Dual MS-MBA Program Showcase (Fall – First Year and Spring – First Year) as follows:

1. Fall – First Year Session 1: remove ACCT 506 and replace with ACCT 505; remove ECON 505 and replace with MGT 506
2. Fall – First Year Session 2: remove ACCT 505 and replace with ACCT 506; remove MGMT 505 and replace with FINC 505; remove SCM 505 and replace with ECON 505
3. Spring – First Year Session 1: remove FINC 505 and replace with MGT 505; remove SCM 506 and replace with SCM 505
4. Spring – First Year Session 2: remove MGT 506 and replace with SCM 506

Dual MS-MBA program – Computer Engineering

Fall – First Year

	Hours
Session 1: <u>7½ Weeks</u>	
ACCT 505 – Financial Accounting I	1.5
MGT 506 – Competitive Strategy	1.5
STAT 505 – Quantitative Methods	1.5
MARK 505 – Demand Management I	1.5
BUAD 515 – Business Skills Development I	1.5
Session 2: <u>7½ Weeks</u>	
ACCT 506 – Managerial Accounting I	1.5
FINC 505 – Financial Management I	1.5
MARK 506 – Demand Management II	1.5
ECON 505 – Economics of Strategy	1.5
BUAD 516 – Business Skills Development II	1.5
Total fall hours	15.0

Spring – First Year

*Engineering Major course	3.0
Session 1: <u>7½ Weeks</u>	
MGT 505 – Leading Complex Organizations	1.5
SCM 505 – Supply Chain Management I	1.5
BZAN 505 – Operations Management	1.5
BZAN 506 – Prescriptive Modeling	1.5
BUAD 517 – Business Skills Development III	1.5
Session 2: <u>7½ Weeks</u>	
SCM 506 – Supply Chain Management II	1.5
FINC 506 – Financial Management II	1.5
BULW 505 – Foundations of Bus. Law and Ethics	1.5
ECON 506 – Market Forces in the Global Environment	1.5
BUAD 518 – Innovation in Practice	1.5
Total spring hours	18.0

Rationale: Revising showcase to follow the teaching schedule of courses. No changes on program requirements. Impact on other units: None. Financial Impact: None.

REVISE PROGRAM SHOWCASE – DUAL MS-MBA PROGRAM – COMPUTER SCIENCE

In the 2013-14 Graduate Catalog, revise the Dual MS-MBA Program Showcase (Fall – First Year and Spring – First Year) as follows:

1. Fall – First Year Session 1: remove ACCT 506 and replace with ACCT 505; remove ECON 505 and replace with MGT 506
2. Fall – First Year Session 2: remove ACCT 505 and replace with ACCT 506; remove MGMT 505 and replace with FINC 505; remove SCM 505 and replace with ECON 505
3. Spring – First Year Session 1: remove FINC 505 and replace with MGT 505; remove SCM 506 and replace with SCM 505
4. Spring – First Year Session 2: remove MGT 506 and replace with SCM 506

Dual MS-MBA program – Computer Science

Fall – First Year

	Hours
Session 1: <u>7½ Weeks</u>	
ACCT 505 – Financial Accounting I	1.5
MGT 506 – Competitive Strategy	1.5
STAT 505 – Quantitative Methods	1.5
MARK 505 – Demand Management I	1.5
BUAD 515 – Business Skills Development I	1.5
Session 2: <u>7½ Weeks</u>	
ACCT 506 – Managerial Accounting I	1.5
FINC 505 – Financial Management I	1.5

MARK 506 – Demand Management II	1.5
ECON 505 – Economics of Strategy	1.5
BUAD 516 – Business Skills Development II	<u>1.5</u>
Total fall hours	15.0
Spring – First Year	
*Engineering Major course	3.0
Session 1: <u>7½ Weeks</u>	
MGT 505 – Leading Complex Organizations	1.5
SCM 505 – Supply Chain Management I	1.5
BZAN 505 – Operations Management	1.5
BZAN 506 – Prescriptive Modeling	1.5
BUAD 517 – Business Skills Development III	1.5
Session 2: <u>7½ Weeks</u>	
SCM 506 – Supply Chain Management II	1.5
FINC 506 – Financial Management II	1.5
BULW 505 – Foundations of Bus. Law and Ethics	1.5
ECON 506 – Market Forces in the Global Environment	1.5
BUAD 518 – Innovation in Practice	<u>1.5</u>
Total spring hours	18.0

Rationale: Revising showcase to follow the teaching schedule of courses. No changes on program requirements. Impact on other units: None. Financial Impact: None.

REVISE PROGRAM SHOWCASE – DUAL MS-MBA PROGRAM – ELECTRICAL ENGINEERING

In the 2013-14 Graduate Catalog, revise the Dual MS-MBA Program Showcase (Fall – First Year and Spring – First Year) as follows:

1. Fall – First Year Session 1: remove ACCT 506 and replace with ACCT 505; remove ECON 505 and replace with MGT 506
2. Fall – First Year Session 2: remove ACCT 505 and replace with ACCT 506; remove MGMT 505 and replace with FINC 505; remove SCM 505 and replace with ECON 505
3. Spring – First Year Session 1: remove FINC 505 and replace with MGT 505; remove SCM 506 and replace with SCM 505
4. Spring – First Year Session 2: remove MGT 506 and replace with SCM 506

Dual MS-MBA program – Electrical Engineering	
Fall – First Year	
Session 1: <u>7½ Weeks</u>	Hours
ACCT 505 – Financial Accounting I	1.5
MGT 506 – Competitive Strategy	1.5
STAT 505 – Quantitative Methods	1.5
MARK 505 – Demand Management I	1.5
BUAD 515 – Business Skills Development I	1.5
Session 2: <u>7½ Weeks</u>	
ACCT 506 – Managerial Accounting I	1.5
FINC 505 – Financial Management I	1.5
MARK 506 – Demand Management II	1.5
ECON 505 – Economics of Strategy	1.5
BUAD 516 – Business Skills Development II	<u>1.5</u>
Total fall hours	15.0
Spring – First Year	
*Engineering Major course	3.0
Session 1: <u>7½ Weeks</u>	
MGT 505 – Leading Complex Organizations	1.5
SCM 505 – Supply Chain Management I	1.5
BZAN 505 – Operations Management	1.5
BZAN 506 – Prescriptive Modeling	1.5
BUAD 517 – Business Skills Development III	1.5
Session 2: <u>7½ Weeks</u>	
SCM 506 – Supply Chain Management II	1.5
FINC 506 – Financial Management II	1.5
BULW 505 – Foundations of Bus. Law and Ethics	1.5
ECON 506 – Market Forces in the Global Environment	1.5
BUAD 518 – Innovation in Practice	<u>1.5</u>
Total spring hours	18.0

Rationale: Revising showcase to follow the teaching schedule of courses. No changes on program requirements. Impact on other units: None. Financial Impact: None.

DEPARTMENT OF INDUSTRIAL AND SYSTEMS ENGINEERING

REVISE PROGRAM SHOWCASE – DUAL MS-MBA PROGRAM – INDUSTRIAL ENGINEERING

In the 2013-14 Graduate Catalog, revise the Dual MS-MBA Program Showcase as follows:

1. Fall – First Year Session 1: remove ACCT 506 and replace with ACCT 505; remove ECON 505 and replace with MGT 506
2. Fall – First Year Session 2: remove ACCT 505 and replace with ACCT 506; remove MGMT 505 and replace with FINC 505; remove SCM 505 and replace with ECON 505
3. Spring – First Year Session 1: remove FINC 505 and replace with MGT 505; remove SCM 506 and replace with SCM 505
4. Spring – First Year Session 2: remove MGT 506 and replace with SCM 506
5. Fall – Second Year: remove IE core courses statement and replace with *IE 516 and IE elective (3 hrs each)
6. Spring – Second Year: remove IE or related courses statement and replace with IE 518, IE 522, and IE elective (9 hrs total)

Dual MS-MBA program – Industrial Engineering

Fall – First Year	Hours
Session 1: <u>7½ Weeks</u>	
ACCT 505 – Financial Accounting I	1.5
MGT 506 – Competitive Strategy	1.5
STAT 505 – Quantitative Methods	1.5
MARK 505 – Demand Management I	1.5
BUAD 515 – Business Skills Development I	1.5
Session 2: <u>7½ Weeks</u>	
ACCT 506 – Managerial Accounting I	1.5
FINC 505 – Financial Management I	1.5
MARK 506 – Demand Management II	1.5
ECON 505 – Economics of Strategy	1.5
BUAD 516 – Business Skills Development II	1.5
Total fall hours	15.0
Spring – First Year	
*Engineering Major course	3.0
Session 1: <u>7½ Weeks</u>	
MGT 505 – Leading Complex Organizations	1.5
SCM 505 – Supply Chain Management I	1.5
BZAN 505 – Operations Management	1.5
BZAN 506 – Prescriptive Modeling	1.5
BUAD 517 – Business Skills Development III	1.5
Session 2: <u>7½ Weeks</u>	
SCM 506 – Supply Chain Management II	1.5
FINC 506 – Financial Management II	1.5
BULW 505 – Foundations of Bus. Law and Ethics	1.5
ECON 506 – Market Forces in the Global Environment	1.5
BUAD 518 – Innovation in Practice	1.5
Total spring hours	18.0
Summer – First Year	
Industrial Engineering Major course / Statistics course	6.0
Total summer hours	6.0
Fall – Second Year	
*IE 516 Statistic Method in Industrial Engineering	3.0
Industrial Engineering elective	3.0
MBA Electives (Entrepreneurship and Innovation preferred)	6.0
Total minimum fall hours	12.0
Spring – Second Year	
*IE 518 Advanced Engineering Economic Analysis	3.0
*IE 522 Optimization Methods in Industrial Engineering	3.0
Industrial Engineering elective	3.0
Total spring hours	9.0
Total hours required for dual program	60.0

*Industrial Engineering Core Courses consist of: IE 516, IE 518, and IE 522.

Rationale: Revising showcase to follow the teaching schedule of courses. No changes on program requirements. Impact on other units: None. Financial Impact: None.

REVISE REQUIREMENTS – RELIABILITY AND MAINTAINABILITY ENGINEERING MAJOR, MS

In the 2013-14 *Graduate Catalog*, delete STAT 566 from the list of Statistics Electives.

This revision is also needed under Reliability and Maintainability Engineering, MS – Chemical Engineering Concentration, Reliability and Maintainability Engineering, MS – Electrical Engineering Concentration, Reliability and Maintainability Engineering, MS – Industrial Engineering Concentration, Reliability and Maintainability Engineering, MS – Materials Science and Engineering Concentration, Reliability and Maintainability Engineering, MS – Mechanical, Aerospace, and Biomedical Engineering Concentration, and Reliability and Maintainability Engineering, MS – Nuclear Engineering Concentration.

Rationale: The Statistics, Operations, and Management Science Department are dropping STAT 566. The drop will not influence RME students to select a statistics elective. There are still five statistics electives. Impact on other units: None. Financial Impact: None.

DEPARTMENT OF MATERIALS SCIENCE AND ENGINEERING

REVISE PROGRAM SHOWCASE – DUAL MS-MBA PROGRAM – MATERIALS SCIENCE AND ENGINEERING

In the 2013-14 Graduate Catalog, revise the Dual MS-MBA Program Showcase (Fall – First Year and Spring – First Year) as follows:

1. Fall – First Year Session 1: remove ACCT 506 and replace with ACCT 505; remove ECON 505 and replace with MGT 506
2. Fall – First Year Session 2: remove ACCT 505 and replace with ACCT 506; remove MGMT 505 and replace with FINC 505; remove SCM 505 and replace with ECON 505
3. Spring – First Year Session 1: remove FINC 505 and replace with MGT 505; remove SCM 506 and replace with SCM 505
4. Spring – First Year Session 2: remove MGT 506 and replace with SCM 506

Dual MS-MBA program – Materials Science and Engineering

Fall – First Year

Session 1:	<u>7½ Weeks</u>	Hours
ACCT 505 – Financial Accounting I		1.5
MGT 506 – Competitive Strategy		1.5
STAT 505 – Quantitative Methods		1.5
MARK 505 – Demand Management I		1.5
BUAD 515 – Business Skills Development I		1.5
Session 2:	<u>7½ Weeks</u>	
ACCT 506 – Managerial Accounting I		1.5
FINC 505 – Financial Management I		1.5
MARK 506 – Demand Management II		1.5
ECON 505 – Economics of Strategy		1.5
BUAD 516 – Business Skills Development II		<u>1.5</u>
Total fall hours		15.0

Spring – First Year

*Engineering Major course		3.0
Session 1:	<u>7½ Weeks</u>	
MGT 505 – Leading Complex Organizations		1.5
SCM 505 – Supply Chain Management I		1.5
BZAN 505 – Operations Management		1.5
BZAN 506 – Prescriptive Modeling		1.5
BUAD 517 – Business Skills Development III		1.5
Session 2:	<u>7½ Weeks</u>	
SCM 506 – Supply Chain Management II		1.5
FINC 506 – Financial Management II		1.5
BULW 505 – Foundations of Bus. Law and Ethics		1.5
ECON 506 – Market Forces in the Global Environment		1.5
BUAD 518 – Innovation in Practice		<u>1.5</u>
Total spring hours		18.0

Rationale: Revising showcase to follow the teaching schedule of courses. No changes on program requirements. Impact on other units: None. Financial Impact: None.

DEPARTMENT OF MECHANICAL, AEROSPACE, AND BIOMEDICAL ENGINEERING

● DROP CERTIFICATE – COMPUTATIONAL FLUID DYNAMICS

Rationale: This certificate is being dropped because of low or no enrollment in the last five years. Impact on other units: None. Financial Impact: None.

REVISE INTRODUCTORY TEXT

In the 2013-14 *Graduate Catalog*, delete the current four paragraphs and replace with the following four paragraphs:

Graduate programs leading to the Master of Science and Doctor of Philosophy are available with majors in mechanical engineering, aerospace engineering, and biomedical engineering.

In mechanical engineering or aerospace engineering, entrance into the Master of Science program is available to qualified graduates of recognized undergraduate curricula in mechanical or aerospace engineering and to qualified graduates of other curricula who satisfy the necessary prerequisites. Admission into the doctoral program will be granted to those applicants who have demonstrated superior achievement in their engineering backgrounds. The general GRE is required of all applicants for admission. Changing from one of these programs to another requires departmental approval. Each applicant is advised as to any prerequisite courses before entering a program. Each student must satisfactorily complete a program of study that has been approved by his/her advisory committee and complies with the requirements of the Graduate Council.

Entrance into the graduate program in biomedical engineering is available to graduates of recognized curricula in engineering, mathematics, or one of the physical sciences who satisfy the necessary prerequisites. The names and addresses of three references must be included with the program application. The general GRE is required of all applicants for admission.

Each student must satisfactorily complete a program of study that has been approved by his/her advisory committee and complies with the requirements of the Graduate Council.

Rationale: Reflects change in the Biomedical Engineering graduate program's being controlled by the Institute of Biomedical Engineering. Impact on other units: None. Financial Impact: None.

REVISE REQUIREMENTS – AEROSPACE ENGINEERING MAJOR, MS

In the 2013-14 *Graduate Catalog*, delete current text and requirements and replace with the following:

Requirements

In aerospace engineering, two MS options are offered. Option I requires a thesis. Option II does not require a thesis and provides graduate students, including co-op and other off-campus students, the opportunity to focus their programs in special areas through extended course work.

Option I (Thesis)

	Hours Credit
¹ Course work total	24
Thesis	6
Total	30

¹ Courses in program (500-level or above) – 12 hours minimum. Mathematics (400-level or above) – 6 hours minimum.

Option II (Non-Thesis)

	Hours Credit
¹ Course work total	30
Total	30

¹ Courses in program (500-level or above) – 18 hours minimum. Mathematics (400-level or above) – 6 hours minimum.

For all program options, other 500-level engineering courses that are approved by the student's master's committee and the graduate programs committee may be substituted for the mathematics courses. All program options require participation in the departmental graduate seminars program and passing a final examination on all work submitted for the degree. The final examinations in Option II (non-thesis) will cover all course work. Students in this option also have to submit a written report and oral presentation of a project. The thesis option, Option I, requires submission and defense of a written thesis that demonstrates the ability to conduct and report an independent investigation.

Rationale: Changes in the MS requirement between ME, AE and BME require revisions in the graduate catalog. The department also added the requirement of a written report and oral presentation of a project for the non-thesis described in the last paragraph. Impact on other units: None. Financial Impact: None.

REVISE REQUIREMENTS – AEROSPACE ENGINEERING MAJOR, PHD

In the 2013-14 *Graduate Catalog*, replace the Aerospace Engineering Major, PhD, Requirements text with the following:

Requirements

All students must complete a minimum of 72 semester hours beyond the bachelor's degree. These shall include a minimum of 24 hours in Doctoral Research and Dissertation. Specific requirements for required course work are:

- Students entering with an MS degree will be required to take a minimum of 12 hours of graduate course work, exclusive of ME 601, dissertation credit or seminar courses.
- Students entering with a BS degree will be required to take a minimum of 42 hours of graduate course work, exclusive of ME 601, dissertation credit or seminar courses.

This course work, including that taken for an MS degree, must include:

- A minimum of 9 semester hours of graduate work in mathematics courses numbered 400 or above with a minimum of 3 hours numbered 500 or above. The department may approve other courses with sufficient mathematical content to meet this requirement.
- A minimum of 21 hours of graduate course work in the major in courses numbered 500 and above. The department may approve other departmental courses to meet this requirement.
- A minimum of 6 semester hours of graduate course work is required at the 600 level. These are exclusive of ME 601, thesis or dissertation credit. The total number of approved course work and dissertation hours must meet the university's requirement of a minimum of 72 hours.

Additional requirements for all students include the following.

- Registration and participation in the graduate seminar in the major program.
- Meet all departmental examination requirements, which include passing a written and oral comprehensive examination.
- Presentation of a dissertation proposal to the student's advisory committee and approval of that proposal by that committee.
- Successful defense of the dissertation.

Rationale: The department has reduced the minimum number of hours of graduate course work required for the degree. In, addition, 6 hours of course work at the 600 level is now required along with a change in math hours. Impact on other units: None. Financial Impact: None.

REVISE PROGRAM SHOWCASE – DUAL MS-MBA PROGRAM – AEROSPACE ENGINEERING

In the 2013-14 *Graduate Catalog*, revise the Dual MS-MBA Program Showcase (Fall – First Year and Spring – First Year) as follows:

1. Fall – First Year Session 1: remove ACCT 506 and replace with ACCT 505; remove ECON 505 and replace with MGT 506
2. Fall – First Year Session 2: remove ACCT 505 and replace with ACCT 506; remove MGMT 505 and replace with FINC 505; remove SCM 505 and replace with ECON 505
3. Spring – First Year Session 1: remove FINC 505 and replace with MGT 505; remove SCM 506 and replace with SCM 505
4. Spring – First Year Session 2: remove MGT 506 and replace with SCM 506

Dual MS-MBA program – Aerospace Engineering

Fall – First Year	Hours
Session 1: <u>7½ Weeks</u>	
ACCT 505 – Financial Accounting I	1.5
MGT 506 – Competitive Strategy	1.5
STAT 505 – Quantitative Methods	1.5
MARK 505 – Demand Management I	1.5
BUAD 515 – Business Skills Development I	1.5
Session 2: <u>7½ Weeks</u>	
ACCT 506 – Managerial Accounting I	1.5
FINC 505 – Financial Management I	1.5
MARK 506 – Demand Management II	1.5
ECON 505 – Economics of Strategy	1.5
BUAD 516 – Business Skills Development II	1.5
Total fall hours	15.0
Spring – First Year	
*Engineering Major course	3.0
Session 1: <u>7½ Weeks</u>	
MGT 505 – Leading Complex Organizations	1.5

SCM 505 – Supply Chain Management I	1.5
BZAN 505 – Operations Management	1.5
BZAN 506 – Prescriptive Modeling	1.5
BUAD 517 – Business Skills Development III	1.5
Session 2: <u>7½ Weeks</u>	
SCM 506 – Supply Chain Management II	1.5
FINC 506 – Financial Management II	1.5
BULW 505 – Foundations of Bus. Law and Ethics	1.5
ECON 506 – Market Forces in the Global Environment	1.5
BUAD 518 – Innovation in Practice	1.5
Total spring hours	18.0

Rationale: Revising showcase to follow the teaching schedule of courses. No changes on program requirements. Impact on other units: None. Financial Impact: None.

REVISE REQUIREMENTS – BIOMEDICAL ENGINEERING MAJOR, MS

In the 2013-14 *Graduate Catalog*, delete current requirements and replace with the following:

Requirements

The Department of Mechanical, Aerospace, and Biomedical Engineering offers both thesis and non-thesis MS options in biomedical engineering. The non-thesis option provides graduate students, including co-op and other off-campus students, the opportunity to focus their programs in special areas through extended course work.

Common requirements for both options include:

- Completion of BME core courses 503, 510, 511, and 521
- Participation in the BME graduate seminars and registration for 595 every semester it is offered
- Completion of a Knowledge Breadth requirement (3 credit hours) for the BME Specialization Track chosen by the student, as specified in the BME Graduate Student Handbook
- Completion of a Knowledge Depth requirement (3 – 6 credit hours) for the BME Specialization Track chosen by the student, as specified in the BME Graduate Student Handbook.

Thesis Option

Requirements specific to the thesis-option MS are:

- At least 21 credit hours of course work (exclusive of thesis credits) beyond the baccalaureate in biomedical engineering and related areas. A minimum of 12 credit hours of these courses must be in the BME program.
- At least 9 credit hours of thesis research (500)
- Successful completion of a final examination consisting of a written thesis report and oral defense of the thesis

Non-Thesis Option

Requirements specific to the non-thesis MS are:

- At least 30 credit hours of course work beyond the baccalaureate in biomedical engineering and related areas. A minimum of 18 credit hours of these courses must be in the BME program.
- Successful completion of a final examination consisting of a written report and oral defense on a topic to be chosen in consultation with the student's MS committee

REVISE REQUIREMENTS – BIOMEDICAL ENGINEERING MAJOR, PHD

In the 2013-14 *Graduate Catalog*, delete current requirements and replace with the following:

Requirements

All students must complete a minimum of 72 credit hours beyond the bachelor's degree, exclusive of any credits for a master's thesis. These must include a minimum of 24 credit hours in Doctoral Research and Dissertation and a minimum of 36 credit hours of course work.

For the PhD in biomedical engineering, the courses must include:

- The biomedical engineering core curriculum comprising 503, 511, 521, 510, and 601
- Completion of a Knowledge Breadth requirement (3 credit hours) for the BME Specialization Track chosen by the student, as specified in the BME Graduate Student Handbook
- Completion of a Knowledge Depth requirement (3 – 6 credit hours) for the BME Specialization Track chosen by the student, as specified in the BME Graduate Student Handbook.
- A minimum of 18 credit hours within the major
- A minimum of 6 credit hours of course work at the 600-level

Additional requirements for the PhD in biomedical engineering are:

- Registration and participation in the BME graduate seminar (595) every semester it is offered.
- Successful completion of all required examinations, which include a qualifying exam and written and oral comprehensive exams.
- Presentation of a dissertation proposal to the student's advisory committee and approval of that proposal by that committee.
- Successful defense of the dissertation.

Rationale: The BME curriculum is being substantially revised to include three interdisciplinary specialization tracks designed to draw on the education and research strengths of groups of faculty at UT College of Engineering, College of Veterinary Medicine, and Graduate School of Medicine. The new curriculum provides a common core of four courses, a breadth requirement of course work outside the specialization track, and a depth requirement of additional specified course work within the specialization track. The new MS and PhD degree requirements reflect this structure and allow customization of student course work plans through additional electives; in addition, the new PhD requirements reflect our increased emphasis on the dissertation as the centerpiece of doctoral education. Impact on other units: None. Financial impact: None.

REVISE PROGRAM SHOWCASE – DUAL MS-MBA PROGRAM – BIOMEDICAL ENGINEERING

In the 2013-14 Graduate Catalog, revise the Dual MS-MBA Program Showcase (Fall – First Year and Spring – First Year) as follows:

1. Fall – First Year Session 1: remove ACCT 506 and replace with ACCT 505; remove ECON 505 and replace with MGT 506
2. Fall – First Year Session 2: remove ACCT 505 and replace with ACCT 506; remove MGMT 505 and replace with FINC 505; remove SCM 505 and replace with ECON 505
3. Spring – First Year Session 1: remove FINC 505 and replace with MGT 505; remove SCM 506 and replace with SCM 505
4. Spring – First Year Session 2: remove MGT 506 and replace with SCM 506

Dual MS-MBA program – Biomedical Engineering

Fall – First Year	Hours
Session 1: <u>7½ Weeks</u>	
ACCT 505 – Financial Accounting I	1.5
MGT 506 – Competitive Strategy	1.5
STAT 505 – Quantitative Methods	1.5
MARK 505 – Demand Management I	1.5
BUAD 515 – Business Skills Development I	1.5
Session 2: <u>7½ Weeks</u>	
ACCT 506 – Managerial Accounting I	1.5
FINC 505 – Financial Management I	1.5
MARK 506 – Demand Management II	1.5
ECON 505 – Economics of Strategy	1.5
BUAD 516 – Business Skills Development II	<u>1.5</u>
Total fall hours	15.0
Spring – First Year	
*Engineering Major course	3.0
Session 1: <u>7½ Weeks</u>	
MGT 505 – Leading Complex Organizations	1.5
SCM 505 – Supply Chain Management I	1.5
BZAN 505 – Operations Management	1.5
BZAN 506 – Prescriptive Modeling	1.5
BUAD 517 – Business Skills Development III	1.5
Session 2: <u>7½ Weeks</u>	
SCM 506 – Supply Chain Management II	1.5
FINC 506 – Financial Management II	1.5
BULW 505 – Foundations of Bus. Law and Ethics	1.5
ECON 506 – Market Forces in the Global Environment	1.5
BUAD 518 – Innovation in Practice	<u>1.5</u>
Total spring hours	18.0

Rationale: Revising showcase to follow the teaching schedule of courses. No changes on program requirements. Impact on other units: None. Financial Impact: None.

REVISE REQUIREMENTS – MECHANICAL ENGINEERING MAJOR, MS

In the 2013-14 *Graduate Catalog*, delete current requirements and replace with the following:

Requirements

In mechanical engineering, two MS options are offered. Option I requires a thesis. Option II does not require a thesis and provides graduate students, including co-op and other off-campus students, the opportunity to focus their programs in special areas through extended course work.

Option I (Thesis)

	Hours Credit
¹ Course work total	24
Thesis	6
Total	30

¹ Courses in program (500-level or above) – 12 hours minimum. Mathematics (400-level or above) – 6 hours minimum.

Option II (Non-Thesis)

	Hours Credit
¹ Course work total	30
Total	30

¹ Courses in program (500-level or above) – 18 hours minimum. Mathematics (400-level or above) – 6 hours minimum.

For all program options, other 500-level engineering courses that are approved by the student's master's committee and the graduate programs committee may be substituted for the mathematics courses. All program options require participation in the departmental graduate seminars program and passing a final examination on all work submitted for the degree. The final examinations in Option II (non-thesis) will cover all course work. Students in this option also have to submit a written report and oral presentation of a project. The thesis option, Option I, requires submission and defense of a written thesis that demonstrates the ability to conduct and report an independent investigation.

Rationale: Changes in the MS requirement between ME, AE and BME require revisions in the graduate catalog. The department also added the requirement of a written report and oral presentation of a project for the non-thesis described in the last paragraph. Impact on other units: None. Financial Impact: None.

REVISE REQUIREMENTS – MECHANICAL ENGINEERING MAJOR, PHD

In the 2013-14 *Graduate Catalog*, delete current requirements and replace with the following:

Requirements

All students must complete a minimum of 72 semester hours beyond the bachelor's degree. These shall include a minimum of 24 hours in Doctoral Research and Dissertation. Specific requirements for required course work are:

- Students entering with an MS degree will be required to take a minimum of 12 hours of graduate course work, exclusive of ME 601, dissertation credit or seminar courses.
- Students entering with a BS degree will be required to take a minimum of 42 hours of graduate course work, exclusive of ME 601, dissertation credit or seminar courses.

This course work, including that taken for an MS degree, must include:

- A minimum of 9 semester hours of graduate work in mathematics courses numbered 400 or above with a minimum of 3 hours numbered 500 or above. The department may approve other courses with sufficient mathematical content to meet this requirement.
- A minimum of 21 hours of graduate course work in the major in courses numbered 500 and above. The department may approve other departmental courses to meet this requirement.
- A minimum of 6 semester hours of graduate course work is required at the 600 level. These are exclusive of ME 601, thesis or dissertation credit. The total number of approved course work and dissertation hours must meet the university's requirement of a minimum of 72 hours.

Additional requirements for all students include the following.

- Registration and participation in the graduate seminar in the major program.
- Meet all departmental examination requirements, which include passing a written and oral comprehensive examination.
- Presentation of a dissertation proposal to the student's advisory committee and approval of that proposal by that committee.
- Successful defense of the dissertation.

REVISE PROGRAM SHOWCASE – DUAL MS-MBA PROGRAM – MECHANICAL ENGINEERING

In the 2013-14 Graduate Catalog, revise the Dual MS-MBA Program Showcase (Fall – First Year and Spring – First Year) as follows:

1. Fall – First Year Session 1: remove ACCT 506 and replace with ACCT 505; remove ECON 505 and replace with MGT 506
2. Fall – First Year Session 2: remove ACCT 505 and replace with ACCT 506; remove MGMT 505 and replace with FINC 505; remove SCM 505 and replace with ECON 505
3. Spring – First Year Session 1: remove FINC 505 and replace with MGT 505; remove SCM 506 and replace with SCM 505
4. Spring – First Year Session 2: remove MGT 506 and replace with SCM 506

Dual MS-MBA program – Mechanical Engineering

Fall – First Year

	Hours
Session 1: <u>7½ Weeks</u>	
ACCT 505 – Financial Accounting I	1.5
MGT 506 – Competitive Strategy	1.5
STAT 505 – Quantitative Methods	1.5
MARK 505 – Demand Management I	1.5
BUAD 515 – Business Skills Development I	1.5
Session 2: <u>7½ Weeks</u>	
ACCT 506 – Managerial Accounting I	1.5
FINC 505 – Financial Management I	1.5
MARK 506 – Demand Management II	1.5
ECON 505 – Economics of Strategy	1.5
BUAD 516 – Business Skills Development II	1.5
Total fall hours	15.0

Spring – First Year

*Engineering Major course	3.0
Session 1: <u>7½ Weeks</u>	
MGT 505 – Leading Complex Organizations	1.5
SCM 505 – Supply Chain Management I	1.5
BZAN 505 – Operations Management	1.5
BZAN 506 – Prescriptive Modeling	1.5
BUAD 517 – Business Skills Development III	1.5
Session 2: <u>7½ Weeks</u>	
SCM 506 – Supply Chain Management II	1.5
FINC 506 – Financial Management II	1.5
BULW 505 – Foundations of Bus. Law and Ethics	1.5
ECON 506 – Market Forces in the Global Environment	1.5
BUAD 518 – Innovation in Practice	1.5
Total spring hours	18.0

Rationale: Revising showcase to follow the teaching schedule of courses. No changes on program requirements. Impact on other units: None. Financial Impact: None.

DEPARTMENT OF NUCLEAR ENGINEERING

REVISE REQUIREMENTS – NUCLEAR ENGINEERING MAJOR, MS

In the 2013-2014 *Graduate Catalog*, revise bullet four, Option 2 as follows:

Option 2 – two engineering practice projects (6 hours of NE 598).

Rationale: The predominant approach to practice projects includes 2 projects. The 4-project option is rarely (if ever) used and it is unrealistic to expect students and faculty to manage 4 reports and 4 presentations. Two projects, each worth 3 credits is a straightforward approach and the norm among MS students not pursuing a thesis, also consistent with the 1 project option for 3 credits, and it provides sufficient flexibility to the student. Impact on other units: None. Financial impact: None.

REVISE PROGRAM SHOWCASE – DUAL MS-MBA PROGRAM – NUCLEAR ENGINEERING

In the 2013-14 Graduate Catalog, revise the Dual MS-MBA Program Showcase (Fall – First Year and Spring – First Year) as follows:

1. Fall – First Year Session 1: remove ACCT 506 and replace with ACCT 505; remove ECON 505 and replace with MGT 506
2. Fall – First Year Session 2: remove ACCT 505 and replace with ACCT 506; remove MGMT 505 and replace with FINC 505; remove SCM 505 and replace with ECON 505

3. Spring – First Year Session 1: remove FINC 505 and replace with MGT 505; remove SCM 506 and replace with SCM 505
4. Spring – First Year Session 2: remove MGT 506 and replace with SCM 506

Dual MS-MBA program – Nuclear Engineering

Fall – First Year

	Hours
Session 1: <u>7½ Weeks</u>	
ACCT 505 – Financial Accounting I	1.5
MGT 506 – Competitive Strategy	1.5
STAT 505 – Quantitative Methods	1.5
MARK 505 – Demand Management I	1.5
BUAD 515 – Business Skills Development I	1.5
Session 2: <u>7½ Weeks</u>	
ACCT 506 – Managerial Accounting I	1.5
FINC 505 – Financial Management I	1.5
MARK 506 – Demand Management II	1.5
ECON 505 – Economics of Strategy	1.5
BUAD 516 – Business Skills Development II	<u>1.5</u>
Total fall hours	15.0

Spring – First Year

Session 1: <u>7½ Weeks</u>	
MGT 505 – Leading Complex Organizations	1.5
SCM 505 – Supply Chain Management I	1.5
BZAN 505 – Operations Management	1.5
BZAN 506 – Prescriptive Modeling	1.5
BUAD 517 – Business Skills Development III	1.5
Session 2: <u>7½ Weeks</u>	
SCM 506 – Supply Chain Management II	1.5
FINC 506 – Financial Management II	1.5
BULW 505 – Foundations of Bus. Law and Ethics	1.5
ECON 506 – Market Forces in the Global Environment	1.5
BUAD 518 – Innovation in Practice	1.5
*Industrial Engineering Major course	<u>3.0</u>
Total spring hours	18.0

Rationale: Revising showcase to follow the teaching schedule of courses. No changes on program requirements. Impact on other units: None. Financial Impact: None.

COLLEGE OF LAW

All changes effective Fall 2014

I. COURSE CHANGES

ADD

LAW 824 – Advanced Legal Research (2) Offers students experience using and comparing a broad range of legal research tools, focusing on digital sources of information, but including print sources and how various sources or formats might be integrated together into a legal research process. Research strategies will also be examined as a component of the course. Primary authorities will be reviewed and non-traditional and traditional secondary authorities will be examined. Students will learn to evaluate research options and strategies, and make efficient and effective choices that best suit a particular legal research situation.

Registration Restriction(s): Law students only.

LAW 829 – Advanced Business Associations (2) In-depth study of the legal issues associated with close corporations, public corporations and complex litigation to enforce the legal rights and obligations of constituents in business entities in the context of fiduciary duties, fundamental change and change-of-control transactions, federal and state disclosure obligations, securities fraud, insider trading, and related matters.

(DE) Prerequisite(s): 827.

Registration Restriction(s): Law students only.

LAW 831 – Mergers and Acquisitions (2-3) Basic law and practice points governing business combinations through discussion, problem-solving, planning, and drafting. Consideration and exploration of legal and practical considerations involved in making essential structural, drafting, and implementation decisions relating to mergers and acquisitions.

Repeatability: Not Repeatable. May be taken once for 2 to 3 hours.

Registration Restriction(s): Law students only.

LAW 837 – Consumer Bankruptcy and Finance Seminar (3) Covers Title 11, Chapters 7, 12, and 13 and cross-disciplinary materials from economics, sociology, psychology, and similar fields regarding the role of personal finance, consumer finance, and consumer bankruptcy. Satisfies the perspective requirement.

Registration Restriction(s): Law students only.

LAW 875 – The Jury System (2) Study of the Anglo – American jury. Consideration will be given to the history of the jury; the constitutional provisions governing trial by jury; current issues, including jury nullification, use of the jury in complex cases, and "jury reform"; and depictions of the jury in popular culture. Satisfies the perspective requirement.

Registration Restriction(s): Law students only.

LAW 883 – Images of the Law (2) The way lawyers and legal institutions are portrayed in popular media has important implications for litigants, juries, lawmakers, and lawyers. This seminar will look at portrayals of law and the legal profession in television and film, and discuss how those do – and do not – match institutions in the real world, as well as how they influence behavior among both lawyers and non-lawyers. Satisfies the perspective requirement.

Registration Restriction(s): Law students only.

LAW 907 – Immigration Law Clinic (6) The Immigration Law Clinic requires students to work 18 hours per week in the Clinic throughout the semester. The early classes will provide basic legal knowledge in substantive immigration law, including the Immigration and Nationality Act, the applicable Code of Federal Regulations, and Department of Homeland Security forms, applications, and internal policies. Classes will also be taught on subjects specific to representing individuals in Immigration Court, such as working with interpreters and the impact of the administrative nature of the court system. Readings in the course will be related to substantive law and will be taken from various sources throughout the semester. Guest lectures throughout the semester may include local immigration attorneys, interpreters, staff from the Immigration Courts, and attorneys with the Department of Justice. Students will be expected to prepare for a substantive immigration hearing, appearances and filings with United States Customs and Immigration Service.

(DE) Prerequisite(s): 813.

(DE) Corequisite(s): 814.

Comment(s): Third-year standing required; second-semester second-year students may be eligible by waiver, space permitting. Students may not take 907 in the same semester as 947, 948, 905, or 949.

Registration Restriction(s): Law students only.

LAW 910 – Non-Profit Corporations (3) Examines federal and state laws that govern non-profit corporations and offers practical clinical experience representing local corporations. Teams of students conduct "legal audits" of local non-profit corporations, make presentations to administrators and directors, draft corporate documents, and help clients resolve legal problems.

(DE) Corequisite(s): 814.

Comment(s): Third year standing required; second-semester second-year students may be eligible by waiver, space permitting.

Registration Restriction(s): Law students only.

Rationale: Restores to curriculum a course dropped from catalog after former instructor retired. Course format and location: Course involves fieldwork under faculty supervision. Impact on other units: None expected. Financial impact: None expected.

LAW 911 – Family Law Mediation Clinic (6) The Family Law Mediation Clinic focuses on the mediation process, and mediation theory, strategy, tactics, and skills in the context of family relationships. Students study and develop these skills through readings and simulations and through service as mediators in the Knox County Juvenile Court and in other settings. The Clinic has two components: (1) the classroom component of the Clinic, in which students will attend classes that will involve reading assignments, traditional lectures, speakers, simulations, and discussion to prepare for the live-client mediations; and (2) the experiential component, during which student will observe and co-mediate cases with experienced family mediators in the Knox County Juvenile General Sessions Court and scheduled appearances in other settings. The Clinic satisfies Tennessee Supreme Court Rule 31's training requirements (only) for certification as a family mediator.

Registration Restriction(s): Law students only.

LAW 924 – Criminal Pretrial Litigation (3) Introduces the student to the day-to-day work of criminal lawyers. Through the use of hypothetical case files, students are introduced to the basic skills and concepts needed to prepare a criminal case for trial or for plea negotiations. Students conduct preliminary hearings; draft and argue pretrial motions including discovery motions, bail motions, motions based on the charging document, and motions to suppress; and prepare for and participate in a pretrial conference.

Registration Restriction(s): Law students only.

LAW 925 – Advanced Appellate Advocacy (3) Study of appellate practice and procedure, brief writing, and appellate argument. In addition to a discussion of the structure, jurisdiction, and procedure of the appellate courts, the course explores the process of formulating and preserving appellate issues and initiating and executing appeals, including writing a persuasive appellate brief and making an effective appellate argument. Will complete a rough draft and a final draft of an appellate brief and will present an appellate argument in a hypothetical appellate case.

Registration Restriction(s): Law students only.

LAW 926 – Negotiation (3) Introduction to skills and techniques that lawyers need to negotiate effectively in both transactional and litigation contexts. Will learn about factors affecting negotiations, including personality styles and verbal and non-verbal communication styles and will be exposed to different negotiation models. After engaging in the important process of negotiation planning, students will perform and record simulated negotiations based upon multiple hypothetical fact patterns. Will complete a post-negotiation evaluation and will review their negotiation with their student colleagues and their professor. Will also attend a series of plenary lectures addressing fundamental concepts in negotiations, including ethical issues that arise during negotiations.

Registration Restriction(s): Law students only.

LAW 929 – Interviewing and Counseling (2) Will introduce and allow students to practice and hone the professional skills involved in interviewing clients and prospective witnesses and in counseling clients. After introduction to the fundamental skills and the conceptual models of interviewing and counseling, students will develop their skills by analyzing, preparing, and performing simulated interviewing and counseling exercises. The students' performances are recorded, reviewed, and evaluated by their colleagues and their professors. Will also encounter and discuss the ethical issues that arise during interviewing and counseling.

Registration Restriction(s): Law students only.

LAW 930 – E-Discovery (3) An introduction to electronic discovery (e-discovery) in civil litigation. Students will handle every aspect of e-discovery in a simulated case, including participating in a 26(f) conference, drafting and responding to discovery requests, preparing a privilege log, and conducting a document review using e-discovery software. Will study recent e-discovery cases and other developments in the law. Members of the bench and bar will sometimes participate in class discussions. Each student will write a paper and make a presentation on an emerging problem in e-discovery practice. Must have a laptop computer that meets the requirements necessary to operate the e-discovery software used in the simulated case.

(DE) Prerequisite(s): 921.

Registration Restriction(s): Law students only.

LAW 933 – Elder Law (2) Offers a holistic, real world practical approach to introduce the practice of elder law. Students, through the use of case studies unique to each student, develop a cohesive client plan, which requires the student to consider issues surrounding health care benefits, insurance coverage, real and personal property ownership, estate and tax planning, advanced care planning, and levels of care. Will discuss ethical and cultural issues impacting the elderly, including end of life issues, the effects of dementia on decision-making, removal of rights of incapacitated persons, and how race, age, gender, ethnicity and religious affiliation affect long term care for seniors.

Registration Restriction(s): Law students only.

LAW 942 – Title Law (1) A practical course in the practice of real property and title law, with special emphasis on drafting documents, searching title to real property, preparation of title opinions, issuing title insurance, reading surveys and drafting legal descriptions, and conducting escrow closings. Will gain a working knowledge of handling a real estate transaction from inception to completion, including the issuance of title insurance. Will engage in closing simulations.

Registration Restriction(s): Law students only.

LAW 944 – Construction Law (2-3) Construction projects, and related disputes, are often highly complex matters that require construction lawyers to have both specialized knowledge of the law and practical understanding of industry practices. Provides an in-depth examination of the legal aspects of the construction process, approaching the critical issues from two viewpoints: a transactional and planning perspective and a dispute-avoidance and claim-resolution perspective. Topics of study include the construction participants; project administration; project design, scheduling, pricing, and performance; default and termination; dispute resolution; and detailed examination of common construction documents, including owner-designer agreements, owner-contractor agreements, subcontractor and supplier agreements, change orders, surety bonds, and insurance policies. Meets the planning and drafting requirement.

Repeatability: Not Repeatable. May be taken once for 2 to 3 hours.

(DE) Prerequisite(s): 842.

Registration Restriction(s): Law students only.

REVISE DESCRIPTION

LAW 813 – Evidence (4) Introduces students to the full range of rules governing the admission and exclusion of testimony, documents, and other tangible evidence. In addition to studying the codified rules related to relevance, impeachment, hearsay, opinion testimony, authentication, privileges, and presumptions, the course also deals with the mechanics of proof including the role of the judge and the jury, the proper form of making and preserving objections, and the order and burdens of proof in criminal and civil trials. Will include a problem methodology, applying the evidence rules to hypothetical civil and criminal cases.

LAW 920 – Trial Practice (3) A simulation course in which students learn the fundamentals and practice the techniques of preparing and presenting a case to a judge or jury, while confronting the ethical questions associated with trial practice. Using hypothetical case files, students prepare and discuss case theory and theme; prepare and present opening statements, direct examinations, cross-examinations, and closing arguments; and participate in a pretrial conference. During class, the emphasis is on individual performance and critique. Each student conducts a complete trial at the end of the course.

LAW 949 – Judicial Externship (4) In this externship, students work as judicial clerks for various state, federal, and administrative law judges. Students are supervised by a faculty supervisor and their assigned judge or judges. After an intensive orientation period in which students discuss jurisdiction and structure of the courts, judicial process, judicial ethics, and judicial writing, students are introduced to the courtroom experience from the perspective of the judge. Will engage in courtroom observations, which are followed by discussions with the judge and conduct legal research and draft memoranda, opinions, and orders at the judge's request.

REVISE HOURS AND DESCRIPTION

LAW 827 – Business Associations (3) Legal problems associated with the formation, operation, combination, and dissolution of unincorporated and incorporated business firms; legal rights and duties of firm participants (principals and agents; partners, joint venturers, limited partners, limited liability partners, and members and managers of limited liability companies; and corporate shareholders, directors, and officers) and others with whom those participants interact in connection with the firm's business, including attorneys. Introduction to legal issues in close corporations and federal law concerning corporations.

REVISE TO VARIABLE HOURS

LAW 846 – Disability Law (2-3)

Repeatability: Not Repeatable. May be taken once for 2 to 3 hours.

Formerly: (3)

LAW 985 – Workers' Compensation Law (2-3)

Repeatability: Not Repeatable. May be taken once for 2 to 3 hours.

Formerly: (3).

REVISE (DE) COREQUISITE(S) AND ADD (DE) PREREQUISITE(S)

LAW 905 – Advocacy Clinic (6)

(DE) Prerequisite(s): 813.

(DE) Corequisite(s): 814.

REVISE TITLE AND DESCRIPTION

LAW 921 – Civil Pretrial Litigation (3) Will immerse students in the day-to-day work of civil legal practitioners and assists students in developing a contextual, working knowledge of state and federal rules of civil procedure. While representing hypothetical clients, students engage in pretrial planning and strategy before preparing a litigation plan; researching the facts and the applicable law; drafting and responding to pleadings; drafting and responding to written discovery; preparing for, taking, and defending depositions; and filing pretrial motions and supporting memoranda.

LAW 922 – Advanced Trial Practice (3) This advanced course in trial practice builds on the fundamental skills developed in trial practice by requiring students to apply the skills in more complex cases and introduces students to new skills including witness preparation, use and preparation of expert witnesses, and jury selection. Through the use of more sophisticated case hypotheticals, students learn and practice advanced techniques in direct and cross-examination (including examinations of expert witnesses), engage in witness preparation, and are introduced to the skills used in jury selection and jury instruction.

REVISE DESCRIPTION AND CREDIT RESTRICTION; REMOVE (RE) PREREQUISITE(S) AND (RE) COREQUISITE(S); ADD (DE) PREREQUISITE(S) AND (DE) COREQUISITE(S)

LAW 947 – Prosecution Externship (6) Supervised fieldwork requiring substantial responsibility for the prosecution of criminal cases in state or federal courts. Externship students will attend classes about practical lawyering skills and state and federal practice, procedure, and substantive criminal law. Each student will work under the direct supervision of a full-time, experienced prosecutor as well as other professional prosecutors in the office. May assist in the investigation of crimes, the interview and preparation of witnesses, drafting of relevant documents, negotiation and formal presentation of guilty pleas, presentation of cases to the grand jury and representation of the government in preliminary hearings or trials.

Credit Restriction: May not be taken concurrently with 905, 948, or 949. May not be taken if student has previously taken

948.

(DE) Prerequisite(s): 813.

(DE) Corequisite(s): 814.

LAW 948 – Public Defender Externship (6) Supervised fieldwork requiring students to practice as a public defender and to assume substantial responsibility for the defense of criminal cases in state or federal courts. Externship students will attend classes about practical lawyering skills and state and federal practice, procedure, and substantive criminal law. Each student will work under the direct supervision of a full-time, experienced public defender as well as other public defenders in the office. Students may assist in the investigation of crimes, the interview and preparation of witnesses, drafting of relevant documents, negotiation and formal presentation of guilty pleas, and representation of the accused in preliminary hearings or trials.

Credit Restriction: May not be taken concurrently with 905, 947, or 949. May not be taken if student has previously taken 947.

(DE) Prerequisite(s): 813.

(DE) Corequisite(s): 814.

REVISE TO REMOVE (RE) COREQUISITE(S) AND ADD (DE) COREQUISITE(S)

LAW 951 – Domestic Violence Clinic (3)

(DE) Corequisite(s): 914 and 920.

II. PROGRAM CHANGES

ADD DUAL DEGREE: JURIS DOCTOR AND MASTER OF ARTS (PHILOSOPHY) (JD-MA)

Dual JD-MA (Philosophy) Program

The College of Law and the Department of Philosophy in the College of Arts and Sciences offer a coordinated dual degree program leading to the conferral of both the Doctor of Jurisprudence and Master of Arts (Philosophy) degrees. In this program, a student may earn the JD and MA in about four years rather than the five years that otherwise would be required.

Admission

Applicants for the JD-MA (Philosophy) program must make separate application to, and be independently accepted by, the College of Law for the JD and the Department of Philosophy and Office of Graduate Admissions for the MA (Philosophy) degree. Applicants must also be accepted by the dual degree committee (the membership of which will include a program coordinator from both the College of Law and the Department of Philosophy). Upon petition, an applicant's LSAT score may be accepted by the Department of Philosophy as a substitute for the normally required GRE score. Application to the dual degree program may be made prior to or after matriculation in either the JD or the MA (Philosophy) program, but application must be made prior to the last 29 hours required for the JD and prior to the last 15 hours required for the MA (Philosophy).

Requirements

A dual degree candidate must satisfy the requirements for both the JD and MA (Philosophy) degrees, as well as the requirements of the dual degree program. The College of Law will award a maximum of 9 hours of credit toward the JD

degree for successful completion of approved graduate level courses (500 or 600 level) offered in the Department of Philosophy. The Department of Philosophy will award a maximum of 15 hours of credit toward the MA degree for successful completion of approved courses offered in the College of Law. All courses for which such cross-credit is awarded must be approved by the JD-MA (Philosophy) program coordinators in the College of Law and Department of Philosophy. Upon admission to the dual degree program, a dual degree candidate will take, if he or she has not already taken, the required first year courses in the College of Law.

Philosophy offers both a non-thesis and thesis MA. Each requires a total of 30 hours of credit, at least 12 of which must be graduate level courses (other than PHIL 500 thesis hours) in Philosophy. For a dual degree candidate up to 15 of the 30 required hours will come from approved law school courses. For dual degree candidates, the ordinary distribution and proseminar requirements for the Philosophy MA are waived.

For a non-thesis MA student, the remaining 15 hours in Philosophy will be coursework (500 or 600 level) in Philosophy. The non-thesis MA student must, however, satisfy the non-thesis MA requirement for a “culminating academic experience” (normally the presentation of a philosophical paper at a professional meeting or departmental colloquium). The non-thesis MA student will take an MA comprehensive examination administered as if the student had a “minor” in law (so, a member of the law faculty will be on the examination committee and candidate examination questions will be solicited from the instructors of the law courses counting toward the student’s MA).

A student electing to pursue the thesis MA track must take 12 hours of graduate level coursework in Philosophy as well as 6 thesis hours of PHIL 500. The thesis topic must be approved by the program coordinators and dual degree committee, and the student’s thesis committee must include a faculty member from the College of Law. A student electing to pursue the thesis MA track will thus earn from Philosophy 18 hours of the required 30 hours for the MA and thus need credit from Philosophy for only 12 hours of coursework in the College of Law.

Dual degree students who withdraw from the program before completion of the requirements for both degrees will not receive credit toward either the JD or the MA (Philosophy) degree for courses taken in the other program except as such courses qualify for credit without regard to the dual degree program.

Awarding of Grades

For grade recording purposes in the College of Law and Department of Philosophy, grades awarded in the other unit will be converted to either Satisfactory or No Credit and will not be computed in determining a student’s GPA or class standing. The College of Law will award a grade of Satisfactory for an approved Philosophy course in which the student earns a grade of B or higher and a grade of No Credit for any lower grade. The Philosophy Department will award a grade of Satisfactory for an approved law course in which the student earns a grade of 2.3 or higher and a grade of No Credit for any lower grade. The official academic record of the student maintained by the Office of the University Registrar shall show the actual grade assigned by the instructor without conversion.

REVISE JD REQUIREMENTS

In the 2014-15 *Graduate Catalog* first paragraph, second sentence, delete current list of courses and replace with the following list of courses:

LAW 947, LAW 948, LAW 949, LAW 989, LAW 992, LAW 993, LAW 994, LAW 995, LAW 996, LAW 997, LAW 998, or LAW 999, or up to 6 credit hours of non-law electives.

Rationale: Conform to ABA accreditation standards. Impact on other units: None. Financial impact: None.

REVISE REQUIREMENTS – ADVOCACY AND DISPUTE RESOLUTION CONCENTRATION

In the 2014-15 *Graduate Catalog*,

1) at subtitle “Third Year (one of the following)” delete current list of courses and replace with the following:

Third Year (one of the following): LAW 905, LAW 907, LAW 911, LAW 908 and LAW 914, LAW 947, or LAW 948. The Dean or the Dean’s designee may designate other six-hour clinics or externships as satisfying this requirement.”

2) at subtitle “During the second and third year, any combination totaling 12 hours from the following courses” delete current text and replace with the following:

During the second and third year, any combination totaling 12 hours from the following courses – LAW 821, LAW 854, LAW 855, LAW 856, LAW 859, LAW 877, LAW 914 (cannot be counted here if used to fulfill third-year requirement, above), LAW 915, LAW 916, LAW 918, LAW 921, LAW 922, LAW 923, LAW 924, LAW 925, LAW 926, LAW 927, LAW 928, LAW 933, LAW 945, LAW 946, LAW 949, LAW 951, LAW 953, and LAW 990*.

(*Only if approved by the Dean or Dean’s designee as satisfying the requirements of the concentration.)

COLLEGE OF NURSING

All changes effective Fall 2014

I COURSE CHANGES

Nursing (NURS)

DROP

NURS 552 Care of the Critically-Ill Neonate (2)

NURS 564 Nursing of Women and Children: Clinical Experience in Infant's Health (1-5)

NURS 567 Embryology and Neonatal Pathophysiology for Advanced Neonatal Nursing Practice (3)

NURS 568 Care of the Neonate (2)

NURS 569 Care of the Ill Neonate (2)

Rationale: Courses have not been taught in 4 years. The lack of student interest and inadequate resources make it impractical to continue this track within the Women's and Children's Health concentration.

REVISE HOURS AND ADD CONTACT HOUR DISTRIBUTION

NURS 609 Research Practicum (3)

Contact Hour Distribution: 3-12 practicum.

Formerly: (1-3)

Contact Hour Distribution: 4-12 practicum.

Rationale: One credit hour does not facilitate development of research skills. The 3 credit hour course will be placed later in the course sequence so that it can be deliberately part of a comprehensive mentoring program. Impact on other units: None. Financial impact: Addition of 1 credit hour to program requirements. No addition of faculty resources required.

REVISE DESCRIPTION, ADD (DE) PREREQUISITES

NURS 606 Nursing Research Seminar (3) A practical, skills-oriented course of selected topics pertaining to preparation of federal-formatted grant proposals.

(DE) Prerequisite(s): 601 and 603 and 605 and 610.

II PROGRAM CHANGES

▲ ADD CONCENTRATIONS – NURSING MAJOR, DNP

Mental Health Practitioner
Nursing of Women and Children
Nurse Anesthesia

In the 2014-2015 *Graduate Catalog*, add text and requirements for the new concentrations for the DNP degree.

Requirements for Mental Health Practitioner concentration

NURS 501	3
NURS 504	3
NURS 505	3
NURS 515	3
NURS 519	3
NURS 560	6
NURS 561	6
Total hours	27

Requirements for Nursing of Women and Children concentration

NURS 501	3
NURS 504	3
NURS 505	3
NURS 515	3
NURS 527	5
NURS 528	2
NURS 550	2
NURS 551	2
NURS 562	2
NURS 563	<u>2</u>
Total hours	27

Requirements for Nurse Anesthesia concentration

NURS 501	3
NURS 504	3
NURS 505	3
NURS 506	3
NURS 516	2
NURS 517	2
NURS 518	2
NURS 522	3
NURS 523	2
NURS 524	3
NURS 525	3
NURS 526	2
NURS 544	4
NURS 545	8
NURS 546	2
NURS 547	9
NURS 548	10
NURS 549	10
NURS 583	<u>2</u>
Total hours	76

Rationale: Add concentrations to the existing BSN to DNP program. No essential changes in originally approved major/concentration curriculum. Beginning fall 2013, we implemented BSN entry to the DNP program for select high-achieving and highly-motivated BSN students. These additions allow students to select from multiple concentrations. The DNP requires a minimum of 1000 clinical hours, as opposed to the MSN which required a minimum of 500 clinical hours (650 for FNP). Impact on other units: None. Financial impact: With the increase in total BSN to DNP students (MSN plus DNP), clinical course fees will be used to offset any additional FTE costs. We will have to watch enrollment management and faculty assignments closely, so as to not exceed available faculty resources.

REVISE REQUIREMENTS – NURSING MAJOR, PHD

In the 2014-2015 *Graduate Catalog*, under the requirements heading,

- 1) revise course NURS 609 from 2 hours to 3 to reflect the course revision.
- 2) revise total hours from 67 to 68.
- 3) delete sentence “One hour per semester, must be taken for two semesters” which corresponds with the revision to 609.

Rationale: to reflect NURS 609 credit hour revision

COLLEGE OF SOCIAL WORK

All changes effective Fall 2014

I. COURSE CHANGES

Social Work (SOWK)

REVISE TITLE

531 Trauma Theory and Practice (3)

II. PROGRAM CHANGES

REVISE REQUIREMENTS FOR TRAUMA TREATMENT CERTIFICATE

In the 2014-2015 *Graduate Catalog*, under requirements heading, first sentence: delete last four words (12 field placement hours) and replace with "12 hours in a trauma-specific field placement."

Rationale: This revision is needed for clarification of field requirement for Trauma Treatment Graduate Certificate. Impact on other units: None. Financial impact: None.

REVISE REQUIREMENTS FOR VETERINARY SOCIAL WORK CERTIFICATE

In the 2014-2015 *Graduate Catalog*, under Program of Study heading, delete current text and replace with the following:

The certificate program consists of 21 hours of course work:

- 1) 3 hours of veterinary social work course (SOWK 567)
- 2) 3 elective hours (SOWK 557)
- 3) For EBIP students - 3 selective hours with assignment in the course on a veterinary social work topic (SOWK 570, SOWK 571 or SOWK 572)
For MLCP students – 3 required concentration hours with assignment in the course on a veterinary social work topic (SOWK 545, SOWK 546, SOWK 548 or SOWK 549)
- 4) 12 credit hours in a field placement with a veterinary social work component

Rationale: MSSW students in the MLCP concentration are not required to take a selective course. Therefore, requiring a selective for those in the Veterinary Social Work certificate program means they need to take an extra class to fulfill requirements for the certificate program and MSSW degree. Revision is also needed for clarification of field requirement for Veterinary Social Work certificate. Impact on other units: None. Financial impact: None.

REVISE ADMISSION REQUIREMENTS: SOCIAL WORK MAJOR, MSSW

In the 2014-2015 *Graduate Catalog*, under Admission heading, 4th bullet, remove current text and replace as follows:

- Applicants with a GPA below 3.0 can submit current scores from the GRE General Exam to supplement their application materials. GRE scores are valid for five years from the date of the exam.

Rationale: The GRE requirement has been eliminated for MSSW applicants. College of Social Work faculty passed a vote to make GRE scores optional, not required. Impact on other units: None. Financial impact: None.

INTERCOLLEGIATE

AVIATION SYSTEMS

All changes effective Fall 2014

II. PROGRAM CHANGES

DROP MAJOR AND DEGREE – AVIATION SYSTEMS, MS

In the 2013-14 *Graduate Catalog*, remove all catalog text for the Aviation Systems major, MS. The Aviation Systems major, MS program at the University of Tennessee Space Institute is being dropped.

SUPPORTING INFORMATION. Rationale: Executive Director, Robert Moore sent College of Engineering Associate Dean, Masood Parang, a letter notifying him of the closure of this program.

Low producing program, several years of decline and a lost military market leads to the drop of this program. UTSI is working in collaboration with Dr. Albrecht and Dr. Parang – they will review student records and send certified letters, at the appropriate time, to the students still in the program. Students will be given 4 years to complete their Master's degree. Three of the students are ready to submit their Admission to Candidacy Applications. UTSI has indicated on their website that the Master of Science degree, with a major in Aviation Systems is being phased out and admission to the program is no longer available. Ms. Brenda Brown at UTSI will be the lead contact person.

No impact on the faculty members in the program because they are in the MABE program. Impact on other units: None. Financial impact: None.

Substantive Change Notification: SACS representative, Mary Albrecht, has been notified and appropriate paperwork will be submitted.

INTERCOLLEGIATE

COMPARATIVE AND EXPERIMENTAL MEDICINE

All changes effective Fall 2014

I. COURSE CHANGES

(CMMD) COMPARATIVE AND EXPERIMENTAL MEDICINE – Graduate School of Medicine

DROP ACADEMIC DISCIPLINE, SUBJECT CODE, AND ALL COURSES

CMMD 500 – Thesis (1-15)

CMMD 502 – Registration for Use of Facilities (1-15)

CMMD 508 – Graduate Research Participation (3)

CMMD 541 – Cellular and Molecular Basis of Disease (2) (Primary course: cross-listed with CMVM 541)

CMMD 542 – Cellular and Molecular Basis of Disease (2) (Secondary course: cross-listed with CMVM 542)

CMMD 600 – Doctoral Research and Dissertation (3-15)

CMMD 601 – Journal Club in Comparative and Experimental Medicine (1)

CMMD 610 – Medical Biology Seminar (1)

CMMD 611 – Advanced Topics in Medical Sciences (1-3)

(CMVM) COMPARATIVE AND EXPERIMENTAL MEDICINE – Veterinary Medicine

DROP ACADEMIC DISCIPLINE, SUBJECT CODE, AND ALL COURSES

CMVM 500 – Thesis (1-15)

CMVM 501 – Special Topics in Comparative and experimental Medicine (1-6)

CMVM 502 – Registration for Use of Facilities (1-15)

CMVM 504 – Descriptive and Applied Epidemiology (3)

CMVM 507 – Epidemiology of Vector-borne, Bacterial, and Viral Zoonotic Diseases (2)

CMVM 508 – Epidemiology of Parasitic, Food-borne, and Bacterial Zoonotic Diseases (2)

CMVM 509 – Clinical Epidemiology (3)

CMVM 530 – Wildlife Diseases (2) (Secondary course: cross-listed with primary WFS 530)

CMVM 541 – Cellular and Molecular Basis of Disease (2) (secondary course: cross-listed with CMMD 541)

CMVM 542 – Cellular and Molecular Basis of Disease (2) (primary course: cross-listed with CMMD 542)

CMVM 561 – Pharmacology (4)

CMVM 600 – Dissertation (3-15)

CMVM 601 – Advanced Epidemiology (3)

CMVM 602 – Surgical Pathology (1-2)

CMVM 607 – Diagnosis and Pathogenesis of Virus Diseases of Domestic Animals (3)

CMVM 610 – Advanced Topics in Comparative and Experimental Medicine (1-3)

CMVM 611 – Journal Club in Emerging Infectious Diseases (1)

CMVM 612 – Journal Club in Biomedical and Diagnostic Sciences (1)

CMVM 613 – Journal Club in Large Animal Clinical Sciences (1)

CMVM 614 – Journal Club in Small Animal Clinical Sciences (1)

CMVM 615 – GIS and Geographical Epidemiology (3)

CMVM 616 – Comparative and Experimental Medicine Seminar (1)

CMVM 652 – Disorders of the Endocrine System (2) (secondary course: cross-listed with primary ANSC 652)

ADD NEW ACADEMIC DISCIPLINE, SUBJECT CODE, AND COURSES

(CEM) COMPARATIVE AND EXPERIMENTAL MEDICINE

ADD

CEM 500 Thesis (1-15)

Grading Restriction: P/NP only.

Repeatability: May be repeated.

Credit Level Restriction: Graduate credit only.

Registration Restriction(s): Minimum student level – graduate.

CEM 501 Special Topics in Comparative and Experimental Medicine (1–6) Specialized experience in comparative and experimental medicine.

Grading Restriction: Satisfactory/No Credit.

Repeatability: May be repeated. Maximum 6 hours.

Registration Permission: Consent of instructor.

CEM 502 Registration for Use of Facilities (1–15) Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed.

Grading Restriction: Satisfactory/No Credit grading only.

Repeatability: May be repeated.

Credit Restriction: May not be used toward degree requirements.

CEM 503 Infectious Disease Modeling (2–3) Mathematical models for infectious diseases. Selected topics include transmission and control of infectious diseases, development and analysis of deterministic and stochastic models for disease transmission, analysis of epidemiological data, spatial models, and critical appraisal of modeling papers.

Repeatability: May be taken once for credit.

Registration Permission: Consent of instructor.

Rationale: This course has previously been offered as a 500-level special topics course and had 9 students enrolled. We expect this course will continue to attract attention from students of other programs, such as mathematics, as well as CEM students. Impact on other units: The course is in line with priorities in NIMBioS.

CEM 504 Descriptive and Applied Epidemiology (3) Principles of epidemiology as well as historic and modern applications to human and animal diseases. Host-agent relationships, measurement of disease frequency, disease monitoring and control in human and animal populations, field investigations, animal health economics and production.

CEM 507 Epidemiology of Vector-Borne, Bacterial, and Viral Zoonotic Diseases (2) Emphasis is placed on understanding the host, agent, and environmental factors that determine the distribution of selected diseases of importance to both human and animal populations. Selected topics include vector-borne zoonoses, rabies, brucellosis, and psittacosis. This is an online course.

Recommended Background: Public health, veterinary medicine, nursing courses, or students in these programs.

Comment(s): Graduate or professional veterinary students at UTK and personnel employed by the Tennessee Department of Health and enrolled in the Applied Epidemiology Certificate Program.

Registration Permission: Consent of instructor.

CEM 508 Epidemiology of Parasitic, Foodborne, and Bacterial Zoonotic Diseases (2) Emphasis is placed on understanding the host, agency, and environmental factors that determine the distribution of diseases of importance to both human and animal populations. Selected topics include anthrax and leptospirosis, in addition to parasitic and foodborne zoonoses. This is an online course.

Registration Permission: Consent of instructor.

CEM 509 Clinical Epidemiology (3) Theory and practice of design and implementation and analysis of clinical research. Laboratories include appraisal of biomedical literature and design of a proposal for a clinical research project.

Registration Permission: Consent of instructor.

CEM 510 Graduate Research Participation (3) Advanced research techniques while conducting individual biomedical research projects under supervision of faculty.

Grading Restriction: Satisfactory/No Credit grading only.

Repeatability: May be repeated. Maximum 9 hours.

Comment(s): Open to all graduate students.

Registration Permission: Consent of instructor.

CEM 515 Current Topics in Comparative and Experimental Medicine (1–6) Specialized experience in comparative and experimental medicine.

Repeatability: May be repeated. Maximum 6 hours.

Registration Permission: Consent of instructor.

CEM 541 Cellular and Molecular Basis of Disease (2) Disease at the molecular level. Changes in molecular events in cells that lead to disease and occur as a result of disease. Correlation with clinical and pathological states. Systems covered: neurological, muscular, bone, respiratory, hematology.

(DE) Prerequisite(s): Biochemistry and Cellular and Molecular Biology 419.

CEM 542 Cellular and Molecular Basis of Disease (2) Disease at the molecular level. Changes in molecular events in cells that lead to disease and occur as a result of disease. Correlation with clinical and pathological states. Systems covered: renal, liver/pancreas, metabolism, endocrinology, reproduction, immunology.

(DE) Prerequisite(s): Biochemistry and Cellular and Molecular Biology 419.

CEM 544 Cancer Cell Biology (2) Comprehensive discussion of the major mechanisms of cancer initiation, promotion, and progression. Emphasizes experimental approaches, signaling pathways, technology, and animal models that are employed to study cancer. Students are expected to learn about common laboratory techniques in cancer research, apoptosis/cell cycle, and the following as they relate to cancer: alternative splicing, signaling pathways, inflammation, chemo/dietary prevention, animal models, pathobiology, PET/CT imaging, genetics, lipids, radio-oncology, metastasis/angiogenesis, and obesity.

Recommended background: Advanced biology, including cell biology, molecular biology, biochemistry, microbiology, or genetics.

CEM 561 Pharmacology (4) Basic principles of pharmacokinetic and pharmacodynamic theory and data modeling. The student will learn the physiologic processes that dictate the absorption, distribution, and elimination of drugs. The course includes a hands-on module where the student will learn how to analyze pharmacokinetic data, including noncompartmental and compartmental data analysis, population and physiology-based models, as well as principles of pharmacokinetic-pharmacodynamic integration.

Registration Permission: Consent of instructor.

CEM 600 Doctoral Research and Dissertation (3–15)

Grading restriction: P/NP only.

Repeatability: May be repeated.

Registration Restriction(s): Minimum student level – graduate.

CEM 601 Advanced Epidemiology (3) Epidemiological study design, data analysis, and model building. Emphasis placed on using, understanding, and making inferences based on least squares, logistic Poisson, survival, and mixed models. STATA will be used as the basic computing language for all analyses.

Registration Restriction(s): Minimum student level – graduate.

CEM 602 GIS and Geographical Epidemiology (3) Principles and applications of Geographical Information Systems (GIS) and geographical epidemiology in human and animal health research and practice. Exposure to a wide range of spatial analysis techniques useful in the investigation of human and animal disease problems as well as vector dynamics. The knowledge gained is useful in guiding disease prevention and control strategies.

Recommended Background: Graduate-level epidemiology and statistics courses.

Comment(s): Consent of instructor is suggested.

Registration Restriction(s): Minimum student level – graduate.

CEM 607 Diagnosis and Pathogenesis of Virus Diseases of Domestic Animals (3) Advanced study of virus diseases important to domestic animals: virus biology, pathogenesis, pathology, and diagnosis technical training in virus diseases diagnosis.

Contact Hour Distribution: 2 hours and 1 lab.

Registration Restriction(s): Minimum student level – graduate.

Registration Permission: Consent of instructor.

CEM 610 Advanced Topics in Comparative and Experimental Medicine (1–3) Specialized, in-depth experience in various disciplines. Current and future research methodology, recent advances in instrumentation in analytical techniques for comparative medicine.

Grading Restriction: Satisfactory/No Credit.

Repeatability: May be repeated. Maximum 12 hours.

Registration Restriction(s): Minimum student level – graduate.

CEM 611 Journal Club in Emerging Infectious Diseases (1) Readings and discussions based on current literature.

Grading Restriction: Satisfactory/No Credit grading only.

Repeatability: May be repeated. Maximum 12 hours.

Registration Restriction(s): Minimum student level – graduate.

CEM 612 Journal Club in Biomedical and Diagnostic Sciences (1) Readings and discussions based on current literature.

Grading Restriction: Satisfactory/No Credit grading only.

Repeatability: May be repeated. Maximum 12 hours.

Registration Restriction(s): Minimum student level – graduate.

CEM 613 Journal Club in Large Animal Clinical Sciences (1) Readings and discussions based on current literature.

Grading Restriction: Satisfactory/No Credit grading only.

Repeatability: May be repeated. Maximum 12 hours.

Registration Restriction(s): Minimum student level – graduate.

CEM 614 Journal Club in Small Animal Clinical Sciences (1) Readings and discussions based on current literature.

Grading Restriction: Satisfactory/No Credit grading only.

Repeatability: May be repeated. Maximum 12 hours.

Comment(s): DVM or equivalent degree.

Registration Restriction(s): Minimum student level – graduate.

CEM 615 Journal Club in Comparative and Experimental Medicine (1) Readings and discussions based on current literature.

Grading Restriction: Satisfactory/No Credit grading only.

Repeatability: May be repeated. Maximum 12 hours.

Registration Restriction(s): Minimum student level – graduate.

CEM 616 Comparative and Experimental Medicine Seminar (1) Research seminars pertinent to disciplines within the program.

Grading Restriction: Satisfactory/No Credit grading only.

Repeatability: May be repeated. Maximum 12 hours.

Credit Restriction: Maximum 3 hours may be applied toward degree requirements.

Registration Restriction(s): Minimum student level – graduate.

CEM 617 Medical Biology Seminar (1) Invited speakers. Topics posted in advance.

Grading Restriction: Satisfactory/No Credit grading only.

Repeatability: May be repeated. Maximum 12 hours.

Credit Restriction: Maximum 3 hours may be applied toward degree requirements.

Registration Restriction(s): Minimum student level – graduate.

CEM 618 Advanced Topics in Medical Science (1-3) New developments in biological research applicable to clinical medicine.

Repeatability: May be repeated. Maximum 12 hours.

Comment(s): Primarily for doctoral candidates in comparative and experimental medicine.

Registration Restriction(s): Minimum student level – graduate.

Registration Permission: Consent of instructor.

CEM 620 Current Topics in Comparative and Experimental Medicine (1-3) Specialized, in-depth experience in various disciplines, such as current and future research methodology, and recent advances in instrumentation in analytical techniques for comparative medicine.

Repeatability: May be repeated. Maximum 12 hours.

Registration Restriction(s): Minimum student level – graduate.

Rationale: This is a new course that is comparable to course CMVM 610. This course will allow instructors to offer A-F grading instead of the Satisfactory/No Credit grading associated with CMVM 610. Impact on other units: None. Financial impact: None.

CEM 650 Surgical Pathology (1-2) Examination of biopsy specimens and interpretation of observations. Preparation of specimens for sectioning.

Repeatability: May be repeated. Maximum 3 hours.

Registration Restriction(s): Minimum student level – graduate.

Registration Permission: Consent of Instructor.

ADD AS SECONDARY CROSS-LISTED COURSES

CEM 525 Research Ethics for the Life Sciences (1)

Cross-listed: (See Plant Sciences 525.)

CEM 530 Wildlife Diseases (2)

Cross-listed: (See Wildlife and Fisheries Science 530.)

Rationale: This course has been taken by many CEM students under the WFS discipline. With course cross-listed, is now an option to take under the CEM academic discipline to fulfill our requirement for responsible conduct of research training. The cross-listing has been discussed with and approved by the College of Agricultural Science and Natural Resources.

CEM 652 Disorders of the Endocrine System (2)

Cross-listed: (See Animal Science 652.)

Equivalency Tables
(CMVM) COMPARATIVE AND EXPERIMENTAL MEDICINE – Veterinary Medicine

Current Courses (CMVM) Comparative and Experimental Medicine – Veterinary Medicine	Equivalent Courses effective Fall 2014 (CEM) Comparative and Experimental Medicine
500	CEM 500
501	CEM 501
502	CEM 502
504	CEM 504
507	CEM 507
508	CEM 508
509	CEM 509
530	CEM 530
541	CEM 541
542	CEM 542
561	CEM 561
600	CEM 600
601	CEM 601
602	CEM 650
607	CEM 607
610	CEM 610
611	CEM 611
612	CEM 612
613	CEM 613
614	CEM 614
615	CEM 602
616	CEM 616
652	CEM 652

(CMMD) COMPARATIVE AND EXPERIMENTAL MEDICINE – Graduate School of Medicine

Current Courses (CMMD) Comparative and Experimental Medicine – Graduate School of Medicine	Equivalent Courses Fall 2014 (CEM) Comparative and Experimental Medicine
500	CEM 500
502	CEM 502
508	CEM 510
541	CEM 541
542	CEM 542
600	CEM 600
601	CEM 615
610	CEM 617
611	CEM 618

II. PROGRAM CHANGES

REVISE REQUIREMENTS – COMPARATIVE AND EXPERIMENTAL MEDICINE MAJOR, MS

In the 2014-2015 *Graduate Catalog*, under Requirements heading, revise as follows:

1) first paragraph, last sentence: delete (Joint Graduate Coordinating Committee after application, in writing, to the) and add (of the program) after (director). Text should read: Exceptions to accommodate students with specific interests must be approved by the director of the program.

2) second paragraph, first sentence: delete (and at least one member from the Graduate School of Medicine). Text should read: The graduate committee (at least three members) is chosen as early as possible during the first year and must include at least one member from the College of Veterinary Medicine.

3) second paragraph, second sentence: delete (be from) and replace with (have expertise in). Text should read: If a minor is declared, one member must have expertise in the minor discipline.

REVISE REQUIREMENTS – COMPARATIVE AND EXPERIMENTAL MEDICINE MAJOR, PHD

In the 2014-2015 *Graduate Catalog*, under Requirements heading, revise as follows:

1) first paragraph: add as the last sentence – Students without a professional or master's degree must complete a minimum of 48 graduate hours of coursework and 24 hours of Dissertation (CEM 600).

2) second paragraph, fourth sentence: delete (Joint Graduate Coordinating Committee after application, in writing, to the) and add (of the program) after (director). Text should read: Exceptions to accommodate students with specific interests must be approved by the director of the program.

3) second paragraph, last sentence: delete (the Graduate School of Medicine) and replace with (an academic unit other than that of the student's major field). Text should read: At least one member must be from the College of Veterinary Medicine and at least one member from an academic unit other than that of the student's major field.

Rationale: For MS and PhD revisions: (1) Adding this information clarifies what has been previously implied but not stated. (2) The Joint Graduate Coordinating Committee (JGCC) is the governing body of the Comparative and Experimental Medicine program; it serves to develop and coordinate the curriculum for the graduate program in consultation with the faculty; to ensure that appropriate guidelines are in place, approved, and implemented; and to review and coordinate activities relevant to academic honesty and/or grievances. JGCC members agree that minute details pertaining to individual student progress should be handled by the director of the program. (3) Participation from Graduate School of Medicine faculty members has dwindled so that it is placing an unnecessary burden on the few faculty members willing to serve on committees. This rewording better reflects what the program expects in the chosen committee member. Impact on other units: None. Financial impact: None

ADD CATALOG TEXT INFORMATION ABOUT THE CONCURRENT MASTER'S DEGREE OPTION

In the 2014-2015 *Graduate Catalog*, insert text and requirements for the PhD degree with concurrent MS degree.

PhD with Concurrent MS Degree

The Comparative and Experimental Medicine program offers the PhD with a concurrent MS degree option for doctoral students who plan to complete the master's degree while maintaining enrollment in the doctoral program. The decision to pursue the concurrent MS/PhD degree must be made at least 2 weeks prior to the last day of classes of the semester previous to the one in which the degree would be conferred. Preferably, the student will decide the path (see below) upon entrance into the PhD program.

Students who have already completed a master's degree in a similar program elsewhere will continue to be admitted directly into the PhD-only program.

Path 1: MS with thesis; PhD with dissertation

Students will progress through the MS program and complete a thesis and oral defense before attempting the PhD comprehensive examination and completing the dissertation (and oral defense). Six hours of thesis and 24 hours of dissertation are required.

Path 2: MS with problems in lieu of thesis option; PhD with dissertation

Students will progress through the MS program with 6 course hours in CEM 501 (Special Topics in Comparative and Experimental Medicine) or CEM 510 (Graduate Research Participation) completed under the supervision of the student's major professor and committee. The individual project will involve a literature survey, development of a pre-doctoral fellowship grant targeted toward a specific funding agency, or other comparable project deemed acceptable by the student's committee. The student will undergo an oral defense of the proposal before attempting the PhD comprehensive examination and completing the dissertation (and oral defense).

INTERCOLLEGIATE

BREDESEN CENTER FOR INTERDISCIPLINARY RESEARCH AND GRADUATE EDUCATION

All changes effective Fall 2014

II. PROGRAM CHANGES

REVISE REQUIREMENTS – ENERGY SCIENCE AND ENGINEERING MAJOR, PHD

In the 2014-2015 *Graduate Catalog*, under Requirements heading, in the second sentence of the second paragraph: add the words “and to engage in dissertation research.” after “A student must pass the qualifying examination to proceed in the PhD program.”

A student must pass the qualifying examination to proceed in the PhD program and to engage in dissertation research.

REVISE COURSE REQUIREMENTS

In the 2014-2015 *Graduate Catalog*, under Course Requirements heading, revise as follows:

- 1) after the first sentence: add the sentence “Students with Master's degrees must complete at least 24 hours of graduate coursework, fulfilling all requirements for the Core Curriculum, a Knowledge Breadth Curriculum, and Seminar Series.”

Out of the 72 hours required for the program, 36 hours of graduate coursework is required beyond the BS degree. Students with Master's degrees must complete at least 24 hours of graduate coursework, fulfilling all requirement for the Core Curriculum, a Knowledge Breadth Curriculum, and Seminar Series.

- 2) Under section C “Knowledge Specialization Curriculum” add the following areas to the list

Energy Materials
Transportation Sciences
Cross-Cutting Energy Sciences

REVISE QUALIFYING EXAMINATION REQUIREMENTS

In the 2014-2015 *Graduate Catalog*, under the Qualifying Examination heading of the Graduate Student Examinations section, revise as follows:

- 1) Delete the following text from the first sentence “and tests the student's general knowledge related to the course requirements.”
- 2) Add these two sentences after the first sentence “The Energy Science and Engineering doctoral program requires students to be able to investigate and conduct research on a variety of problems. The qualifying examination tests the capabilities of a student through the preparation of a professional quality investigative research report and accompanying presentation that addresses one of several questions in energy science and engineering.”
- 3) Add the following sentence after the last sentence “Completion of the qualifying exam enables students to begin working on dissertation research.” With the above three revisions, the paragraph will now read as follows:

The qualifying examination is developed, administered, and graded by the faculty (or designated subset of the faculty) of the PhD program under the coordination of the Bredesen Center Director. The Energy Science and Engineering doctoral program requires students to be able to investigate and conduct research on a variety of problems. The qualifying examination tests the capabilities of a student through the preparation of a professional quality investigative research report and accompanying presentation that addresses one of several questions in energy science and engineering. In case of failure, the candidate may appeal to retake the examination through the Bredesen Center Graduate Curriculum Committee within 30 days of notification of the result. If the appeal is granted, the student must retake the examination at the next offering. The result of the second examination is final. Completion of the qualifying exam enables students to begin working on dissertation research.

Rationale: Because our students come from a variety of backgrounds and disciplines, it is not feasible to construct an examination in the format of a test to evaluate each individual student's overall knowledge of the expansive field of energy science and engineering. Instead, because our program is focused on developing high quality researchers, the Bredesen Center Graduate Curriculum Committee has developed a qualifying examination that tests a student's capacity as a researcher. The examination consists of a variety of research problems constructed by the Bredesen Center faculty members that center on the research themes of our program (e.g. bioenergy, renewable energy). Each student selects one of these problems and constructs a lengthy investigative research report on the nature of these problems, in addition to proposing pathways to conduct research on these problems. After the student constructs the report, they present and defend their investigation to several committee members from the Bredesen Center faculty. Each student is

allowed only one retake if their committee deems the examination results insufficient. Once the student has passed the qualifying examination, they are allowed enroll in Doctoral Research and Dissertation credit hours.

REVISE COMPREHENSIVE EXAMINATION REQUIREMENTS

In the 2014-2015 *Graduate Catalog*, under the Comprehensive Examination heading of the Graduate Student Examinations section, revise as follows:

- 1) First paragraph: delete the first word "Timing."
- 2) Second paragraph: delete the sentence "Prerequisites for the exam."
- 3) Third paragraph (2): delete the following sentence after the first sentence: "In order to satisfy each member of the committee that he/she is ready for the exam, the student may be required to perform satisfactorily on either written or oral tests as prescribed by the committee member."
- 4) Delete section: Format: Part 1 and Part 2 (all text).
- 5) Replace the deleted section with the following new paragraph: "The Comprehensive Examination will consist of the student constructing and defending his or her dissertation research proposal to the committee in a format deemed acceptable by the student's Doctoral Committee. Typically, an oral defense is sufficient for this examination, although a written component may be administered at the discretion of the Doctoral Committee."

With the above revisions this section will now read as follows:

Comprehensive Examination

Timing. The Comprehensive Examination must be taken no later than the end of the second year following entrance into the PhD program and prior to admission to candidacy. The timing is late enough in a student's academic program to permit most of his/her graduate course work to be covered on the examination, and early enough to permit modification of the student's program based on the results of the exam.

Prerequisites for the exam. Two requirements must be satisfied before a student takes the Comprehensive Examination.

- (1) A written Dissertation Proposal, approved by the major professor, must be submitted to each member of the student's Doctoral Committee two weeks prior to the examination.
- (2) Each member of the student's Doctoral committee must agree that the student is ready to take the Comprehensive Exam. ~~In order to satisfy each member of the committee that he/she is ready for the exam, the student may be required to perform satisfactorily on either written or oral tests as prescribed by the committee member.~~ The committee member will communicate to the major professor when they are satisfied that the student is ready to take the Comprehensive Exam.

Format. ~~The Comprehensive Examination will consist of two parts:~~

- ~~Part I: A one-day to two-day open book written examination will be given at an agreed upon date. This exam will be composed by the members of the Doctoral Committee at the request of the student's major professor, and the exam will be administered by the major professor.~~
- ~~Part II: Approximately three to six weeks after the written examination, the student will be required to defend his/her dissertation research proposal to the committee. An oral examination will be given. In addition, the student may be further examined in an oral test on subject matter similar to that covered on the written exam.~~

The Comprehensive Examination will consist of the student constructing and defending his or her dissertation research proposal to the committee in a format deemed acceptable by the student's Doctoral Committee.

Once the Comprehensive Examination is passed, the student should file for and be admitted to candidacy. At the discretion of the Doctoral Committee, supplemental reexaminations for the Comprehensive Examination and/or proposed dissertation research may be required. In case of failure, the candidate may not apply for reexamination until the following semester. The result of the second examination is final.

Rationale: Deletions #1 and #2 are for stylistic consistency. Deletion# 3 is restated in revision #5. The deletion of Part I in revision #4 is recommended by the Bredesen Center because it is a redundant requirement given the nature of the qualifying examination. Part II is consolidated in revision #5.