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Thursday January 22, 2015 2:00p.m.	Graduate Curriculum Committee Meeting	University Center Room 220
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REPORT

Present: David Bemis, Hans DeSmidt, Leslee A. Fisher, Martin Griffin, Sibyl Marshall (acting Chair), Andreas Nebenfuehr, Avigail Sachs, Matthew Theriot

Representing the Colleges: Mary Gunther, R.J. Hinde, Stephen Kania, Claudia Kirk, Alex Long, Catherine Luther, Dixie Thompson, John Stier

Also in attendance: Carolyn Hodges, Mary Albrecht, and Catherine Cox

College of Agricultural Sciences and Natural Resources

Course changes: added: 6, dropped 10, revised 29.

Program changes:

Add accelerated 5-year BS-MS Program – Animal Science major

Add major and degree: Entomology, Plant Pathology and Nematology major, PhD

Add concentration: Bioinformatics and Genomics to Entomology & Plant Pathology major, MS

Add accelerated 5-year BS-MS Program – Food Science major

College of Architecture and Design

Course changes: added: 12, dropped 7, revised 0.

Program changes: revisions to Landscape Architecture major, MALA, MLS, MSLA

College of Arts and Sciences

Course changes: added: 25, dropped 5, revised 38.

Program changes: minor revisions to 3 programs and certificates.

College of Communication and Information

Course changes: added: 7, dropped 1, revised 0.

Program changes: none.

College of Education, Health, and Human Sciences

Course changes: added: 17, dropped 9, revised 15.

Program changes:

Add major and degree: Public Health, Doctor of Public Health (DrPH)

Drop major, degree, and concentration: Education major, PhD, Health Behavior and Health Education concentration in Department of Public Health.

Drop Certificate: Public Health Leadership (Department of Public Health)

Add concentration: Teaching and Learning to Teacher Education major, EdS (Dept of TPTE)

Add concentration: Mathematics Grades 6-8 Teaching to Teacher Education major, MS, Licensure Track 2 (Department of Theory and Practice in Teacher Education)

Add concentration: Science Grades 6-8 Teaching to Teacher Education major, MS, Licensure Track 2 (Department of Theory and Practice in Teacher Education)

Drop concentration: Middle Grades Teaching to Teacher Education major, MS, Licensure Track 2 (Department of Theory and Practice in Teacher Education)

Add concentration: Teaching and Learning to Teacher Education major, MS, Non-Licensure Track 1 (Department of Theory and Practice in Teacher Education)

College of Engineering

Course changes: added: 31, dropped 12, revised 35.

Program changes:

Drop Certificate: Sustainability Science (Department of Chemical and Biomolecular Engineering)

College of Law

Course changes: added: 1, dropped 0, revised 1.

Program changes: none.

College of Nursing

Course changes: added: 0, dropped 7, revised 49.

Program changes:

Drop concentration: Global Disaster Nursing, Nursing major, MSN

Drop Certificate: Global Disaster Nursing

Drop Certificate: Global Disaster Studies

Add concentration: Nursing Administration to the Nursing Major, DNP

College of Social Work

Course changes: added: 0, dropped 0, revised 10.

Program changes: Revised requirements to Trauma Treatment Certificate

College of Veterinary Medicine

Course changes: added: 8, dropped 0, revised 3.

Program changes:

Add accelerated dual DVM-PhD (PhD in Comparative and Experimental Medicine)

Haslam College of Business

Course changes: added:33, dropped 2, revised 12.

Program changes:

Add concentration: Information Management to the Accounting Major, MAcc

Add concentration: Analytics to the Management Science Major, PhD

Intercollegiate – Comparative and Experimental Medicine

Course changes: added: 5, dropped 0, revised 0.

Program changes:

Add concentration: Forensic Odontology to the Comparative and Experimental Major, MS

Add accelerated dual DVM-PhD (PhD in Comparative and Experimental Medicine)

Totals: Course Adds = 145, Course Drops = 53, and Course Revisions = 192. Total course changes = 390

- Indicates new concentrations being added / dropped
- ❖ Indicates new majors /degrees / certificates being added / dropped
- + Indicates new academic discipline being added

COLLEGE OF AGRICULTURAL SCIENCES AND NATURAL RESOURCES

All Changes Effective Fall 2015

I. COURSE CHANGES

DEPARTMENT OF ANIMAL SCIENCE

Learning objectives for the Animal Science major, MS

1. Students will demonstrate the ability to apply advanced knowledge and conduct research necessary for deriving eventual solutions to problems impacting animal agriculture and humans.
2. Students will demonstrate written and oral communication skills important for relaying scientific concepts to scientific and general audiences.

Learning objectives for the Animal Science major, PhD

1. Students will demonstrate capacity to conduct independent, original research important for deriving eventual solutions to problems impacting animal agriculture and humans.
2. Students will demonstrate written and oral communication skills for effectively communicating new scientific knowledge to any audience (e.g., scientific, undergraduate and graduate students and/or general).

(ANSC) ANIMAL SCIENCE

DROP

ANSC 430 Nutrient Evaluation and Ration Formulation (3)

Rationale: Course is being converted to biochemistry-focus with new title, intents and description, and additional credit hour. Content of 430 is being folded into ANSC 330, which is better-suited for topics from 430 as the department's core introductory animal nutrition course. Financial impact: None. Impact on other units: None.

ANSC 596 Seminar on Advanced Topics in Animal Science

Rationale: Course content is also offered in ANSC 696. Shifting graduate students enrollment to 696 allows for addressing problems with under enrollment in that course. Impact on other units: None. Financial Impact: None.

ANSC 631 Advanced Topics in Animal Nutrition

Rationale: Under enrolled course. Impact on other units: None. Financial Impact: None.

ANSC 681 Advanced Topics in Animal Science

Rationale: Under enrolled course. Impact on other units: None. Financial Impact: None.

ADD 400-LEVEL COURSE FOR GRADUATE CREDIT

ANSC 431 Comparative Nutritional Biochemistry and Metabolism (4) Nomenclature, structures, functions, utilization, and deficiency symptoms of amino acids and proteins, lipids, carbohydrates, vitamins and minerals in carnivores, omnivores and herbivores. Biochemical pathways and cell signaling, energy availability and utilization, and metabolism of nutrients will be discussed in detail.

Contact Hour Distribution: 3 hours lecture and 1 hour discussion.

(RE) Prerequisite(s): 330 and Chemistry 350 or permission of instructor.

(RE) Corequisite(s): Chemistry 360.

Rationale: Identification of feedstuffs and ration formulation are topics better suited to a core introductory animal nutrition course and were added to ANSC 330. The proposed change in material covered will represent an applied biochemistry course that will adequately prepare pre-veterinary and other pre-professional students for advance study. Impact on other units: Changes the requirements of the ANSC Minor in Program Changes. Financial impact: None, the additional credit will represent a discussion section led by an existing TA and lecture will be taught by instructor currently teaching 430.

ANSC 431 supports learning objective 1 for MS students as they will be required to utilize higher critical thinking and analysis skills to solve complex problems relating to animal nutrition.

Support from assessment activities: None at graduate level, driven by undergraduate program change.

ADD

\$ ANSC 519 Techniques in Molecular Biology (3) Conventional and modern techniques for DNA cloning and manipulation, mRNA expression and analysis, protein expression and analysis, various omics techniques, and bioinformatics tools. Labs will include comprehensive DNA cloning procedure, recombinant protein construction/purification as well as SDS-PAGE/immunoblotting analysis, real-time RT-PCR, and use of software for common genomics and bioinformatics analyses.

Contact Hour Distribution: 2 hours lecture and 2 hours lab.

Recommended Background: A good understanding of the basic knowledge in biochemistry, molecular biology, and microbiology at the college level, equivalent to BCMB 401 or BCMB 402, or above.

Rationale: This lab course will provide graduate students comprehensive hands-on experiences in molecular techniques widely used in biological and agricultural research. Existing courses at UTK are either focused on specific model organism (e.g. plant, PLSC 454/554) or focused on limited techniques with limited hands-on exercise (e.g. EPP528). This course provides broad and in-depth training for various important molecular techniques. Impact on other units: None. Financial Impact: Lab fee will cover supply costs.

ANSC 519 supports learning objective 1 for MS and PhD Animal Science graduate students

Support from assessment activities: This course was offered in spring, 2014 as a special topics course under ANSC 515 offering. Fourteen graduate students from 6 different departments registered. Final student assessment indicates the need for the course.

REVISE DESCRIPTION

ANSC 420 Advanced Reproductive Techniques (3) Collection, evaluation, and preservation of ova, spermatozoa and embryos; application of methods of natural breeding and techniques of artificial insemination and embryo transfer; herd sire and dam evaluation; pregnancy determination; gestation and parturition; infertility; recent advances in theriogenology. Students completing the course with a grade of C or higher will receive certification in artificial insemination.

Formerly: Collection, evaluation, and preservation of ova, spermatozoa and embryos; application of methods of natural breeding and techniques of artificial insemination and embryo transfer; herd sire and dam evaluation; pregnancy determination; gestation and parturition; infertility; recent advances in theriogenology.

Rationale: New statement added to reflect new opportunity to become certified. Impact on other units: none. Financial impact: none.

This course supports learning outcomes 1 for the M.S. Animal Science degree.

Support from assessment activities: None.

ANSC 481 Beef Cattle Management (3) Integration of principles of nutrition, breeding, physiology, and marketing into complete production and management programs. Structure of industry, enterprise establishment, systems of production, production practices, and improvement programs. Management evaluated in terms of production response and economic returns. Students completing the course with a grade of C or higher will receive certification through the Advanced Master Beef Program.

Formerly: Integration of principles of nutrition, breeding, physiology, and marketing into complete production and management programs. Structure of industry, enterprise establishment, systems of production, production practices, and improvement programs. Management evaluated in terms of production response and economic returns. Comparisons made to small ruminant, forage-based production systems.

Rationale: New description reflects certification option and new topic material due to new instructor's expertise. Impact on other units: none. Financial impact: none.

ANSC 481 supports learning outcomes 1 for the M.S. Animal Science degree.

Support from assessment activities: None.

REVISE DESCRIPTION AND REPEATABILITY

ANSC 696 Seminar on Advanced Topics in Animal Science (1) Advanced topics in animal science. Required of all first- and second-year MS and PhD students.

Repeatability: May be repeated. Maximum 4 hours.

Formerly: Advanced topics in animal science. Required of all first- and second-year PhD students.

Repeatability: May be repeated. Maximum 2 hours.

Rationale: Previously 696 was an under-enrolled course, allowing MS students to enroll will increase enrollment. Impact on other units: None. Financial Impact: None.

ANSC 696 supports learning objective 2 for MS and PhD students.

Support from assessment activities: None, change was needed as we previously dropped 596.

DEPARTMENT OF BIOSYSTEMS ENGINEERING AND SOIL SCIENCES

(BSET) Biosystems Engineering Technology

Biosystems Engineering Technology major, MS Learning Objectives

1. Understanding of the scientific method as applied to research and to engineering technology design and development.
2. Capacity to effectively locate literature relevant to a topic, and to critically evaluate such literature. In particular, familiarity with the primary scientific literature, as well as secondary and commercial sources.
3. Capacity to write proposals; conduct experiments; design, construct, and test devices; and write coherent technical reports based on such work.
4. Understanding of professional scientific ethics, including issues such as designation of authorship, and patent rights.
5. Competence in a particular focus area of Biosystems Engineering Technology.

DROP 400-LEVEL COURSE FOR GRADUATE CREDIT

BSET 412 Surveying (3)

Rationale: The faculty member responsible for this course was assigned other teaching duties. In addition, the property surveying in which this faculty member is an expert is not the material most required by students taking the course. Impact on other units: None. Financial impact: None.

REVISE TO REMOVE (RE)PREREQUISITE AND ADD (RE)COREQUISITE

BSET 574 Environmental Instrumentation and Monitoring (3)

(RE)Corequisite(s): BSET 506

Formerly: (RE)Prerequisite 506

Rationale: The prerequisite causes too many scheduling conflicts for incoming graduate students. Impact on other units: None. Financial impact: none.

BSET 574 supports Learning Objective: None, administrative change.

Support from assessment activities: None.

(BSE) Biosystems Engineering

Biosystems Engineering major, MS Learning Objectives

1. Understanding of the scientific method as applied to research and to engineering design and development. Specifically, understanding the importance of developing and testing hypotheses, and of the use of scientific, mathematical, and statistical tools in.
2. Capacity to effectively locate literature relevant to a topic, and to critically evaluate such literature. In particular, familiarity with the primary scientific literature, as well as secondary and commercial sources.
3. Capacity to write proposals; conduct experiments; design, construct, and test devices; and write coherent technical reports based on such work.
4. Understanding of professional scientific ethics, including issues such as designation of authorship, and patent rights.
5. Competence in a particular focus area of Biosystems Engineering.

Biosystems Engineering major, PhD Learning Objectives

1. Understanding of the scientific method as applied to research and to engineering design and development. Specifically, understanding the importance of developing and testing hypotheses, and of the use of scientific, mathematical, and statistical tools.
2. Capacity to effectively locate literature relevant to a topic, and to critically evaluate such literature. In particular, familiarity with the primary scientific literature, as well as secondary and commercial sources, is critical.
3. Capacity to write proposals; conduct experiments; design, construct, and test devices; and write coherent technical reports based on such work.
4. Understanding of professional scientific ethics, including issues such as designation of authorship, and patent rights.
5. Competence, originality, and creativity in a particular focus area of Biosystems Engineering.

DROP FOR GRADUATE CREDIT

BSE 431 Bioprocess Engineering (3)

Rationale: Adding this as BSE 531 below to increase graduate offerings and to ease demanding more of graduate students in the class. Will be taught in same time/place as BSE 431. Impact on other units: None. Financial impact: none.

ADD

BSE 531 Bioprocess Engineering (3) Development of interdisciplinary bioprocess engineering; basics of biology in an engineering perspective; enzymatic reaction kinetics; metabolism and bioenergetics; cell growth kinetics and product formation; engineering principles applied to bioprocess engineering including mass balance, energy balance, and reaction kinetics; reactor design and systems; introduction to bioseparations; practical aspects of bioprocess engineers and process development.

Credit Restriction: Students cannot receive credit for both 431 and 531.

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

Rationale: Adding this course to increase graduate offerings and to ease demanding more of graduate students in the class. Will be taught in same time/place as BSE431, but with higher expectations. Impact on other units: None. Financial impact: none.

This course supports Learning Objective 1-Understanding of the scientific method.

Support from assessment activities: None.

Equivalency Chart

Current Course	Equivalent Course Effective Fall 2015
BSE 431	BSE 531

REVISE DESCRIPTION

BSE 519 Modeling Techniques and Applications (3) Engineering approach to mathematical modeling of physical phenomena. Systems definitions and boundaries; types and formulation of models and solution techniques; verification and calibration techniques; model applications and case studies. Graduate research proposal development and publication formatting.

Formerly: Engineering approach to mathematical modeling of physical phenomena. Systems definitions and boundaries; types and formulation of models and solution techniques; verification and calibration techniques; model applications and case studies.

BSE 619 Mathematical Modeling for Engineers (3) Describing physical and biological settings with mathematical expressions. Applying modeling techniques toward analysis of case study data. Model development, evaluation, presentation, and journal publication.

Formerly: Mathematical Modeling for Engineers (3) Describing physical and biological settings with mathematical expressions. Applying dimensional analysis, linear and nonlinear ordinary differential equations, partial differential equations, systems of linear equations, linearization, moving boundary problems, and series solutions to solve mathematical expressions.

Rationale: In both cases the course content is being modified to more closely link to analysis of existing data with an eye towards producing a journal publication. Impact on other units: None. Financial impact: No additional resources are required.

BSE 519 and 619 support Learning Objective 3-write coherent technical reports.

Support from assessment activities: None.

REVISE (RE)PREREQUISITES

BSE 411 Mechanical Systems Engineering (3)

(RE) Prerequisite(s): grade of C or better in Mechanical Engineering 231 and Mechanical Engineering 321.

Formerly: ME 231, ME 321.

~~BSE 431 Bioprocess Engineering (3)~~ Revision to 431 is for UG (see above the course was dropped for GR credit.

~~*(RE) Prerequisite(s): grade of C or better in 321.*~~

Formerly: 321.

BSE 451 Instrumentation and Control (3)

(RE) Prerequisite(s): grade of C or better in Electrical and Computer Engineering 301.

Formerly: ECE 301.

Rationale: Our ABET assessment results show difficulty for lower-performing students in achieving some of the student outcomes related to upper-level design courses. Analysis and discussion links this difficulty to lack of sufficient competency in the engineering

fundamentals taught in lower-level courses. We propose to address this by ensuring a stronger background in the fundamental classes leading into this sequence by increasing expectations of performance in those courses. Impact on other units: none. Financial impact: none.

BSE 411, BSE 431, and BSE 451 meet 8 of 12 student learning outcomes required by ABET accreditation process.

Support from assessment activities: Based on ABET assessment materials from most recent 3 years.

(ESS) Environmental and Soil Sciences

ADD

ESS 515 Soil and Environmental Biogeochemistry (3) Soils as interface between the biosphere, hydrosphere, atmosphere, and geosphere. Soil and environmental biogeochemical interfaces: cycles of critical elements, coupled biogeochemical cycles, feedbacks between biogeochemistry, climatology, ecology, and soil science.

Rationale: Course aligns with new faculty knowledge, skills, and abilities. Course is also a response to a recent programmatic review which recommended additional graduate-level courses. The course introduces materials that are not currently covered by existing courses; thus, the course complements the student learning objects for the M.S. program by expanding the student's knowledge of the discipline. Title and description represent recent advancements in Environmental and Soil Science which should have a broader appeal to students in the ESS major, but also to other academic departments on campus. Course was taught as a special topics course in Spring 2013 (ESS 593) and will be offered again in Spring 2015. Strong participation and broad appeal is anticipated due to the fact that in 2013 there were 16 graduate students from 8 different academic departments registered for the course. Impact on other units: None. Financial impact: No additional resources are required.

ESS 515 supports learning outcome 5.

Support from assessment activities: Change is in response to this past year's programmatic review which recommended additional graduate-level courses.

DEPARTMENT OF ENTOMOLOGY AND PLANT PATHOLOGY

Student Learning Outcomes for the Entomology and Plant Pathology major, MS

1. Students will have the ability to make professional, effective, and accurate research presentations.
2. Students will compose a scientifically sound, clearly written thesis.
3. Students will be able to coordinate design, implementation, evaluation and synthesis of conclusions for research that provide novel contributions to their subject areas peer-reviewed publication of their work.

(EPP) Entomology and Plant Pathology

DROP

EPP 652 Insect Morphology (3)

Rationale: The course was the doctoral-level equivalent of 552. It has never reached minimum capacity and is not likely to do in the future. Subject matter of 552 essentially is the same as 652 and fulfills the need for an insect morphology course. Impact on other units: None. Financial impact: None.

ADD

EPP 622 Bioinformatics Applications (3)

Fundamental bioinformatics concepts, principles and techniques with a focus on the application of bioinformatics to problems in agriculture. Laboratory practical will be taught within a LINUX computational environment where students will gain basic skills in bash and python scripting and construction open source-software based workflows to analyze genomic data.

Contact Hour Distribution: 2 hours lecture and 2 hours lab

(DE) Corequisite(s): Life Sciences 520 or introductory genetics course.

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

Rationale: The discipline of bioinformatics is one of the most effective and promising tools for generating biological research discoveries, yet robust training and utilization of this discipline are lacking in the agricultural curriculum at UTIA. Bioinformatics involves the processing and understanding of large datasets such as genome and transcriptome sequences, gene and protein expression measurements, and heritable genomic variation. The proposed course will focus on the application of bioinformatic techniques to agricultural problems. Impact on other units: None, course has different goals from main campus courses that include bioinformatics theory. Financial impact: None.

EPP 622 supports learning objectives 1 and 3 for the MS in Entomology & Plant Pathology.

Support from assessment activities: None; new course (2015) that has not yet been approved or offered.

REVISE TITLE

EPP 523 Field Crop and Vegetable Entomology (3)

Formerly: Field Crop and Vegetable Insects (3)

Rationale: New title brings course title in line with other EPP courses where "Insects" has been changed to "Entomology". Impact on other units: None. Financial Impact: None.

Support from assessment activities: Minor change; none needed.

EPP 525 Medical and Veterinary Entomology (3)

Formerly: Advanced Medical and Veterinary Entomology

Rationale: The course name is being slightly altered to make it equivalent to the other 500-level courses in the department. We plan to restrict the use of the word "advanced" only for 600-level courses. Impact on other units: None. Financial Impact: None.

Support from assessment activities: Minor change; none needed.

REVISE TITLE AND DESCRIPTION; DROP (DE)PREREQUISITE

EPP 620 Biodiversity Analysis for Ecosystem Sustainability and Resilience (3) Biodiversity, through its links to ecosystem services production, is crucial for human well-being, economic development and poverty alleviation. Using insect/nematode/microbial communities as model systems, this course examines the structure and function of food webs and the role of biodiversity in ecosystem sustainability and resilience. Students will design and carry out a team research project to reveal subtle human impact on biodiversity and its role in the production of ecosystem services through comparisons between different habitats or urban to rural gradients. Students will analyze the data collected, interpret results by integrating discussion of ecological principles, biodiversity, environmental bioindicators, soil health, ecosystem services, ecosystem sustainability and resilience, and will communicate their findings in a well-written scientific paper.

Formerly: Nematode Biodiversity Analysis for Ecosystem Sustainability and Resilience (3) Biodiversity, through its links to ecosystem services production, is crucial for human well-being, economic development and poverty alleviation. Through the use of nematode community as a model system, this course examines the structure and function of soil food webs and the role of biodiversity in ecosystem sustainability and resilience. Students will design and carry out a team research project to reveal subtle human impact on nematode biodiversity and its role in the production of ecosystem services through comparisons between different habitats or urban to rural gradients. Students will analyze the data collected, interpret results by integrating discussion of ecological principles, biodiversity, environmental bioindicators, soil health, ecosystem services, ecosystem sustainability and resilience, and will communicate their findings in a well-written scientific paper.

(DE)PrerequisiteS: 520 or permission of the instructor

Rationale: Revision of departmental concentrations allows this course to be expanded to cover the whole range of insect-nematode-microbial interactions that contribute to ecosystem stability. Change in emphasis eliminates the need to have EPP 520 as a prerequisite.

EPP 620 supports learning objectives 1 and 3 for the MS in Entomology & Plant Pathology.

Support from assessment activities: None; new course (2014) that has not yet been offered.

REVISE CONTACT HOURS AND DROP CREDIT RESTRICTION

EPP 505 Mycology (3)

Contact Hour Distribution: 2 lectures and 1 lab

Formerly: Contact Hour Distribution: 2 hours and 1 lab.

Credit Restriction: Students cannot receive credit for both 405 and 505.

Rationale: Change in contact hour language brings it in line with standard terminology. No credit restriction is necessary since EPP 405 was dropped several years ago. Impact on other units: None. Financial Impact: None.

Support from assessment activities: Minor change; none needed.

REVISE TO DROP CREDIT RESTRICTION

EPP 512 Soilborne Plant Pathogens (3)

Formerly: Credit Restriction: Students cannot receive credit for both 512 and 612.

Rationale: Credit restriction is unnecessary since EPP 612 was dropped several years ago. Impact on other units: None. Financial Impact: None.

Support from assessment activities: Minor change; none needed.

EPP 552 Insect Morphology (3)

Formerly: Students cannot receive credit for both 552 and 652.

Rationale: No credit restriction is necessary since EPP 652 is being dropped. Impact on other units: None. Financial Impact: None.

Support from assessment activities: Minor change; none needed.

DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY

Learning outcomes for the Food Science major, MS

1. Students will be able to find, critically evaluate, and discuss scientific literature and information relevant to food science
2. Students will be able to design and conduct research projects to test hypotheses, analyze data, formulate conclusions and communicate findings to various audiences

Learning outcomes for the Food Science major, PhD

1. Students will be able to find, critically evaluate, and discuss scientific literature and information relevant to food science
2. Students will be able to design and conduct research projects to test hypotheses, analyze data, formulate conclusions and communicate findings to various audiences

(FSDT) FOOD SCIENCE AND TECHNOLOGY

DROP

FDST 620 FoodToxicology

Rationale: Faculty who taught the course retired several years ago. There has been no need to continue teaching the course. Impact on other units: None. Financial Impact: None.

REVISE (RE) PREREQUISITES

FDST 445 Applied Food Science (3)

(RE) Prerequisite(s): 100 or 241 or consent of instructor; and 410 and 421.

Formerly: (RE) Prerequisite(s): 100 or 241 or consent of instructor.

Rationale: The pre-requisite revision is needed to ensure that students are prepared to be successful in this upper level course. Assessment data from 2012-2013 and 2013-2014 shows that students are lacking preparation related to real-world application of food science principles, specifically related to processing and food chemistry. Adding pre-requisites ensures that students have mastered fundamental concepts from Food Chemistry and Food Microbiology before taking this course so that this course can allow students to delve into more complex levels of understanding (i.e. synthesis, analysis, and evaluation). Impact on Other Units: None. Financial Impact: None

Student Learning Outcomes supported by change: None

How assessment activities supported need for change: Assessment data from 2012-2013 and 2013-2014 shows that students are lacking preparation related to real-world application of food science principles, specifically related to processing and food chemistry. Adding pre-requisites ensures that students have mastered fundamental concepts from Food Chemistry and Food Microbiology before taking this course so that this course can allow students to delve into more complex levels of understanding (i.e. synthesis, analysis, and evaluation).

REVISE DESCRIPTION AND ADD (RE)PREREQUISITES

FDST 495 Quality Assurance and Sanitation Practices (3) Design and evaluation of an industrial food processing operation that produces safe and high quality food products. Introduction to hazard analysis and critical control point programs (HACCP).

(RE)Prerequisites: 410 or 418 and 421 or 428.

Formerly: Design and evaluation of a food processing operation to produce a safe and acceptable quality food product.

Rationale: Ensure that students have previous knowledge of the microbiology and chemistry of foods so as to be able to apply those principles to the industrial production of safe and high quality food products. Impact on Other Units: None. Financial Impact: None.

Student Learning Outcomes supported by change: None.

How assessment activities supported need for change: None.

DEPARTMENT OF FORESTRY, WILDLIFE AND FISHERIES

Learning objectives for the Wildlife and Fisheries Science major, MS:

1. Students are able to use appropriate theory to conceptualize research problems
2. Students are able to use appropriate methods and procedures to achieve specific research objectives

(WFS) Wildlife and Fisheries Science

ADD

WFS 552 Ecology and Management of Fishes (3) Theoretical and applied conservation and management issues relating to the ecology and regulation of fish populations and assemblages. Abiotic (physical, chemical) and biotic (predation, competition) interactions facing fishes and how these interactions may be affected by humans, and how humans can manage these interactions to conserve and sustain fish populations and assemblages.

(DE) Prerequisite(s): Forestry, Wildlife and Fisheries 317, Biology 260, or equivalent.

Rationale: This course is aimed at enhancing WFS graduate students in fisheries develop a deeper understanding of the theory and techniques associated with ecology and the regulation of fish populations. **Impact on other Units:** No significant impact – the course does not compete with other courses; it may attract some students from EEB. **Course is also to be added as an option to the Science/Engineering courses for the graduate Watershed Minor.** **Financial Impact:** No additional resources are required; the course is being offered by a new faculty member as part of their teaching responsibility.

WFS 552 supports learning objectives 1 and 2 for the Wildlife and Fisheries Science major, MS

Support from assessment activities: None indicated by department.

DEPARTMENT OF PLANT SCIENCES

Learning objectives for the Plant Sciences major, MS

1. Plant Sciences MS students will be able to effectively communicate through oral presentations (e.g., of thesis proposals or creative projects).
2. Competently communicate their research findings in appropriate venues (including to lay and trade audiences and the global scientific community).
3. Plant Sciences MS students will be able to coordinate design, implementation, evaluation and synthesis of conclusions for research or projects that provide novel contributions to their discipline fields.

Learning objectives for the Plants, Soils and Insects (Plant Sciences) major, PhD:

1. Plants, Soils and Insects (PSI) PhD¹ students will be able to effectively communicate through oral presentations (e.g., of special topic projects and dissertation proposals).
2. PhD student will be able to competently communicate their research findings in appropriate venues (including to lay and trade audiences and the global scientific community).
3. PSI PhD students will be able to coordinate design, implementation, evaluation and synthesis of conclusions for research or projects that provide novel contributions to their discipline fields.
4. PSI PhD students will demonstrate peer professional engagement through memberships in professional associations that serve their academic discipline.

(PLSC) Plant Sciences

DROP

PLSC 513 Fungal Epidemiology and Disease Control (2)

Rationale: Course was cross-listed with another department and was dropped in a previous year, thus is no longer available. **Course format and location:** Not applicable. **Impact on other units:** none. **Financial impact:** None.

PLSC 603 Special Topics in Crop Physiology and Ecology (1-3)

Rationale: Course has not been taught in recent years, nor has enrollment demand been consistent when offered. Options to cover this content as needed will be met by offering an Advanced Special Topics course with variable title status. **Course format and location:** Not applicable. **Impact on other units:** none. **Financial impact:** None.

REVISE TITLE, DESCRIPTION, AND REPEATABILITY, REQUEST APPROVAL FOR VARIABLE TITLE

PLSC 605 Advanced Topics In Plant Sciences (1-3) Topics may range from contemporary approaches and innovations in Crop Physiology and Ecology, Plant Breeding and Genetics, to Meta-Analyses.

Repeatability: May be repeated. Maximum 9 hours.

Formerly: Special Topics in Plant Breeding and Genetics (1-3) Genotype by environment interactions, estimation of quantitative parameters, mutations, chromosome dynamics, polyploidy, genetic engineering, interspecific hybridization, linkage, screening methods, genome organization.

Repeatability: May be repeated. Maximum 6 hours.

Rationale: Variable title approval will be needed to facilitate differentiation of courses that may be offered simultaneously within the Timetable and will resolve recent conflicts within MyUTK. Increase from 6 to 9 credit hours reflects need to recover portion of hours formerly available through PS 603. Catalog course descriptions will become more efficient and will better reflect the frequency at which these courses have been offered in the recent past. Course format and location: Variable. Impact on other units: none. Financial impact: None, when taught, will be offered by existing faculty as part of current appointment.

PLSC 605 supports Learning Objective 3 for the MS in Plant Sciences and the PhD in Plant, Soils, and Insects

Support from assessment activities: None; not applicable. Change is made for efficiency and flexibility purposes.

REVISE HOURS AND ADD COMMENTS

PLSC 437 Public Garden Operations and Management (3)

Comment(s): Prior knowledge or experience may satisfy (RE) Prerequisite(s) with consent of instructor

Formerly: (2)

Rationale: Increased credit hour offering reflects increased student participation in experiential learning project and actual expected workload. Revision facilitates course access to graduate students with prior related professional and institutional/academic experiences. Course format and location: Lecture, on campus. Impact on other units: none. Financial impact: None.

PLSC 437 supports student learning outcome 3 for BS in Plant Sciences.

Support from assessment activities: None; not applicable. Change is made for efficiency and flexibility purposes.

REVISE TO DROP (RE)PREREQUISITES AND ADD COMMENTS

PLSC 410 Nursery Management and Production (3)

Comment(s): Offered Spring in alternate, odd-numbered years.

Formerly: (RE) Prerequisite(s): 210.

Rationale: Inclusion of semester taught within comments facilitates student scheduling via information conferred by online catalog and facilitates course access to graduate students. Course format and location: Lecture, on campus. Impact on other units: none. Financial impact: None.

Student learning outcomes supported: Outcome 3 for BS in Plant Sciences.

Support from assessment activities: None, not applicable. Revision is intended to clarify confusion resulting from prerequisite requirements of a 400 level course available for graduate credit.

REVISE TO DROP (RE)PREREQUISITES AND ADD RECOMMENDED BACKGROUND

PLSC 434 Fruit and Vegetable Crops (3)

Recommended background: 210 or working familiarity with general principles and practices of horticulture.

Formerly:(RE) Prerequisite(s): 210 or Biology 111 or 112 or consent of instructor.

Rationale: Revision corrects prerequisite discrepancies listed between 2014-15 undergraduate and graduate catalogs and facilitates course access to graduate students with prior related professional and institutional/academic experiences. Course format and location: Lecture, on campus. Impact on other units: none. Financial impact: None.

REVISE TO DROP (RE)PREREQUISITES, ADD RECOMMENDED BACKGROUND AND COMMENTS

PLSC 430 Greenhouse Management (3)

Recommended background: 210 or working familiarity with general principles and practices of horticulture.

Comment(s): Offered Spring in alternate, even-numbered years.

Formerly: (RE) Prerequisite(s): Agriculture and Natural Resources 290 or Computer Science 100.

Rationale: Revision corrects prerequisite discrepancies listed between 2014-15 undergraduate and graduate catalogs and facilitates course access to graduate students who are likely to have prior related professional and institutional/academic experiences. Inclusion of semester taught within comments facilitates student scheduling via information conferred by online catalog. Course format and location: Lecture, on campus. Impact on other units: none. Financial impact: None.

REVISE TO REMOVE RECOMMENDED BACKGROUND

PLSC 561 Statistics for Biological Research (3)

Formerly: Recommended Background: Mathematics 125 or 152.

Rationale: Change will reduce unintended graduate student enrollment conflicts. Course format and location: Lecture, on campus.
Impact on other units: none. Financial impact: None.

PLSC 561 supports Learning Objective 3 for MS in Plant Science and PhD in Plant, Soils, and Insects

Support from assessment activities: None; not applicable. Change is made for efficiency and flexibility purposes

REVISE TO ADD COMMENT

PLSC 421 Native Plants in the Landscape (3)

Comment(s): Graduate standing or prior experience may satisfy prerequisite(s) with consent of instructor.

Rationale: Revision corrects prerequisite discrepancies listed between 2014-15 undergraduate and graduate catalogs and facilitates course access to graduate students with prior related professional and institutional/academic experiences. Course format and location: Lecture, on campus. Impact on other units: none. Financial impact: None.

PLSC 421 supports student learning objectives 1 & 3 for MS in Plant Sciences.

Support from assessment activities: None; not applicable. Change is made for efficiency and flexibility purposes.

PLSC 462 Professional Development in the Turfgrass Industry (1-2)

Comment(s): Graduate standing or prior experience may satisfy prerequisite(s) with consent of instructor.

Rationale: Revision corrects prerequisite discrepancies listed between 2014-15 undergraduate and graduate catalogs and facilitates course access to graduate students with prior related professional and institutional/academic experiences. Course format and location: Lecture, on campus. Impact on other units: none. Financial impact: None.

PLSC 462 supports student learning objectives 1 & 3 for MS in Plant Sciences.

Support from assessment activities: None; not applicable. Change is made for efficiency and flexibility purposes.

PLSC 470 Professional Practices for the Green Industry (3)

Comment(s): Graduate standing or prior experience may satisfy prerequisite(s) with consent of instructor.

Rationale: Revision corrects prerequisite discrepancies listed between 2014-15 undergraduate and graduate catalogs and facilitates course access to graduate students with prior related professional and institutional/academic experiences. Course format and location: Lecture, on campus. Impact on other units: none. Financial impact: None.

PLSC 470 supports student learning objective 3 for MS in Plant Sciences.

Support from assessment activities: None; not applicable. Change is made for efficiency and flexibility purposes.

PLSC 480 Advanced Landscape Design (4)

Comment(s): Graduate standing or prior experience may satisfy prerequisite(s) with consent of instructor.

Rationale: Revision corrects prerequisite discrepancies listed between 2014-15 undergraduate and graduate catalogs and facilitates course access to graduate students with prior related professional and institutional/academic experiences. Course format and location: Lecture, on campus. Impact on other units: none. Financial impact: None.

PLSC 480 supports student learning objectives 1 & 3 for MS in Plant Sciences.

Support from assessment activities: None; not applicable. Change is made for efficiency and flexibility purposes.

PLSC 485 Computer Aided Landscape Design (3)

Comment(s): Graduate standing or prior experience may satisfy prerequisite(s) with consent of instructor

Rationale: Revision corrects prerequisite discrepancies listed between 2014-15 undergraduate and graduate catalogs and facilitates course access to graduate students with prior related professional and institutional/academic experiences. Course format and location: Lecture, on campus. Impact on other units: none. Financial impact: None.

PLSC 485 supports student learning objectives 1 & 3 for MS in Plant Sciences.

Support from assessment activities: None; not applicable. Change is made for efficiency and flexibility purposes.

REVISE COMMENTS

PLSC 505 Professional Development and Presentation Skills (1

Comment(s): To be taken the first Spring semester offered after beginning MS (or PhD) studies in plant sciences.

Formerly: Comment(s): Taken the first semester offered after beginning MS (or PhD) studies in plant sciences.

Rationale: Inclusion of semester taught facilitates student scheduling via information conferred by online catalog. Impact on other units: none. Financial impact: None.

PLSC 505 supports student learning objectives 1 and 3 for MS in Plant Sciences and PhD in Plant, Soils and Insects.

Support from assessment activities: None, not applicable.

II. PROGRAM CHANGES

REVISE REQUIREMENTS FOR WATERSHED MINOR

In the 2015-16 *Graduate Catalog* add the following course to the Watershed Core course list:

CE 485/GEOL 485 (3)

Add the following course to the Science/Engineering course list:

WFS 552 (3)

Rationale: all changes suggested by faculty and approved by Watershed Minor Faculty Executive Committee. Impact on other units: None. Financial impact: none.

DEPARTMENT OF ANIMAL SCIENCE

ADD ACCELERATED FIVE YEAR BS-MS PROGRAM – ANIMAL SCIENCE MAJOR

In the 2015-16 *Graduate Catalog* add heading and text for the accelerated Five Year BS-MS Program:

Accelerated Five Year BS-MS Program, Animal Science Major

For qualified students, the Department of Animal Science offers an accelerated 5-year BS-MS degree program with a BS major in Animal Science and a thesis-based MS major in Animal Science. Central to this program is that a qualified student may take up to 9 hours of approved graduate courses for their senior undergraduate electives and have them count toward both the BS degree and the MS degree. Students are typically considered for conditional admission to the program during, or immediately following, their third year of undergraduate study at UT. Because the MS program requires that a student write a thesis based on original research, efforts related to developing and starting a research-based project in consultation with a graduate advisory committee (that meets MS committee requirements) is required immediately following their third year of undergraduate studies.

To be considered for conditional admission to the program:

1. A student must be a declared Animal Science major with a minimum GPA of 3.4, must have completed at least 15 hours of credit in Animal Science, and must have completed at least 90 hours of the 120 hours of coursework required for the BS degree with a major in Animal Science.
2. A student must provide three letters of recommendation and complete a personal interview with individuals comprising the Graduate and Undergraduate Committees in the Department of Animal Science.
3. A student must obtain a commitment from an Animal Science graduate research faculty member to serve as their graduate mentor-advisor (i.e., major professor) and at least two other graduate research faculty members to serve on their graduate advisory committee.

Applicants are required to have completed at least 6 credit hours from the following Animal Science core courses (i.e., ANSC 320, ANSC 330, ANSC 340, ANSC 380 or their Honors counterparts). 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 BS-MS program. Conditional admission of a student into the 5-year BS-MS program must be approved by both the Department of Animal Science and the Graduate School. Students will be typically informed of the outcome of their application before the beginning of their fourth year of undergraduate study.

Any course taken for graduate credit before satisfying all requirements for the BS degree must be approved both by the Graduate Director and by the Graduate School. These courses must be identified in advance, in consultation with the graduate advisory committee members. The form "Senior Requesting Graduate Credit" is found on the Graduate School website and must be completed, signed, and submitted to the Graduate School for approval and processing.

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 that is conditionally admitted to the BS-MS program completes 9 hours of graduate credit during the student's fourth year of undergraduate study (by submitting the "Senior Requesting Graduate Credit Form" to the Graduate School), and applies those 9 hours to satisfy BS degree requirements may also apply the 9 hours towards MS degree requirements.

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

ADD CONCURRENT MASTER'S DEGREE REQUIREMENTS TO PHD CATALOG TEXT

In the 2015-16 *Graduate Catalog* add heading and text for the concurrent master's degree requirements:

Concurrent Master's Degree requirements

In exceptional cases where an individual is admitted to PhD program having a BS and/or DVM only but no thesis-based MS degree, individual will be required to complete a MS degree in the continuum of PhD program efforts. Individual would work with their graduate advisor to submit a manuscript containing their initial original research efforts to a scientific peer-reviewed journal. Submitted manuscript would then be formatted into a thesis for presentation of an oral defense. Upon completion of MS degree requirements (24 graduate credit hours + 6 credit hours of ANSC 500), the individual would complete PhD requirements as outlined in departmental graduate student handbook.

REVISE REQUIREMENTS: ANIMAL SCIENCE MAJOR, MS

In the 2014-2015 *Graduate Catalog* appearing under Requirements, delete the 6th bullet and replace with the following:

ANSC 696 each spring term for first- and second-year students (Maximum 2 hours).

Formerly: ANSC 596 each spring term for first- and second-year students.

DEPARTMENT OF BIOSYSTEMS ENGINEERING AND SOIL SCIENCE

REVISE REQUIREMENTS – BIOSYSTEMS ENGINEERING MAJOR, PHD

In the 2014-2015 *Graduate Catalog* under Requirements change first line of course requirements to:

BSE 519, 619, and other major subject courses 18

Formerly: BSE 619 and other major subject courses 18

Rationale: BSE 519 is a prerequisite for 619, but the former listing did not give credit for it. Impact on other units: None. Financial Impact: None.

DEPARTMENT OF ENTOMOLOGY AND PLANT PATHOLOGY

❖ ADD MAJOR, DEGREE, AND CONCENTRATIONS – ENTOMOLOGY, PLANT PATHOLOGY AND NEMATOLOGY MAJOR, PHD (PENDING THEC APPROVAL)

Entomology, Plant Pathology and Nematology major, PhD

Biodiversity and Ecosystem Resilience concentration

Bioinformatics, Genomics, and Molecular Interactions concentration

Organismal Biology and Ecology concentration

Sustainable Disease and Integrated Pest Management concentration

In the 2015-2016 *Graduate Catalog* insert heading, text, and requirements for new major.

Entomology, Plant Pathology and Nematology Major, PhD (PENDING THEC APPROVAL)

**This program is pending approval from the Tennessee Higher Education Commission. Students will be admitted to the major and degree only after THEC approves the program.*

Entomology, Plant Pathology and Nematology Major (EPP), PhD

Biodiversity and Ecosystem Resilience concentration
Bioinformatics, Genomics, and Molecular Interactions concentration
Organismal Biology and Ecology concentration
Sustainable Disease and Integrated Pest Management concentration

A Doctor of Philosophy degree with a major in Entomology, Plant Pathology and Nematology in the Department of Entomology and Plant Pathology (EPP). Concentrations include biodiversity and ecosystem resilience; bioinformatics, genomics, and molecular interactions; organismal biology and ecology; and sustainable disease and integrated pest management. Please see the doctoral program links on the homepage of the Department of Entomology and Plant Pathology for additional information, <http://eppserver.ag.utk.edu/>, or contact a faculty member in the area of interest.

Admission

Submit application, fee, official transcripts, scores from the general portion of the Graduate Record Examination, three letters of reference (or three Graduate Rating Forms), and a detailed statement of professional goals and reasons for applying to Entomology and Plant Pathology directly to the Office of Graduate Admissions. In the statement letter and application, the concentration of interest and intended major professor must be indicated.

Requirements

The student and the major professor will select a minimum of three additional faculty, holding the rank of assistant professor or above, to serve on the student's doctoral committee. The major professor and two committee members must be approved to direct doctoral research by the Graduate Council. At least one member of the committee must be from outside the department. The doctoral committee must be formalized by the end of the second semester of graduate study.

Submission of an approved program of study by the end of the second semester of graduate study is required. A candidate for the doctoral degree must complete a minimum of 24 hours of graduate course work numbered 503 or higher beyond the master's degree. Candidates not having a master's degree must complete a minimum of 48 hours of graduate course work beyond the baccalaureate degree, 24 hours of which must be numbered 503 or higher. A minimum of 12 of the 24 hours, or 30 of the 48 hours, must be graded A-F. At least 9 hours of the student's course work must be from outside the Entomology & Plant Pathology curriculum, and a minimum of 6 hours of courses numbered 601 or higher must be taken at the University of Tennessee, excluding EPP 603. In addition, 24 hours of course EPP 600 Doctoral Research and Dissertation are required.

Satisfactory preparation of a written dissertation proposal and an oral defense to the student's committee are required. These must be completed during the first two semesters of graduate study and before enrollment in 600.

Both written and oral sections of the comprehensive examination must be passed. The candidate will be tested on his/her knowledge of the proposed dissertation and related fields.

Presentation of at least two departmental seminars (2 hours of EPP 640) and an exit seminar (no credit) are required.

Satisfactory preparation of a written dissertation and an oral defense to the student's doctoral committee are required.

See the Degree Program Requirements/Doctoral Degree section in the Academic Policies and Requirements for Graduate Students section of this catalog for additional information.

Rationale: Ensuring vitality of the nation's food and agricultural enterprise requires that we tap the talents of all citizens and influence future leaders so that they are better prepared to understand the capabilities and limitations of science and technology in producing and delivering sufficient, safe, and healthy food for the increasing human population. Today's global agricultural enterprise that stretches beyond the farm is supported by a workforce that includes not only farmers, but many other skilled professionals, including scientists, food chemists, seed suppliers, ethanol producers, packaging engineers, food safety experts, risk assessors, grocery suppliers, and many others. Goecker *et al.* (2010) reported that about 54,000 scientists and professionals will be required annually to fill vacancies in the food, agriculture, and natural resources system between 2010 and 2015 in the United States alone. Unfortunately, colleges engaged in the Food and Agricultural Sciences will graduate only about 29,300 students annually with BS or higher degrees per year (www.csrees.usda.gov/nea/education/part/education_part_employment.html). Not only does the US need more graduates currently, growth in demand is projected for graduates with advanced academic preparation in order to match ongoing, rapid advances in knowledge and technologies. Here again, the National Academy of Sciences (NAS) has concluded that the United States is allowing itself to slip from its global leadership role in science and technology (NAS, 2009). Therefore, the colleges and universities engaged in Food and Agricultural sciences must undergo a significant transformation and provide bold academic and research leadership.

A 2009 report by the National Research Council of the National Academies of Sciences entitled "A New Biology for the 21st Century: Ensuring the United States Leads the Coming Revolution," recognized the need for a revolution in biological sciences to address broad societal challenges. The four societal challenges identified in this report are: (i) Generate food plants to adapt and grow sustainably in changing environments; (ii) Understand and sustain ecosystem function and diversity in the face of rapid change; (iii) Expand

sustainable alternatives to fossil fuel; and (iv) Understand individual health. All four of these challenges can be addressed, directly or indirectly, through research and graduate training in agricultural sciences; the doctoral program proposed herein serves as one example.

The US Bureau of Labor Statistics projects a 10% increase in employment of agricultural and food scientists from 2010 to 2020. It predicts that, "agricultural scientists will be needed to balance increased agricultural output with protecting and preserving soil, water, and ecosystems. They increasingly will help develop sustainable agricultural practices by creating and carrying out plans to manage pests, crops, soil fertility, erosion, and animal waste in ways that reduce the use of harmful chemicals and minimize damage to the natural environment. In addition, demand for biofuels—renewable energy sources from plants—is expected to increase." The US Bureau of Labor Statistics also predicts that "most growth over the next 10 years for agricultural and food scientists will be in research and development led by private industry." Private industry has increased its demand for agricultural and food scientists because their expertise is necessary for developing food, crops, and drugs, along with ensuring quality and safety. Furthermore, research in genomics and agricultural sustainability is expected to generate even more the number of available agricultural science positions. Research by these scientists may improve crop yields or have an impact on other fields, such as biofuels. A THEC sponsored study conducted by the University of Tennessee Center for Business and Economic Research entitled, "Academic Program Supply and Occupational Demand Projection: 2008-2018," specifically identified a shortage of anticipated degrees in the CIP Code: 01.1105 – Plant Protection and Integrated Pest Management despite a projected overall increase in doctoral degrees awarded during this period.

Finally, the separate professional societies associated with Entomology, Plant Pathology, and Nematology – three disciplines that form the core of the Plant Protection and Integrated Pest Management CIP category-- list current jobs on their respective websites (www.entsoc.org; www.apsnet.org; www.nematologists.org). The total numbers of available academic and industry jobs for Ph.D. level graduates in the three disciplines usually vary between 20 and 45 at any given time. In addition entomologists, plant pathologists, and nematologists are employed in federal, state, and municipal governments, high schools, 2-year professional colleges with vocational agricultural programs, nursery and landscape associations, and as crop consultants.

Overall, the trends call for strong and transformative Ph.D. programs in plant protection and integrated pest management. *Entomology* focuses on the study of insects that provide many beneficial ecosystem services including biological control, pollination, honey and other products, and macro-decomposition but also pose economic threats to plant and animal agriculture, human structures, urban landscapes, and natural resources such as forests. Insect pests cause economic losses to the tune of \$350 billion annually worldwide. Insects also serve as vectors of fatal human, animal and plant diseases and act as annoyance pests such as bed bugs, fire ants, and face flies, resulting in additional economic losses. Additionally, distribution and spread of insect pests and disease vectors is rapidly changing due to climate change and global warming. The spread of invasive insect pests such as the emerald ash borer, Japanese beetle, walnut twig beetle, and hemlock woolly adelgid currently threatens forest resources and brown marmorated stink bug and spotted wing *Drosophila* threaten field and orchard crops in Tennessee. New, more environmentally friendly pesticides are now being developed, requiring even greater knowledge of insect biology, physiology, and insect plant interactions.

Nematology, the study of roundworms, focuses on plant, animal, and human parasitic nematodes and on nematodes that provide beneficial ecosystem services including biological control and nutrient cycling in terrestrial, freshwater, and marine systems. Plant-parasitic nematodes alone cause over \$78 billion in annual crop losses worldwide (Barker et al., 1994). Funding cuts, departmental reorganizations, and retirements have resulted in the loss of nematology research and graduate programs in the US. Currently, there are no graduate programs that award Ph.D. degrees exclusively in nematology in North America, while the need for nematology graduates is on the rise. For example, spread of plant-parasitic nematodes such as the soybean cyst nematodes into temperate climates due to global warming is threatening sustainability of the American soybean industry (www.nematologists.org). Several new environmentally friendly nematicides have become available on the market; the industry urgently needs nematologists trained in practical field research to evaluate these and other alternative nematode-related situations. Although much of research activity in nematology was focused on plant-parasitic nematodes, during the past two decades nematodes have emerged as important biocontrol agents of insect pests and more recently they have been recognized as the most comprehensive bioindicators of soil health. Full genome sequences of several economically important nematode species have been completed and several species have become legitimate model systems in neurobiology, genetics, parasitology, and symbiosis, though a better understanding of this information requires PhD-level scientists. All these developments and challenges require nematology graduates with modern skills and tools to solve complex problems and provide international leadership.

Arthropods and nematodes also often serve as vectors of serious diseases of humans (malaria and dengue fever), animals (*Anaplasma* and Heartwater), and plants (*Geosmithia morbida*, sharka, tristeza, and grapevine fan leaf). Additionally they are responsible for the spread of food-borne diseases caused by *Salmonella* and *Escherichia coli*. Research on the complex biology and ecology of disease vectors, including their life histories, transmission patterns, links to reservoirs, and vector competency, to identify points for management and to develop a better understanding of transmission to minimize disease spread and incidence are needed.

Plant Pathology focuses on the study of plant pathogens, including the mechanisms of virulence and host-plant resistance, epidemiology and spread of plant and food-borne pathogens, and the development of disease control strategies. According to the American Phytopathological Society, plant diseases – spread by bacteria, fungi, phytoplasmas, viruses, viroids, or other pathogens – cause billions of dollars in economic losses each year to agriculture, landscape, and forest settings in the United States. These diseases reduce yields, lower product quality or shelf life, decrease aesthetic or nutritional value, and, sometimes, contaminate food and feed with toxic compounds. Control of plant diseases is essential for providing an adequate supply of food, feed, fiber, and aesthetics. Yet, growers spend millions of dollars each year only to partially control the pathogens that attack their crops and ornamental plants. Besides the obvious monetary benefits to producers and processors, successful plant health protection is important for maintaining and increasing food supplies with minimal increases in land under cultivation. Additionally, the knowledge and management of plant diseases with quarantine significance and implications are vital, not only for protecting our domestic crops from foreign disease, but also for maintaining and expanding export markets for plants and plant products.

In addition to serving an important national and international need, the proposed program is well aligned with institutional priorities as The University of Tennessee, Knoxville, strives to become a Top 25 institution. This new Ph.D. program, created through the restructuring of the interdepartmental PSI program, will increase the number of doctoral degrees awarded by fostering departmental ownership, enabling the attraction of high quality and greater numbers of Ph.D. students typically attracted to these nationally recognized disciplines, and by enhancing competitiveness of the department and the University of Tennessee, Knoxville among peer institutions.

Impact on other units: There are no programs in the same CIP classification at the same degree level offered at any other public institutions in Tennessee, nor are there similar programs within UT-Knoxville. The proposed program will be offered only at the University of Tennessee, Knoxville. The proposed program also is the first in the nation to encompass all three disciplines within the crop protection CIP classification in a single Ph.D. program; thus it will be the most comprehensive program available. The emphasis in nematology on an equal level with entomology and plant pathology is unique to graduate programs in the U.S. and abroad. The proposed program will provide equal opportunity to all students irrespective of color, race, gender, or national origin. Exit of EPP Ph.D. students from the Plants, Soils and Insects (PSI) umbrella Ph.D. program does not endanger the existence of PSI since the remaining departments in that program have been graduating students at or above the annual target number. Financial impact: Financial costs to transition from the PSI program a stand-alone Ph.D. program will be minimal and borne in-house.

Approval email from the Provost's Office and Letter of Intent approval letter from THEC:



RICHARD G. RHODA
Executive Director

STATE OF TENNESSEE
HIGHER EDUCATION COMMISSION
PARKWAY TOWERS, SUITE 1900
NASHVILLE, TENNESSEE 37243-0830
(615) 741-3605
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BILL HASLAM
Governor

MEMORANDUM

TO: President Joe DiPietro
The University of Tennessee

FROM: Richard G. Rhoda *RGR*

SUBJECT: Approval of the University of Tennessee, Knoxville
Letter of Intent to Plan a Doctoral Program in
Entomology, Plant Pathology and Nematology

DATE: October 20, 2014

In accordance with THEC policies, colleges and universities are required to submit Letters of Intent for authorization to proceed with developing proposals for new academic programs and units. The THEC financial projection form for the proposed program must accompany the letter of intent to plan. Upon THEC approval to proceed with developing proposals, institutions should do so in a manner consistent with THEC policies and criteria.

Programs must document relevance to institution's mission, provide enrollment, graduation and financial projections, describe the anticipated evaluation process, document employer and student demand, and certify that the proposed program will not unnecessarily duplicate existing offerings at other Tennessee public institutions. The proposal must ensure faculty sufficiency, existence of student support resources, and adequacy of library, space, equipment, and technology.

I approve the University of Tennessee Knoxville Letter of Intent (June 13, 2014) to plan the PhD in Entomology, Plant Pathology and Nematology. It is understood that the proposed program will be in accord with the UTK mission, will meet *Tennessee Public Agenda for Higher Education 2010-2015* degree completion and workforce development objectives, and will be implemented with existing funds.

The Letter of Intent projects implementation of an approved program in August 2015. Please be advised that the Letter of Intent itself will be posted on the THEC website for public disclosure.

cc: Dr. Katherine N. High, UT
Dr. Jimmy G. Cheek, UTK
Dr. Susan Martin, UTK

- **ADD CONCENTRATION – ENTOMOLOGY AND PLANT PATHOLOGY MAJOR – MS**

Bioinformatics and Genomics concentration

REVISE ENTOMOLOGY AND PLANT PATHOLOGY MAJOR, MS

In the 2015-16 *Graduate Catalog*, after the description of requirements for the major, add text for new concentration as follows:

Bioinformatics and Genomics concentration

In addition to a solid biological background in entomology, plant pathology or a combination of the two, students will gain foundational knowledge in bioinformatics and genomics. Students concentrating in bioinformatics and genomics can study biological sequencing and analysis of DNA and RNA, epigenetics, metagenomics and metatranscriptomics, phylogenomics, genotyping by sequencing, differential gene expression, population genomics, gene interactions and/or proteomics.

Core Curriculum

The committee may decide that foundational knowledge of plant pathology and/or entomology is necessary. In this case students may need to enroll in or audit EPP 313 and/or EPP 321. In cases where a student believes he/she has had equivalency, the faculty may administer a proficiency exam.

Required:

- 1) EPP 622 Bioinformatics Applications (3)
- 2) At least nine hours selected from the EPP courses listed in the catalog (excluding EPP 500, 502, 531, 541, 640, 675, 622).
- 3) At least six hours in bioinformatics or genomics. Current courses available that would meet this requirement include:
 - CBE 672 Computational Bioinformatics (3)
 - LFSC 520 Genome Science and Technology I (4)
 - LFSC 521 Genome Science and Technology II (4)
 - LFSC 507 Programming for Biological Data Analysis (3)
 - MICR 540/LFSC 517 Genomics and Bioinformatics (3)
- 1) ANSC 675 Statistical Genomics (3) or another statistics course is highly recommended and usually will be required by the student's committee.

Rationale: The discipline of bioinformatics is one of the most effective and promising tools for generating biological research discoveries, yet robust training and utilization of this discipline are lacking in the agricultural curriculum at UTIA. Bioinformatics involves the processing and understanding of large datasets such as genome and transcriptome sequences, gene and protein expression measurements, and heritable genomic variation. An extremely large amount of data is publicly available for both crop plants and livestock due to a tremendous increase in laboratory throughput and a large scientific investment in genomic research of agricultural systems. Leveraging these large molecular datasets to extract meaningful biological data requires students to be cross-trained in biology, genetics and computational science. The proposed concentration will focus on the application of bioinformatic techniques to agricultural problems. Students will gain skills in computational science and the ability to analyze DNA, RNA and protein datasets. This concentration is a strong addition to UTIA's ongoing mission to produce students effective in today's technologically-driven agricultural science sector. **Impact on other Units:** Course has a different orientation from main-campus courses that have a bioinformatics component. For courses outside the department there will be minimal impact (no more than 4 students per semester are likely to enroll in any of the non-departmental courses). **Financial Impact:** None.

Evidence from Programmatic Assessment that supports the new concentration: The administration of UTIA, through conversations with faculty and assessment of future directions in agriculture, recognized and embraced bioinformatics as a necessary priority area in both research and educational efforts by hiring the first bioinformatics-focused faculty member (Meg Staton) at UTIA. The proposed concentration has been designed in collaboration with other faculty to meet the informatic needs for students and enhance research projects across UTIA.

DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY

ADD ACCELERATED FIVE YEAR BS/MS FOOD SCIENCE MAJOR

In the 2015-16 *Graduate Catalog* add heading and text for the accelerated Five Year BS-MS Program:

Accelerated Five Year BS-MS Program, Food Science Major,

For qualified students, the Department of Food Science and Technology offers an accelerated 5-year BS/MS program with a BS major in Food Science and Technology and a thesis-based MS major in Food Science and Technology. Central to this program is that a qualified student may take up to 9 hours of approved graduate courses for their senior undergraduate electives and have them count toward both the BS degree and the MS degree. Students will be considered for conditional admission to the program during, or immediately following junior year of undergraduate study at UT. Because the MS program requires that students write a thesis based on their original research, students in BS/MS program must start working on their research project not later than immediately following junior year of undergraduate

studies. For each student in the program, a graduate advisory committee composed of a minimum of three faculty members must be established before completion of BS degree.

To be considered for conditional admission to the program:

- A student must be a declared Food Science and Technology major with a minimum GPA of 3.4, must have completed at least 15 hours of credit in Food Science and Technology, and must have completed at least 90 hours of the 120 hours of coursework required for the BS degree with a major in Food Science and Technology.
- A student must provide three letters of recommendation and complete a personal interview with individuals comprising the Graduate and Undergraduate Committees in the Department of Food Science and Technology.
- A student must obtain a commitment from a Food Science and Technology graduate research faculty member to serve as their graduate mentor-advisor (i.e., major professor) and at least two other graduate research faculty members to serve on their graduate advisory committee.

Applicants are required to have completed FDST 241 Food Preservation and Packaging. 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 BS/MS program. Conditional admission of a student into the 5-year BS/MS program must be approved by both the Department of Food Science and Technology and the Graduate School. Students will be typically informed of the outcome of their application before the beginning of their senior year of undergraduate study.

Any course taken for graduate credit before satisfying all requirements for the BS degree must be approved both by the Graduate Director and by the Graduate School. These courses must be identified in advance, in consultation with the undergraduate advisor, proposed master's graduate advisor, and advisory committee members. 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. The form "Senior Requesting Graduate Credit" is found on the Graduate School website and must be completed, signed, and submitted to the Graduate School for approval and processing.

Conditional admission into the BS/MS program does not guarantee acceptance into either the Graduate School or the MS program. Students in the BS/MS program must apply for admission to the Graduate School and to the MS program during their senior year of undergraduate study, following the same procedures that all other student applicants follow. A GRE score must be submitted as part of the application for admission into any graduate program in the Department of Food Science and Technology. Students will be fully admitted to the MS program after they have been accepted both by the Graduate School and by the Food Science and Technology Science. Students will not be eligible for graduate assistantships until they are enrolled as graduate-level students in the Graduate School.

COLLEGE ARCHITECTURE AND DESIGN

All changes effective Fall 2015

I. COURSE CHANGES

Learning objectives for the Landscape Architecture major, MLA

1. Students will demonstrate the ability to become effective professional practitioners in conjunction with the rules of the Landscape Architecture Accreditation Board.
2. Students will demonstrate abilities in design thinking and design communication necessary for collaboration and consultation on contemporary landscape-related problems and issues

Learning objectives for the Landscape Architecture major, MSLA

1. Students will demonstrate abilities in design thinking and design communication necessary for collaboration and consultation on contemporary landscape-related problems and issues.
2. Capacity to identify, frame, and develop a science-based, research-oriented project through a Master's level thesis on a landscape-related topic.

Learning objectives for the Landscape Architecture major, MALA

1. Students will demonstrate abilities in design thinking and design communication necessary for collaboration and consultation on contemporary landscape-related problems and issues.
2. Capacity to identify, frame, and develop an art-based, experimental project through a Master's level thesis on a landscape-related topic.

LANDSCAPE ARCHITECTURE PROGRAM

(LAR) Landscape Architecture

ADD

LAR 521 Design Communication I (3) Focuses on discipline-specific modes of representation, digital tools, technical drawing modes and conventions, and fundamental compositional concerns. In addition to these visual and graphic modes of representation, students learn cross-media software workflows and multi-media strategies for generating and communicating design ideas.

Registration Restriction(s): Landscape architecture major or consent of instructor.

LAR 522 Design Communication II (3) Builds on the skills developed in LAR 521 to engage in more advanced and exploratory practices of design communication. Students will use multiple media and techniques to explore and explain complex landscape phenomena and conditions as well as developing skills with emerging design communication processes such as parametric modeling, information graphics, and visual storytelling.

(RE) Prerequisite(s): 521.

Registration Restriction(s): Landscape architecture major or consent of instructor.

LAR 532 Living Systems II: Plants in Design (3) Focuses on the theory and application of living materials including plant, water, and soil systems and other biota in the context of design precedents and contemporary landscape architectural practice. Students will explore the use of vegetation and living systems across a range of scales and landscape types with respect to both planting design and landscape performance.

(RE) Prerequisite(s): Plant Sciences 421.

Registration Restriction(s): Landscape architecture major or consent of instructor.

LAR 556 Design Studio VI (6) An advanced studio with a focus on strategic approaches to landscape architecture and planning. Particular emphasis will be placed on the development of systemic strategies, which include physical landscape components, policy innovations, economic mechanisms, PR campaigns, and more.

(RE) Prerequisite(s): 555.

Registration Restriction(s): Landscape architecture major or consent of instructor.

LAR 571 Landform and Hydrology (4) Explores the aesthetic, technical, and hydrologic aspects of shaping the land. The coursework focuses on a systems approach using contemporary best practices from landscape architecture and site engineering to shape landscapes in order to manage water for functional and aesthetic effects.

Registration Restriction(s): Landscape architecture major or consent of instructor.

LAR 572 Design and Construction I (3) Focuses on design issues related to construction, fabrication, materiality, and tectonics for landscape architecture. Students will learn about construction-related issues such as layout, dimensioning, and the creation of construction details, as well as explore new technologies, methods, and materials being utilized in contemporary landscape architectural design and construction practices.

(RE) Prerequisite(s): 571.

Registration Restriction(s): Landscape architecture major or consent of instructor.

LAR 573 Design and Construction II (3) Engages in material, formal, and spatial explorations of landscapes through virtual and physical model making at a variety of scales. Students will learn about the performative capacities of a range of contemporary materials and investigate ways that such materials may be configured for various effects.

(RE)Prerequisite(s): 572.

Registration Restriction(s): Landscape architecture major or consent of instructor.

LAR 581 Histories and Theories I (3) The first of a two-part history and theory sequence. It provides an overview of the human landscape (settlements, cities, gardens) from Antiquity to the 19th century.

Registration Restriction(s): Landscape architecture major or consent of instructor.

LAR 582 Professional Practices (3) Provides students with an appreciation for the wide range of professional career paths one may pursue with a degree in landscape architecture and investigates the fundamental skills, legal environments, emergent trends, and ethical responsibilities inherent to the contemporary professional practice of landscape architecture. The course engages a wide range of landscape-related professionals in order to better understand contemporary trends, pressures, and practices.

Registration Restriction(s): Landscape architecture major or consent of instructor.

LAR 583 Design Theory and Methods I (3) Provides an introduction to design and planning as intellectual disciplines that shape and sustain regional and global environments. Discussion will address landscape architecture, architecture, urban design, and planning perspectives and theory.

Registration Restriction(s): Landscape architecture major or consent of instructor.

LAR 584 Histories and Theories II (3) Examines landscape architecture from the late 19th to the late 20th centuries with a clear emphasis on the United States and Europe. Introduces students to the scope of ideas generated in landscape architecture's recent history and the historical background necessary to understand them.

(DE)Prerequisite(s): 581.

LAR 585 Design Theory and Methods II (3) Focuses on the development of a student's abilities to clearly identify a compelling landscape issue or area of research, develop verbal and visual language necessary to frame the issue for diverse audiences, and develop multiple strategies for how the issue may be engaged by designers.

(RE)Prerequisite(s): 581, 583, 584.

DROP

LAR 501 Introduction to Sustainable Design (3)

LAR 503 Landscape Architecture: History and Theories I (3)

LAR 504 Landscape Architecture: History and Theories II (3)

LAR 520 Visualization/Representation II (3)

LAR 531 Advanced Landscape Architecture Construction

LAR 540 Planting Design (3)

LAR 560 Professional Practices (3)

Rationale: The proposed changes are mainly focused on developing a numbering system that is clearer and therefore aids in recruiting, advising, and administering since the course numbers are grouped together around the major thematic areas of the curriculum. In particular this is the case for the add/drop proposals involving the following courses: 501, 503, 504, 520, 531, 540, and 560.

The addition of 521, 522, 571, and 573 are all a result of a thorough curricular analysis by the faculty in the spring of 2014 which identified the need for these courses to better accomplish our curricular goals. In some cases this course content was being provided through electives. Impact on Other Academic Units: None. Financial Impact: None.

Equivalency Table

Current Courses Landscape Architecture (LAR)	Equivalent Courses Effective Fall 2015 Landscape Architecture (LAR)
LAR 501	LAR 583
LAR 503	LAR 581
LAR 504	LAR 584
LAR 520	LAR 554
LAR 540	LAR 532
LAR 560	LAR 582
LAR 531	LAR 572

II. PROGRAM CHANGES

LANDSCAPE ARCHITECTURE PROGRAM

REVISE LANDSCAPE ARCHITECTURE MAJOR, MALA

In the 2015-16 Graduate Catalog remove current catalog text and replace with the following:

The Master of Arts in Landscape Architecture (MALA) is intended for students interested in developing greater knowledge and understanding of landscape-related topics while simultaneously advancing a more specialized area of investigation from a liberal arts perspective. This degree will not prepare the student for professional licensure but will prepare them for career paths that will benefit from knowledge of landscape architectural design concepts, design thinking skills, and related fields such as ecosystem management, sustainable development, green infrastructure, and more. While 42 hours is the minimum number needed to satisfy these degree tracks, students have the option to work with advisors to craft a unique curriculum that allows for greater development of design skills or supporting knowledge as necessary. This track requires the successful completion of a robust thesis project.

Admission to MALA (Research Degree)

Submit online application to the Graduate Admissions Office. In addition to meeting the Graduate School's minimum requirements, the following specific admission requirements must be met.

- A bachelor's degree with a minimum of 12 credit hours of humanities courses from an accredited college or university is required or the international equivalent. International applicants must have an equivalent four-year degree and 3.0 GPA.
- Three (3) letters of recommendation.
- Letter of Intent. This letter should indicate why the applicant is interested in pursuing a degree in Landscape Architecture at UTK. Students are strongly encouraged to touch on the following points:
 - cite examples of your experiences that demonstrate the personal ambition necessary to succeed in landscape architecture at UTK.
 - discuss your primary motivations for pursuing a degree in landscape architecture.
 - explain why the Graduate Program in Landscape Architecture at UTK is the preferred program for you to launch a career in landscape architecture.
- The general portion of the Graduate Record Examination is required of all applicants. Applicants should take the GRE at least one semester in advance of application for admission.
- Applicants whose native language is not English are required to take and pass the Test of English as a Foreign Language (TOEFL). Recommended overall TOEFL scores are 92 and above.
- A personal onsite interview is desirable but not mandatory.

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

MALA applicants are also strongly encouraged to submit the following.

- Examples of creative work and/or research – particularly of a graphic or visual nature.
- Examples of previous writings or research. The applicant's role in any collaborative work submitted must be clearly identified.

Requirements

- Thesis: Requires a minimum of 42 semester hours of graduate course work including 6 hours of Thesis LAR 500 with a public presentation and oral defense of the thesis.

REVISE LANDSCAPE ARCHITECTURE MAJOR, MLA TRACK 1

In the 2015-16 Graduate Catalog remove current catalog text and replace with the following:

The Master of Landscape Architecture (MLA) is a design-oriented degree, which can be pursued along two tracks. The MLA-Track 1 is a first professional degree for students who hold a Bachelor's degree in fields of study other than landscape architecture or a related design field including landscape design, architecture, urban design, and interior design. The MLA-Track 2 (MLA II) is a post-professional degree for students who already hold a first-professional degree in Landscape Architecture from an LAAB accredited program or the international equivalent. The MLA-Track 2 offers post-professional students opportunities for specialization related to landscape architecture design, research, or professional studies.

Master of Landscape Architecture – Track 1 (First Professional Degree)

The MLA-Track 1 is designed to prepare students to be critically engaged designers with the ability to employ a wide range of knowledge and skills in order to become leaders in the field. Two curricular paths are available in this degree track.

- Path A is designed to accommodate students who have no previous formal study in landscape architecture.
- 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. Any advanced standing in this path 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 specifically 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)).

Admission to MLA - Track 1 (First Professional Degree)

Submit online application to the Graduate Admissions Office. In addition to meeting the Graduate School's minimum requirements, the following specific admission requirements must be met.

- A bachelor's degree with a 3.0 GPA and a minimum of 12 credit hours of humanities courses from an accredited college or university are required. International applicants must have an equivalent four-year degree and 3.0 GPA.
- Three (3) letters of recommendation.
- Letter of Intent. This letter should indicate why the applicant is interested in pursuing a degree in Landscape Architecture at UTK. Students are strongly encouraged to touch on the following points:
 - cite examples of your experiences that demonstrate the personal ambition necessary to succeed in landscape architecture at UTK.
 - discuss your primary motivations for pursuing a degree in landscape architecture.
 - explain why the Graduate Program in Landscape Architecture at UTK is the preferred program for you to launch a career in landscape architecture.
- Design Portfolio.
 - Students with prior design education or training *must* submit a portfolio illustrating evidence of creative work and design skills.
 - Students without prior design education or training *may* submit a portfolio if they feel it will help their overall application.
- The general portion of the Graduate Record Examination is required of all applicants. Applicants should take the GRE at least one semester in advance of application for admission.
- Applicants whose native language is not English are required to take and pass the Test of English as a Foreign Language (TOEFL). Recommended overall TOEFL scores are 92 and above.
- A personal on-site interview is desirable but not mandatory.

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

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.

Requirements for the MLA - Track 1 (First Professional Degree)

Path A

Thesis Option: Requires a minimum of 16 hours of undergraduate preparation, and 88 hours of graduate course work including 6 hours of LAR 500 (Thesis) with a public presentation and oral defense of the thesis.

Non-Thesis Option: Requires a minimum of 16 hours of undergraduate preparation, 88 hours of graduate course work.

Path B

Thesis Option: Requires a minimum of 58 hours of graduate course work including 6 hours of LAR 500 (Thesis) with a public presentation and oral defense of the thesis.

Non-Thesis Option: Requires a minimum of 58 hours of graduate course work.

Advanced Standing Option: Requires a minimum of 58 hours of graduate course.

Electives

9 hours of directed elective and 6 hours of open elective hours required. Students are required to work with faculty advisors and the program Chair to choose courses that will best complement their specific degree trajectory. A minimum of 6 hours of directed electives and 3 hours of open electives must be taken at the 500 level.

REVISE LANDSCAPE ARCHITECTURE MAJOR, MSLA

In the 2015-16 Graduate Catalog remove current catalog text and replace with the following:

The Master of Science in Landscape Architecture (MSLA) is intended for students interested in developing greater knowledge and understanding of landscape-related topics while simultaneously advancing a more specialized area of investigation. This degree will not prepare the student for professional licensure, but will prepare them for career paths that will benefit from knowledge of landscape architectural design concepts, design thinking skills, and related fields such

as ecosystem management, sustainable development, green infrastructure, and more. While 42 hours is the minimum number needed to satisfy these degree tracks, students have the option to work with advisors to craft a unique curriculum that allows for greater development of design skills or supporting knowledge as necessary. This track requires the successful completion of a robust thesis project.

Admission to MSLA

Submit online application to the Office of Graduate Admissions. In addition to meeting the Graduate School's minimum requirements, the following specific admission requirements must be met.

- A bachelor's degree with a minimum of 12 credit hours of humanities courses from an accredited college or university is required or the international equivalent. International applicants must have an equivalent four-year degree and 3.0 GPA.
- Three (3) letters of recommendation.
- Letter of Intent. This letter should indicate why the applicant is interested in pursuing a degree in Landscape Architecture at UTK. Students are strongly encouraged to touch on the following points:
 - cite examples of your experiences that demonstrate the personal ambition necessary to succeed in landscape architecture at UTK.
 - discuss your primary motivations for pursuing a degree in landscape architecture.
 - explain why the Graduate Program in Landscape Architecture at UTK is the preferred program for you to launch a career in landscape architecture.
- The general portion of the Graduate Record Examination is required of all applicants. Applicants should take the GRE at least one semester in advance of application for admission.
- Applicants whose native language is not English are required to take and pass the Test of English as a Foreign Language (TOEFL). Recommended overall TOEFL scores are 92 and above.
- A personal onsite interview is desirable but not mandatory.

MSLA applicants are also *strongly encouraged* to submit the following.

- Examples of creative work and/or research – particularly of a graphic or visual nature.
- Examples of previous writings or research. The applicant's role in any collaborative work submitted must be clearly identified.

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

Requirements

- Thesis: Requires a minimum of 42 semester hours of graduate course work including 6 hours of Thesis LAR 500 with a public presentation and oral defense of the thesis.

COLLEGE OF ARTS AND SCIENCES

All changes effective Fall 2015

I. COURSE CHANGES

DEPARTMENT OF ANTHROPOLOGY

Student Learning Objectives for Anthropology Major, MA

1. Archaeology students will demonstrate competence as researchers, participate in professional forums, and earn internal recognition for their achievements.
2. Biological anthropology students will demonstrate competence as researchers, participate in professional forums, and earn internal recognition for their achievements.
3. Cultural anthropology students will demonstrate competence as researchers, participate in professional forums, and earn internal recognition for their achievements.

Student Learning Objectives for Anthropology Major, PHD

1. Archaeology students will demonstrate enhanced competence as researchers, increase their participation in professional forums, and earn internal and external recognition for their achievements.
2. Biological Anthropology students will demonstrate enhanced competence as researchers, increase their participation in professional forums, and earn internal and external recognition for their achievements.
3. Cultural Anthropology students will demonstrate enhanced competence as researchers, increase their participation in professional forums, and earn internal and external recognition for their achievements.

(ANTH) Anthropology

REVISE TITLE AND DESCRIPTION

ANTH 421 Refugees and Displaced People (3) Examines historical and contemporary issues facing refugees and displaced people worldwide from socio-cultural and human rights perspectives. Topics addressed include the theory, methods and ethics of research with refugees and displaced people, international legal frameworks, the role of culture, political dynamics of refugee movements and internal displacement, and critical approaches to humanitarian responses.

Formerly: Refugee and Migrant Children (3) Examines the most relevant issues facing refugee and migrant children worldwide from socio-cultural and human rights perspectives. Topics to be discussed include the theory, methods and ethics of research with refugee and migrant children, the international legal framework, the role of culture, refugee movements and internal displacement, children as labor migrants, child soldiers, unaccompanied minors, children in disasters, and human trafficking.

Rationale: This change broadens the course content and provides more flexibility for faculty with diverse expertise in the subject area who will teach the course. Impact on other units: No direct impact. Financial impact: None.

ANTH 432 Anthropology of Warfare, Violence, and Peace (3) Origins and tactics of warfare; overview of cultural foundations and impacts of warfare and nonviolence; distinctions among aggression, conflict, violence, war; dynamics of militarization and peacebuilding.

Formerly: Anthropology of Warfare and Violence (3) Origins and tactics of warfare; overview of cultural foundations of warfare and structural violence; and effects on communities, social institutions, environments, and social organization.

Rationale: The course content has included equal focus on peacebuilding, peace studies, and nonviolence as well as conflict, war and violence and that should be reflected in the title and description. Impact on other units: No direct impact. Financial impact: None.

SCHOOL OF ART

Student Learning Objectives for Art Major, MFA

1. Students will articulate their ideas both visually and verbally.
2. Students will uphold professional standards in the creation and presentation of their art and/or design work.
3. Students will understand historical and contemporary issues in art/craft/design and related fields of study.
4. Students will demonstrate knowledge of theoretical issues in their concentrations and in related arts disciplines.

(ARTC) Art Four-Dimensional Arts

REVISE TITLE, DESCRIPTION AND (RE)PREREQUISITE OF PRIMARY COURSE

ARTC 435 Narrative Filmmaking (4) Development of concepts and techniques for the creation of narrative films with an emphasis on individual projects.

Cross-listed: (Same as Cinema Studies 435.)

(RE) Prerequisite(s): 236.

Formerly: Digital Media and 16mm Film as Art (4) Continued development of concepts and techniques for the creation of film as an art form with an emphasis on individual projects. Cross-listed: (Same as Cinema Studies 435.)
(RE) Prerequisite(s): 235.

Rationale: Title and description are outdated as 16mm film technology is seldom used now. The course now focuses on cinematic storytelling, especially film directing, and will not be associated with any one technology. Impact on other units: Cross listed in Cinema Studies. Financial impact: None.

(ARTD) Art Design/Graphic

REVISE HOURS

ARTD 400 Typography (4)

Formerly: 3

ARTD 405 – Interaction Design (4)

Formerly: 3

Rationale: Hours revised to reflect the amount of work/time actually required. Impact on other units: None. Financial impact: None.

DEPARTMENT OF BIOCHEMISTRY, CELLULAR AND MOLECULAR BIOLOGY

Student Learning Objectives for Biochemistry, Cellular and Molecular Biology Major, MS

1. Students will demonstrate ability to find relevant literature and integrate it into their research.
2. Students will demonstrate ability to design and execute scientific experiments, and to analyze and interpret data.
3. Students will demonstrate ability to communicate scientific matter orally and in writing to various audiences including UG students.

Student Learning Objectives for Biochemistry, Cellular and Molecular Biology Major, PHD

1. Students will demonstrate ability to find relevant literature and integrate it to their research.
2. Students will demonstrate ability to become independent scientists by developing testable hypotheses, design and execute scientific experiments, analyze and interpret data independently.
3. Students will demonstrate ability to communicate scientific matter orally and in writing to various audiences including UG students.

(BCMB) Biochemistry, Cellular and Molecular Biology

ADD

BCMB 614 Journal Club in the Responsible Conduct of Research (1) Designed to familiarize graduate students with ethical issues associated with scientific research.

Grading Restriction(s): Satisfactory/No credit grading only.

Repeatability: May be repeated. Maximum 2 hours.

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

This course supports PhD SLO 2

Rationale: Course is currently taught under a topics number but needs its own number. The topics number allows letter grading and the intention for this course is to have S/NC grading only. Also, this course can satisfy the Institutional requirements for training in scientific ethics. Impact on other units: None. Financial impact: None.

REVISE TITLE, HOURS, DESCRIPTION, CONTACT HOUR DISTRIBUTION, AND COMMENT

BCMB 562 Introduction to Electron Microscopy of Biological Materials (3) Theoretical and practical considerations of imaging biological samples in both scanning and transmission electron microscopy including aspects of sample preparation, staining, specialized imaging techniques and analytical applications for biological specimens.

Contact Hour Distribution: 1 hour lecture and 4 hours lab.

Comment(s): Requires instructor approval.

This course supports MS SLO 2 and PhD SLO 2

Formerly: Introduction to Electron Microscopy – Transmission Electron Microscope (4) Practical application to techniques for preparation of biological samples for viewing in transmission electron microscopy. Use of microscope and ancillary equipment, darkroom techniques, preparation of materials for publication and special project.

Contact Hour Distribution: Two 3-hour labs.

Comment(s): Approved graduate students in department only.

Rationale: The revised description and credit hours better reflect the new syllabus. This course supports learning objective 2 in the BCMB graduate program. Impact on other units: None. Financial impact: None.

DEPARTMENT OF CHEMISTRY

Student Learning Objectives for Chemistry Major, MS

1. Students will demonstrate fundamental knowledge in one of the following areas: analytical, inorganic, organic, physical or polymer chemistry.
2. Students will demonstrate the ability to conduct high quality research.
3. Students will demonstrate the ability to present their research via oral and poster presentations.
4. Students will demonstrate the ability to produce written documents describing their research results.

Student Learning Objectives for Chemistry Major, PHD

1. Students will demonstrate fundamental knowledge in one of the following areas: analytical, inorganic, organic, physical or polymer chemistry.
2. Students will demonstrate the ability to conduct high quality research.
3. Students will demonstrate the ability to conceive of original research in their area of research.
4. Students will demonstrate the ability to present their research via oral and poster presentations.
5. Students will demonstrate their ability to produce written documents describing their research results.

(CHEM) Chemistry

ADD

CHEM 596 Advanced Techniques in Polymer Synthesis and Characterization (3) Consists of both lecture and laboratory experiments directed toward polymer synthesis and polymer characterization techniques. Thorough laboratory reports in an accepted reporting format will be required.

Contact Hour Distribution: 2 hours lecture and 3 hours lab.

(DE) Prerequisite(s): 594 and 595.

This course supports MS SLO 1 and PhD SLO 1

Rationale: Undergraduate institutions usually do not offer a hands-on polymer chemistry course with a significant lab component so our incoming graduate students are typically deficient/weak in the areas of polymer synthesis and characterization. To remedy this deficiency we would like to establish this course as an integral part of the polymer division graduate course offerings, thereby strengthening our students, the polymer division, and the department as a whole. Impact on other units: None. Financial impact: None.

DEPARTMENT OF EARTH AND PLANETARY SCIENCES

Student Learning Objectives for Geology Major, MS

1. Demonstrate an understanding of Earth's (and other planetary systems') physical, chemical, and biological systems that reflects the base knowledge necessary for completion of individual research projects in earth and planetary sciences...
2. Develop a research proposal that has the potential to generate new scientific knowledge.
3. Prepare and defend a written scientific thesis that reflects a thorough understanding of the field of research. The thesis should make a substantial contribution of new knowledge to the field.
4. Present and defend scientific research in an oral/visual format, which is effective for communicating ideas, methods, and findings to an audience of other student and faculty researchers in the field.

Student Learning Objectives for Geology Major, PHD

1. Demonstrate an understanding of Earth's (and other planetary systems') physical, chemical and biological systems at a level permitting completion of individual research projects in earth and planetary sciences, under the direction of a scientific adviser.
2. Develop a research proposal that has the potential to generate new scientific knowledge.
3. Prepare and defend a written scientific dissertation that reflects a thorough understanding of the field of research.
4. Present and defend scientific research in an oral/visual format, at a level which is effective for communicating ideas, methods, and findings to an audience of other student and faculty researchers in the field.

(GEOL) Geology

ADD 400-LEVEL COURSES FOR GRADUATE CREDIT

GEOL 452 Cave and Karst Geology (3) Introduction to speleology, with emphasis on the identification and evaluation of chemical, physical, and hydrologic controls that result in dissolution of bedrock, cave formation, and karst landscape development. Topics include carbonate geochemistry, hydrology, speleogenesis, solute and sediment transport, paleokarst, geomorphology, exploitation and management of karst and karst hazards. Includes scientific data collection, numerical calculations, model development, and interpretation. At least one field trip will be required.

Recommended Background: Two 100-level geology courses, one lab course in geology and 1 lab course in chemistry, introductory calculus, or consent of instructor.

This course supports MS SLO 1 and PhD SLO 1

Rationale: Has been taught as a special topics course and has been well received and requested for the future. We need the course to have its own number and formal description so students can know the recommended background for the course. Also, Tennessee is the most cave-rich state in the country and UT should offer a course on the topic. Impact on other units: None. Financial impact: None.

GEOL 465 Geomicrobiology (3) Introduction to interactions between microbes and earth materials (rock, soil, water). Course will identify and evaluate key biogeochemical and genetic evidence used to determine biotic from abiotic processes in modern and ancient systems. Topics include microbial ecology and diversity, community structure, biogeochemistry, molecular biology, major environmental habitats, astrobiology, and geomicrobiological applications for geology, engineering, and mining.

Recommended Background: Two 100-level geology courses, one lab course in geology and one lab course in chemistry, or consent of instructor.

This course supports MS SLO 1 and PhD SLO 1

Rationale: This course has been taught as a topics course and had good enrollment and there are requests for the course to be taught. It now needs its own number, in part because students will need to know the background needed for the course. Impact on other units: None. Financial impact: None.

ADD

GEOL 526 Biospheric Change and the Fossil Record (3) Students will gain a temporal understanding of the evolution of the biosphere from its inception through the present day. Course concentrates on evidence derived from the fossil record and investigates the consequences of major transformative events such as tectonics, oxygenation of the biosphere, and the origination and extinction of major clades.

Recommended Background: Paleobiology, organismal biology or consent of instructor.

This course supports MS SLO 1 and PhD SLO 1

Assessment results indicate that MS and PhD students need additional opportunities to develop an understanding of topics in geology that are peripheral to their thesis or dissertation research.

Rationale: Course was developed to provide advanced undergraduate and graduate students with background on the evolution of the biosphere. It will serve a wide variety of students including those interested in paleobiology, sustainability, ecology and climate change. Impact on other units: None. Financial impact: None.

GEOL 584 Planetary Geodynamics (3) Students will gain a quantitative physical understanding of processes that are important in the geophysical evolution of planetary bodies (planets, moons, other bodies). Topics such as stress and strain, flexure, heat transfer, gravity, fluid mechanics, and rheology will be developed from a quantitative perspective and evaluated in terms of observable effects on the Earth and other bodies in the Solar System.

Recommended Background: Calculus, physics, introductory geology, or consent of instructor.

This course supports MS SLO 1 and PhD SLO 1.

Assessment results indicate that MS and PhD students need additional opportunities to develop an understanding of topics in geology that are peripheral to their thesis or dissertation research.

Rationale: Has been taught under a special topics number and now needs its own number. The course was developed to provide advanced undergraduate and graduate students background on the processes often studied on various planetary bodies as well as the quantitative approach most commonly used. Impact on other units: None. Financial impact: None.

GEOL 641 Seminar in Paleobiology (3) Discussion of publications drawn from the current scientific literature in paleobiology and related fields.

Repeatability: May be repeated. Maximum 9 hours.

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

Registration Permission: Consent of instructor.

This course supports MS SLO 1 and PhD SLO 1.

Assessment results indicate that MS and PhD students need additional opportunities to develop an understanding of topics in geology that are peripheral to their thesis or dissertation research.

Rationale: Four faculty are using GEOL 640 for seminars. This course will relieve some of the use for that number and will allow both sedimentology and paleobiology seminars to run concurrently. Impact on other units: None. Financial impact: None.

DEPARTMENT OF ECOLOGY AND EVOLUTIONARY BIOLOGY

Student Learning Objectives for Ecology and Evolutionary Biology Major, MS

1. Students will demonstrate knowledge of their field as it applies to developing an independent research project.
2. Students will demonstrate an ability to orally communicate concepts of ecology and evolutionary biology.
3. Students will demonstrate an ability to communicate concepts and original research results in writing.

Student Learning Objectives for Ecology and Evolutionary Biology Major, PHD

1. Students will demonstrate knowledge of their field as it applies to developing an independent research project.
2. Students will demonstrate an ability to orally communicate concepts of ecology and evolutionary biology.
3. Students will demonstrate an ability to communicate concepts and original research results in writing.

(EEB) Ecology and Evolutionary Biology

REVISE (RE)PREREQUISITE

EEB 424 Plant Diversity and Evolution (3)

(RE) Prerequisite(s): 102 or 111 or 150 or 158.

This course supports MS SLO 1 and PhD SLO 1.

Formerly: BIOL 280.

Rationale: No one has had BIOL 280 yet so no students would be able to register for EEB 424. Impact on other units: None. Financial impact: None.

DEPARTMENT OF ENGLISH

Student Learning Objectives for English Major, MA

1. Students will be able to identify and illustrate the historical development of literary, cultural, and/or theoretical texts within their concentration of study through the use of representative examples.
2. Students will be able to construct original and effectively written arguments that intervene productively in ongoing historical, textual, political, and/or ethical conversations in English studies.
3. Students will be able to apply the specific research methods of English studies.

Student Learning Objectives for English Major, PHD

1. Students will be able to identify and illustrate the historical development of literacy, cultural and/or theoretical texts within their concentration of study through the use of representative examples.
2. Students will be able to construct original and effectively written arguments that intervene productively and publicly in ongoing historical, textual, political, and/or ethical conversations in English studies.
3. Students will be able to apply the specific research methods of English studies.
4. Students will be able to construct and effectively teach courses in first-year composition.

(ENGL) English

ADD 400-LEVEL COURSE FOR GRADUATE CREDIT

ENGL 494 Cultural Rhetorics (3) Rhetoric as cultural practice in connection with place, identity, and community. Focus on developing rhetorical understanding and theorizing through considerations that include language, constructions of the body, community, place, and material cultures.

(RE) Prerequisite(s): 102 or 118.

Recommended Background: 355 or consent of instructor.

This course supports MA SLO 1 and PhD SLO 1.

Rationale: This course will be a regular offering, and is being converted from a very successful special topics course. Impact on other units: None. Financial impact: None.

DEPARTMENT OF GEOGRAPHY

Student Learning Objectives for Geography Major, MS

1. Students will be able to apply knowledge and skills in one or more specialty areas offered by the department to address specific theoretical and/or practical geographical problems.
2. Students will be able to use knowledge in geographic research design and quantitative methods to ask sound research questions, to select suitable analysis/testing methods for the questions, and to explain the analysis/testing results thoroughly.

Student Learning Objectives for Geography Major, PHD

1. Students will be able to apply knowledge and skills in one or two specialty areas offered by the department to address specific theoretical and/or practical geographical problems.
2. Students will have an in-depth knowledge in two geographic specialty areas as well as ability in critical thinking and communication.
3. Students will have a thorough understanding of advanced quantitative methods and able to put them into practice in a larger context of advanced research design and methods.

(GEOG) Geography

REVISE TITLE

GEOG 413 Introductory Remote Sensing of Environment (4)

This course supports MS SLO 1 and PhD SLOs 1 and 2.

Formerly: Remote Sensing: Types and Applications

GEOG 433 Landform Analysis and Landscape Planning (3)

This course supports MS SLO 1 and PhD SLOs 1 and 2.

Formerly: The Land-Surface System

GEOG 439 Plants, People, and Climate in North America (3)

This course supports MS SLO 1 and PhD SLOs 1 and 2.

Formerly: Plant Geography of North America

Rationale: The new titles better reflect the content of the courses. Impact on other units: None. Financial impact: None.

GEOG 454 – GIS for Terrain Analysis (3)

This course supports MS SLO 1 and PhD SLOs 1 and 2.

Formerly: Terrain Analysis

Rationale: New title better reflects course content. Course is now heavily based on the GIS analysis of digital elevation models. Impact on other units: None. Financial impact: None.

GEOG 513 Advanced Remote Sensing (3)

This course supports MS SLO 1 and PhD SLOs 1 and 2.

Formerly: Topics in Remote Sensing

Rationale: The title needs to reflect that the topics covered in the course are advanced topics. Impact on other units: None. Financial impact: None.

REVISE TITLE AND DESCRIPTION

GEOG 442 Urban Spaces and Urban Society (3) Social and behavioral determinants of territoriality, residential mobility, and segregation. Social production of neighborhoods. Spatial dimensions of urban social problems. Writing-emphasis course.

This course supports MS SLO 1 and PhD SLOs 1 and 2.

Formerly: Urban Social Geography (3) Geographical study of urban culture. Social production of neighborhoods. Social and behavioral aspects of territoriality, residential mobility, segregation, and the rise of post-industrial and global cities. Writing-emphasis course.

Rationale: Revisions reflect changes in topics emphasized by the current primary instructor. Impact on other units: None. Financial impact: None.

INTERDISCIPLINARY PROGRAMS

CINEMA STUDIES

(CNST) Cinema Studies

ADD 400-LEVEL SECONDARY CROSS-LISTED COURSE

CNST 423 Themes and Genres in German Cinema (3)

(Cross-listed: See German 423.)

Rationale: German is primary course. This is an appropriate course for the Cinema Studies program. Impact on other units: Cross listed German course. Financial impact: None.

REVISE TITLE OF SECONDARY CROSS LISTED COURSE:

CNST 435 Narrative Filmmaking (4)

(Cross-listed: See Art Four-Dimensional Arts 435.)

Formerly: Digital Media and 16mm Film as Art

Rationale: Primary department is revising course title. Impact on other units: Cross listed Art Four-Dimensional Arts course. Financial impact: None.

DEPARTMENT OF MICROBIOLOGY

Student Learning Objectives for Microbiology Major, MS

1. Demonstrate knowledge of microbiological systems and conduct a research project under the direction of a scientific advisor.
2. Develop research hypotheses that will generate new scientific knowledge.
3. Demonstrate competency in analyzing and defending an individual research project.

Student Learning Objectives for Microbiology Major, PHD

1. Demonstrate knowledge of microbiological systems and apply it to develop and conduct a research project under the direction of a scientific advisor.
2. Develop research hypotheses and design and defend experimental plans that will generate new scientific knowledge.
3. Demonstrate competency in analyzing and defending individual research project. Integrate research results into existing body of knowledge and formulate an understanding of the scientific contributions.

(MICR) Microbiology

ADD 400-LEVEL COURSE FOR GRADUATE CREDIT

MICR 431 Advanced Immunology (3) Evaluation of current immunological research and methods used to examine the evolution of the innate and adaptive immune responses, the role of microbial communities in host health, as well as the development of vaccines, cancer therapeutics, and allergy/autoimmunity treatments.

(RE) Prerequisite: 330.

This course supports MS SLO 1 and PhD SLO 1.

Rationale: There is student demand for a more in-depth and higher level immunology course. This course's development is being led by a new faculty member in the department. Impact on other units: None. Financial impact: None.

ADD

MICR 515 First Year Graduate Research Colloquium (3) Designed to provide new Microbiology graduate students with the fundamental tools necessary to succeed in the departmental graduate program. Students engage in discussions with faculty, become acquainted with important electronic research tools and receive training in oral scientific communication.

This course supports MS SLOs 1 and 3 and PhD SLOs 1 and 3.

Rationale: This course has been offered for several years under a topics number. It now needs its own number. Impact on other units: None. Financial impact: None.

MICR 615 Graduate Research Colloquium (1) Oral communication of scientific research.

Repeatability: May be repeated. Maximum 20 hours.

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

This course supports MS SLOs 1 and 3 and PhD SLOs 1 and 3.

Rationale: This course has been offered under a topics number for several years and now needs its own number. Impact on other units: None. Financial impact: None.

MICR 617 Synthetic Microbiology (3) Application of synthetic biology and principles of physiology and biochemistry to design microorganisms adapted to specific environments and/or host organisms.

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

This course supports MS SLO 1 and PhD SLO 1.

Rationale: There is student demand for a 600-level microbial physiology/biochemistry course. Impact on other units: None. Financial impact: None.

DEPARTMENT OF MODERN FOREIGN LANGUAGES AND LITERATURES

Student Learning Objectives for Modern Foreign Languages and Literatures Major, MA

1. The MA student in Spanish, French, and German will integrate appropriate teaching methods in the lower division language classroom.
2. The MA student will have oral proficiency of at least Advanced-mid on the ACTFL scale.

Student Learning Objectives for Modern Foreign Languages and Literatures Major, PHD

1. Student will produce in-depth, original and independent research in the target language or a related area.
2. Student will present original work at an appropriate conference or colloquy.
3. Student will use appropriate teaching strategies for the lower division language classroom.

(MFL) Modern Foreign Languages and Literatures

ADD

MFL 584 Modern Theory and Criticism (3) Survey of nineteenth, twentieth and twenty-first century critical theory, including psychoanalysis, Marxism, structuralism, and more.

This course supports PhD SLO 1.

Rationale: MFL 584 will replace FREN 584 and GERM 560 and served MFL PhD students in French, German, and Spanish, and will form part of the Social Theory Graduate Certificate. FREN 584 and GERM 560 have been the same course. They are being dropped and consolidated in MFL 584. Impact on other units: Will take the place of FREN 584 and GERM 560. Financial impact: None.

(CHIN) Chinese

REVISE TITLE AND (RE)PREREQUISITES AND DESCRIPTION:

CHIN 431 Chinese Literature and Culture (3) Students will learn to express complicated ideas fluently both in speaking and in prose. Topics may include film, literature, news, business Chinese, etc. The class is conducted in Chinese.

(RE) Prerequisite(s): 232 or equivalent.

This course supports MA SLO 2 and PhD SLO 1.

Formerly: Readings in Chinese Literature (3)
(RE) Prerequisite(s): 232.

Rationale: Expanding the possible topics from only literature to a number of additional areas in order to recognize that different instructors may have different areas of expertise. Impact on other units: None. Financial impact: None.

(FREN) French

ADD 400-LEVEL COURSE FOR GRADUATE CREDIT

FREN 433 French and Francophone Women Writers (3) Works by women writing in French from the Middle Ages to the present, considered in the context of French and Anglophone gender theory. Writing-emphasis course.

(RE) Prerequisite(s): 353.

This course supports PhD SLO 1.

Rationale: The French section would like to add this course to the graduate catalog and thus to change the language of instruction to French. To do this we are dropping the cross listing with Women's Studies. Impact on other units: Formerly cross listed with Women's Studies. Financial impact: None.

DROP (COURSE WAS DROPPED IN OCTOBER WITH COURSES NOT TAUGHT)

FREN 584 Modern Theory and Criticism (3)

Rationale: MFLL 584 will be used now instead of FREN 584 and GERM 560. Impact on other units: None. Financial impact: None.

(GERM) German

ADD NEW 400-LEVEL PRIMARY COURSE FOR GRADUATE CREDIT AND CROSS LIST

GERM 423 Themes and Genres in German Cinema (3) A study of selected themes and genres in German Cinema. Writing emphasis course.

(Cross-listed: Same as Cinema Studies 423.)

This course supports MA SLO 2 and PhD SLO 1.

Rationale: German is primary course. Instead of offering one German Cinema course that serves as a catch-all for all German film courses, both surveys and special topics courses, we are proposing to offer a rotation of two courses with regularized content. Impact on other units: Cross listed with Cinema Studies. Financial impact: None.

ADD 400-LEVEL COURSE FOR GRADUATE CREDIT

GERM 455 German Literatures and Cultures (3) Seminar with varying topics about literatures and cultures in the German-speaking world. Writing emphasis course.

(RE) Prerequisite(s): 321 and 322.

Repeatability: May be repeated if topic differs. Maximum 12 hours.

This course supports MA SLO 2 and PhD SLO 1.

Rationale: We are adding this topics class taught in German to allow instructors to teach specialized, varying topics. The other topics course we are currently revising (420) is taught in English. Impact on other units: None. Financial impact: None.

DROP

GERM 431 Images of Nature and the Body in German Culture (3)

GERM 432 German Creative Thinking: Interdisciplinary Dialogues (3)

Rationale: The titles of these courses do not accurately reflect the content we are offering in our 400-level seminars. We are proposing to add more general titles under which we will teach our literature and culture content at the upper level. Impact on other units: None. Financial impact: None.

GERM 560 German Literary Theory and Criticism (3)

Rationale: MFLL 584 will now be taught instead of FREN 584 and GERM 560. Impact on other units: None. Financial impact: None.

REVISE TITLE AND ADD DESCRIPTION

GERM 411 Advanced Language III (3) Reaching a more advanced level in writing, listening, and speaking; review of advanced grammatical concepts.

This course supports MA SLO 2.

Formerly: Advanced Conversation and Composition (3)

GERM 412 Advanced Language IV (3) Reaching a more advanced level in writing, listening, and speaking; review of advanced grammatical concepts.

This course supports MA SLO 2.

Formerly: Advanced Conversation and Composition (3)

Rationale: These courses are being renamed and descriptions added to be more consistent and give students a clearer sense of sequence and content. Impact on other units: None. Financial impact: None.

REVISE TITLE

GERM 416 Berlin: Culture and History (3)

Formerly: Metropolis Revisited

Rationale: Name change ensures that the course title clearly reflects its content. Impact on other units: None. Financial impact: None.

REVISE TITLE, DESCRIPTION AND ADD REPEATABILITY

GERM 420 Selected Topics in German Literatures and Cultures (3) Writing-emphasis course. Taught in English.
(RE) Prerequisite(s): Two courses from 321, 322, 325.
Repeatability: May be repeated. Maximum 6 hours.

Formerly: Selected Topics in German Literature from 1750 to the Present (3) Writing-emphasis course.
(RE) Prerequisite(s): Two courses from 301, 302, 305.

Rationale: This is our 400-level course taught in English with varying topics. We want to allow students to repeat the course when taken with a different topical focus. Impact on other units: None. Financial impact: None.

REVISE TITLES

GERM 552 Foundations of Modernity: Topics in 18th Century German Literatures and Cultures (3)

Formerly: German Enlightenment, Rococo, and Sturm and Drang

GERM 553 Classicisms: Literature, Criticism, and the German Canon around 1800 (3)

Formerly: German Classicism and Romanticism

GERM 554 The Long Nineteenth Century (3)

Formerly: German Realism and Naturalism

GERM 555 Modern German Literatures and Cultures (3)

Formerly: Modern German Literature 1890-1945

GERM 556 German Visual Cultures and Media (3)

Formerly: Modern German Literature 1945-Present

GERM 621 Seminar in German Literatures and Cultures I (3)

Formerly: Seminar in German Literature

GERM 622 Seminar in German Literatures and Cultures II (3)

This course supports PhD SLO 1.

Formerly: Seminar in German Literature

Rationale: These course titles are being changed to reflect what is actually being taught (literature and other forms of German culture, not literature exclusively) while concurrently removing arbitrary dates and strict periodizations that unnecessarily constrain course content. Impact on other units: None. Financial impact: None.

(JAPA) Japanese

REVISE (RE)PREREQUISITES:

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

(RE) Prerequisite(s): 352 or equivalent.

Formerly: 252

JAPA 452 Readings in Modern Japanese Literature (3)

(RE) Prerequisite(s): 352 or equivalent.

This course supports PhD SLO 1.

Formerly: 252

Rationale: Revising prerequisites to ensure students are prepared for 400-level Japanese classes. Impact on other units: None. Financial impact: None.

(SPAN) Spanish

ADD

SPAN 529 Readings in Second Language Acquisition (3) Includes critical reading of primary research in Second Language Acquisition (SLA). May include application of SLA models through original research. Topics of focus may vary.
(RE) Prerequisite(s): ENGL 476 or permission of instructor.

Repeatability: May be repeated with consent of department. Maximum 6 hours.

SPAN 530 Linguistic Research Design and Methods (3) Includes research design, measurement, qualitative and quantitative data collection techniques and analysis.

Repeatability: May be repeated with consent of department. Maximum 6 hours.

This course supports MA SLO 2 and PhD SLO 3.

Rationale: These courses are needed to support PhD second concentration in Applied Linguistics and potential new MA track in Applied Linguistics. Impact on other units: None. Financial impact: None.

SPAN 553 Topics in Peninsular Cinema, Cultural, and Literary Studies (3) May include analyses of a variety of cultural productions from Spain, such as films, popular genres, the press, scientific, political, and philosophical discourses, and other non-canonical texts. Topics and approaches may include gender and queer studies, converso studies, new historicism, and other literary theories.

Repeatability: May be repeated with consent of department. Maximum 6 hours.

This course supports PhD SLO 1.

Rationale: This course will provide a venue for broadening the scope of the Peninsular graduate curriculum by focusing on non-canonical literary texts and non-literary cultural productions. Impact on other units: None. Financial impact: None.

DROP (COURSES WERE DROPPED IN OCTOBER WITH COURSES NOT TAUGHT LIST)

SPAN 535 Golden Age Poetry (3)

SPAN 537 Golden Age Drama (3)

Rationale: Currently there are four courses covering the period "Golden Age – Spain" (533, 534, 535, 537). The Spanish program decided to reduce them to two because four classes to cover one historical period are unnecessary. Impact on other units: None. Financial impact: None.

SPAN 550 Techniques of Literary Analysis and Research Methods (3)

Rationale: This course is no longer offered. Impact on other units: None. Financial impact: None.

REVISE TITLE, DESCRIPTION AND ADD REPEATABILITY

SPAN 533 Studies in Golden Age Prose (3) Wide range of prose fiction in Spain during the 16th and 17th centuries: Moorish, picaresque, sentimental, pastoral and exemplary novels, and Cervantes.

Repeatability: May be repeated with consent of department. Maximum 6 hours.

This course supports PhD SLO 1.

Formerly: Golden Age Prose (3) Wide range of prose fiction in Spain during the 16th and 17th centuries: Moorish, picaresque, sentimental, pastoral and exemplary novels, and dialogues.

REVISE TITLE AND DESCRIPTION

SPAN 534 Studies in Golden Age Drama and Poetry (3) Major dramatists and poets of the period, which may include: Lope de Vega, Tirso de Molina, Calderon de la Barca, Garcilaso, Fray Luis de Leon, San Juan de la Cruz, Quevedo, and Gongora.

This course supports PhD SLO 1.

Formerly: Don Quijote (3) Cervantes' masterpiece in socio-cultural and literary context of its times: study of thematic, structural, and stylistic issues: crisis of aristocracy, Quixotic madness, discrepant cognitive and ethical perspectives, satiric irony, culture of sentiment, and Cervantes' legacy to subsequent literary periods. Content varies.

Rationale: These courses are being revised to cover the material in 535 and 537, the Golden Age courses being dropped. Impact on other units: None. Financial impact: None.

REVISE TITLE AND REPEATABILITY

SPAN 551 Topics in Hispanic Linguistics (3)

Repeatability: May be repeated with consent of department. Maximum 6 hours.

This course supports PhD SLO 1.

Formerly: Special Topics in Hispanic Literature or Linguistics (3)
Repeatability: May be repeated. Maximum 6 hours.

Rationale: We are anticipating hiring a new linguist and, in any case, would like to begin to offer Spanish linguistics at the graduate level in a two-year rotation. Impact on other units: None. Financial impact: None.

SCHOOL OF MUSIC

Student Learning Objectives for Music Major, MMusic

1. Create an effective music presentation at a high level by integrating comprehensive capabilities, and by demonstrating advanced, comprehensive knowledge of literature and/or key concepts at an advanced level, in the concentration.
2. Demonstrate a thorough working knowledge, as appropriate to their concentration, of aural and visual analysis and knowledge of musicology and repertoire.
3. Demonstrate the ability to communicate clearly and effectively about the art of music for a professional audience.

(MUTC) Music Technology

REVISE DESCRIPTION, DELETE (DE)PREREQUISITE, ADD REPEATABILITY AND REQUEST APPROVAL FOR VARIABLE TITLE

MUTC 550 Computer Projects (3) Variable topics. Topics may include high-level programming of computer-managed instructional materials; development of Internet resources including web pages; use of recording and mixing software.

Repeatability: May be repeated. Maximum 6 hours.

This course supports MMusic SLO 1.

Formerly: Computer Projects (3) High-level programming languages used to design and implement computer-managed instruction; Internet development tools; writing of documentation for computer projects.

(DE) Prerequisite(s): 540 or equivalent.

Rationale: With varying topics this class would enhance theory students' knowledge of technology in music theory and composition. Although they are exposed to some technology in their other classes, this class would provide in-depth discussions of programming, web design, and sequencing. Impact on other units: None. Financial impact: None.

DEPARTMENT OF PSYCHOLOGY

Student Learning Objectives for Psychology Major, MA

1. Students will be able to conduct original research to advance scientific knowledge and to disseminate the results in writing to a professional audience.
2. Students will demonstrate the ability to fulfill the professional demands of a modern career in science, academia, and/or industry.
3. Students will critically assess major concepts and empirical findings in Experimental Psychology, with particular expertise in biological, developmental, or social psychology.

Student Learning Objectives for Psychology Major, PHD (Clinical)

1. Clinical psychology students will apply scientific methods to generate, defend and disseminate research.
2. Clinical psychology students will demonstrate competence in understanding and applying assessment and intervention skills.
3. Clinical psychology students will competently integrate clinical practice with scientific methods.
4. Clinical psychology students will understand and apply professional, ethical, and legal guidelines in their professional roles.

Student Learning Objectives for Psychology Major, PHD (Counseling)

1. Counseling psychology students will demonstrate critical thinking skills and a well-developed capacity to advance knowledge as accomplished behavioral scientists.
2. Counseling psychology students will intervene effectively to enhance the mental health and positive well-being of a wide variety of clients who seek their counseling services.
3. Counseling psychology students will demonstrate skills to address social problems as advocates and agents of social.
4. Counseling psychology students will be able to integrate their science, practice, and advocacy skills so that each competency enhances the other two.

Student Learning Objectives for Psychology Major, PHD (Experimental)

1. Students will be able to conduct original research to advance scientific knowledge and to disseminate the results in writing to a professional audience.
2. Students will demonstrate the ability to fulfill the professional demands of a modern career in science, academia, and/or industry.
3. Students will critically assess major concepts and empirical findings in Experimental Psychology, with particular expertise in biological, developmental, or social psychology.

(PSYC) Psychology

ADD

PSYC 529 Practicum in College Teaching in Psychology (2) Techniques, materials, and supervised preparation/practice in actual course instruction in psychology.

Grading Restriction(s): Satisfactory/No Credit grading only.

Repeatability: May be repeated. Maximum 6 hours.

(DE) Prerequisite(s): 528.

Comments: Open to students who have been assigned as the instructor of record to a course in the psychology department in the coming academic year.

Registration Permission: Consent of Instructor.

This course supports MA SLO 2 and PhD Experimental SLO 2.

Assessment results indicated that Experimental PhD students needed more experience serving as teachers of psychology.

Rationale: To better meet both the training needs of our graduate students and our staffing needs, we would like to split our existing 3-credit GTA preparation course (528) into two separate courses: a 1-credit didactic seminar (528) and this 2-credit teaching practicum. This will allow us to provide focused supervised course preparation to students who already have training in basic pedagogy as they are preparing to teach a specific course. Impact on other units: None. Financial impact: None.

REVISE PRIMARY COURSE TO DROP CROSS LISTING

PSYC 415 Psychology of Religion (3)

Formerly:

(Cross-listed: Same as Religious Studies 415.)

Rationale: Psychology is primary. Religious Studies no longer wants to cross list the course. Impact on other units: Cross listed with Religious Studies. Financial impact: None.

REVISE TITLE AND DESCRIPTION

PSYC 461 Behavioral Neuroscience (3) Nervous system and physiological mechanisms of behavior. Biological basis of emotion, learning, memory, and stress.

Formerly: Physiological Psychology (3) Nervous system and physiological correlates of behavior. Biological basis of emotion, learning, memory, and stress.

Rationale: The title change more accurately reflects the contemporary nature of the course content as well as better communicating the sequencing of behavioral neuroscience courses in the department. Impact on other units: Included in the Neuroscience program. Financial impact: None.

PSYC 527 Advances in Behavioral Neuroscience (3) Advanced analysis of the structure and function of the nervous system with an emphasis on neurobiological mechanisms controlling behavior.

Formerly: Behavioral Neuroscience (3) Advanced analysis of functional neural systems involved in the regulation of behavior.

Rationale: Title change better communicates the sequencing of behavioral neuroscience courses in the department, from 301-Foundations of Behavioral Neuroscience, to 461-Behavioral Neuroscience, to 527-Advances in Behavioral Neuroscience. The description change provides a more accurate, contemporary, and complete description. Impact on other units: None. Financial impact: None.

REVISE TITLE, HOURS, AND DESCRIPTION

PSYC 528 Seminar on College Teaching in Psychology (1) Didactic seminar on essential pedagogical concepts for teaching at the college and/or university level.

This course supports MA SLO 2 and PhD Experimental SLO 2.

Assessment results indicated that Experimental PhD students needed more experience serving as teachers of psychology.

Formerly: College Teaching in Psychology (3) Concepts, techniques, and materials for teaching psychology at college and/or university level. Supervised practice.

Rationale: To better meet both the training needs of our graduate students and our staffing needs, we would like to split the previous 3-hour course into two separate courses, this 1-credit didactic seminar and a separate 2-credit teaching practicum (new 529). This will allow us to accommodate more students annually in the seminar even as we reduce the frequency of its offering. Will also allow us to provide basic conceptual training first, followed by more hands-on applied training. Impact on other units: None. Financial impact: None.

REVISE HOURS

PSYC 676 Field Placement in Counseling Psychology (1-6)

Formerly: 3

Rationale: Students spend a varying range of clinical hours on-site at their placements, depending on other time demands in the semester. Changing to a variable rate of credit hours will allow students to sign up for hours at a rate more consistent with their time spent at clinical placements on a weekly basis. Impact on other units: None. Financial impact: None.

DEPARTMENT OF RELIGIOUS STUDIES

(REST) Religious Studies

DROP AS A SECONDARY CROSS LISTED COURSE

REST 415 Psychology of Religion (3)

(Cross-listed: See Psychology 415.)

Rationale: This course no longer fits in the Religious Studies curriculum. Impact on other units: Cross listed Psychology course. Financial impact: None.

DROP

REST 534 Shari'a Islamic Law and Ethics (3)

Rationale: This course is not taught by any of the current faculty and no longer plays an important role in our curriculum. Impact on other units: None. Financial impact: None.

DEPARTMENT OF SOCIOLOGY

Student Learning Objectives for Sociology Major, MA

1. By the end of the program, students are able to effectively communicate research results in their sub-field to professional audiences orally.
2. By the end of the program, students are able to design and implement independent research leading to a contribution to sociology.
3. By the end of the program, students are able to teach sociology effectively, including the design of syllabi, presentation of material and organization of classroom time.
4. Students will demonstrate competency in one of three departmental specialty areas (criminology, environmental sociology or globalization and political economy).

Student Learning Objectives for Sociology Major, PHD

1. By the end of the 2nd year, students are able to summarize, compare, and critique major sociological theories, such as Marxist class theory, Weberian state theory, Durkheimian solidarity theory, social constructionist theory.
2. By the end of the 2nd year, students are able to analyze data and design research projects using appropriate methods, such as survey research design, ethnography, comparative-historical analysis and discourse analysis.
3. By the end of the program, students are able to effectively communicate research results in their sub-field to professional audiences orally.
4. By the end of the program, students are able to design and implement independent research leading to a contribution to sociology.
5. By the end of the program, students are able to teach sociology effectively, including the design of syllabi, presentation of material and organization of classroom time.

(SOCI) Sociology

REVISE TO DELETE (RE)PREREQUISITE:

SOCI 465 Social Values and the Environment (3)

This course supports MA SLO 4.

Formerly: RE Prerequisite 110 or 120

Rationale: This course is interdisciplinary in nature and serves students from a variety of majors. The current prerequisite has led to a significant decrease in its overall enrollment, especially from students outside of the department, and is no longer necessary for the course. Impact on other units: None. Financial impact: None.

DEPARTMENT OF THEATRE

Student Learning Objectives for Theatre Major, MFA

1. Demonstrate the skills and experience necessary to make a significant contribution to the professional theatre in the United States.
2. Demonstrate the skills necessary to research, explore, and create within a wide range of genres, styles, and cultures; including international and multi-cultural forms.
3. For students in the Acting concentration: to master skills in critical analysis; physical and vocal expression; collaboration; and the process of achieving authenticity in character, form, and style.
4. For students in the Design concentrations: to master skills in critical analysis, two-and three-dimensional design, style and form, and artistic collaboration.

(THEA) Theatre

ADD

THEA 551 Model Making (3) Techniques and best practices for solutions to theatrical scale model making problems.

THEA 554 Advanced Drafting for the Theatre (3) Computer Aided Drafting techniques and best practices for hand drafting in the theatre. Emphasis will be placed on page layout and graphic standards.
(DE) Prerequisite(s): 464.

THEA 557 Period Styles for the Theatre (3) The history of décor as it relates to theatrical design.

THEA 558 Design Presentation Skills for the Theatre (3) Techniques and best practices for all non-CAD design work product.

This course supports MFA SLOs 1 and 4.

Rationale: These courses are currently taught through special topics and now need their own numbers. We are trying to formalize the scene design curriculum to better show topics taught and to better assess the program. Impact on other units: None. Financial impact: None.

II. PROGRAM CHANGES

DEPARTMENT OF CHEMISTRY

REVISE CHEMISTRY MAJOR, PHD

In the 2014-15 Graduate Catalog revise the 6th bullet to add course CHEM 596 at the end of the list of courses.

Rationale: Undergraduate institutions typically do not offer a hands-on polymer chemistry course with a significant laboratory component. Therefore, our incoming graduate students are typically deficient/weak in the areas of polymer synthesis and characterization. To remedy this deficiency we would like to establish and require CHEM 596 as an integral part of the polymer division's graduate course offerings, thereby strengthening our students, the polymer division, and the department as a whole. Impact on other units: None. Financial impact: None.

DEPARTMENT OF HISTORY

REVISE HISTORY MAJOR, MA, (NON-THESIS OPTION)

In the 2014-15 Graduate Catalog delete current paragraph for the non-thesis option and replace with the following:

A total of 30 hours of course work is required. At least 12 hours must be taken in one MA field. The primary field will be examined by a written exam, which is graded pass/fail.

Formerly: A total of 30 hours of course work is required. At least 6 hours must be completed in each of two MA fields. The primary field is examined by a two-hour written exam followed within one week by a one-hour oral examination. The single grade of pass/fail will be given at the conclusion of the oral examination. No examination is given on the secondary field.

Rationale: We have decided to drop our requirement that non-thesis MA students take an oral exam, in conjunction with changing the kinds of questions we ask on the written exam. This change will allow us to better assess mastery of learning objectives 2 (historical interpretation) and 3 (historical writing) in the exam. The proposed change is a result of the SACS 2013-14 assessment exercise. Impact on other units: None. Financial impact: None.

INTERDISCIPLINARY PROGRAMS

REVISE AFRICANA STUDIES GRADUATE CERTIFICATE

In the 2014-15 Graduate Catalog revise 3rd paragraph, 2nd sentence to add GEOG 641 and HIST 517 to the course offerings.

Rationale: The two added courses, GEOG 641 and HIST 517, will broaden the offerings of the graduate certificate. They will be regularly offered by faculty in the home departments. Impact on other units: Geography and History have approved adding these courses to the AFST certificate. Financial impact: None.

REVISE LINGUISTICS GRADUATE CERTIFICATE

In the 2014-15 Graduate Catalog revise first bullet under requirements to remove and add the following course options.

Remove courses from list: EDPY 559, LING 431, LING 510, LING 575, SPAN 420

Add courses to list: ENGL 575, LING 429, LING 475, SPAN 422, SPAN 430, SPAN 461 (when topic is linguistics)

Rationale: We are removing courses that no longer apply and adding new courses that are appropriate for the program. Impact on other units: Units whose courses are being added have been consulted and approve the additions. Financial impact: None.

REVISE SOCIAL THEORY GRADUATE CERTIFICATE

In the 2014-15 Graduate Catalog revise course requirements to delete and add the following courses:

Delete from list: FREN 584 and GERM 560

Add to the list: MFLL 584

Rationale: The Social Theory Graduate Certificate used the French and German courses which are being dropped and replaced by the new MFLL 584 course so we are revising the description to reflect those changes. Impact on other units: Modern Foreign Languages approves this change. Financial impact: None.

DEPARTMENT OF MODERN FOREIGN LANGUAGES AND LITERATURES

REVISE MODERN FOREIGN LANGUAGES MAJOR, PHD

In the 2014-15 Graduate Catalog revise course work for the concentrations as follows:

1. Under "First Concentration: German heading" 500-level, revise the second sentence as follows:

These must include MFLL 512, MFLL 584, and GERM 519.

Formerly: These must include MFLL 512, GERM 519 and GERM 560.

2. First Concentration: French or Spanish, 500 level, revise second sentence:

These must include MFLL 512, MFLL 584, FREN 519 for students with a first concentration in French

Formerly: These must include MFLL 512, FREN 519, FREN 584 for students with a first concentration in French

Rationale: We are deleting GERM 560 from the German concentration and FREN 584 from the French or Spanish concentration and replacing them with MFLL 584, a new course which replaces both the German and the French courses that are being dropped. Impact on other units: None. Financial impact: None.

COLLEGE OF COMMUNICATION AND INFORMATION

All changes effective Fall 2015

I COURSE CHANGES

Learning Objectives for the Ph.D. in Communication and Information:

1. Students are able to explain and apply core theories within their area of concentration (i.e., advertising, communication studies, information sciences, journalism and electronic media, and public relations).
2. Students are able to explain and apply quantitative and/or qualitative research methods.
3. Students will be productive in advancing knowledge in the communication and information fields and demonstrate an interdisciplinary approach to research.

(CCI) Communication and Information

ADD

CCI 650 Social Media, Technology, and Society (3) Explores social media's influence on society, organizations, and individuals. It discusses the enabling technologies which encompass a wide variety of formats and which allow users to easily cross platforms. The theories and methods used to study social media are critically analyzed and discussed.

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

Rationale: This course encompasses a growing area of research interest within the fields of communication and information. Over the past few years, 40-47% of our completed Ph.D. applications have mentioned the impact of social media and emerging technologies as a component of their research interests. A review of graduate catalogs at our peer/aspirational peer institutions indicates that those institutions do not have courses that are equivalent to the one we are proposing, thus possibly enhancing our program's unique features. The course has twice been tested as a special topics course. The course attracted a number of doctoral students and students reported the positive gains (e.g., knowledge, academic research output) they received from the course. Impact on other units: None. No other equivalent course currently exists at the University of Tennessee, Knoxville. Financial Impact: None. This course will not require any additional resources or faculty workload.

This course supports learning objectives of 1, 2, and 3 for the Ph.D. in Communication and Information.

Support from assessment activities: Exit interviews with our program's graduates; assessment of applications to our doctoral program; review of offered courses by our peer/aspirational peer institutions.

SCHOOL OF ADVERTISING AND PUBLIC RELATIONS

Program Learning Outcomes for the M.S. in Communication and Information

1. Students will be able to explain and apply core communication theories and/or concepts.
2. Students will be able to explain and apply quantitative and/or qualitative research methods.
3. Students will be prepared to enter their chosen profession (i.e., students will be able to articulate the current state of their chosen communication profession and have the skills needed to succeed in the profession).

Program Learning Outcomes for the M.S. in Communication and Information with an emphasis in Advertising:

1. Understand the structure of the advertising industry.
2. Understand advertising's role in a marketing organization.
3. Understand the social, legal, and economic consequences of advertising.
4. Understand strategy and tactics involved in developing and evaluating an advertising campaign.
5. Understand how to conduct secondary and primary advertising strategy research.
6. Understand how to translate research findings into actionable advertising and creative strategy.
7. Understand how to conceptualize and evaluate strategic alternatives.
8. Understand how theory informs message strategy development.
9. Have been exposed to academic advertising research.

(ADVT) Advertising

ADD

ADVT 560 Account Planning (3) Account Planning focuses on the development of advertising strategy based on insight-oriented research. Emphasis on the use of qualitative research in advertising strategy development, secondary and quantitative data also used.

Rationale: This course has been offered successfully for 10 years as a special topics class (ADVT 490 with graduate credit). Recent enrollments have been as follows: Spring 2012 – 14; Spring 2014 – 9; Fall 2014 – 4. Students taking the class have a good track record of securing internships and jobs in account planning. UT is one of the few programs in the country offering such a class. Impact

of Other Units: None. Course has served as an elective for students in marketing or other majors where consumer research is important. Financial Impact: None.

This course supports College Program Learning Outcomes 2 and 3, and Advertising Program Learning Outcomes 4, 5, 6, 7, and 8.

Support from assessment activities: Recent UT advertising students have been successful in securing internships and jobs in account planning. UT is one of the few programs in the country offering such a class. Annual contact with major advertising agencies indicates that account planning continues to be a vital function within the advertising industry.

ADD AS PRIMARY COURSE AND CROSS-LIST

ADVT 561 Social Media in Advertising and Public Relations (3) Practical and analytical skills necessary to create, evaluate and execute social media campaigns. Emphasis on on-line reputation management, ethical/legal/privacy issues and evaluating digital technologies.

Cross-listed: (Same as Public Relations 561.)

Rationale: This course has been offered successfully for 5 years as a special topics class (ADVT 490 with graduate credit). Recent enrollments have been as follows: Fall 2012 – 14; Fall 2012 – 6; Spring 2013 – 9; Fall 2013 – 8; Spring 2014 – 7; Fall 2014 – 10. Students taking the class have a good track record of securing internships and jobs in social media. UT is one of the few programs in the country offering such a class. Impact of Other Units: None. Course has served as an elective for students in marketing or other majors where consumer research is important. Financial Impact: None.

This course supports College Program Learning Outcomes 3 and Advertising Program Learning Outcomes 4 and 7.

Assessment activities in support of change: Recent UT advertising and public relations students have been successful in securing internships and jobs in social media. UT is one of the few programs in the country offering such a class. Annual contact with major advertising and media agencies indicates that social and other new media platforms continue to be an important and emerging area of advertising and public relations.

Public Relations

Program Learning Outcomes for the M.S. in Communication and Information

1. Students will be able to explain and apply core communication theories and/or concepts.
2. Students will be able to explain and apply quantitative and/or qualitative research methods.
3. Students will be prepared to enter their chosen profession (i.e., students will be able to articulate the current state of their chosen communication profession and have the skills needed to succeed in the profession).

Program Learning Outcomes for the M.S. in Communication and Information with an emphasis in Public Relations:

1. Understand the structure of the public relations industry.
2. Understand the social, legal, economic, cultural, and ethical consequences of public relations.
3. Understand the social, legal, economic, cultural, and ethical issues – including historical – facing the public relations profession.
4. Understand the various types of research used in public relations.
5. Understand how to conduct secondary and primary public relations research.
6. Understand how to translate research findings into actionable public relations strategies and tactics.
7. Understand how theory informs the practice of public relations.
8. Understand the communication/mass communication theories and practices governing the practice and scholarship of public relations.
9. Understand and appreciate the diversity of people, curricula, scholarship, research, and creative activities of the public relations discipline.
10. Understand international public relations and the best practices and impacts of practicing public relations in a global economy.
11. Understand how to write a literature review.
12. Have been exposed to academic public relations research.

Public Relations (PBRL)

ADD

PBRL 530 Crisis Communication (3) Emphasis on theoretical and practical applications to preparing for and engaging in crisis communication and management, including risk communication and issues management.

Credit Restriction: Students cannot receive credit for both PBRL 430 and PBRL 530.

Equivalency Table

Course effective Fall 2014	Equivalent course effective Fall 2015
Public Relations (PBRL) 430	Public Relations (PBRL) 530

Rationale: Annual contact with leaders in the public relations industry indicates that crisis communication continues to be an important and growing area of public relations. Course content missing within major area at the graduate level, and this course has been successfully taught 8 times as a special topics class (PBRL 516). Recent enrollments have been as follows: Summer 2011 – 10; Summer 2012 – 10. Impact on other units: None. Financial impact: None.

This course supports College Program Learning Outcomes 1 and 3, and Public Relations Program Learning Outcomes 2, 5, 6, 7, 8, 9, 10, and 11.

Assessment activities in support of change: Course recommended by the Commission for Public Relations Education's assessment of masters public relations programs in their report entitled, "Commission on Public Relations Education Sets Standards for Public Relations Master's Degree Education." In addition, a review of eight years of teaching this course as a special topics course indicated a strong desire for this to be a regularly scheduled course.

ADD AS SECONDARY CROSS-LISTED COURSE

PBRL 561 Social Media in Advertising and Public Relations (3) Practical and analytical skills necessary to create, evaluate and execute social media campaigns. Emphasis on on-line reputation management, ethical/legal/privacy issues and evaluating digital technologies.

Cross-listed: (See Advertising 561.)

Rationale: This course has been offered successfully for 5 years as a special topics class that attracts public relations students (ADVT 490 with graduate credit). Recent enrollments have been as follows: Fall 2012 – 14; Fall 2012 – 6; Spring 2013 – 9; Fall 2013 – 8; Spring 2014 – 7; Fall 2014 – 10. Students taking the class have a good track record of securing internships and jobs in social media. UT is one of the few programs in the country offering such a class. Impact of Other Units: None. Course has served as an elective for students in marketing or other majors where consumer research is important. Financial Impact: None.

This course supports College Program Learning Outcomes 3 and Advertising Program Learning Outcomes 4 and 6.

Assessment activities in support of change: Recent UT advertising and public relations students have been successful in securing internships and jobs in social media. UT is one of the few programs in the country offering such a class. Annual contact with major public relations agencies indicates that social and other new media platforms continue to be an important and emerging area of advertising and public relations.

SCHOOL OF COMMUNICATION STUDIES

Program Learning Outcomes for the M.S. in Communication and Information

1. Students will be able to explain and apply core communication theories and/or concepts.
2. Students will be able to explain and apply quantitative and/or qualitative research methods.
3. Students will be prepared to enter their chosen profession (i.e., students will be able to articulate the current state of their chosen communication profession and have the skills needed to succeed in the profession).

(CMST) Communication Studies

ADD

CMST 544 - Mindfulness Research and Experience (3) An advanced study of mindfulness practice, theory and research. The course covers mindfulness in relation to self-regulation, health, and communication in intrapersonal, interpersonal, team, and organizational contexts. A one-day practicum is required.

Credit Restriction: Graduate credit only.

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

Rationale: The most recent CMST program review, student feedback, and assessment of aspirational peer communication graduate programs indicated the need for more substantive courses in the CMST graduate curriculum. As per these sources of evidence the new course more clearly defines the program. Additionally, a growing research and applied literature on this topic indicates a need for this course (e.g., *Communication Research Reports*, *Academy of Management Review*, *Harvard Business Review*, and *Fortune*). A review of the graduate catalogs for the top programs in communication studies indicated that courses equivalent to this one are not offered. Therefore, our program will be unique and will lead the communication field by offering this course. Furthermore, to our knowledge, The University of Tennessee, Knoxville is not offering a similar course. This course has been tested as a special topics offering twice and attracted a significant number (average enrollment of 10 per offering) of students from across campus indicating its broad appeal. Students who took the course reported positive gains (e.g., academic, professional, and personal growth, and enhancement of research). Impact on other units: None. Financial impact: None.

This course will support program learning outcomes 1 and 3.

Support from assessment activities: Review of top (peer/aspirational) communication studies programs indicated UT leads in offering this course; exit interviews with graduates who completed the course revealed positive gains; CMST program review.

CMST 509 Communication and Ethnography (3) Theory and application of qualitative approaches to communication research. Emphasis is on ethnographic methods to obtain in-depth information about behaviors and beliefs of people in natural settings. Use of methods: structured interviews using heuristic elicitation methodology, participant/observation and case studies.

Credit Level Restriction: Graduate Credit only.

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

Rationale: Tradition in CMST dictates that *4* course numbers are reserved for courses in organizational communication or interpersonal communication and *0* course numbers are reserved for courses in research methodology. Because CMST 542 is a course in research methodology, not organizational communication or interpersonal communication, we are changing its number to reflect that tradition. Impact on other units: None. Financial impact: None.

DROP

CMST 542 Communication and Ethnography (3)

Equivalency Table

Course effective Fall 2014	Equivalent course effective Fall 2015
Communication Studies (CMST) 542	Communication Studies (CMST) 509

COLLEGE OF EDUCATION, HEALTH, AND HUMAN SCIENCES

Effective Fall 2015

I. COURSE CHANGES

DEPARTMENT OF CHILD AND FAMILY STUDIES

Learning objectives for the Child and Family Studies major, MS program:

Student Learner outcomes impacted by revisions.

1. Students will be able to write a well-organized, logical, scientifically sound research paper
2. Students will demonstrate proficiency in analyzing and critiquing ideas in their field of interest from published texts, reports, and research proceedings.
3. Students will construct original arguments through written work that incorporate consideration of the relevant issues from the field and the theory that informs it.

Learning objectives for the Child and Family Studies major, PhD program:

1. Students will be able to write a well-organized, logical, scientifically sound research paper.
2. Students will demonstrate proficiency in analyzing and critiquing ideas in their field of interest from published texts, reports, and research proceedings.
3. Students will construct original arguments through written work that incorporate consideration of the relevant issues from the field and the theory that informs it.

(CFS) Child and Family Studies

ADD

CFS 560 Culture and Early Development (3) Examining early development (zero to 5 years) from a cross-cultural perspective; focus on cultural and international research and theory.

SUPPORTING INFORMATION: Rationale: Course will prepare students to critically analyze research and theory in the field by examining cultural variation in early development (zero to 5 years) and the implications for current understandings of child development. Course Format: Course will be taught on campus as a traditional lecture/seminar course. Impact on other units: None. Financial Impact: None; this has been taught previously as a special topics and will be taught by existing faculty as part of their normal teaching loads.

Learning outcomes supported: Supports Learner Outcomes #1, 2, and 3 in the M.S. programs and the PhD program
Support from assessment activities: Assessment of students in AY 2013-2014 who took the course as a special topic, indicated that there is demand for content related to early development and cultural diversity. Faculty in the department also indicated that there is a need for more international and early development related content in order to keep up with current trends in the field, including opportunities to synthesize and critique constructive arguments relative to international research. Proposed course syllabus - available.

REVISE HOURS

CFS 672 Professional Seminar 2: Professional Socialization (2)

Formerly: (1)

Rationale: Additional hour will provide sufficient time to cover what is described in the course description. One hour (formerly) did not provide sufficient class time to cover what was included in the course description. Impact on other units: None. Financial Impact: None.

Learning outcomes supported: Revision is not directly related to student learner outcomes.
Support from assessment activities: Assessment of students in AY 2012-2013 indicated that more time was needed on the topics presented in class in order to fully understand and explore topics. Revised course syllabus available.

REVISE TITLE AND DESCRIPTION

CFS 660 Advanced Observation Research Design and Methods (3) Design of observational research in natural and contrived settings as used in child and family research; observation methods used with these designs.

FORMERLY: Experimental Design and Observation Methods (3) Experimental and quasi-experimental designs (group and time-series single-case) in natural and contrived settings as used in child and family research; observation methods used with these designs.

SUPPORTING INFORMATION: Rationale: New course description better defines the course content and better aligns with the pre-requisite for the course (CFS 570). New course title better aligns with our other 600-level methods class (i.e., CFS 650 – Advanced Qualitative Research in Human Sciences) and better defines the course content. Impact on other units: None. Financial Impact: None.

Learning outcomes supported: Supports Learner Outcomes #1 in the PhD program
 Support from assessment activities: Faculty in the department indicated that the former course description was outdated and did not fit well with the course content.

DEPARTMENT OF EDUCATIONAL LEADERSHIP AND POLICY STUDIES

Learning Objectives for Educational Administration major, EdS, MS, and certificate students

Student Learner outcomes impacted by revisions.

1. Students will illustrate mastery of the core knowledge of the Pre-K-12 school leadership field, as guided by the professional standards.
2. Students will demonstrate the skills and dispositions required for Pre-K-12 school leadership licensing.
3. Students will produce independent action research, located in a school setting, demonstrating the ability to design research studies, collect and analyze data, and communicate findings (EdS only).

(EDAM) Educational Administration

ADD

EDAM 519 Curriculum for School Leaders (3) Designed to equip aspiring school leaders with practical and theoretical knowledge of various curriculum models that might be used to foster instructional leadership and enhance school improvement initiatives. Seminars, lectures, and inquiry-based approaches will be used.

Rationale: The course is required for students in our principal preparation program. For several years, TPTE has allowed us to use their course number, which they owned but no longer used. Now, both departments would like to regularize the course; TPTE by dropping it, and EDAM by adopting it formally in our department and subject area. Impact on other units: TPTE and ELPS only. The effect of this proposal is to drop 519 from TPTE program listing, but to retain that course as EDAM 519. Financial Impact: Adding EDAM 519 involves no fiscal impact. Curriculum for School Leaders will be taught as required under EDAM 519.

SACS Student Learner Outcomes: Revision is not directly related to student outcomes as this is a managerial issue, involving only a change of prefix from one department to another.

Assessment Activities: This course is only required of educational administration students but has been housed in TPTE since the educational administration program was part of that department. When ELPS became a separate department, the course was not transferred to an ELPS prefix. This change clarifies where the course should be placed for the students who will complete the course.

Equivalency Table:

Current Course	Equivalent Course effective Fall 2015
TPTE 519	EDAM 519

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY AND COUNSELING

Student Learner outcomes impacted by revisions.

Learning objectives for Counselor Education, PhD

1. Students will demonstrate skills for individual counseling
2. Students will demonstrate skills for group counseling
3. Students will demonstrate an understanding of a theoretical orientation

Learning objectives for Cultural Studies, MS

1. Students will master core knowledge in the discipline of Cultural Studies
2. Students will demonstrate the ability to think critically and application of knowledge and skills.
3. Students will demonstrate the integration of knowledge and research

Learning objectives for Educational Psychology and Research, PhD

1. Students will write a scholarly review of the literature that seamlessly integrates references.
2. Students will demonstrate mastery of the content in their area of academic concentration and how to apply the content in a practice setting.
3. Students will be actively engaged in their profession

Learning objectives for Educational Psychology, MS

1. Students will demonstrate their comprehension of a targeted body of relevant literature in their area of concentration.
2. Students will demonstrate ability to write and prepare a scholarly manuscript.
3. Students will be engaged in their profession

Learning objectives for Instructional Technology, MS

1. Students will master core knowledge in the discipline.
2. Students will demonstrate the ability to think critically and application of knowledge and skills.

Learning objectives for Learning Environments and Educational Studies, PhD

1. Students will demonstrate mastery of scholarly writing pertaining to an area of study
2. Students will demonstrate ability to determine appropriate professional outlets aligned with their interests
3. Students will demonstrate interdisciplinary knowledge and application of learning environment design

(COUN) Counselor Education

ADD

COUN 545 Critical Issues in Counseling (3) Addresses themes and issues affecting clients' development with relevance to counselor interventions, including family and personality development, crises and trauma, addiction and addictive behaviors.

Rationale: Single new course will be used to meet multiple accreditation requirements across school and clinical mental health counseling programs. Impact on other units: None. Financial Impact: None. Course has been taught by existing faculty once yearly for three years as a special topics course. Other courses were moved to be offered less frequently to enable the delivery of the special topics course. Course Format and Location: Standard Lecture: On-campus

Learning Outcomes Supported: Provides contextual background of knowledge for SACS SLOs 1 & 2 that are the focus of and measured in other courses in the CAC REP accredited masters programs.

Support from assessment activities: Assessment in Systematic Program Evaluation of CACREP accredited programs in AY 2013-2014, plus preparation for upcoming accreditation self-study, identified accreditation standard deficits which the counselor education programs must meet.

COUN 645 Foundations in Counselor Education and Supervision (3) Provides initial understanding of critical areas of work for Counselor Education Ph.D. students, including: clinical supervision, teaching, and grant writing.

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

Rationale: Single new course will be used to meet multiple accreditation requirements and multiple learning needs of Counselor Education Ph.D. students beginning doctoral study. Impact on other units: None. Financial Impact: None. Course will be taught by existing faculty as part of their load. Course has been taught by existing faculty once yearly for three years as a special topics course. Course Format and Location: Standard Lecture: On-campus.

Learning Outcomes Supported: Course provides skill and knowledge background for SACS SLOs 1 & 3, which are the focus of and measured in later courses in the degree program.

Support from assessment activities: Assessment in Systematic Program Evaluation of CACREP accredited programs in AY 2013-2014, plus preparation for upcoming accreditation self-study, identified accreditation standard deficits which the counselor education programs must meet.

DROP PRIMARY CROSS-LISTED COURSE

COUN 431 Personality and Mental Health (3)

Cross-listed: (Same as Educational Psychology 431)

Rationale: Content is no longer relevant and required by the counselor education programs. Impact on other units: None. Cross-listed within our department with EDPY 431 (also being dropped). Financial impact: None.

Support from assessment activities: Faculty review of course offerings and program needs in Systematic Program Evaluation of CACRP accredited programs in AY 2013-2014 determined irrelevance of the course content.

(EDPY) Educational Psychology

ADD FOR GRADUATE CREDIT

EDPY 401 Professional Studies: Applied Educational Psychology (3) Application of concepts, principles, techniques, and models from educational psychology to facilitate student learning and creation of effective classroom environments.

Comments: This course is available at the graduate level for students who are participating in a post-baccalaureate or transitional licensure program. This course cannot be taken for senior privilege.

Registration Restriction(s): Admission to teacher education.

Rationale: The content in this course is needed for initial teaching license. Because a small but significant number of post-baccalaureate students seek initial teaching license each year, a graduate level version of the course is needed. Impact on other units: there should be no impact on other units. This course is currently offered for undergraduate credit only. However, this revised version reflects graduate level expectations required for a student in the graduate program. The proposed syllabus includes additional graduate level expectations and a graduate level grading system. The comments section is new and will be added to the UG catalog as well. Financial impact: Offering this course for graduate credit will have no significant impact financially or with existing faculty teaching loads. Historically, graduate level students have taken the course and received undergraduate credit; now students will simply have the option of taking the course for graduate credit.

Learning outcomes supported by this change: No impact on Student Learner Outcomes.

Support for this change from assessment activities: Rationale is provided by TPTE, who requested this change to better meet the needs of some of their students.

DROP SECONDARY CROSS-LISTED COURSE

EDPY 431 Personality and Mental Health (3)

Cross-listed: (See Counselor Education 431)

(IT) Instructional Technology

ADD

IT 525 Professional Ethics in Instructional Technology (3) Introduction to professional ethics related to instructional technology including topics such as electronic data security, equitable access to technology and electronic information, protecting client/user privacy, ethical policies, Americans with Disabilities Act related media development issues, and future trends.

Rationale: This course will be aligned with professional standards affiliated with the Association for Educational Communications and Technology and the International Society for Technology in Education. Impact on other units: None. Financial Impact: None. Course will be taught by existing faculty as part of their load, this course has been taught twice as a special topics in the last 2 years with an enrollment of 9 students each time. *Course Format and Location: Distance Education.*

Learning Outcomes Supported: supports learner outcome #2 Students will demonstrate the ability to think critically and application of knowledge and skills, for the Master's in Education with Instructional Technology Concentration. Support from assessment activities: Assessment activities from AY 2012-2013 and AY2013-2014 indicate that other courses offered in the IT master's degree cannot sufficiently address all of the required standards indicators included in the Association for Educational Communications and Technology and the International Society for Technology in Education related to ethics.

DROP

IT 576 Advanced Interactive Multimedia for Instruction (3)

Rationale: No longer meets needs of Instructional Technology Master's Program. Impact on other units: None. Financial Impact None.

Learning Outcomes Supported: None

Support from assessment activities: Faculty review of course offerings and program needs in AY 2013-2014 determined irrelevance of the course content.

(LEES) Learning Environments and Educational Studies

ADD

LEES 650 Design Thinking and Theory (3) Introduction to both theoretical and empirical works related to design thinking and its role in various fields related to human learning, social activities, and physical artifacts. Participants will examine design research methods and the sociocultural implications of design activities.

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

Rationale: This course is a core course in the Learning Environment and Educational Studies (LEEDS) curriculum. Impact on other units: None. Financial Impact: None. Course will be taught by existing faculty as part of their load, this course has been taught once as a special topics section with an enrollment of 9 students. *Course Format and Location: On campus face-to-face course.*

Learning Outcomes Supported: This course supports learner outcome #3 Students will demonstrate interdisciplinary knowledge and application of learning environment design.

Support from assessment activities: Assessment activities from AY 2012-2013 show that through this course students were able to identify and reflect on learning environments design principles from an interdisciplinary perspective that fits the mission of the LEEDS program.

DEPARTMENT OF KINESIOLOGY, RECREATION, AND SPORT STUDIES

Student Learner outcomes impacted by revisions.

Learning objectives for the Kinesiology major, MS:

1. Students will demonstrate an understanding of key disciplinary knowledge.
2. Students will demonstrate the capability to communicate information effectively using disciplinary-appropriate mechanisms.

Learning objectives for the Recreation and Sport Management major, MS:

1. Students will apply sport management and therapeutic recreation principles in professional settings.
2. Students will demonstrate an understanding of the foundational knowledge and skills needed in the sport management and therapeutic recreation professions.
3. Students will be able to conduct research and understand its importance in the decision-making process.

Learning objectives for the Kinesiology and Sport Studies major, PhD:

1. Students will demonstrate the ability to conduct and disseminate research.
2. Students will demonstrate mastery of discipline-specific knowledge.
3. Students will demonstrate teaching proficiency.

(KNS) Kinesiology

REVISE TITLE AND DESCRIPTION

KNS 538 Professional Practice Issues in Sport Psychology (3)

Critical examination of various aspects of professional practice in sport psychology with particular emphasis on ethical issues.

Formerly: Professional Practice Issues in Kinesiology (3)

Critical examination of various aspects of professional practice in sport studies with particular emphasis on ethical issues. Also contains a professional development component related to interviewing, resume building, etc.

Rationale: New title and description better fit the course content. Impact on other units: None. Financial impact: None.

Learning outcomes supported: Supports Learner Outcome 1 for the MS in Kinesiology and Learner Outcome 2 for the PhD in Kinesiology and Sport Studies.

Support from assessment activities: No assessment activities were reported for this minor wording change.

(RSM) Recreation and Sport Management

REVISE DESCRIPTION AND DROP (RE)PREREQUISITE

RSM 521 Facilitation Techniques in Therapeutic Recreation (3) Role of therapeutic recreation in clinical and non-clinical settings; application of life-style planning, self-awareness, values clarification and assertiveness training in therapeutic recreation, and the relationship of leisure education to therapeutic recreation.

Formerly: (RE) Prerequisite(s): 520.

SUPPORTING INFORMATION: Rationale: The pre-requisite of RSM 520 was causing students who start the program in the spring semesters to not be able to take the course when needed. Impact on other units: None. Financial impact: None.

Learning outcomes supported: This change supports Student Learner Outcome #2.

Support from assessment activities: No support activities were conducted for this minor change.

DEPARTMENT OF NUTRITION

Student Learner outcomes impacted by revisions.

Learning objectives for the Nutrition major, MS

1. Upon completing the master's degree program the student will attain entry level nutrition related employment.
2. Upon completing the program, students who have completed the dietetic internship option will have demonstrated the ability to understand, interpret, and apply the science of nutrition in individual, clinical, and community settings.
3. Upon completing the program the student will have demonstrated the ability to write a NIH-formatted specific aims and research strategy for a grant.
4. Upon completing the program, students in the public health nutrition concentration will have demonstrated the ability to apply public health nutrition skills in community settings.

Learning objectives for the Nutritional Sciences major, PhD

1. Upon completing the program the student will have the ability to interpret, critique, and synthesize research literature in nutrition.
2. Upon completing the program students will have demonstrated the ability to communicate and disseminate research findings.
3. Upon completing the program the student will have demonstrated the ability to write a NIH-formatted specific aims and research strategy for a grant proposal and to submit a grant proposal for research funding.
4. Upon completing the program the student will attain a nutrition-related position appropriate to doctoral-prepared program graduates.

(NUTR) Nutrition

DROP 400-LEVEL COURSE FOR GRADUATE CREDIT (COURSE BEING RETAINED IN THE UG CATALOG)

NUTR 412 Food and Nutrition in the Community (3)

Rationale: Course is no longer being offered for graduate credit. Students will be required to take one of two graduate level NUTR courses (NUTR 505 or NUTR 616, as described in PROGRAM CHANGES). Impact on other units: None. This course is for undergraduate Nutrition majors only. Financial Impact: None. This change does not change the existing faculty load.

Learner Outcomes Supported: This change addresses SLO #1, as it provides the breadth of applied nutrition background that will allow the student to be competitive in the job market.

Support from assessment activities: Graduate students without a background in community nutrition were required to take this course, in order to familiarize them with the application of nutrition knowledge. However, this posed a significant challenge to those who had not been exposed to the 'jargon' of the US Public Health System, and students struggled to learn acronyms rather than focusing on content. Depending on their prior exposure to community nutrition, students will instead be able to choose from two graduate-level NUTR courses.

DEPARTMENT OF PUBLIC HEALTH

Learning objectives for the proposed DrPH Program (pending THEC approval)

Students completing the DrPH program should be able to:

1. Demonstrate a high level of thinking and practice skill in recognizing, defining, and addressing public health problems and needs;
2. Demonstrate competence in the five core areas of public health: biostatistics; epidemiology; environmental health; health planning, policy, and administration; and social and behavioral sciences;
3. Demonstrate professionalism, advocacy, leadership, ethical principles, and scientific integrity in advanced public health practice;
4. Provide collaborative leadership in the development of public health practice models for diverse populations.

Student Learner outcomes impacted by revisions.

Learning objectives for the Public Health major, MPH

1. Students will demonstrate readiness for professional practice in health-related settings.
2. Students will demonstrate critical thinking & problem-solving abilities reflecting the integration of public health competencies.
3. Students will develop effective presentation skills.
4. Students will appraise mastery of 12 core public health competencies.

(PUBH) Public Health

ADD

PUBH 610 Scientific Writing for the Health Sciences (1) A one-hour graduate seminar focusing on the craft of writing for scientific publications. Students will gain experience in various writing styles, will learn techniques specific to scientific writing, will understand the importance of accurate referencing, and will gain experience in composing cover letters and how to respond to reviewers. Students will learn by writing and critiquing each other. A required course in the DrPH curriculum.

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

Rationale: This 1 hour course introduces the basic concepts of expository writing for the health sciences, including original and review articles for publication. Upon completion of the DrPH, it is anticipated that graduates will eventually hold senior-level positions in practice, or graduates may enter academe – in either case graduates will be expected to have higher-level skills in writing. No other public health course, or course in a related discipline, currently focuses on these skills. Course format and location: Traditional, on-campus. Impact on other units: None. Financial impact: None: course will be taught by existing faculty.

Student learner objectives impacted: Objective number 1 of the DrPH program.

Support from assessment activities: Support materials included within the request to add the DrPH degree program.

PUBH 611 Leadership in Public Health (1) Leadership theory applied to public health practice, with a particular focus on the distinction – and overlap – between leadership and management. Identification of personal leadership skills and gaps in ability to apply leadership theory to practice through personal leadership assessments, mentoring from local leaders in practice, and skill-building exercises. Additional emphasis on leadership for planning process and organizational change. A required course in the DrPH curriculum.

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

Rationale: This 1 hour course will provide an overview of the theoretical framework for the practice of leadership in organizations, leading to the application of theory to practice to create best practices. The course will also focus on specific leadership topics such as strategic leadership, team leadership, change management, and developing others. There is no current public health doctoral-level course which focuses specifically on leadership theory, or the application of theory to practice. The course specifically addresses the DrPH core competency in Leadership: The ability to create and communicate a shared vision for a positive future; inspire trust and motivate others; and use evidence-based strategies to enhance essential public health services. Course format and location: Traditional, on-campus. Impact on other units: None. Financial impact: None: course will be taught by existing faculty.

Student learner objectives impacted: Objective numbers 3, and 4 of the DrPH program.

Support from assessment activities: Support materials included within the request to add the DrPH degree program.

PUBH 613 Public Health Ethics and Law (1) An introduction and overview of critical issues relating to law, ethics, and public health. Examines the legal foundations of the American public health system and resulting ethical dilemmas that must be reconciled when the interests of the larger community are at odds with those of individuals. Will explore ways in which government actions on behalf of the public's health may conflict with the Constitutional rights of individuals and businesses. Includes recognition of the scope and limitations of authority of health organizations, regulation of professions and tort litigation for the public's health. A required course in the DrPH curriculum.

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

SUPPORTING INFORMATION Rationale: Public Health ethics reflects the values of society, in acknowledging that public health has a communitarian outlook. Ethics may be codified into law, which provide the legal footing and justification for specific public health actions. The successful DrPH must be able to both distinguish the difference between public health and medical ethics in practice, and understand both the rationale and consequences of the application of public health law. No other public health course covers this material in any depth. The course specifically addresses the DrPH core competency in Professionalism and Ethics: The ability to identify and analyze an ethical issue; balance the claims of personal liberty with the responsibility to protect and improve the health of the population; and act on the ethical concepts of social justice and human rights in public health research and practice. Course format and location: Traditional, on-campus. Impact on other units: None. Financial impact: None: course will be taught by existing faculty.

Student learner objectives impacted: Objective numbers 1 and 3 of the DrPH program.

Support from assessment activities: Support materials included within the request to add the DrPH degree program.

PUBH 687 Practice Engagement/Field Placement (1- 6) Internship in a public health practice setting, approved by the DrPH Program Director. Required for two semesters of the DrPH program.

Repeatability: May be repeated once. Maximum 9 hours.

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

Rationale: The two-semester Field Placement will serve as an internship for the DrPH candidate. DrPH programs should ensure that graduates have practical experiences collaborating with senior public health practitioners and practice-oriented researchers, through practice, internships or other means in a variety of practice and/or academic settings, allowing opportunities to observe, to engage in policy analysis and development, and to develop leadership and research competencies. The practice experience should enable students to master advanced professional-level competencies including: integration of inter-disciplinary knowledge and analytical skills; deployment of advanced program management, policy analysis and development, evaluation, translational and implementation research, and professional communication skills; and the execution of substantive responsibilities that result in significant contributions to the practice site. Course format and location: Off-campus, with specifically-designated Field Preceptors. Impact on other units: None. Financial impact: None: course will be taught by existing faculty, working in collaboration with Field Placement Preceptors.

Student learner objectives impacted: Objective numbers 1, 2, 3, and 4 of the DrPH program.

Support from assessment activities: Support materials included within the request to add the DrPH degree program.

PUBH 640 Advanced Epidemiologic Methods (3) A detailed examination of the epidemiologic methods used in cohort, case-control, and experimental studies. Particular emphasis in critiquing and understanding epidemiologic methods in the professional literature. Application of higher-level methods that can be utilized in the public health practice setting. Analytic methods will include multiple logistic regression and survival analysis.

(RE) Prerequisite(s): 540 or consent of instructor.

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

Rationale: Establishing the DrPH concentration in epidemiology necessitates offering additional 600-level courses. The current PUBH 542 will be dropped and added back as a 600-level course (640) with a focus on additional higher-level epidemiologic methods. A critical component of this course will be the ability to master an understanding of the literature vis-à-vis epidemiologic methods. Application of methods to public health practice settings will also make this course more relevant for the DrPH candidate, while still being available to master's-level students. The course will specifically address the DrPH core competencies in Critical Analysis: The ability to synthesize and apply evidence-based research and theory from a broad range of disciplines and health-related data sources to advance programs, policies, and systems promoting population health. Impact on other units: None; the course has been and will continue to be taught by full-time faculty or competent lecturers in the public health department. Financial impact: None; the course has been and will continue to be taught by full-time faculty or competent lecturers in the public health department.

Student learner objectives impacted: Objective numbers 1 and 2 of the DrPH program.

Support from assessment activities: Support materials included within the request to add the DrPH degree program

Equivalency Table:

Current Course	Equivalent Course Fall 2015
PUBH 542	PUBH 640

DROP

PUBH 528 Public Health Leadership

Rationale: Course has not been taught since the Department of Public Health was established in 2010. Impact on other units: None. Financial impact: None.

Student learner objectives impacted: None. Course has not been offered in over four years.

Support from assessment activities: No assessments conducted. Course has not been offered in over four years.

PUBH 542 Advanced Epidemiologic Methods (3)

Rationale: Dropping as a 500-level course. Adding back as a 600-level – PUBH 640.

REVISE TO REMOVE (RE) PREREQ

PUBH 552 Community Health Assessment (4)

Formerly: (RE) Prerequisite(s): 530 and 536 or equivalent, or consent of instructor.

Rationale: 552 will include the methodology and analysis necessary to complete the community service learning project for the course. With that the prerequisites will no longer be necessary. Impact on other units: No impact; the required CHE concentration course has been offered through the MPH curriculum for decades. Financial impact: None; the course continues to be taught by full-time faculty in the public health department.

Student learner objectives impacted: No objectives impacted for this minor change
Support from assessment activities: No assessments needed for this minor change.

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

PUBH 541 Student Outbreak Rapid Response Training (1)

Grading Restriction: Satisfactory/No Credit grading only.

Formerly: Satisfactory/No Credit or letter grade

Rationale: 541 was always intended to have a grading restriction of Satisfactory/No Credit. However, when updating this course from its previous special topics designation, the special topics grading restrictions were inadvertently transferred over as well. The class is already graded as a S/NC course. Making this change would prevent students from accidentally enrolling with the letter grade option and reduce confusion. Course format and location: traditional, on-campus. Impact on other units: None. This change merely corrects the grading option to S/NC only. Financial impact: None. This change only affects the method of grading permitted in an already existing class.

Student learner objectives impacted: None. This change only affects the method of grading permitted in an already existing class.
Support from assessment activities: For the fall 2014 semester, several of the students selected the wrong grading option when enrolling in the course; which a staff member later had to manually correct in Banner.

REVISE TO ADD GRADING RESTRICTION (SATISFACTORY/NC OR LETTER GRADE)

PUBH 580 Special Topics (1-3)

Grading Restriction: Satisfactory/No Credit or letter grade.

Rationale: Allows for flexibility in grading in non-standard courses. Course format and location: traditional, on-campus. Impact on other units: None. Financial impact: None. This change only affects the method of grading permitted in an already existing class.

Student learner objectives impacted: None. Change only affects the method of grading in an already existing course.
Support from assessment activities: No assessment conducted for this minor change.

PUBH 593 Directed Independent Study (1-3)

Grading Restriction: Satisfactory/No Credit or letter grade.

Rationale: Allows for flexibility in grading in non-standard courses. Course format and location: traditional, on-campus. Impact on other units: None. Financial impact: None. This change only affects the method of grading permitted in an already existing class.

Student learner objectives impacted: None. This change only affects the method of grading permitted in an already existing class.
Support from assessment activities: No assessment conducted for this minor change.

PUBH 680 Special Topics (1-3)

Grading restriction: Satisfactory/No Credit or letter grade.

Rationale: Allows for flexibility in grading in non-standard courses. Course format and location: traditional, on-campus. Impact on other units: None. Financial impact: None. This change only affects the method of grading permitted in an already existing class.

Student learner objectives impacted: None. This change only affects the method of grading permitted in an already existing class.
Support from assessment activities: No assessment conducted for this minor change.

PUBH 693 Directed Independent Study (1-3)

Grading restriction: Satisfactory/No Credit or letter grade.

Rationale: Allows for flexibility in grading in non-standard courses. Course format and location: traditional, on-campus. Impact on other units: None. Financial impact: None. This change only affects the method of grading permitted in an already existing class.

Student learner objectives impacted: None. This change only affects the method of grading permitted in an already existing class.
Support from assessment activities: No assessment conducted for this minor change.

DEPARTMENT OF THEORY AND PRACTICE IN TEACHER EDUCATION

Student Learner outcomes impacted by revisions.

Learning Objectives for the Education Major, PhD with Literacy Studies concentration, Special Education, Deaf Education, and Interpreter Education concentration and Teacher Education concentration

1. Demonstrates college-level teaching proficiency.
2. Effectively supervises pre-service teacher candidates and collaborate with school-based partners.
3. Demonstrates a rich knowledge of current literature in his/her field sufficient to utilize such information for the improvement of practice.
4. Demonstrates the ability to do independent and/or collaborative research and the capacity to advance the knowledge base in his/her field.

Learning Objectives for the Teacher Education Major, EdS

1. Demonstrate an adoption of an experimental and problem-solving orientation
2. Critically examine own practice and adapt teaching to new findings, ideas, and theories
3. Demonstrate quality of writing that is expected of advanced graduate students

Learner Objectives for the Teacher Education major, MS Track I

1. Demonstrates rich understanding of subject(s) taught and appreciation of how knowledge in subject area(s) is created, organized, and linked to real-world settings.
2. Demonstrates the ability to reason and to take multiple perspectives
3. Demonstrates quality of writing that is expected of advanced graduate students

Learner Objectives for the Teacher Education major, MS Track II

1. The candidate understands the central concepts, tools of inquiry, structures of the discipline(s) he or she teaches and can create learning experiences that make these aspects of subject matter meaningful for students. (Corresponds to InTASC Standard 1).
2. The candidate understands how students differ in their approaches to learning and creates instructional opportunities that are adapted to diverse learners. (Corresponds to InTASC Standard 3).
3. The candidate understands and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills. (Corresponds to InTASC Standard 4).

+ ADD NEW ACADEMIC DISCIPLINE, SUBJECT CODE AND COURSES

Rationale: We requested a new academic discipline/subject code for Educational Technology to give our technology courses proper visibility rather than having them housed in the generic TPTE subject area. Impact on other units: None. Financial Impact: None.

Learning outcomes supported by this change: This change supports all of our minors for which there are no learner outcomes. It also supports outcome #2 for the MS, Teacher Education Track II.

Support from Assessment activities: None. This is a name change to better identify the academic discipline and courses.

(ETEC) EDUCATIONAL TECHNOLOGY

ADD

ETEC 586 Classroom Applications: Using Web 2.0 Tools for Learning (3) Classroom applications of Web 2.0 tools to support information literacy and 21st century skills; designed to enable teachers to use and integrate a variety of web-based tools into the K-12 curriculum. Includes the design and development of lesson activities that facilitate writing, collaboration, and communication through the use of blogs, wikis, podcasts, social networking and a variety of web-based applications.

Rationale: This change is needed to move the current course to the ETEC subject code to better identify the course and its content. Impact on other Units: Course is already being taught by department faculty. The only impact on other units/programs will be the necessity to change their showcases to reflect the new subject code and will be submitted for the 2015 catalog. Format and Location: on-campus classroom. Financial Impact: No financial impact. We are just moving the courses to the newly created academic discipline

Learning outcomes supported by this change: This change supports all of our minors for which there are no learner outcomes. It also supports outcome #2 for the MS Teacher Education Track II.

Support from Assessment activities: None. This is a name change to better identify the academic discipline and courses.

ETEC 587 Integrating Emerging Technologies into Teaching and Learning (3) Focus on the application of mobile devices including smartphones and tablets to enhance learning in K-12 settings. Students will examine the current research on the use of mobile devices in learning environments, consider classroom management issues, and examine strategies and techniques of effective integration of mobile technology associated with the use of these devices.

Rationale: The use of "Bring Your Own Device" and "1 on 1 initiatives" in school systems within the state and nation have created a need for teachers to be trained in strategies and techniques of effective integration of mobile technology devices (mobile phones and tablets) in the classroom. Impact on other Units: This course is already being taught by department faculty. The only impact on other units/programs will be the necessity to change their showcases to reflect the new subject area/prefix, and will be submitted for the

2015 catalog. Course format and location: on-campus face to face. Financial Impact: No financial impact; this course is already being taught. This is just a subject area/prefix change.

Learning outcomes supported by this change: It supports outcome #2 for the MS Teacher Education Track II.
Support from Assessment activities: None. This is a name change to better identify the academic discipline and courses.

EQUIVALENCY TABLE

Current Courses (TPTE)	Equivalent Courses for Fall 2015 (ETEC)
TPTE 586	ETEC 586
TPTE 587	ETEC 587

ADD 400-LEVEL COURSE FOR GRADUATE CREDIT

ETEC 486 Integrating Technology into K12 Curriculum (3) Use of technology to support teaching and learning; designed to prepare teacher preparation students to integrate a variety of computer-based technologies into the PreK-12 curriculum and adapt these technologies for diverse populations including students with mild disabilities as well as ESL students. Includes strategies and techniques of integrating the Internet, digital images, digital diagrams, multimedia, web-based tools and interactive whiteboards.

Comments: This course is available at the graduate level for students who are participating in a post-baccalaureate or transitional licensure program. This course cannot be taken for senior privilege.

Registration Restriction(s): Admission to teacher education.

Rationale: The content in this course is needed for initial teaching license. Because a small but significant number of post-baccalaureate students seek initial teaching license each year, a graduate level version of the course is needed. Impact on other units: No impact on other units. This course is currently offered for undergraduate credit only. However, this revised version reflects graduate level expectations required for a student in the graduate program. The proposed syllabus includes additional graduate level expectations and a graduate level grading system. The comments section is new and will be added to the UG catalog as well. Course format and location: standard classroom lecture. Financial Impact: Offering this course for graduate credit will have no significant impact financially or with existing faculty teaching loads. Historically, graduate level students have taken this course and received undergraduate credit; now, students will simply have the option of taking the course for graduate credit.

Learning outcomes supported by this change. This change supports SACS learner outcomes #2 and #3 in the MS Track 2 program in Teacher Education.

Support for this change from assessment activities: No assessment activities were performed. This change allows graduate students the option to take this required course for graduate-level credit and to comply with State licensure requirements.

(ARED) Art Education

REVISE TITLE AND DESCRIPTION

ARED 540 Instruction, Pedagogy and Assessment in Art Education (3) Examination and construction of curriculum, instruction and assessment as related to advanced theory and teaching practices in art education.

Formerly: Use and Construction of Instructional Materials for Teaching Art (3) Examination and construction of curriculum and instructional aides related to teaching strategies in art education.

Rationale: Changes in the undergraduate art education program are in progress. The major is being changed to a minor. Due to these changes, the Art Education 540 course needs to strengthen some areas that have been covered in the undergraduate courses. These areas are in assessment and instruction. In order to go from a major to a minor, two undergraduate classes will be eliminated, and the students will have less opportunity to develop skills in instruction and assessment. The change in title and description of Art Education 540 will support the needed content additions to ensure all students have ample opportunities to practice developing instructional plans that address even more thoroughly the SACS SLO's listed above. Impact on other units: none. Financial Impact: None.

Learner outcomes supported: This changes supports #1, #2 and #3 in the MS Track 2 program. This change also supports #1 in the MS Track I program.

Support for this change from assessment activities: No assessment activities conducted. This is a minor change to better reflect the course content

(ASL) American Sign Language

ADD NEW 400-LEVEL COURSE FOR GRADUATE CREDIT

421 Deaf Culture and Community (3) Comprehensive overview of the Deaf and hard-of-hearing populations of North America. Consideration also given to similarities and differences with international Deaf communities. Students will explore beliefs, theories, and evidence about the experience of Deaf people. Examination of the concepts and implications of disability theory, social and medical models as ways of defining the Deaf population; demographics of the Deaf community; distinctions among the pre and post-lingually deaf, oral and sign language users, and under-represented groups that comprise the larger Deaf community; impact of deaf education on the history and organizational structure of the Deaf community.

Rationale: UTK has a full complement of five ASL courses including two that meet the General Education requirement for second/foreign languages. However we have no supporting courses related to social or cultural aspects of the Deaf community. There is a need for understanding Deaf cultures that use signed languages as their primary mode of communication in order to better understand the appropriate use of that language in various situations. Students majoring in fields related to deafness such as Deaf Education and Educational Interpreting have a need to understand Deaf culture in order to be able to work with their Deaf students or clients effectively and with respect. This is part of the accreditation standards and is currently being covered in ASL courses in a fragmentary fashion. This course will also be of significance to students in the proposed Rehabilitation Counselor Education: Deafness Focus graduate certificate program in the Educational Psychology and Counseling department. Additionally it will be of interest to those students interested in the topics of culture, diversity, and disability studies. It is being offered for undergrad and grad credit (submitted to UG CRC at Oct 2014 meeting). Impact on other units: This proposed course will also be needed by Educational Psychology and Counseling department for their planned graduate certificate in Deafness Rehabilitation Counseling. Format and course location: Lecture/on campus or online/distance education (depending on which section is offered) Note: Initial offerings to be online only but we would eventually like to have lecture/on campus sections offered in ASL depending on the student demand and need. Financial impact: This course will initially be offered during the summer only but will move to Fall/Spring as resources become available to support the teaching load and to avoid impact on availability of faculty to teach other courses.

Learner outcomes supported by this change: Supports outcome #1 for the MS Track 1 and supports outcome #2 for the MS Track 2.

Support for this change from assessment activities: Informal strategic planning for program by the Deaf Ed/Ed Interpreting team indicates a need for the course. New course will enable the department to meet the Council for Exceptional Children/Council on Education of the Deaf (CEC/CED) joint initial preparation standards for teachers and will also provide one of the courses for a graduate certificate in Deafness Rehabilitation in the Department of Educational Psychology and Counseling.

(EDDE) Education of the Deaf and Hard of Hearing

REVISE DESCRIPTION AND RECOMMENDED BACKGROUND; ADD (RE)PREREQUISITES

EDDE 415 Language Development of the Deaf and Hard of Hearing I (3) Language development of the deaf and hard of hearing contrasted with scope and sequence of normal language development. Formal linguistic systems used to describe language development.

(RE) Prerequisite(s): American Sign Language 211.

Recommended Background: Portion of class is delivered in American Sign Language (ASL). Students must have at least intermediate ASL skills to enroll.

Formerly: Language problems of hearing impaired contrasted with scope and sequence of normal language development. Formal linguistic systems used to describe language development problems.

Recommended Background: Completion of an introductory course in linguistics.

REVISE DESCRIPTION; ADD RECOMMENDED BACKGROUND AND (RE)PREREQUISITES

EDDE 416 Language Development of the Deaf and Hard of Hearing II (3) Language assessment and intervention approaches for deaf and hard of hearing.

(RE) Prerequisite(s): 415.

Recommended Background: Portion of class is delivered in American Sign Language (ASL). Students must have at least intermediate ASL skills to enroll.

Formerly: Developmental and remedial systems of teaching language to hearing impaired children. Comprehension and production differences, idiomatic and figurative structures.

Rationale: We made these course revisions a couple years ago at the UG level; however, the changes were not made at the grad level. These revisions are intended to sync both copies of the catalog. Impact on other units: None. Financial impact: none.

Learning outcomes supported by this change: Revision is not related to the learning outcomes. This is just a change to update the course information so that it is correctly listed in the graduate catalog.

Support for this change from assessment activities: No assessment activities conducted. We are revising the course to read the same as in the undergraduate catalog.

(ELED) Elementary Education

DROP

ELED 505 Elementary and Middle School Teaching Methods (II) (6)

Rationale: This course is no longer being offered. It was replaced several years ago by separate methods courses for mathematics, science, social science, and reading. Impact on other units: none. Financial impact: none.

Learning outcomes supported by this change: Revisions are not related to learning outcomes. Separate methods courses are already in place.

Support for this change for assessment activities: None. This course has not been taught in about 5 years as it was replaced by separate methods courses (see rationale).

(SSCE) SOCIAL SCIENCE EDUCATION

REVISE TITLE AND DESCRIPTION ON 400-LEVEL COURSE

SSCE 454 Teaching Strategies and Issues in Secondary Social Studies Education (3) Goals, objectives, techniques, materials, and evaluation in secondary social studies. Directed observation in secondary schools. Preparation of teaching plans, instructional material and, assessment material.

Formerly: Teaching Strategies and Issues in Social Studies Education. Goals, objectives, techniques, materials, and evaluation. Directed observation in public schools. Preparation of teaching plans and materials. Simulated teaching experiences.

Rationale: The course title and description did not describe the targeted student population for the course. The revisions to the title and description reflect the change in State licensure from the 7-12 to the 6-12 grade-level range for secondary education. Impact on other units: None. Students outside the Teacher Licensure area do not take this course. Course format and location: no change.

Financial Impact: This change is an update to the title of the course due to the addition of the middle grades social studies program to the existing secondary social studies program. It is expected that the number of students enrolled in the course will increase from 15 to 20. This is a manageable load for faculty members.

Learning outcomes supported: This revision is not related to learner outcomes.

Support from assessment activities: None. These changes are necessary to align our program with new state licensing requirements.

REVISE DESCRIPTION

SSCE 543 Teaching Social Studies in the Middle Grades (3) Activities in this class are intended to promote the professional growth of pre-service and in-service social studies teachers through study, design, and implementation of social studies curriculum and instructional strategies. In particular, methods of teaching contemporary social science content in middle grade level classrooms will be explored.

Formerly: Activities in this class are intended to promote the professional growth of pre-service and in-service social studies teachers through study, design, and implementation of social studies curriculum and instructional strategies. In particular, methods of teaching contemporary social science content in grades 4-8 will be explored.

Rationale: The revision to the description reflects the change in the middle grade levels the State now includes in the secondary program area. Impact on other units: No impact to other units. Format and course location: no change. Financial Impact: None. This revision is a change in the course description that deletes the specific grades identified in the middle grades curriculum. This change will offer students who are pursuing teaching careers on the high school level another elective in teaching social studies.

Learning outcomes supported: This revision is not related to learner outcomes.

Support from assessment activities: None. These changes are necessary to align our program with new state licensing requirements.

(SPED) Special Education

ADD CURRENT 400-LEVEL COURSE FOR GRADUATE CREDIT

SPED 402 Professional Studies: Special Education and Diverse Learners (3) Characteristics and needs of students with disabilities and diverse learners with emphasis on educational implications. Techniques, strategies and resources for teaching and assessing students with diverse learning, behavioral, medical and/or sociocultural characteristics, and the requirements of special education and other relevant laws.

Comment(s): Students in Communication Disorders or Educational Interpreting should register for Special Education 470 instead of 402.

Registration Restriction(s): Admission to teacher education.

Rationale: The content in this course is needed for initial teaching license. Because a small but significant number of post-baccalaureate students seek initial teaching license each year, a graduate level version of the course is needed. Impact on other units: there should be no impact on other units. This course is currently offered for undergraduate credit only. However, this revised version reflects graduate level expectations required for a student in the graduate program. The proposed syllabus includes additional graduate level expectations and a graduate level grading system. The comments section is new and will be added to the UG catalog as well. Course format and location: standard classroom lecture. Financial impact: Offering this course for graduate credit will have no significant impact financially or with existing faculty teaching loads. Historically, graduate level students have taken the course and received undergraduate credit; now students will simply have the option of taking the course for graduate credit. **NO UG Proposal**

Learning outcomes supported by this change: This change supports SACS learner outcomes #2 and #3 in the MS Track 2 program in Teacher Education.

Support for this change from assessment activities: No assessment activities were performed. This change allows graduate students the option to take this required course for graduate-level credit and to comply with State licensure requirements.

(TPTE) THEORY AND PRACTICE IN TEACHER EDUCATION

DROP

TPTE 519 Curriculum for School Leaders (3)

Rationale: Course is being dropped from TPTE subject area and moving to the EDAM academic discipline in the ELPS department. The course is an ELPS course and taught by ELPS faculty. Impact on other units: This course is already taught by ELPS faculty so it will have no impact. Financial impact: None. This course is already being taught by ELPS faculty. We are just dropping it from TPTE subject area so that they can add it to their own subject area.

Learning outcomes supported by this change: This revision is not related to learner outcomes.
Support from Assessment Activities: No assessment activities conducted.

TPTE 586 Classroom Applications: Using Web 2.0 Tools for Learning (3)

Rationale: This course is being dropped from the TPTE academic discipline because we are creating a new subject code academic discipline for Educational Technology (ETEC). Impact on other units: This course is already being taught by department faculty. The only impact on other units/programs will be the necessity to change their showcases to reflect the new subject area/prefix. Format and Location: on-campus classroom. Financial Impact: No financial impact; this course is already being taught; this is dropping the course so that it can be added to the newly created subject area/prefix.

TPTE 587 Web Design for Teachers: Designing Web-based Learning Centers (3)

Rationale: This course is being dropped from the TPTE academic discipline because we are creating a new subject code academic discipline for Educational Technology (ETEC). Impact on other units: This course is already being taught by department faculty. The only impact on other units/programs will be the necessity to change their showcases to reflect the new subject area/prefix. Format and Location: on-campus classroom. Financial Impact: No financial impact; this course is already being taught; this is dropping the course so that it can be added to the newly created subject area/prefix.

Learning outcomes supported by this change: It supports outcome #2 for the MS Teacher Education Track II.
Support from Assessment activities: None. This is a name change to better identify the academic discipline and courses.

II. PROGRAM CHANGES

COLLEGE INTRODUCTORY CATALOG TEXT – REVISE ACCREDITATION STATEMENT

In the 2015-16 Graduate Catalog, under the Accreditation heading revise the first paragraph to add the following as the last sentence of the first paragraph.

...educator preparation programs. However, the accreditation does not include individual education courses that the institution offers to P-12 educators for professional development, relicensure, or others purposes.

Second paragraph: revise the first and second sentence to make one sentence as follows:

The College of Education, Health, and Human Sciences has accredited academic programs in – Counselor Education, Clinical Mental health...

Rationale: Catalog statement related to accreditation for the Teacher Education needed to be revised.

DEPARTMENT OF CHILD AND FAMILY STUDIES

REVISE REQUIREMENTS - CHILD AND FAMILY STUDIES MAJOR, PHD

In the 2015-2016 Graduate Catalog, revise the requirements showcase as follows:

At item 1 (CFS specialization) change hours from 16 to 15.

At Professional Seminar 2 – CFS 672 change hours from 1 to 2.

At footnote 1 change "Minimum of 16 semester hours" to "Minimum of 15 semester hours"

Rationale: This reflects the change incurred by revising CFS 672 to 2 credit hours (formerly, 1 credit hour). In order to keep the number of hours in the program stable, CFS Specialization hours were decreased to 15 credits (formerly, 16 credits). Impact on other units: None. Financial Impact: None.

Learning outcomes supported: Revision is not directly related to student learner outcomes
Support from assessment activities: Assessment of students in AY 2012-2013 indicated that more time was needed on the topics presented in CFS 672 in order to fully understand.

REVISE ADMISSION REQUIREMENTS - CHILD AND FAMILY STUDIES MAJOR, MS

In the 2015-2016 Graduate Catalog, revise the admission requirements as follows:

In the first paragraph add the following as a last sentence: Note: the GRE is not required for applicants to the MS-Teacher Licensure Pre-K-3 Program.

Second paragraph: delete current text and replace with the following:

Admission to the graduate program is contingent upon faculty evaluation of GRE scores (Not Applicable for Teacher Licensure (PreK-3) concentration), undergraduate/graduate GPA, rating forms, work experience, and the match between student's goals and department's foci. Prerequisites for admission to the master's program are 9 semester hours of upper-division undergraduate social science.

Rationale: This reflects the change in the GRE requirement that was approved by the CFS faculty on February 1, 2013 and subsequently the CRC in Fall 2013. These are places in the catalog that were missed at the time of that change. The changed and approved request to change the GRE requirements was made to facilitate improved program recruitment. Impact on other units: None. Financial Impact: None. Learning outcomes supported: Revision is not directly related to student learner outcomes. The revision is related to recruitment.

Support from assessment activities: The decision to change these requirements was made after monitoring the number of applications and acceptances over the course of several years.

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

In the 2015-2016 Graduate Catalog, revise Footnote 2 by removing the sentence after listing CFS 575 (12).

And revise the last sentence about the Project in Lieu of Thesis as follows:

² CFS 574 (2), CFS 551 (3), CFS 569 (3), CFS 591 (4), CFS 575 (12).

Required Comprehensive Exam: a practice-based review of research, and the edTPA (Teacher Performance Assessment).

Formerly: Project in Lieu of Thesis: complete Action Research Project CFS 569 and CFS 591 and written comprehensive exam.

Rationale: These changes were proposed in light of the newly adopted edTPA evaluation and changes that have been made with the action research project requirement by other licensure programs. Again, these changes are to move our own licensure program more in line with others in the college. Impact on other units: None. Financial Impact: None.

Learning outcomes supported: Revision is not directly related to student learner outcomes. The requirements put in place by these changes continue to support the learner outcomes but change the format in which the students demonstrate their competencies.

Support from assessment activities: The decision to change these requirements was made after consulting with other programs in the college and the decision to put our program in line with the others in the college.

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY AND COUNSELING

REVISE REQUIREMENTS EDUCATION MAJOR, PHD - LEARNING ENVIRONMENTS AND EDUCATIONAL STUDIES CONCENTRATION

In the 2015-2016 Graduate Catalog, under the Requirements heading, revise showcase as follows:

	hours credit
Concentration core	16
Core electives	9
Electives	12
Research methods	15
Cognate	6
Dissertation	24
Total Hours	82

Rationale: Description of credits and the total number of credits does not match up to the hours credit within the program description, which was changed previously. This change corrects the mismatch description error that exists in the catalogue. The change was made when the program was reshaped two years ago, with the goal of those revisions being to reflect the interdisciplinary focus of the program. Impact on other units: none. Financial impact: none.

Learner Outcomes Supported: No effect on SLOs

Support from assessment activities: In comparing the Graduate Catalog program description of the LEEDS program and the department level description of the LEEDS program it was determined that the two descriptions do not match. The previous changes were supported in assessment through an AY 2011-2012 series of faculty meetings discerning revisions needed to support the interdisciplinary focus of the program.

REVISE EDUCATIONAL PSYCHOLOGY AND RESEARCH MAJOR, PHD – ADULT LEARNING CONCENTRATION

In the 2015-2016 Graduate Catalog, revise hours for the Advanced core courses, cognate, and elective as follows:

Advanced Core Courses (19 credit hours):

EDPY 601 Professional Seminar (1)
EDPY 625 Advanced Seminar in Adult Learning (3)
EDPY 622 Advanced Seminar in Adult Development (3)
EDPY 613 Advanced Seminar in Reflective Practice (3)
EDPY 630 Proseminar in Adult Learning (3 semesters x 3 credit hr. = 9)

Cognate (6)

Electives (12)

Rationale: 1) Reduction of EDPY Pro-seminar in Adult Learning from four semesters to three semesters eliminates redundancy. 2) Adding one elective (3 hours) provides students with additional opportunities to take courses related to their specialized research interests. 3) Electives should be differentiated from Cognate. Impact on other units: None. Students will take existing and currently taught Adult Learning courses. Financial impact: None. Low enrolled courses may become more fully enrolled.

Learning outcomes supported: Reducing seminars from four to three increases the focus of each seminar, which supports LO #1 and #2

Support from assessment activities: Faculty review and student feedback indicated that there was redundancy in Proseminar content. Feedback from students considered in faculty review of elective hours.

REVISE REQUIREMENTS EDUCATION MAJOR, MS – CULTURAL STUDIES IN EDUCATIONAL FOUNDATIONS CONCENTRATION

In the 2015-2016 Graduate Catalog, revise the showcase to increase the concentration hours and total hours by one.

Requirements	Hours	Credit
Concentration	15	(formerly 14)
Specialization (choose one)	9	
Research	6	
Thesis or Problems in Lieu of Thesis	<u>6</u>	
Total hours	36	(formerly 35)

Rationale: Total credits did not match up to the credit hours within the program description. This change corrects the mathematical error that exists in the catalog. Impact on other units: none. Financial impact: none.

Learner Outcomes Supported: No effect of SLOs.

Support from assessment activities: In comparing the Graduate Catalog program description of the CSE program and the department level description of the CSE program it was determined that the two descriptions do not match.

REVISE EDUCATIONAL PSYCHOLOGY MAJOR, MS

In the 2015-2016 Graduate Catalog, revise core requirements list to remove EDPY 504 and add EDPY 512 as follows:

Educational Psychology Core Courses (24 Hours)

EDPY 506
EDPY 507
EDPY 512
EDPY 513
EDPY 521
EDPY 525
EDPY 573
EDPY 574

Rationale: New course number was approved in Fall 2013 and is in the current catalog. This change is to correct the listing of core courses for the major in Educational Psychology. Impact on other units: None. Financial impact: None.

Learning outcomes supported: No impact on SLOs

Support from assessment activities: Error in listing of courses was discovered in review.

REVISE REQUIREMENTS FOR THE GRIEF, LOSS AND TRAUMA CERTIFICATE

In the 2015-2016 Graduate Catalog, revise the third sentence as follows:

Course work for the certificate must be completed at the University of Tennessee within a five-year period.

Formerly: All 12 hours of course work for the certificate must be completed at the University of Tennessee within a five-year period.

Requirements

COUN 560

COUN 480 or COUN 555 or COUN 655

At least two of the following: COUN 551, COUN 554, COUN 562, COUN 662, COUN 665, CFS 511, CFS 562, CFS 566 (student may request substitution for one of the required courses listed in this bullet; requires approval from certificate coordinator).

Rationale: a) New description; b) removes COUN 431, a class no longer taught by Counselor Education faculty; c) establishes requirements for graduate student grief facilitators. Impact on other units: None. Financial Impact: None.

Learning outcomes supported: The certificate is offered across university's graduate programs. It is not required by any graduate program. It does not support any learning outcomes.

Support from assessment activities: In faculty review of the effects on the first set of students working to complete the certificate, unintended problems in the wording of the certificate's requirements,

DEPARTMENT OF KINESIOLOGY, RECREATION, AND SPORT STUDIES

REVISE REQUIREMENTS – KINESIOLOGY MAJOR - MS, SPORT PSYCHOLOGY AND MOTOR BEHAVIOR CONCENTRATION

In the 2015-2016 Graduate Catalog, revise to add 2 courses (KNS 544 and KNS 545) under the heading "In addition, 3 hours must be selected from the following

In addition, 3 hours must be selected from the following:

KNS 490 - Psychology of Coaching - (must be taken for graduate credit)

KNS 536 - Expert Performance in Sports

KNS 543 - Women, Sport and Culture

KNS 544 – Performance Consulting Skills and Strategies

KNS 545 – Psychological Aspects of Sport Injury

KNS 633 - Advanced Sport Psychology

Rationale: Both courses were added to the Graduate Catalog in 2014, and they increase elective course offerings available to graduate students in the Sport Psychology and Motor Behavior concentration. Impact on other units: None. Financial impact: None.

Learning outcomes supported: This change supports Student Learner Outcomes #1 and #2 for the MS in Kinesiology. Support from assessment activities: No assessment activities were performed for this change.

DEPARTMENT OF NUTRITION

REVISE REQUIREMENTS –NUTRITION MAJOR, DUAL MS-MPH PROGRAM

In the 2015-2016 Graduate Catalog,

1. revise the second sentence of the first paragraph to change the minimum hours from 64-67 to 58-61.
2. Under "Approved for Dual Credit" heading – first sentence: add NUTR 505 and NUTR 506 to the sentence: (...include up to 9 hours of NUTR 505, NUTR 506, and NUTR 515, 1 hour of NUTR 509, ...)
3. Under "Approved for Dual Credit" heading – second sentence: add NUTR 505 and NUTR 506 to the sentence: (...include a maximum of 10 hours of NUTR 505, NUTR 506, NUTR 515 and NUTR 519, ...)

Rationale: Reducing the overall hours for the dual degree, which currently far exceed the minimum requirements, makes this program more consistent with other options. Specifying NUTR 505 and 506 as Approved Dual Credit does not change the overall hours of Approved Dual Credit, but better reflects the core training received by those pursuing the Dual degree, as these are courses offered from a public health perspective, but with a nutrition emphasis. Impact on other units: None. Students in the Dual MS-MPH program already take NUTR 505 and NUTR 506. Financial Impact: None. This change does not change the existing faculty load.

Learner Outcomes Supported: The change to the Approved Dual Credit addresses SLO #4, as it better reflects the opportunities students pursuing the Dual MS-MPH have to apply public health nutrition skills in community settings. Support from assessment activities: These changes were the result of curricular review from both NUTR and PUBH faculty.

REVISE REQUIREMENTS – NUTRITIONAL SCIENCES MAJOR, PHD

In the 2015-2016 Graduate Catalog, revise two areas (second paragraph and bulleted area) as follows:

1. remove the second paragraph and replace as follows:

A minimum of 24 hours of graduate coursework beyond the Master's degree is required. A minimum of 12 of these 24 hours must be graded A-F. Exceptionally well-prepared students with demonstrated superior achievement may enter upon

completion of the baccalaureate degree, in which case a minimum of 48 hours of graduate coursework beyond the baccalaureate degree is required. A minimum of 30 of these 48 hours must be graded A-F. In either case, an original nutrition research project with 24 hours of dissertation work is required.

Formerly: A minimum of 24 hours of graduate coursework (graded A-F) beyond the Master's degree is required. Exceptionally well-prepared students with demonstrated superior achievement may enter upon completion of the baccalaureate degree, in which case a minimum of 48 hours of graduate coursework (graded A-F) beyond the baccalaureate degree is required. In either case, an original nutrition research project with 24 hours of dissertation work is required.

2. Under heading, "Coursework (Minimum)" removed bulleted list and replace with the following:
 - 16 hours in nutrition; these must include NUTR 511, NUTR 512, NUTR 543, NUTR 545, NUTR 505 or NUTR 616 (depending on track and background), and additional graduate level courses in NUTR to make up any credit deficiencies.
 - Cellular and Molecular Nutrition concentration: NUTR 616 (or NUTR 505, with consent of instructor), LFSC 520, BCMB 440, and ANSC 550 (or appropriate substitutions, as identified by faculty advisor and approved by the Director of the Graduate Program).
 - Community Nutrition concentration: NUTR 506, NUTR 522, and PUBH 542.
 - 6 hours of graduate-level statistics.
 - 6 hours in a cognate area.
 - 9 hours at the 600-level (exclusive of dissertation NUTR 600); at least 4 of these hours must be in nutrition.

Students receiving a Graduate Teaching Assistantship (GTA) and without previous college teaching experience are required to take the fall semester teaching seminar for GTAs.

Rationale: Most of these revisions are the result of a review of doctoral degree requirements, as outlined in the 2014-2015 Graduate Catalog, and are primarily housekeeping in nature. For example, NUTR students take a number of courses which are not graded A-F, but are still critical to the development of the student (i.e., seminars, practicum, etc). This will increase the flexibility available to the student, while still meeting the university's requirement of 12 or 30 hours graded A-F, depending on prior degree(s) obtained. NUTR 412 is being dropped from the Graduate Catalog (see Oct. 8th, 2014, Grad CRC minutes). NUTR 412 and NUTR 505 are developed for those who already have competencies related to community nutrition and have familiarity with jargon related to policies and procedures of public health agencies (those with a BS in Nutrition from and accredited didactic program in dietetics (DPD)). NUTR 616, which is a mixture of basic and applied nutrition, is likely a better fit for students who do not wish to pursue a career related to community or public health nutrition. Providing the option of NUTR 616 to serve as an alternative to the NUTR 505 core course, will allow for greater flexibility for students who do not have a background in community nutrition principles. Impact on other units: None. NUTR 616 is primarily taken by NUTR graduate students. Financial Impact: None. This change does not change the existing faculty load.

Learner Outcomes Supported: The course change impacts all 4 learning outcomes, but primarily impacts learning outcome #4. Having an understanding of the applied aspects of nutrition concepts increases the competitiveness of graduates.

Support from assessment activities: Graduate students, particularly those with a cellular and molecular background and without a DPD background, have struggled with NUTR 505. In addition, this course has a service-learning component in the community, and these students do not have the behavioral nutrition and community nutrition competencies necessary to participate in these activities.

REVISE REQUIREMENTS – NUTRITION MAJOR, MS THESIS OPTIONS

In the 2015-2016 Graduate Catalog, revise the first bullet under the Thesis option as follows:

- Cellular and molecular nutrition students must take NUTR 511, NUTR 512, NUTR 543 and NUTR 545, NUTR 616 (or NUTR 505, with consent of instructor), 3 hours of graduate-level statistics, LFSC 520, BCMB 440 and ANSC 550 (or appropriate substitutions, as identified by faculty advisor), and 6-7 additional hours in Nutrition or in a cognate area outside the department.

REVISE REQUIREMENTS – NUTRITION MAJOR, MS (NON-THESIS OPTION) AND ADD NON-THESIS OPTION FOR CELLULAR AND MOLECULAR CONCENTRATION)

In the 2015-2016 Graduate Catalog, revise the requirements for the Non-Thesis Option and add the Non-Thesis Option for Cellular and Molecular Nutrition as follows:

Non-Thesis Option

The program consists of a minimum of 41 hours with at least 29 hours of coursework in the department.

Public Health Nutrition

- Public health nutrition students must take NUTR 505, NUTR 506, NUTR 509, NUTR 511, NUTR 512, NUTR 515, NUTR 616, NUTR 519, NUTR 522, NUTR 543 and NUTR 545, and PUBH 520, PUBH 530, PUBH 540.
- 3 hours in social/behavioral science and education electives are required.
- A written comprehensive examination is required for completion of the program.
- A culminating experience is required. This culminating experience will be fulfilled upon successful completion of NUTR 519: Analysis of Practice in Community Nutrition.

- Cellular and Molecular Nutrition

- Cellular and molecular nutrition students must take NUTR 511, NUTR 512, NUTR 543, NUTR 545, NUTR 616 (or NUTR 505, with consent of instructor), NUTR 618 and NUTR 621 (if 618 or 621 are not available, appropriate substitutions can be identified by the faculty advisor and approved by the Director of the Graduate Program).
- Cellular and molecular nutrition students must take LFSC 520, BCMB 440 and ANSC 550 (or appropriate substitutions, as identified by faculty advisor and approved by the Director of the Graduate Program).
- 3 hours in statistic/biostatistics are required.
- A culminating experience is required as approved by the student's committee (must register for at least 3 hours of NUTR 547, 548, or 549).
- A written comprehensive examination is required for completion of the program.

Rationale: The addition of a non-thesis option for Cellular and Molecular Nutrition (CMN) students will increase flexibility to recruit students into this concentration. This will allow an option for students who do not wish to pursue the Public Health Nutrition concentration but who are also not interested in completing a thesis. Students will complete a culminating experience instead. Students may be involved in field experience related to the food industry or a government agency (NUTR 547), be engaged in a specific research topic with a member of the student's committee (NUTR 548), or recent advances in foods systems administration and policy (NUTR 549).

NUTR 412 is being dropped from the Graduate Catalog. NUTR 616 and NUTR 505 are developed for those who already have competencies related to community nutrition and have familiarity with jargon related to policies and procedures of public health agencies (those with a BS in Nutrition from an accredited didactic program in dietetics (DPD)). NUTR 616, which is a mixture of basic and applied nutrition, is likely a better fit for students who do not wish to pursue a career related to community or public health nutrition. Providing the option of NUTR 616 to serve as an alternative to the NUTR 505 core course, will allow for greater flexibility for students who do not have a background in community nutrition principles. Impact on other units: The addition of the non-thesis option, for CMN, may result in a slight increase in enrollment in graduate courses outside of NUTR. However, as it is unlikely that this will be more than 5 students in any given year. The course change has no impact on other units. NUTR 616 is primarily taken by NUTR graduate students. Financial Impact: none.

Learner Outcomes Supported: The addition of a non-thesis option does not address a specific learner outcome, but rather increases the options available to students who wish to pursue an MS in Nutrition. The course change (dropping NUTR 412 and adding NUTR 616 as an option) impacts all 4 learning outcomes, but primarily impacts learning outcome #4. Having an understanding of the applied aspects of nutrition concepts increases the competitiveness of graduates.

Support from assessment activities: Re: addition of non-thesis option: Following the removal of the non-thesis option in the 2010-2011 Graduate Catalog, the number of applications for the CMN program has declined. Communication with faculty and students indicates that having this option re-instated will increase applications from those interested in pursuing an MS in CMN, but who are not interested in completing a thesis. Non-thesis students will have the opportunity to develop the knowledge, skills, and competencies to ensure that they are competitive upon graduation. When developing the curriculum for the non-thesis option for CMN, we also participated in a careful review of the PHN non-thesis requirements and the faculty came to the conclusion that competencies for both programs could be met with minimum of 41 hours (with 29 hours from the department).

Re: the course change: Graduate students, particularly those with a cellular and molecular background and without a DPD background, have struggled with NUTR 505. In addition, this course has a service-learning component in the community, and these students do not have the behavioral nutrition and community nutrition competencies necessary to participate in these activities.

DEPARTMENT OF PUBLIC HEALTH

❖ ADD NEW MAJOR, DEGREE AND CONCENTRATIONS (PENDING THEC APPROVAL)

Public Health, Doctor of Public Health (DrPH)
Community Health Education
Epidemiology

In the 2015-2016 Graduate Catalog, add heading and text for new major and degree.

Public Health Major, Doctor of Public Health (DrPH) (Pending THEC APPROVAL)

The Doctor of Public Health (DrPH program) is the terminal degree in public health, designed for students who have already earned the MPH degree; however, exceptional students without the MPH may be admitted to the DrPH program. At the completion of the DrPH program, students will be able to:

- Demonstrate a high level of thinking and practice skill in recognizing, defining, and addressing public health problems and needs;
- Demonstrate competence in the five core areas of public health, biostatistics, epidemiology, environmental health, health policy and administration, and behavioral sciences / community health education;
- Demonstrate professionalism, advocacy, leadership, ethical principles, and scientific integrity in advanced public health practice;
- Provide collaborative leadership in the development of public health practice models for diverse populations.

Admission

- Meet requirements for admission to the University of Tennessee, Graduate School.

- GPA of at least 3.2 (on a 4.0 scale) on master's degree coursework, shown in official transcripts. For students without a Master's degree or coursework, a required GPA of 3.2 for the undergraduate degree.
- A minimum of 40th percentile on all sections of the Graduate Record Examination (GRE); 4.5 on the analytic portion of the GRE, and for international students a satisfactory score on the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS)
- Three letters of reference completed within the past 12 months by faculty members, academic advisors, or employers or professional colleagues. At least two letters must be from persons able to assess academic capacity.
- Ability to express complex concepts and ideas in writing as evidenced in a 600-word essay.
- Demonstrated skill in a professional, research, or academic writing sample.
- Ability to clearly articulate a defined career pathway, which incorporates practice and research experience and skills, upon interview.
- In addition, students will be selected for the program based on extent of public health practice experience, other prior work and volunteer experience, and demonstration of a commitment to public health. Students will be admitted on a space available basis. Students eligible for admission but not admitted due to space will be placed on a waiting list and will be eligible to apply for the program in subsequent years. Appropriate academic background and professional and volunteer experience, as evidenced on a curriculum vitae.
- An online application must be submitted to the Graduate Admissions Office. Admission forms are available at <http://graduateadmissions.utk.edu/apply.html> and <http://publichealth.utk.edu/Applications.html>

The DrPH degree is offered in two concentrations – Community Health Education and Epidemiology. The concentrations and educational objectives are described below:

Community Health Education addresses the role of behavioral (social and psychological) factors in disease causation, prevention, and health services, with application to public health education and promotion for the prevention of disease and injury. The objectives are to: develop, implement, and evaluate programs in health promotion and education through collaborative partnerships; establish and maintain community partnerships; apply theoretical perspectives in analyzing the behavioral, cultural and ethical dimensions of community health problems; identify and assess the determinants of community and population health, including social and behavioral factors contributing to health-related behaviors; and conduct scientific investigations.

Epidemiology deals with methods for elucidating the causes of disease and evaluating health services, programs, and treatments. Students will be provided with the conceptual knowledge and statistical skills to study, analyze, and monitor the distribution and determinants of disease occurrence and other outcome measures in human populations. The educational objectives are to provide knowledge on methods for determining the causes of disease and for evaluating health services, programs, and treatments; develop concepts and statistical skills to conduct, study, analyze, and monitor the distribution and determinants of disease and other outcome measures; apply basic methodological skills to analyze discrete problems in health; acquire critical thinking for problem-solving and developing research protocols; and use the problem-solving approach for collection, analysis, and synthesis of data.

Requirements:	Hours	Credit
¹ Research and Foundations	20	
² Core DrPH	33	
³ Concentration	10	
⁴ Electives	3	
Dissertation (Public Health 600)	<u>24</u>	
Total Hours	90	

¹ PUBH 509 (2 semesters) PUBH 510, PUBH 520, PUBH 530, PUBH 540, PUBH 555, and PUBH 537 or equivalent courses if taken outside of the University of Tennessee, approved by the Department Head.

² PUBH 550, PUBH 536, PUBH 552, PUBH 636, PUBH 609 (2 semesters), PUBH 610, PUBH 611, PUBH 612, PUBH 687 (2 semesters for a total of 9 hours) , PUBH 688; STAT 531 and STAT 532 OR STAT 537 and STAT 538 OR SOWK 605 and SWOK 606;

³ Community Health Education: PUBH 527, PUBH 656, PUBH 637; Epidemiology: PUBH 541, PUBH 640, KNS 521, CMVM 615.

⁴ Courses must be approved by major professor.

Supporting documentation: Letter of Intent was submitted to THEC. A response from Richard Rhoda (THEC Executive Director) was received requesting clarification on some items and approved the process to move forward.

Rationale: This program will be replacing the department's current PhD in Education. Because the DrPH degree is highly relevant to public health workforce, this degree will be more consistent to the mission of the Department of Public Health than the current PhD in Education. As a Department of Public Health, we are aware of student decisions not to apply to our doctoral program, or accept our offer of acceptance, because of the lack of relevance of the PhD in Education to careers in public health, including workforce and academic positions. Impact on other units: None. Financial impact: None. This is a replacement of a program already in existence. Courses will be taught by existing faculty members.

Student learner objectives impacted: Objective numbers 1, 2, 3, and 4 of the DrPH program.

Support from assessment activities: All relevant support documentation attached.

❖ **DROP MAJOR, DEGREE, AND CONCENTRATION**

Education major, PhD
Health Behavior and Health Education concentration

In the 2015-2016 Graduate Catalog, drop Education major PhD – Health Behavior and Health Education Concentration

Rationale: This program will be replaced by the department's proposed DrPH program. Because the DrPH degree is highly relevant to public health workforce, that degree will be more consistent to the mission of the Department of Public Health than the current PhD in Education. As a Department of Public Health, we are aware of student decisions not to apply to our doctoral program, or accept our offer of acceptance, because of the lack of relevance of the PhD in Education to careers in public health, including workforce and academic positions. Impact on other units: None. Financial impact: None. This is a program will be replaced with the DrPH program.

Student learner objectives impacted: Objective numbers 1, 2, 3, and 4 of the DrPH program.
Support from assessment activities: All relevant support documentation attached.

❖ **DROP CERTIFICATE – PUBLIC HEALTH LEADERSHIP**

In the 2015-2016 Graduate Catalog, drop the public health leadership graduate certificate program

Rationale: This certificate has not been awarded since the formation of the department of public health in 2010. Impact on other units: None. Financial impact: None. This program does not have any current students or applications in progress. The certificate has not been awarded in over four years.

Student learner objectives impacted: None. This certificate has not been awarded in over four years
Support from assessment activities: No assessments conducted. Certificate has not been awarded in over four years.

REVISE REQUIREMENTS – PUBLIC HEALTH, DUAL MS-MPH PROGRAM

In the 2015-2016 Graduate Catalog,

1. revise the second sentence of the first paragraph to change the minimum hours from 64-67 to 58-61.
2. Under "Approved for Dual Credit" heading – first sentence: add NUTR 505 and NUTR 506 to the sentence: (...include up to 9 hours of NUTR 505, NUTR 506, and NUTR 515, 1 hour of NUTR 509, ...)
3. Under "Approved for Dual Credit" heading – second sentence: add NUTR 505 and NUTR 506 to the sentence: (...include a maximum of 10 hours of NUTR 505, NUTR 506, NUTR 515 and NUTR 519, ...)

Rationale: Reducing the overall hours for the dual degree, which currently far exceed the minimum requirements, makes this program more consistent with other options. Specifying NUTR 505 and 506 as Approved Dual Credit does not change the overall hours of Approved Dual Credit, but better reflects the core training received by those pursuing the Dual degree, as these are courses offered from a public health perspective, but with a nutrition emphasis. Impact on other units: None. Students in the Dual MS-MPH program already take NUTR 505 and NUTR 506. Financial Impact: None. This change does not change the existing faculty load.

Learner Outcomes Supported: The change to the Approved Dual Credit addresses all SLOs. However, it is most critically linked to SLO #2 for the MPH program, as it better reflects the opportunities students pursuing the Dual MS-MPH have to apply public health nutrition skills in community settings.
Support from assessment activities: These changes were the result of curricular review from both NUTR and PUBH faculty.

DEPARTMENT OF THEORY AND PRACTICE IN TEACHER EDUCATION

● **ADD CONCENTRATION – TEACHER EDUCATION MAJOR, EDS**

Teaching and Learning

In the 2015-2016 Graduate Catalog, revise the first paragraph to include the new concentration.

Rationale: Many teachers advance in their careers as instructional coaches, team leaders, mentors, evaluators, and curriculum specialists. This concentration creates the opportunity for TPTE to offer a concentration at both the MS and EdS level that is well suited for teachers advancing into such responsibilities. The curriculum for both the MS and EdS has been conceptualized collaboratively with ELPS and EPC to assure students access to a wide knowledge and experience base. The curricular requirements, while flexible enough to accommodate varying student interests and expertise, include key elements from TPTE. Impact on other units: The teaching and learning concentration will require courses in both ELPS and EPC. Currently there is capacity within TPTE, ELPS, and EPC to accommodate campus-based students who choose this concentration. Courses offered in partnership with specific school districts will be negotiated according to capacity and memoranda of understanding pertinent to such districts. See support documents from ELPS and EPC. Financial Impact: The addition of this concentration within the Track I MS and EdS should be a means of recruiting additional students to the graduate programs in the Graduate School of Education. Campus-based offerings are already available to support this concentration. Cohort-designed programs for local school districts will operate under financial arrangements that enable the program to be self-sustaining.

Learning outcomes supported by this change: This addition would support all of the student learner outcomes currently established for the MS Track I program.
Support from assessment activities: None

- **ADD CONCENTRATION – TEACHER EDUCATION MAJOR, MS (LICENSURE TRACK 2: INITIAL LICENSURE)**

Mathematics Grades 6-8 Teaching

In the 2015-2016 Graduate Catalog, add heading and text for new concentration as follows:

Mathematics Grades 6 -8 Teaching concentration
TPTE 517; REED 543; 6 hours of electives (see faculty advisor).

- **ADD CONCENTRATION – TEACHER EDUCATION MAJOR, MS (LICENSURE TRACK 2: INITIAL LICENSURE)**

Science Grades 6-8 Teaching

In the 2015-2016 Graduate Catalog, add heading and text for new concentration as follows:

Science Grades 6 -8 Teaching concentration
TPTE 517; REED 543; 6 hours of electives (see faculty advisor).

Rationale: Middle Grades Teaching is being dropped because it is being changed to mathematics grades 6-8 teaching and science grades 6-8 teaching concentrations. This change is necessary to align our programs with state licensing requirements: the state has omitted the middle grades 4-8 teaching license and added mathematics teaching grades 6-8 and science teaching in grades 6-8 teaching licenses. Impact on other units: There should be no impact on other units as this is replacing a middle grades program that was already in place. Financial Impact: None.

Learning outcomes supported by this change: The other changes did not impact the outcomes.
Support for this change from assessment activities: None. This change is necessary to align our programs with state licensing requirements.

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

Middle Grades Teaching

Rationale: Middle Grades Teaching is being dropped because it is being changed to mathematics teaching grades 6-8 and science teaching grades 6-8 concentrations. This change is necessary to align our programs with state licensing requirements: the state has omitted the middle grades 4-8 teaching license and added mathematics teaching grades 6-8 and science teaching in grades 6-8 teaching licenses. Impact on other units: There should be no impact on other units as this is replacing a middle grades program that was already in place. Financial Impact: None.

Learning outcomes supported by this change: The other changes did not impact the outcomes.
Support for this change from assessment activities: None. This change is necessary to align our programs with state licensing requirements.

- **ADD CONCENTRATION – TEACHER EDUCATION MAJOR, MS (NON- LICENSURE TRACK 1)**

Teaching and Learning

In the 2015-2016 Graduate Catalog, add heading and text for new concentration for both thesis and non-thesis options:

Teaching and Learning concentration (Non-Licensure Track 1)

Thesis Option	Hours
¹ Core	9
² Concentration	9
³ Related Studies	6
TPTE 500	6
Total hours	30

¹ EDPY 577 or other approved research design course; TPTE 517; approved educational technology course.

² Faculty approved courses in curriculum or instructional pedagogy.

³ Faculty approved courses in leadership, strategic planning, adult education, or other committee approved topics.

Non-Thesis Option	Hours
¹ Core	9
² Concentration	12
³ Related Studies	9

Total hours

30

¹ EDPY 550, EDPY 577, EDAM 516, or other approved research design course; TPTE 517; approved educational technology course.

² Faculty approved graduate courses in curriculum or instructional pedagogy.

³ Faculty approved graduate courses in leadership and adult education, or other committee approved topics.

Rationale: Many teachers advance in their careers as instructional coaches, team leaders, mentors, evaluators, and curriculum specialists. This concentration creates the opportunity for TPTE to offer a concentration at both the MS and EdS level that is well suited for teachers advancing into such responsibilities. The curriculum for both the MS and EdS has been conceptualized collaboratively with ELPS and EPC to assure students access to a wide knowledge and experience base. The curricular requirements, while flexible enough to accommodate varying student interests and expertise, include key elements from TPTE. **Impact on other units:** The teaching and learning concentration will require courses in both ELPS and EPC. Currently there is capacity within TPTE, ELPS, and EPC to accommodate campus-based students who choose this concentration. Courses offered in partnership with specific school districts will be negotiated according to capacity and memoranda of understanding pertinent to such districts. See support documents from ELPS and EPC. **Financial Impact:** The addition of this concentration within the Track I MS and EdS should be a means of recruiting additional students to the graduate programs in the Graduate School of Education. Campus-based offerings are already available to support this concentration. Cohort-designed programs for local school districts will operate under financial arrangements that enable the program to be self-sustaining.

Learning outcomes supported by this change: This addition would support all of the student learner outcomes currently established for the MS Track I program.

Support from assessment activities: None

REVISE EDUCATION MAJOR, PHD (LITERACY STUDIES CONCENTRATION CATALOG TEXT)

In the 2015-2016 Graduate Catalog, revise catalog text to add a new specialization to the Literary Studies concentration.

Literacy studies concentration (specializations in children's and young adult literature, ESL, and reading)

Rationale: Our objective is to provide a disciplined, rigorous, scholarly experience for students who wish to seek an advanced degree in literature for children and young adults. Existing faculty in the English Education, Reading Education, and Information Sciences programs at the University of Tennessee are specialists in children's and young adult literature and are well-qualified to support the teaching and research requirements a PhD specialization in Children's and Young Adult Literature entails. Doctoral students in CEHHS desire to complete dissertations with an emphasis in children's and young adult literature. Thus, there is a demand for such a program from current graduate students in CEHHS at the University of Tennessee. The program will seek to attract national and international students who desire to obtain the PhD in a field that broadens their understanding of literature for children and young adults, and prepares them for careers as professors of children's literature, English and/or teacher educators, librarians, and/or scholars of children's/young adult literature. The creation of this specialization may enhance our reputation nationally as well as serve the needs of TN educators, all of whom may not realize they could specialize in children's and YA literature. Currently, no such PhD program in children's and YA literature exists at UTK or in the region. Additionally, CEHHS is working to bring the Center for Children's and Young Adult Literature to CEHHS. We also have a goal to follow the model of a Top-25 peer institution and we aim to offer doctoral students opportunities to pursue disciplined, rigorous inquiries in the history and evolution of Children's and Young Adult Literature, as well as current trends and issues. **Impact on other units:** The only impact on other programs (Information Sciences, Reading Education) may be increased numbers of students in courses in these programs, and that the new PhD specialization draws on the resources of current faculty in these programs. However, representatives from each of these departments do not think this impact will be negative. (Please see letters of support from School of Information Sciences and Reading Education program.). **Financial impact:** No new faculty are being added at this time. It is expected that there will be increased numbers of students in courses in existing English Ed., Reading Ed., and Information Sciences programs, but representatives from these programs do not view this impact as negative.

Learning outcomes supported by this change: This change supports outcomes #1, #3, and #4 in the PhD Program.

Support from assessment activities: No formal assessment activities conducted. The need for this change is based on informal assessment of advanced students' needs in education programs.

REVISE DEPARTMENTAL DESCRIPTION OF EDUCATION MAJOR

In the 2015-2016 Graduate Catalog, revise the Education Major description to include Children's and Young Adult Literature as follows:

Education Major

Faculty from the department participate in the delivery of the PhD with a major in education. Concentrations and specializations are available in literacy studies concentration (specialization in Children's and Young Adult Literature, ESL or reading); special education, deaf education, and interpreter education concentration; and teacher education concentration (specialization in early childhood education, elementary education, English education, mathematics education, science education, or social science education).

Rationale and Learning outcomes are the same as those listed above where the specialization was added.

REVISE REQUIREMENTS – TEACHER EDUCATION MAJOR, EDS

In the 2015-2016 Graduate Catalog, revise the footnotes as follows:

¹ Must include one course from two of the following areas: adult learning, assessment, cultural studies, educational technology, ESL, instructional pedagogy; or Special Education.

² Faculty approved courses in curriculum, educational issues, instructional pedagogy, leadership.

³ TPTE 503, TPTE 518 or other faculty approved research courses.

⁴ Must be related to focus of degree and approved by faculty committee.

Rationale: Many teachers advance in their careers as instructional coaches, team leaders, mentors, evaluators, and curriculum specialists. This concentration creates the opportunity for TPTE to offer a concentration at both the MS and EdS level that is well suited for teachers advancing into such responsibilities. The curriculum for both the MS and EdS has been conceptualized collaboratively with ELPS and EPC to assure students access to a wide knowledge and experience base. The curricular requirements, while flexible enough to accommodate varying student interests and expertise, include key elements from TPTE. Impact on other units: The teaching and learning concentration will require courses in both ELPS and EPC. Currently there is capacity within TPTE, ELPS, and EPC to accommodate campus-based students who choose this concentration. Courses offered in partnership with specific school districts will be negotiated according to capacity and memoranda of understanding pertinent to such districts. See support documents from ELPS and EPC. Additionally, the content of the IT courses (within the Instructional Technology online MS program) have been changed substantially and are no longer closely aligned with and focused on technology expectations as laid out in Tennessee's state teaching standards and the Council on Accreditation of Educator Preparation (CAEP) standards for national accreditation. The ETEC courses are designed especially for teachers and align with both state and CAEP standards. Financial Impact: The addition of this concentration within the Track I MS and EdS should be a means of recruiting additional students to the graduate programs in the Graduate School of Education. Campus-based offerings are already available to support this concentration. Cohort-designed programs for local school districts will operate under financial arrangements that enable the program to be self-sustaining.

Learning outcomes supported by this change: This addition supports all of the student learner outcomes currently established for the EdS program.

Support from assessment activities: None

REVISE REQUIREMENTS – TEACHER EDUCATION MAJOR, MS (NON-LICENSURE TRACK 1)

In the 2015-2016 Graduate Catalog, revise the 1st bullet to include the new ETEC courses:

Completion of a prescribed set of graduate courses: Core area (9 hours minimum) TPTE 517, approved research course, ETEC 586, ETEC 587, or other approved educational or instructional technology course.

REVISE TEACHER EDUCATION MAJOR, MS, (ART EDUCATION CONCENTRATION (NON-LICENSURE TRACK 1)

In the 2015-2016 Graduate Catalog, revise the Non-Thesis Option, Footnote 1, Teacher Education Major, MS, Non-Licensure Track 1, to remove EDPY 682 and add EDPY 577.

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

In the 2015-2016 Graduate Catalog, under the Non-Thesis Option, footnote with asterisk revise as follows:

* TPTE 517; EDPY 550, EDPY 577, EDAM 516, or other approved research course; ETEC 586, ETEC 587 or other approved Educational Technology course.

REVISE TEACHER EDUCATION MAJOR, MS, ELEMENTARY EDUCATION CONCENTRATION (NON-LICENSURE TRACK I)

In the 2015-2016 Graduate Catalog, revise (Non-Thesis Option) Footnote 1, to remove EDPY 682 and replace with EDPY 577.

REVISE TEACHER EDUCATION MAJOR, MS, READING EDUCATION CONCENTRATION (NON-LICENSURE TRACK I)

In the 2015-2016 Graduate Catalog, revise (Non-Thesis Option) Footnote 1, to remove EDPY 682 and replace with EDPY 577.

REVISE TEACHER EDUCATION MAJOR, MS, SCIENCE EDUCATION (INFORMAL EDUCATION) CONCENTRATION NON-LICENSURE TRACK I

In the 2015-2016 Graduate Catalog, revise (Non-Thesis Option) Footnote 1, to remove EDPY 682 and replace with EDPY 577.

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

In the 2015-2016 Graduate Catalog, revise footnote 1 to remove TPTE 586 and replace with ETEC 586.

Rationale: We are revising the Track 1 Masters concentrations because the content of the IT courses (within the Instructional Technology online MS program) have been changed substantially and are no longer closely aligned with and focused on technology expectations as laid out in Tennessee's state teaching standards and the Council on Accreditation of Educator Preparation (CAEP) standards for national accreditation. The ETEC courses are designed especially for teachers and align with both state and CAEP standards. Additionally, the rationale for dropping EDPY 682 and adding EDPY 577 is: EDPY 682 is a doctoral level course. EDPY 577 is a masters level course and more appropriate for the Track 1 masters of science degree. Impact on other units: This change will likely reduce enrollment slightly in the (MS in Education with concentration in Instructional Technology program). Dropping EDPY 682 and adding EDPY 577 will not affect the enrollment in those sections because our students have already been instructed to take EDPY 577. Financial impact: none. Technology requirements are already currently part of the Teacher Education, MS, Initial Licensure, Track 1 Content Fields Teaching and Educational Technology courses are presently offered as part of the curriculum. Enrollment is expected to increase, but not dramatically, as the numbers of students in the Track 1 MS are relatively low. Additionally, both EDPY courses are already offered and taught by EDPY faculty.

Learning outcomes supported by this change: Overall, these changes will support outcomes 1, 2, and 3 as they will support the students in meeting all of these objectives.

Support for this change from assessment activities: informal surveys of students influenced the decision regarding ETEC/IT courses. No assessment activities regarding the EDPY courses as this is just a correction.

REVISE TEACHER EDUCATION MAJOR, MS – LICENSURE TRACK 2: INITIAL LICENSURE PROGRAMS

In the 2015-2016 Graduate Catalog, remove current paragraph and replace with the following paragraph:

The Licensure Track 2 master's is intended for individuals desiring to earn teacher licensure. Applicants to this program must first be admitted to teacher education. Elementary, or secondary English and social sciences education applicants must complete the equivalent of an undergraduate minor in either elementary or secondary education while applicants for either of the grades 6-8 teaching concentrations complete the grades 6-8 minor. Applicants interested in a grades 6-8 concentration for mathematics complete an undergraduate major in mathematics and applicants interested in a grades 6-8 teaching concentration in one of the sciences complete an undergraduate major in that area. Applicants interested in a grades 6-8 teaching concentration for both mathematics and science should consult with a CEHHS advisor. Applicants interested in secondary math or science education should contact the CEHHS Office of Student Services for further guidance on available options at both the undergraduate and graduate levels. Post-baccalaureate students interested in seeking licensure in art education, special education, world language education, or in other fields that require students to earn an undergraduate major would be expected to complete an equivalent undergraduate program of study. Please refer to the catalog for complete details. Individuals are encouraged to contact the college's Student Services Center, A332 Bailey Education Complex, for a diagnostic interview and to develop a tentative course of study and time line.

Rationale: The change is necessary due to changes in the state licensing endorsement areas. Editorial change on line 3 to change semi-colons to commas to better group the content field teaching areas. Note: we removed the fourth sentence related to the middle grades teaching program minor. Impact on other units: None. Financial Impact: None.

Learning outcomes supported by this change: Revision is not related to learning outcomes.

Support for this change from assessment activities: No assessment activities. This change is necessary to align our program with state licensing requirements

REVISE TEACHER EDUCATION MAJOR, MS – ELEMENTARY TEACHING CONCENTRATION (LICENSURE TRACK 2: INITIAL LICENSURE PROGRAMS)

In the 2015-2016 Graduate Catalog, revise the paragraph to replace the word "instructional" and with "educational"

REVISE TEACHER EDUCATION MAJOR, MS, - WORLD LANGUAGE EDUCATION CONCENTRATION (LICENSURE TRACK 2: INITIAL LICENSURE PROGRAMS)

In the 2015-2016 Graduate Catalog, revise the paragraph as follows:

TPTE 517; ETEC 586 or ETEC 587 (or approved educational technology course); approved graduate class in the World Language; TPTE 593 or TPTE 595 (Teaching World Languages, PreK-5).

Rationale: We are revising Track 2 Masters concentrations because the content of the IT courses (within the Instructional Technology online MS program) have been changed substantially and are no longer closely aligned with and focused on technology expectations as laid out in Tennessee's state teaching standards and the Council on Accreditation of Educator Preparation (CAEP) standards for national accreditation. The ETEC courses are designed especially for teachers and align with both state and CAEP standards. Impact on other units: The change will likely reduce enrollment slightly in the MS in Education with concentration in Instructional Technology program. Financial impact: none. All courses are already being taught by current faculty.

Learning outcomes supported by this change: The ETEC changes support outcomes #2 and #3.
Support for these changes from assessment activities: The ETEC changes were supported by informal assessments of students past and current.

REVISE DEPARTMENTAL INTRODUCTORY TEXT, TEACHER EDUCATION

In the 2015-2016 Graduate Catalog, revise introductory catalog text as follows:

Teacher Education

The department offers programs for students seeking Tennessee Licensure in the following areas – art education (K-12), special education for the deaf and hard of hearing; elementary teaching (K-5); mathematics (6-8); science (6-8); secondary content field teaching (6-12) in English education, mathematics education, science education, social sciences education; special education (K-12); English as a Second Language (PreK-12); World Language education (PreK-12); early childhood special education endorsement; gifted education endorsement; reading endorsement. The program features a professional year internship with accompanying coursework, which may lead to a master's degree with a major in teacher education. Specialized coursework leading to a certificate in urban education is also available in the area of urban teaching.

Rationale: The changes reflect the revision to our concentrations made necessary by changes in the state licensing endorsement areas. Editorial change on line 3 to change semi-colons to commas to better group the content field teaching areas. Impact on other units: None. Financial Impact: None.

Learning outcomes supported by this change: Revision is not related to learning outcomes.
Support for this change from assessment activities: No assessment activities. This change is necessary to align our program with state licensing requirements.

REVISE TEACHER EDUCATION MAJOR, MS, NON-LICENSURE TRACK 1

In the 2015-2016 Graduate Catalog, revise the Non-Licensure Track 1 paragraph to include the new concentration - teaching and learning.

Rationale: Many teachers advance in their careers as instructional coaches, team leaders, mentors, evaluators, and curriculum specialists. This concentration creates the opportunity for TPTE to offer a concentration at both the MS and EdS level that is well suited for teachers advancing into such responsibilities. The curriculum for both the MS and EdS has been conceptualized collaboratively with ELPS and EPC to assure students access to a wide knowledge and experience base. The curricular requirements, while flexible enough to accommodate varying student interests and expertise, include key elements from TPTE. Impact on other units: The teaching and learning concentration will require courses in both ELPS and EPC. Currently there is capacity within TPTE, ELPS, and EPC to accommodate campus-based students who choose this concentration. Courses offered in partnership with specific school districts will be negotiated according to capacity and memoranda of understanding pertinent to such districts. Support documents available. Financial Impact: The addition of this concentration within the Track I MS and EdS should be a means of recruiting additional students to the graduate programs in the Graduate School of Education. Campus-based offerings are already available to support this concentration. Cohort-designed programs for local school districts will operate under financial arrangements that enable the program to be self-sustaining.

Learning outcomes supported by this change: This addition would support all of the student learner outcomes currently established for the MS Track I program.
Support from assessment activities: None.

COLLEGE OF ENGINEERING

All changes effective Fall 2015.

I. COURSE CHANGES

DEPARTMENT OF CHEMICAL AND BIOMOLECULAR ENGINEERING

(CBE) Chemical and Biomolecular Engineering

ADD

CBE 630 Statistical Thermodynamics (3) Canonical, grand canonical, isothermal/isobaric, and microcanonical ensembles; method of most probable distribution; ensemble averages; thermodynamic connections; fluctuations; Boltzmann, Fermi-Dirac, and Bose-Einstein statistics; ideal monoatomic, diatomic, and polyatomic gases; classical statistical mechanics; chemical equilibria; transition state theory.

Registration Restriction: Minimum student level – graduate.

Equivalency Table

Current Course	Equivalent Course Effective Fall 2015
CBE 532	CBE 630

DROP

CBE 532 Statistical Thermodynamics (3)

Rationale: 532 has been substantially updated in recent years, and the specialized content now warrants a 600-level designation, bringing it in line with our other specialized graduate courses in the thermodynamics sequence (631 Statistical Mechanics and 632 Nonequilibrium Thermodynamics). Impact on other units: None. Financial impact: None.

DROP PRIMARY COURSES

CBE 503 STAIRWISE: STAIR Weekly Integrative Strategic Exercises (1) (Cross-listed: Same as BCMB 503)

CBE 571 STAIRMaster I: Fundamentals of Sustainable Technology (3) (Cross-listed: Same as BCMB 571)

CBE 572 STAIRCase I: Sustainable Technology Case Studies (2) (Cross-listed: Same as BCMB 572)

CBE 652 STAIRCase II: Case Study for Sustainable Energy Production (3) (Cross-listed: Same as BCMB 652)

CBE 673 STAIRWISE: STAIR Weekly Integrative Strategic Exercises (2) (Cross-listed: Same as BCMB 673)

Rationale: Above five courses no longer needed as Sustainability Science Graduate Certificate is being dropped. Will provide substitute courses for students currently in the program if needed. Impact on other units: The courses have a secondary cross-list with the Department of BCMB in the College of Arts and Sciences. They were notified of dropping the courses. Financial impact: None.

DROP 400 LEVEL COURSE FOR GRADUATE CREDIT (COURSE WILL REMAIN IN UNDERGRADUATE CATALOG)

CBE 467 Honors: Engineering Internship in Process Control (4)

Rationale: The faculty feel the content and format of this course is not appropriate for graduate students. Impact on other units: None. Financial impact: None.

REVISE CROSS-LISTED COURSES TO SHOW INDUSTRIAL ENGINEERING AS THE PRIMARY OWNER

CBE 483 Introduction to Reliability Engineering (3)

Cross-listed: (See Industrial Engineering 483)

Formerly: (See Nuclear Engineering 483.)

CBE 484 Introduction to Maintainability Engineering (3)

Cross-listed: (See Industrial Engineering 484.)

Formerly: (See Nuclear Engineering 484.)

Rationale: The Reliability and Maintainability academic program is now directed by the ISE Department. Nuclear Engineering was previously the primary owner of the courses. Revising to show new ownership. Impact on other courses: None. Financial Impact: None.

DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

(CE) Civil Engineering

ADD

CE 581 Construction Estimating (3) Comprehensive coverage of construction project cost estimation including quantity take-off, associated market pricing conditions, and the techniques used for assessing cost of labor, material, and equipment.

(DE) Prerequisite: 441.

CE 582 Construction Scheduling (3) Comprehensive coverage techniques used to schedule and deliver construction projects using Gantt charts, critical path management (CPM), program evaluation and review technique (PERT), and cash flow analysis, including associated software packages.

(DE) Prerequisite: 440 and 441.

CE 583 Building Information Modeling for Construction (3) Building information modeling (BIM) from perspectives of technology and building practice including the building or infrastructure lifecycle stages of planning, design, pre-design, construction, and operations.

(DE) Prerequisite: 441.

CE 584 Construction Conflicts, Claims, and Disputes (3) Detailed analysis of the different techniques used to analyze and mitigate conflicts, claims, and disputes in civil engineering projects as related to schedule delays, extension of time, prolongation costs, liquidated damages, and others.

(DE) Prerequisite(s): 440 and 441.

CE 680 Information Technology for Building and Infrastructure Systems (3) Concepts, approaches, and implementation issues associated with information technology for buildings and infrastructure systems. Topics include data sensing and analysis, and object oriented programming.

(DE) Prerequisite(s): 440 and 441.

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

CE 681 Rating and Analysis of Sustainable Infrastructure Systems (3) Assessment of the impact of civil infrastructure on societal sustainability using life-cycle assessment, systems analysis, modeling and simulation, and economic valuation. Applications in mitigation and sustainability rating systems.

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

Registration Permission: Consent of Instructor.

Rationale: We recently hired two new tenure-line faculty in the construction engineering and management area, including one position which is new, to provide for increasing student need in this important and growing area. These faculty members have evaluated our current graduate level construction curriculum and made necessary updates to include modern concepts such as BIM. In addition, 600-level courses were added to support PhD students earning concentrations in this area. Impact on other units: none. Financial Impact: We recently added a tenure line in the Construction Engineering and Management area and filled a vacancy in the same area, so the resources to support these courses and this elective track are already in place.

DROP

CE 540 Construction Management I (3)

CE 541 Construction Management II (3)

CE 543 Construction Estimating (3)

Rationale: Department recently hired two new tenure-line faculty in the construction engineering and management area, including one position which is new, to provide for increasing student need in this important and growing area. These faculty members have evaluated our current graduate level construction curriculum and made necessary updates to include modern concepts such as BIM. In addition, 600-level courses were added to support PhD students earning concentrations in this area. Impact on other units: none. Financial Impact: We recently added a tenure line in the Construction Engineering and Management area and filled a vacancy in the same area, so the resources to support these courses and this elective track are already in place.

DEPARTMENT OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE

(COSC) Computer Science

ADD

COSC 534 Network Security (3) In-depth study on core Internet and wireless technologies, related security concerns, common security vulnerabilities, and good security practices. Hands-on experience exploiting network protocols and communications, and setting up secure network connections. Hands-on assignments will be given, requiring demonstration, presentation and report writing.

Credit Restriction: Students cannot receive credit for both 434 and 534.

Recommended Background: Electrical and Computer Engineering 453, Electrical and Computer Engineering 461.

Rationale: To provide fundamental understanding of core Internet and wireless technologies, related security concerns, common security vulnerabilities, and good security practices. Course format and location: Standard format, on-campus. Impact on other academic units: None. Financial impact: None, course will be taught by the current faculty.

COSC 545 Fundamentals of Digital Archeology (3) An advanced topic course focused on developing multi-disciplinary skills of discovering, retrieving, analyzing, and presenting operational data. Students will use critical thinking and intense practice solving real-world problems to recognize and address key operational issues: the lack of context, missing observations, and incorrect values. At the end of the course students will be able to discover operational data, to retrieve and store it, to recover context, to estimate the impact of missing events, to identify unreliable or incorrect values, and to present the results. Hands-on assignments will be given, requiring demonstration, presentation and report writing.

Credit Restriction: Students cannot receive credit for both 445 and 545.

Recommended Background: 340, 370, Electrical and Computer Engineering 313.

Rationale: To fill the critical gap in knowledge between the programming, statistical and machine learning, and the operational data that is increasingly used to transform the way the work and learning are done. Course format and location: Standard format, on-campus. Impact on other academic units: None. Financial impact: None, course will be taught by the current faculty, especially recent faculty hire (Professor Audris Mockus).

COSC 566 Web Security (3) In-depth study on core web technologies, related security concerns, and common vulnerabilities. Hands on experience with multi-tier web applications (HTML, JavaScript, HTTP, application frameworks, and databases), vulnerability analysis and exploitation (injection, authentication, access control, client-side and server-side issues), and building secure applications. Hands-on assignments will be given, requiring demonstration, presentation and report writing.

Credit Restriction: Students cannot receive credit for both 466 and 566.

Recommended Background: Computer Science 302.

Rationale: To provide fundamental understanding of core web technologies, related security concerns, and common security vulnerabilities. To provide hands on experience auditing web applications for vulnerabilities, exploiting them, and building secure applications that avoid them. Course format and location: Standard format, on-campus. Impact on other academic units: None. Financial impact: None, course will be taught by the current faculty.

COSC 583 Applied Cryptography (3) In-depth study on the underlying mathematics, computational methodologies, associated theoretical considerations, applications and practical cryptographic techniques. Hands-on assignments will be given, requiring demonstration, presentation and report writing.

Credit Restriction: Students cannot receive credit for both 483 and 583.

Recommended Background: Mathematics 251, Computer Science 311.

Rationale: Cryptography lays the foundation for security-related subjects. It is an essential component for any cybersecurity program. Course format and location: Standard format, on-campus. Impact on other academic units: None. Financial impact: None, course will be taught by the current faculty and especially new hires.

(ECE) Electrical and Computer Engineering

ADD

ECE 547 Monolithic Microwave Integrated Circuit (MMICs) (3) In-depth introduction to monolithic microwave integrated circuit design concepts, including MMIC economics, MMIC circuits fabrication, use of design tools for: lumped and distributed element design, linear and nonlinear analysis of amplifiers/oscillators, layout, momentum CAD simulation, and mask preparation.

(RE) Prerequisite(s): 444 or 545.

Rationale: Previously taught three as ECE 591 Special Topics, enrollments of ~10, ~10, ~7 respectively. Course format and location: Standard format, on-campus. Impact on other academic units: None. Financial impact: None.

ECE 559 Secure and Trustworthy Computer Hardware Design (3) In-depth study on a range of new developments for the design of secure and trustworthy computer hardware. Topics covered include physical and invasive attack models, side-channel analysis (SCA) attacks, physical unclonable functions, hardware-based random number generators, watermarking of intellectual property (IP) blocks, FPGA security, passive and active metering for piracy prevention, and hardware Trojan detection and isolation. Hands-on assignments will be given, requiring demonstration, presentation and report writing.

Credit Restriction: Students cannot receive credit for both 459 and 559.

Recommended Background: Electrical and Computer Engineering 351.

Rationale: The prevalence of digital devices provides many benefits but also come with a wide variety of new and challenging security and privacy concerns. Additional security issues arise from the globalization of computer hardware design and manufacture where a wide variety of parties are involved in the development of modern computer systems. Thus, trust and security are necessary through the full lifecycle of any computer system, from design to fabrication to deployment and use. Course format and location: Standard format, on-campus. Impact on other academic units: None. Financial impact: None, course will be taught by the current faculty and especially new hires.

ECE 569 Mobile and Embedded Systems Security (3) In-depth study on mobile device security with a specific emphasis on mobile phones. Focus on mobile security in payment systems, authentication (e.g., biometric), and mobile malware. Hands-on experience with vulnerabilities and exploits with mobile device systems. In-depth case studies of mobile devices in medical device systems and transportation systems. Hands-on assignments will be given, requiring demonstration, presentation and report writing.

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

Recommended Background: Computer Science 302.

Rationale: To provide understanding of mobile device system security with specific emphasis on mobile phones. Course format and location: Standard format, on-campus. Impact on other academic units: None. Financial impact: None, course will be taught by the current faculty.

ECE 592 Off-Campus Study (1)

Repeatability: May be repeated for maximum of 3 hours.

Credit Level Restriction: Graduate credit only.

Registration Restriction: Minimum student level – graduate.

Registration Permission: Departmental approval.

Rationale: Course will allow students to integrate work experience of sufficient academic rigor as an integral part of the degree program. Such study may be undertaken only with prior approval of the faculty member and the department concerned. Course format and location: off-campus. Impact on other academic units: None. Financial impact: None.

ECE 593 Independent Study (1-6)

Repeatability: May be repeated for maximum of 6 hours.

Registration Permission: Departmental approval.

Rationale: The course will allow credit to be granted for highly motivated students to perform individual study in areas not currently covered by courses offered in the ECE curriculum. Such study may be undertaken only with prior approval of the faculty member and the department concerned. Course format and location: Standard format, on-campus. Impact on other academic units: None. Financial impact: None.

DROP

ECE 454 Computer and Network Security (3)

Rationale: This course has been restructured into ECE 461 and ECE 464, such that ECE 461 gives a broader overview of computer security and ECE 464 focuses more on network security. This restructuring also facilitates students from other disciplines to take ECE 461 as one of the core courses for the cybersecurity minor program.

DEPARTMENT OF INDUSTRIAL AND SYSTEMS ENGINEERING

(ENMG) Engineering Management

REVISE TO DROP (RE) PREREQUISITE(S) AND ADD RECOMMENDED BACKGROUND

ENMG 536 Project Management (3)

Recommended Background: Graduate standing in Engineering or Business.

Formerly: (RE) Prerequisite(s): 537 or consent of instructor.

Rationale: This course does not need 537 as a prerequisite because 537 is for students with an Undergrad in IE. For an IE undergrad this prerequisite is not useful. Also, the IE grad students will take Industrial Engineering 522 or Engineering Management 537. Impact on other courses: None. Financial Impact: None.

ENMG 538 New Venture Formation (3)

Recommended Background: Graduate standing in Engineering or Business.

Formerly: (RE) Prerequisite(s): 539.

Rationale: This course does not need 539 as a prerequisite. These classes are independent and the subject matter would be useful but not required for a student to be successful; this is also a course that other engineering majors like to take and the prerequisite prevents them from registering in this course. Impact on other courses: None. Financial Impact: None.

ENMG 539 Strategic Management in Technical Organizations (3)

Recommended Background: Graduate standing in Engineering or Business.

Formerly: (RE) Prerequisite(s): 533 and Industrial Engineering 518 or consent of instructor.

Rationale: This course does not need 533 or Industrial Engineering 518 as prerequisites. 539 is designed to address strategic management from a broad view rather than just an economic one. 533 and IE 518 are general overview courses, and may be taken before or after this course. Impact on other courses: None. Financial Impact: None.

ENMG 541 Managing Change and Improvement in Technical Organizations (3)

Recommended Background: Graduate standing in Engineering or Business.

Formerly: (RE) Prerequisite(s): Industrial Engineering 516.

Rationale: This course does not need Industrial Engineering 516 as a prerequisite. This course is approached from a non mathematical view. There are statistics involved but are very specific to a particular application that can be taught directly without the Industrial Engineering 516 prerequisite. Impact on other courses: None. Financial Impact: None.

(IE) Industrial Engineering

ADD

IE 530 Advanced Supply Chain Engineering (3) An overview of supply chain engineering with topics including: building a strategic framework to analyze supply chains, designing a supply chain network, planning demand and supply, planning and managing inventories, sourcing, transportation, pricing products, supplier selection, coordination and technology in the supply chain, and analytical tools used in supply chain decision makings.

Rationale: This course has been offered as a special topic 591 for three times and has 14 students in Fall 2014. Impact on other courses: None. Financial Impact: None.

IE 594 Off-Campus Study (1-6)

Repeatability: May be repeated. Maximum 6 hours.

Credit Level Restriction: Graduate credit only.

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

Rationale: The course is added in order to facilitate international graduate students to have internship or co-op out of campus. Impact on other units: None. Financial Impact: None.

REVISE CROSS-LISTED COURSES TO SHOW INDUSTRIAL ENGINEERING AS THE PRIMARY OWNER

IE 483 Introduction to Reliability Engineering (3) Probabilistic failure models and parameter estimation (maximum likelihood, Bayes techniques). Model identification and comparison, accelerated life tests, failure prediction, system reliability, preventive maintenance, and warranties.

(RE)Prerequisite(s): 200 or Statistics 251.

Cross-listed: (Same as Chemical and Biomolecular Engineering 483; Materials Science and Engineering 483; Mechanical Engineering 483; Nuclear Engineering 483.)

IE 484 Introduction to Maintainability Engineering (3) Principles of maintenance and reliability engineering and maintenance management. Topics include information extraction from machinery measurements, rotating machinery diagnostics, nondestructive testing, life prediction, failure models, lubrication oil analysis, establishing a predictive maintenance program, and computerized maintenance management systems.

Cross-listed: Same as Chemical and Biomolecular Engineering 484; Materials Science and Engineering 484; Mechanical Engineering 484; Nuclear Engineering 484.)

(RE)Prerequisite(s): 200 or Statistics 251.

Rationale: The Reliability and Maintainability academic program is now directed by the ISE Department. Nuclear Engineering was previously the primary owner of the courses. Revising to show new ownership. Impact on other courses: None. Financial Impact: None.

REVISE TO DROP PREREQUISITE AND ADD RECOMMENDED BACKGROUND

IE 522 Optimization Methods in Industrial Engineering (3)

Recommended Background: Linear Algebra.

Formerly: (RE) Prerequisite(s): Engineering Management 537.

Rationale: This course does not need Engineering Management 537 as a prerequisite. Many Industrial engineering students are in the course and can take the course successfully without the prerequisite. Impact on other courses: None. Financial Impact: None.

REVISE PREREQUISITE

IE 611 Integer Programming (3)

(DE) Prerequisite(s): 522 or 552.

Formerly: (RE) Prerequisite(s): IE 516, IE 518, and IE 522.

Rationale: 516 and 518 are no longer necessary prerequisites for the course. 611 is for advanced deterministic optimization and does not need knowledge of statistics or engineering economic analysis. Impact on other courses: none. Financial impact: none.

DEPARTMENT OF MATERIALS SCIENCE AND ENGINEERING

(MSE) Materials Science and Engineering

ADD

MSE 592 Off-Campus Study (1-6)

Repeatability: May be repeated. Maximum 6 hours.

Credit Level Restriction: Graduate credit only.

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

Rationale: This course will be used for the graduate students who need to conduct their research or internships at outside organizations.
Impact on other units: None. Financial impact: None.

MSE 614 Modeling and Simulation in Materials Science and Engineering II. Classical Mechanics (3) Introduction to and applications of classical modeling and simulation of advanced materials at atomic and mesoscale 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.

Rationale: This course is added to accompany 613 which focuses on different approaches in materials modeling. These two courses will complement each other and form a strong basis for the theory courses in the graduate program of materials science and engineering.
Impact on other units: None. Financial impact: None.

ADD AS SECONDARY CROSS LISTED COURSES

MSE 483 Introduction to Reliability Engineering (3)

Cross-listed: (See Industrial Engineering 483.)

Rationale: The Reliability and Maintainability academic program is now directed by the ISE Department. Impact on other units: None.
Financial impact: None.

MSE 662 Advanced Characterization Methods Applied to Nuclear Materials (3)

Cross-listed: (See Nuclear Engineering 662.)

Rationale: Catalog addition from Nuclear Engineering to provide a study of experimental characterization of defects in nuclear materials. The material covered in the course is relevant to a number of research programs in multiple departments. Impact on other units: none. Financial impact: none.

DROP

MSE 504 Graduate Seminar in Polymer Engineering (1)

Rationale: The Department of Materials Science and Engineering has dropped the graduate program in Polymer Engineering. The seminar requirement associated with this program thus needs to be removed. Impact on other units: None. Financial impact: None.

REVISE CROSS-LISTED COURSES TO SHOW INDUSTRIAL ENGINEERING AS THE PRIMARY OWNER

MSE 484 Introduction to Maintainability Engineering (3)

Cross-listed: (See Industrial Engineering 484.)

Formerly: (See Nuclear Engineering 484.)

Rationale: The Reliability and Maintainability academic program is now directed by the ISE Department. Nuclear Engineering was previously the primary owner of the courses. Revising to show new ownership. Impact on other units: None. Financial impact: None.

REVISE DESCRIPTION

MSE 522 Defects in Crystals (3) Analytical and experimental analysis of defect interactions in solids. Two papers are required that describe industrial or research applications that rely on the properties of defects in non-metal crystals for successful operation.

Formerly: Analytical and experimental analysis of defect interactions in solids.

Rationale: The change of course description is made to distinguish 522 from a co-taught undergraduate course 432 (same course title). Advanced topics and/or additional requirements are intended for the graduate students.

MSE 525 Welding Metallurgy (3) Welding processes; physical metallurgy of welding; phase transformations; heat flow; residual stresses; theories of hot cracking, cold cracking and porosity formation; applications to process utilization. A definitive project on welding metallurgy will be conducted, requiring a presentation and written report.

Formerly: Welding processes; physical metallurgy of welding; phase transformations; heat flow; residual stresses; theories of hot cracking, cold cracking and porosity formation; applications to process utilization.

Rationale: The change of course description is made to distinguish MSE 525 from a co-taught undergraduate course MSE 425 (same course title). Advanced topics and/or additional requirements are intended for the graduate students.

MSE 545 Polymer Engineering Processing and Characterization Laboratory (3) Project-based polymer processing laboratory course. Groups of students will work on specific projects that involve polymer processing and characterization. Each semester-long project includes processing of polymer samples, characterization of mechanical and physical properties of the products, variation of processing parameters to determine effect on properties, and generation of oral and written reports. Students will be expected to design experiments, provide expectations of results, and draw final conclusions concerning processing-structure-property relationships.

Formerly: Project-based polymer processing laboratory course. Groups of students will work on specific projects that involve polymer processing and characterization. Each semester-long project includes processing of polymer samples, characterization of mechanical and physical properties of the products, variation of processing parameters to determine effect on properties, and generation of oral and written reports.

Rationale: The change of course description is made to distinguish MSE 545 from a co-taught undergraduate course MSE 445 (same course title). Advanced topics and/or additional requirements are intended for the graduate students.

MSE 551 Solar Photovoltaics (3) Underlying physics of semiconductor materials used as photovoltaics and a review of the current state of the art of the materials. Different exams will be administered for the graduate students and an additional project will be required.

Formerly: Underlying physics of semiconductor materials used as photovoltaics and a review of the current state of the art of the materials.

Rationale: The change of course description is made to distinguish MSE 551 from a co-taught undergraduate course MSE 460 (same course title). Advanced topics and/or additional requirements are intended for the graduate students.

MSE 556 Materials for Energy (3) Underlying physics and operating principles of functional materials used in energy applications such as photovoltaics and photocatalysts, fuel cells, batteries, thermoelectrics, and superconductors. Class will conclude with a student report and presentation based on current research on one of the topics covered in class.

Formerly: Underlying physics and operating principles of functional materials used in energy applications such as photovoltaics and photocatalysts, fuel cells, batteries, thermoelectrics, and superconductors.

Rationale: The change of course description is made to distinguish MSE 556 from a co-taught undergraduate course MSE 455 (same course title). Advanced topics and/or additional requirements are intended for the graduate students.

MSE 567 Magnetism and Magnetic Materials (3) Review of the atomic origin of magnetic moments and how these moments can be affected by their local environment. Properties, basic theory, and applications of para-, dia-, ferro-, ferri- and antiferromagnets. Novel magnetic phenomena and magnetic materials in modern technological applications. Class will conclude with student presentation/report on a research topic related to magnetism and magnetic materials.

Formerly: Review of the atomic origin of magnetic moments and how these moments can be affected by their local environment. Properties, basic theory, and applications of para-, dia-, ferro-, ferri- and antiferromagnets. Novel magnetic phenomena and magnetic materials in modern technological applications.

Rationale: The change of course description is made to distinguish MSE 567 from a co-taught undergraduate course MSE 466 (same course title). Advanced topics and/or additional requirements are intended for the graduate students.

MSE 578 Advanced Biomaterials: Biological Applications of Nanomaterials (3) Focuses on the biological/medical uses of nanoscale materials. Includes the following topics: 0-d, 1-d, and 2-d nanomaterials synthesis and characterization with an emphasis on surface properties. Chemical and biological functionalization of nanomaterials and nano-bio interfaces. Biological and biomedical application of nanomaterials. The state-of-the-art research papers will be reviewed and discussed.

Formerly: Focuses on the biological/medical uses of nanoscale materials. Includes the following topics: 0-d, 1-d, and 2-d nanomaterials synthesis and characterization with an emphasis on surface properties. Chemical and biological functionalization of nanomaterials and nano-bio interfaces. Biological and biomedical application of nanomaterials.

Rationale: The change of course description is made to distinguish MSE 578 from a co-taught undergraduate course MSE 485 (same course title). Advanced topics and/or additional requirements are intended for the graduate students.

MSE 588 Cell and Tissue-Biomaterials Interaction (3) Study of the fundamental principles involved in materials /cell and tissue interactions. Students will learn the underlying cellular and molecular mechanisms in host response to biomaterials. Emphasis will be placed on the integration of biomaterials/neuronal cells and tissue interactions into the design of neural implants (sensors, scaffolds, and therapeutics delivery modalities, etc.). Additional research paper assignments will be given to graduate students registered for this course.

Formerly: Study of the fundamental principles involved in materials /cell and tissue interactions. Students will learn the underlying cellular and molecular mechanisms in host response to biomaterials. Emphasis will be placed on the integration of biomaterials/neuronal cells and tissue interactions into the design of neural implants (sensors, scaffolds, and therapeutics delivery modalities, etc.).

Rationale: The change of course description is made to distinguish MSE 588 from a co-taught undergraduate course MSE 486 (same course title). Advanced topics and/or additional requirements are intended for the graduate students.

REVISE TO DROP (RE) COREQUISITE

MSE 552 Laboratory Methods in Polymer Engineering (3)

Formerly: (RE) Corequisite(s): 540 or equivalent.

Rationale: The corequisite course 540 is no longer needed since the relevant materials will be covered in this course. Impact on other units: None. Financial impact: None.

REVISE TITLE AND DESCRIPTION

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

Formerly: 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.

Rationale: The scope of this course is revised and restricted to quantum mechanics method, and an addition of 614 will focus on classical mechanics methods. These two courses will complement each other and form a strong basis for the theory courses in the graduate program of materials science and engineering. Impact on other units: None. Financial impact: None.

DEPARTMENT OF MECHANICAL, AEROSPACE, AND BIOMEDICAL ENGINEERING

(ME) Mechanical Engineering

ADD

ME 605 Mechatronics II (3) Introduction to designing microcontroller-based embedded computer systems using assembly and C programs. Examination of Real-time Operating Systems and their impact on performance. A/D and D/A interfacing. Engineering applications will be emphasized.

(DE) Prerequisite(s): 505, or equivalent.

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

Registration Permission: Consent of instructor.

ME 648 Modern Linear Control (3) Design and analysis of digital control laws for dynamic systems, data processing and filtering, optimal control and state estimation, adaptive parameter estimation, recursive and moving least squares, model-reference adaptive control, modeling and control of dynamic systems with common nonlinearities

(DE) Prerequisite(s): 529 or equivalent.

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

Registration Permission: Consent of instructor.

ME 687 Control of Robotic Manipulators (3) Fundamentals of robotic manipulator control: Trajectory planning, motion control: independent joint control, computed torque; task environment interaction control: compliance, impedance, force and hybrid control schemes; and current robot manipulator control topics.

(DE) Prerequisite(s): 586, or equivalent.

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

Rationale: Supports growing student interest in control and robotics areas where 3 new faculty have been hired in the past three years. Impact on other units: None. Financial Impact: None.

REVISE CROSS-LISTED COURSES TO SHOW IE AS THE PRIMARY OWNER

ME 483 Introduction to Reliability Engineering (3)

(See Industrial Engineering 483)

Formerly: (See Nuclear Engineering 483.)

ME 484 Introduction to Maintainability Engineering (3)

(See Industrial Engineering 484)

Formerly: (See Nuclear Engineering 484.)

Rationale: The Reliability and Maintainability academic program is now directed by the ISE Department. Nuclear Engineering was previously the primary owner of the courses. Revising to show new ownership. Impact on other courses: None. Financial Impact: None.

REVISE TITLE AND DESCRIPTION

ME 505 Mechatronics I (3) Digital logic and analog electronic solutions to sensing and control problems in mechanical systems. Integration of signal conditioning and filtering circuits. Stepping and DC motors.

Formerly: Mechatronics (3) Application of microcomputers to control electromechanical devices. Application and theory: dynamics of machine control, assembly language programming, microcontroller architecture, stepping and DC motors, photoelectric devices, A/D, D/A, integrated circuits.

Rationale: Allows for a second course in mechatronics and updates material covered in course. Impact on other units: None. Financial Impact: None.

REVISE DESCRIPTION AND RECOMMENDED BACKGROUND

ME 527 Thermal Systems Analysis (3) Review of the fundamentals of conduction, convection and radiation heat transfer. Analysis of conjugate heat transfer problems. Application of scaling analysis to internal and external flows. Modeling of free, forced and mixed convection heat transfer via commercial software.

Recommended Background: Undergraduate heat transfer and fluid mechanics courses.

Formerly: Application of basic principles of heat transfer, fluid mechanics, and thermodynamics to develop solution models for parametric analysis of thermal systems problems via commercial software.

Recommended Background: 344.

Rationale: Updated description of material covered in course and background required. Impact on other units: None. Financial Impact: None.

REVISE DESCRIPTION, PRIMARY COURSE (SECONDARY COURSE IS AE 535)

ME 534 Mechanical Vibrations (3) Linear vibration analysis of lumped and distributed parameter systems, undamped and damped systems. Lagrange's equations. Modal transformations, modal analysis, self-adjoint operator theory, frequency response functions, harmonic, arbitrary and random excitation.

Formerly: Vibrations of linear, discrete, undamped and damped systems. Lagrange's equations for holonomic systems. Modal analysis. Laplace transform. Response to mechanical transients.

Rationale: Better description of material covered in course. Impact on other units: None. Financial Impact: None.

REVISE TITLE, DESCRIPTION, AND (DE) PREREQUISITES, PRIMARY COURSE (SECONDARY IS AE 547)

ME 547 Linear Control Systems Design (3) Design and analysis of control systems for multi-variable, linear, dynamic systems using transfer function and state-space representations. Topics include stability, robustness, performance, frequency response, PID controllers, Lead/Lag compensators, full-state feedback, observer-based controllers.

(DE) Prerequisite(s): 451 or equivalent.

Formerly: Modern Linear Controls (3) Multivariable feedback systems; transfer function and state-space techniques; stability of linear systems; optimality and robustness; control system design.

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

(DE) Prerequisite(s): Chemical and Biomolecular Engineering 529 or equivalent.

Rationale: Updated description of material covered in course and background required. Impact on other units: None. Financial Impact: None.

REVISE DESCRIPTION AND ADD (DE)PREREQUISITE PRIMARY COURSE (SECONDARY IS AE 565)

ME 565 Structural Dynamics (3) Dynamic analysis of flexible structures, elasticity and Green's strain tensor, partial differential equations. Variational mechanics, Hamilton's principle, energy methods, eigenvalue and forced response problems, separation of variables. Approximate solution techniques: collocation methods, Rayleigh-Ritz, finite element method.

(DE) Prerequisite(s): 534 or equivalent.

Formerly: Dynamic analysis of flexible structures, elasticity and Green's strain tensor, partial differential equations. Variational mechanics, Hamilton's principle, energy methods, eigenvalue and forced response problems, separation of variables. Approximate solution techniques: collocation methods, Rayleigh-Ritz, finite element method. Applications in beam-cable structures, rotordynamics and composite materials.

Rationale: Updated description of material covered in course and background required. Impact on other units: None. Financial Impact: None.

REVISE TITLE AND DESCRIPTION; AND ADD (DE)COREQUISITE

ME 586 Mechanics of Robotic Manipulators (3) Fundamentals of robotic manipulator mechanics: kinematics and dynamics, sensors and actuators, manipulator mechanical design, and joint-level control.

(DE)Corequisite: 529.

Formerly: Mechanics and Control of Robotic Manipulators (3) Fundamentals of robotic manipulation: kinematics and dynamics of manipulators, control systems design, trajectory planning, advanced force and impedance control strategies.

Rationale: Updated description of material covered in course and background required. Impact on other units: None. Financial Impact: None.

REVISE DESCRIPTION AND (DE) PREREQUISITES OF PRIMARY COURSE (SECONDARY IS AE 647)

ME 647 Nonlinear Control Systems (3) Dynamics and behavior of nonlinear systems; Lyapunov stability theory; passivity and absolute stability theory; frequency domain methods; nonlinear feedback systems; nonlinear design techniques.

(DE) Prerequisite(s): 547 or consent of instructor.

Formerly: Qualitative behavior of nonlinear systems; Lyapunov stability theory; passivity and absolute stability theory; frequency domain methods; nonlinear feedback systems; nonlinear design techniques.

(DE) Prerequisite(s): 547 or Electrical and Computer Engineering 512.

Rationale: Updated description of material covered in course and background required. Impact on other units: None. Financial Impact: None.

REVISE DESCRIPTION AND PREREQUISITES

ME 661 Advanced Vibrations (3) Vibration and stability analysis of linear and nonlinear oscillators including non-conservative vibration problems, rotordynamics, parametric time-varying systems, hardening and softening nonlinearity, geometric nonlinearity and impact. Linearization, eigen-analysis, Floquet theory, harmonic balance, and perturbation methods in response and stability analysis.

(DE) Prerequisite(s): 534, or equivalent.

Formerly: Analysis of linear and nonlinear single degree of freedom systems. Random vibration. Mechanical transients.

(DE) Prerequisite(s): 534.

Rationale: Updated description of material covered in course and background required. Impact on other units: None. Financial Impact: None.

REVISE TITLE AND DESCRIPTION

ME 686 Human-Robot Systems (3) Analysis of modern human-robot system concepts: review of current research and literature in telerobotics, human-robot cooperation and interaction, including internet integration, cloud computing, virtual reality and haptic interfaces.

Formerly: Telerobotic Systems (3) Analysis of modern telerobotic concepts: review of current research and literature in telerobotics. Detailed comparison of teleoperated systems, robotic systems, and telerobotic systems: human-machine interfaces, control system architectures, data communications, and sensing. Virtual reality-based, and internet-based systems concepts.

Rationale: Updates material covered in course. Impact on other units: None. Financial Impact: None.

DEPARTMENT OF NUCLEAR ENGINEERING

(NE) Nuclear Engineering

ADD NEW 400 LEVEL COURSES FOR GRADUATE CREDIT

NE 460 Introduction to Fusion Technology (3) An overview of the technologies associated with proposed fusion energy systems.

(RE) Prerequisite(s): 200 and Physics 231.

Rationale: This is a new undergraduate technical elective course being introduced to represent nuclear engineering department new research and teaching emphasis in fusion energy and boundary plasma physics, and to provide additional technical options to Nuclear Engineering undergraduate students. Impact on other units: None. Financial impact: None.

ADD

NE 563 Plasma Physics and Plasma Materials Interactions (3) Begins with an introduction to plasma physics and plasma materials interactions as it pertains to the operation of a magnetically confined fusion device.

(RE) Prerequisite: 460.

Rationale: This new course will provide support to the growing interest and student demand in the area of fusion technology, plasma physics and plasma materials interactions. This course will also introduce the students to many possible areas of research collaboration with Oak Ridge National Laboratory. Impact on other units: None. Financial Impact: None.

NE 660 Defect Physics in Materials Exposed to Extreme Environments (3) Provides detailed fundamental instruction about defect physics phenomena in materials that are important for fission and fusion energy systems.

(RE) Prerequisite: 540.

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

Rationale: This course will provide additional in-depth and PhD-level graduate coursework for students with research interests in the area of nuclear materials behavior. Impact on other units: None. Financial Impact: None.

NE 661 Gas Dynamics in Nuclear Materials (3) Will provide detailed fundamental instruction about the behavior of noble gases, and corresponding property degradation caused by gas bubble formation, in materials that are important for fission and fusion energy systems.

(RE) Prerequisite: 540.

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

Rationale: This course will provide additional in-depth and PhD-level graduate coursework for students with research interests in the area of nuclear materials behavior. Impact on other units: None. Financial Impact: None.

NE 663 Diagnostics for Boundary Plasma Physics and Plasma-Material Interactions (3) Will provide detailed fundamental instruction about plasma physics and materials science to form the foundation for diagnostics used to study fusion plasmas, with a focus on the boundary plasma region.

(RE) Prerequisite: 560.

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

Rationale: This course will provide additional in-depth and PhD-level graduate coursework for students with research interests in the area of fusion technology, including boundary plasma physics, diagnostics and plasma – material interactions. Impact on other units: None. Financial Impact: None.

ADD AS PRIMARY COURSE AND CROSS-LIST

NE 662 Advanced Characterization Methods Applied to Nuclear Materials (3) Will provide detailed fundamental instruction about the experimental characterization of defects and nano-scale second phases in nuclear materials that control materials performance in fission and fusion energy systems.

Cross-Listed: (Same as Materials Science and Engineering 662).

(RE) Prerequisite: 540 or Materials Science and Engineering 573.

Rationale: This course will provide additional in-depth and PhD-level graduate coursework for students with research interests in the area of nuclear materials behavior. Impact on other units: None. Financial Impact: None.

REVISE TO REMOVE PRIMARY OWNERSHIP OF CROSS-LISTED COURSES AND SHOW NOW AS A SECONDARY

NE 483 Introduction to Reliability Engineering (3)

Cross-listed: (See Industrial Engineering 483)

Formerly: (Same as Chemical and Biomolecular Engineering 483; Industrial Engineering 483; Mechanical Engineering 483)

NE 484 Introduction to Maintainability Engineering (3)

Cross-listed: (See Industrial Engineering 484)

Formerly: (Same as Chemical and Biomolecular Engineering 483; Industrial Engineering 483; Materials Science and Engineering 484; Mechanical Engineering 483)

Rationale: The Reliability and Maintainability academic program is now directed by the ISE Department. Nuclear Engineering was previously the primary owner of the courses. Revising to show new ownership. Impact on other courses: None. Financial Impact: None.

REVISE DESCRIPTION

NE 537 Human Reliability in Nuclear Systems (3) Methodology for understanding, assessing and managing human reliability factors in nuclear systems. Issues in human reliability and human sources of error in nuclear systems performance. Indicators and issues in identifying and minimizing the impact of human actions (accidental - by action or inaction or deliberate) adverse to successful operation in nuclear systems, protection of information and nuclear materials.

Formerly: Methodology for assessing and managing human reliability factors in nuclear systems. Issues in human reliability and human sources of error in nuclear systems performance. Indicators and issues in identifying and minimizing the impact of human actions (accidental or deliberate) adverse to successful operation in nuclear systems and nuclear materials security.

Rationale: Description modified to closer reflect material presented in the course. Impact on other units: none. Financial Impact: none.

II. PROGRAM CHANGES

DEPARTMENT OF CHEMICAL AND BIOMOLECULAR ENGINEERING

❖ DROP GRADUATE CERTIFICATE – SUSTAINABILITY SCIENCE

In the 2014-15 Graduate Catalog, remove all catalog text for the Sustainability Science Graduate Certificate.

Rationale: This certificate is no longer funded by NSF IGERT and is discontinued. Impact on other units: None. Financial impact: None.

DEPARTMENTAL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE

REVISE REQUIREMENTS - POWER AND ENERGY SYSTEMS GRADUATE CERTIFICATE

In the 2014-15 Graduate Catalog, revise the course requirements listing as follows:

1. Add ECE 529, ECE 581, ECE 632, and ECE 635 to item (2) as possible courses
2. Under item (2), add the following statement:
 - a. Additionally, ECE 599 and ECE 692 may be applied with the consent of faculty in the power and energy area
3. Revise item (3). Remove current text and replace with the following as follows:
 - a. One entrepreneurship, economics and innovation course (3 hours) selected from: ME 519 (or IE 557), MGT 552, or MGT 560.

Rationale: This change is to add new courses developed by EECS Power faculty in recent years to the acceptable courses to satisfy the technical concentration, and allow select special topics courses to apply when applicable. Additionally, MGT 552 (Entrepreneurial Strategy Implementation) and 560 (Monetization of Technology Enabled Social Media) are added as possible courses to satisfy the 3-credit Entrepreneurship, economics, and innovation course requirement. This change is made to give multiple course options from which the students may select one, to accommodate varying interests and schedules, as before only one course was applicable. IE 518 is removed due to the required 400-level IE course prerequisite, which EECS students are not expected to take. No changes are made to the structure or requirements for the certificate. Impact on other units: None. Financial impact: None.

REVISE REQUIREMENTS – ELECTRICAL ENGINEERING MAJOR, MS

In the 2014-15 Graduate Catalog, revise degree requirements to read as follows:

Electrical Engineering Major, MS

Admission

Applicants for admission to the MS program for electrical engineering are expected to have completed a bachelor's degree with an average of at least 3.0 out of 4.0, both overall and in the senior year. Applicants are required to submit scores from the general Graduate Record Examination (GRE) within the past three years and to have these scores sent to the Office of Graduate Admissions. A TOEFL score of 550 on the written exam or 80 on the Internet-based Test is required for non-native speakers of English, including those who have earned degrees at U.S. institutions. The score must be no more than two years old from the requested date of entry. Applicants who have received a degree from an accredited U.S. institution within the past two years are exempt from the TOEFL requirement. Applicants who hold the bachelor's degree in fields other than electrical or computer engineering will be required to take selected undergraduate courses as determined by the applicant's prior education and experience. The student will be admitted under non-degree status until the required undergraduate courses are successfully completed with a 3.0 average. An international student may not enroll as a non-degree student.

Requirements

Students may choose between a thesis option, a non-thesis course-only option, and a non-thesis project option. All students must file a Master's Program Plan with the departmental graduate committee specifying which option they have selected, a semester-by-semester schedule of the courses they intend to take, and the members of the student's master's committee. Students may change between options one time by filing an amended Master's Program Plan and with approval of the departmental graduate committee. A student who receives financial support under a research assistantship is enrolled in the thesis option by default. Students who have held a research assistantship will require approval from the departmental graduate committee to change to one of the non-thesis options.

For all options, a total of 30 credit hours are required. The course credits must satisfy

- a. At least two-thirds of the total course credit must be at the 500-level or above.
- b. A maximum of 6 credit hours of courses outside of the department may be applied toward the degree.
- c. At least 6 credit hours must be in each of two separate areas of focus in electrical engineering and computer engineering.

Thesis Option (30 hours)

1. 24 semester hours of course credit.
2. A master's thesis (ECE 500), totaling 6 hours is required, as well as a final oral exam covering the thesis and related course work.

Non-Thesis Project Option (30 hours)

1. 27 semester hours of course credit. Of these credits, at least 3 must be in a third area of focus separate from those in (c), above
2. ECE 501(Project in Lieu of Thesis) with a minimum grade of B. This course will be administered by the student's master's committee. A written project proposal describing what the student will do in the course must be submitted in advance for the student's master's committee approval. A written final report and oral presentation is required, and one copy of the final draft must be submitted to the graduate committee.

Non-Thesis Courses Only Option (30 hours)

1. 30 semester hours of course credit. Of these credits, at least 6 must be in a third area of focus separate from those in (c), above
2. A final comprehensive written examination.

Rationale: All graduate degree programs are being rewritten to clarify existing issues with wording and to make the three degree programs in the department (and three options within each) as consistent as possible, without significantly changing degree requirements. Clarity and disparity among the programs has been a difficulty in student advising for all faculty. All requirements common to each degree are brought out to the top of the text, and some requirements are reworded to clarify limits rather than permissible options. No substantive changes have been made to the degree requirements themselves. Financial impact: None.

REVISE REQUIREMENTS – COMPUTER ENGINEERING MAJOR, MS

In the 2014-15 Graduate Catalog, revise degree requirements text to read as follows:

Admission

Applicants for admission to the MS program for computer engineering are expected to have completed a bachelor's degree with an average of at least 3.0 out of 4.0, both overall and in the senior year. Applicants are required to submit scores from the general Graduate Record Examination (GRE) within the past three years and to have these scores sent to the Office of Graduate Admissions. A TOEFL score of 550 on the written exam or 80 on the Internet-based Test is required for non-native speakers of English, including those who have earned degrees at U.S. institutions. The score must be no more than two years old from the requested date of entry. Applicants who have received a degree from an accredited U.S. institution within the past two years are exempt from the TOEFL requirement. Applicants who hold the bachelor's degree in fields other than electrical or computer engineering will be required to take selected undergraduate courses as determined by the applicant's prior education and experience. The student will be admitted under non-degree status until the required undergraduate courses are successfully completed with a 3.0 average. An international student may not enroll as a non-degree student.

Requirements

Students may choose between a thesis option, a non-thesis course-only option, and a non-thesis project option. All students must file a Master's Program Plan with the departmental graduate committee specifying which option they have selected, a semester-by-semester schedule of the courses they intend to take, and the members of the student's master's committee. Students may change between options one time by filing an amended Master's Program Plan and with approval of the departmental graduate committee. A student who receives financial support under a research assistantship is enrolled in the thesis option by default. Students who have held a research assistantship will require approval from the departmental graduate committee to change to one of the non-thesis options.

For all options, a total of 30 credit hours are required. The course credits must satisfy

- a. At least two-thirds of the total course credit must be at the 500-level or above.
- b. A maximum of 6 credit hours of courses outside the department may be applied toward the degree.
- c. At least 6 hours selected from the following courses: ECE 551, ECE 553, ECE 554, ECE 555, ECE 556, COSC 530, ECE 571, ECE 572, ECE 651, ECE 653, ECE 655, ECE 657.

Thesis Option (30 hours)

1. 24 semester hours of course credit.
2. A master's thesis (ECE 500), totaling 6 hours is required, as well as a final oral exam covering the thesis and related course work.

Non-Thesis Project Option (30 hours)

1. 27 semester hours of course credit. Of these credits, at least 3 must be in a third area of focus separate from those in (c), above.
2. ECE 501 (Project in Lieu of Thesis) with a minimum grade of B. This course will be administered by the student's master's committee. A written project proposal describing what the student will do in the course must be submitted in advance for the student's master's committee approval. A written final report and oral presentation is required, and one copy of the final draft must be submitted to the graduate committee.

Non-Thesis Courses Only Option (30 hours)

1. 30 semester hours of course credit. Of these credits, at least 6 must be in a third area of focus separate from those in (c), above.
2. A final comprehensive written examination.

Rationale: All graduate degree programs are being rewritten to clarify existing issues with wording and to make the three degree programs in the department (and three options within each) as consistent as possible, without significantly changing degree requirements. Clarity and disparity among the programs has been a difficulty in student advising for all faculty. All requirements common to each degree are brought out to the top of the text, and some requirements are reworded to clarify limits rather than permissible options. No substantive changes have been made to the degree requirements themselves. Financial impact: None.

REVISE REQUIREMENTS FOR COMPUTER SCIENCE MAJOR, MS

In the 2014-15 Graduate Catalog, revise degree requirements text to read as follows:

Admission

Applicants for admission to the MS program for computer science are expected to have completed a bachelor's degree with an average of at least 3.0 out of 4.0, both overall and in the senior year. Two semesters of calculus plus two additional semesters of college mathematics (e.g. linear algebra, differential equations, probability) and a course in formal languages, as well as in systems programming, are required for admission. Applicants are required to submit scores from the general Graduate Record Examination (GRE) within the past three years and to have these scores sent to the Office of Graduate Admissions. A TOEFL score of 550 on the written exam or 80 on the Internet-based Test is required for non-native speakers of English, including those who have earned degrees at U.S. institutions. The score must be no more than two years old from the requested date of entry. Applicants who have received a degree from an accredited U.S. institution within the past two years are exempt from the TOEFL requirement. Applicants who hold the bachelor's degree in fields other than computer science will be required to take selected undergraduate courses as determined by the applicant's prior education and experience. The student will be admitted under non-degree status until the required undergraduate courses are successfully completed with a 3.0 average. An international student may not enroll as a non-degree student.

Requirements

Students may choose between a thesis option, a non-thesis course-only option, and a non-thesis project option. All students must file a Master's Program Plan with the departmental graduate committee specifying which option they have selected, a semester-by-semester schedule of the courses they intend to take, and the members of the student's master's committee. Students may change between options one time by filing an amended Master's Program Plan and with approval of the departmental graduate committee. A student who receives financial support under a research assistantship is enrolled in the thesis option by default. Students who have held a research assistantship will require approval from the departmental graduate committee to change to one of the non-thesis options.

For all options, a total of 30 credit hours is required. The course credits must satisfy

- a. At least two-thirds of the total course credit must be at the 500-level or above
- b. A maximum of 6 credit hours of courses outside the department may be applied toward the degree
- c. Students are required to complete COSC 530, COSC 560, and either COSC 580 or COSC 581.

Thesis Option (30 hours)

1. 24 semester hours of course credit.
2. A master's thesis (COSC 500), totaling 6 hours is required, as well as a final oral exam covering the thesis and related course work.

Non-Thesis Project Option (30 hours)

1. 27 semester hours of course credit. Of these credits, at least 3 must be in a third area of focus separate from those in (c), above.
2. COSC 501 (Project in Lieu of Thesis) with a minimum grade of B. This course will be administered by the student's master's committee. A written project proposal describing what the student will do in the course must be submitted in advance for the student's master's committee approval. A written final report and oral presentation is required and one copy of the final draft must be submitted to the graduate committee.

Non-Thesis Courses Only Option (30 hours)

1. 30 semester hours of course credit. Of these credits, at least 6 must be in a third area of focus separate from those in (c), above
2. The student must take course work in an area to prepare for the non-thesis master's examination. The student's advisor must verify that an acceptable set of courses has been taken before the student may schedule the examination

Rationale: All graduate degree programs are being rewritten to clarify existing issues with wording and to make the three degree programs in the department (and three options within each) as consistent as possible, without significantly changing degree requirements. Clarity and disparity among the programs has been a difficulty in student advising for all faculty. All requirements common to each degree are brought out to the top of the text, and some requirements are reworded to clarify limits rather than permissible options. No substantive changes have been made to the degree requirements themselves. Financial impact: None.

REVISE REQUIREMENTS – ELECTRICAL ENGINEERING MAJOR, PHD

In the 2014-15 Graduate Catalog, revise degree requirements text to read as follows:

Admission

The PhD is offered with a major in computer engineering. Exceptional students holding the bachelor's degree may be admitted to the doctoral program without first obtaining a master's degree. Applicants are required to submit scores from the general Graduate Record Examination (GRE) within the past three years and to have these scores sent to the Office of Graduate Admissions. A TOEFL score of 550 on the written exam or 80 on the Internet-based Test is required for non-native speakers of English, including those who have earned degrees at U.S. institutions. The score must be no more than two years old from the requested date of entry. Applicants who have received a degree from an accredited U.S. institution within the past two years are exempt from the TOEFL requirement. Specific departmental requirements for the PhD include the following.

Requirements

Students holding only a BS degree must take a minimum of 72 total credit hours, including a minimum of 39 course credit hours. 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 48 total credit hours, including at least 15 hours of course credit beyond those applied to their MS degree. Students with MS degrees from other universities will be required to take a minimum of 48 total credit hours, including at least 24 hours of course credit. For all students, at least half of the course credits must be fulfilled by ECE courses at or above the 500 level. Course work requirements may not be fulfilled by research or dissertation credit or seminar courses. The student's major professor, with the concurrence of the dissertation committee, will prepare a curriculum plan outlining precisely what courses will be taken.

For all students, the course credit hours must additionally satisfy

- a. At least 3 hours must be in ECE or CS courses outside the student's area of focus.
- b. A minimum of 9 hours of work must be ECE courses numbered at or above the 600 level.
- c. For students holding an MS degree, a maximum of 6 credit hours at the 400 level may be applied toward the Ph.D. degree; other students may apply 12 credits at the 400 level.

Satisfactory performance on a qualifying examination. The qualifying examination consists of

- a. A written critical review of current literature on a research topic approved by the administering faculty.
- b. A presentation on the approved topic including an oral examination covering the topic and related fundamental knowledge.
- c. A student must take the qualifying examination within twelve months of entering the Ph.D. program. A second and final attempt is allowed within 24 months of entering the Ph.D. program. Attendance of the examination is limited to the student and the administering faculty.

Satisfactory performance on a comprehensive examination administered by the student's committee. The exam results are reported to the graduate committee for approval, and the exam is filed in the department. The comprehensive exam is given when the student is ready to apply for admission to candidacy. The comprehensive examination consists of both written and oral parts. The written part includes a complete review of the literature in the student's dissertation topic, a review of the major tools to be used in the dissertation work, and proposed research. The student's committee may require additional written sections. The student must demonstrate a mastery of the dissertation area, ability to think analytically and creatively, skill in using academic resources, and ability to complete the dissertation satisfactorily. The oral part of the comprehensive examination consists primarily of a professional presentation of a proposal for dissertation work and its defense. The committee may cover additional topics in the oral part.

Participation in departmental seminars.

A minimum of 24 hours of doctoral dissertation.

Successful public defense of the dissertation by the student. A minimum of 6 months must separate the comprehensive examination and the dissertation defense.

Rationale: All graduate degree programs are being rewritten to clarify existing issues with wording and to make the three degree programs in the department (and three options within each) as consistent as possible, without significantly changing degree requirements. Clarity and disparity among the programs has been a difficulty in student advising for all faculty. All requirements common to each degree are brought out to the top of the text, and some requirements are reworded to clarify limits rather than permissible options. No substantive changes have been made to the degree requirements themselves. For the Ph.D. degree, the wording regarding the qualifying examination has also been updated to reflect a faculty-approved transition to a research paper/presentation based exam, rather than the historical written theory-based exam. Financial impact: None.

REVISE REQUIREMENTS – COMPUTER ENGINEERING MAJOR, PHD

In the 2014-15 Graduate Catalog, revise degree requirements text to read as follows:

Admission

The PhD is offered with a major in computer engineering. Exceptional students holding the bachelor's degree may be admitted to the doctoral program without first obtaining a master's degree. Applicants are required to submit scores from the general Graduate Record Examination (GRE) within the past three years and to have these scores sent to the Office

of Graduate Admissions. A TOEFL score of 550 on the written exam or 80 on the internet-based test is required for non-native speakers of English, including those who have earned degrees at U.S. institutions. The score must be no more than two years old from the requested date of entry. Applicants who have received a degree from an accredited U.S. institution within the past two years are exempt from the TOEFL requirement.

Requirements

Students holding only a BS degree must take a minimum of 72 total credit hours, including a minimum of 39 course credit hours. 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 48 total credit hours, including at least 15 hours of course credit beyond those applied to their MS degree. Students with MS degrees from other universities will be required to take a minimum of 48 total credit hours, including at least 24 hours of course credit. For all students, at least half of the course credits must be fulfilled by ECE or COSC courses at or above the 500 level. Course work requirements may not be fulfilled by research or dissertation credit or seminar courses. The student's major professor, with the concurrence of the dissertation committee, will prepare a curriculum plan outlining precisely what courses will be taken.

For all students, the course credit hours must additionally satisfy

- a. At least 3 hours must be in ECE or COSC courses outside the student's area of focus.
- b. A minimum of 9 hours of work must be ECE or COSC courses numbered at or above the 600 level.
- c. For students holding an MS degree, a maximum of 6 credit hours at the 400 level may be applied toward the PhD degree; other students may apply 12 credits at the 400 level.

Satisfactory performance on a qualifying examination. The qualifying examination consists of

- a. A written critical review of current literature on a research topic approved by the administering faculty.
- b. A presentation on the approved topic including an oral examination covering the topic and related fundamental knowledge.

A student must take the qualifying examination within twelve months of entering the Ph.D. program. A second and final attempt is allowed within 24 months of entering the Ph.D. program. Attendance of the examination is limited to the student and the administering faculty.

Satisfactory performance on a comprehensive examination administered by the student's committee. The exam results are reported to the graduate committee for approval and the exam is filed in the department. The comprehensive exam is given when the student is ready to apply for admission to candidacy. The comprehensive examination consists of both written and oral parts. The written part includes a complete review of the literature in the student's dissertation topic, a review of the major tools to be used in the dissertation work, and proposed research. The student's committee may require additional written sections. The student must demonstrate a mastery of the dissertation area, ability to think analytically and creatively, skill in using academic resources, and ability to complete the dissertation satisfactorily. The oral part of the comprehensive examination consists primarily of a professional presentation of a proposal for dissertation work and its defense. The committee may cover additional topics in the oral part.

Participation in departmental seminars.

A minimum of 24 hours of doctoral dissertation.

Successful public defense of the dissertation by the student. A minimum of 6 months must separate the comprehensive examination and the dissertation defense.

Rationale: All graduate degree programs are being rewritten to clarify existing issues with wording and to make the three degree programs in the department (and three options within each) as consistent as possible, without significantly changing degree requirements. Clarity and disparity among the programs has been a difficulty in student advising for all faculty. All requirements common to each degree are brought out to the top of the text, and some requirements are reworded to clarify limits rather than permissible options. No substantive changes have been made to the degree requirements themselves. For the Ph.D. degree, the wording regarding the qualifying examination has also been updated to reflect a faculty-approved transition to a research paper/presentation based exam, rather than the historical written theory-based exam. Financial impact: None.

REVISE REQUIREMENTS FOR COMPUTER SCIENCE MAJOR, PHD

In the 2014-15 Graduate Catalog, revise degree requirements text to read as follows

Admission

The PhD is offered with a major in computer science. Exceptional students holding the bachelor's degree may be admitted to the doctoral program without first obtaining a master's degree. Applicants are required to submit scores from the general Graduate Record Examination (GRE) within the past three years and to have these scores sent to the Office of Graduate Admissions. A TOEFL score of 550 on the written exam or 80 on the Internet-based Test is required for non-native speakers of English, including those who have earned degrees at U.S. institutions. The score must be no more than two years old from the requested date of entry. Applicants who have received a degree from an accredited U.S. institution within the past two years are exempt from the TOEFL requirement. Applicants should satisfy the same background requirements as for the computer science master's program.

Requirements

Students holding only a BS degree must take a minimum of 72 total credit hours, including a minimum of 39 course credit hours. 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 48 total credit hours, including at least 15 hours of course credit beyond those applied to their MS degree. Students with MS degrees from other universities will be required to take a minimum of 48 total credit hours, including at least 24 hours of course credit. For all students, at least half of the course credits must be fulfilled by COSC courses at or above the 500 level. Course work requirements may not be fulfilled by research or dissertation credit or seminar courses. The student's major professor, with the concurrence of the dissertation committee, will prepare a curriculum plan outlining precisely what courses will be taken.

For all students, the course credit hours must additionally satisfy

- a. A minimum of 6 hours of work must be COSC courses numbered at or above the 600 level
- b. 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
- c. For students holding an MS degree, a maximum of 6 credit hours at the 400 level may be applied toward the Ph.D. degree; other students may apply 12 credits at the 400 level

Satisfactory performance on a comprehensive examination administered by the student's committee. The exam results are reported to the graduate committee for approval and the exam is filed in the department. The comprehensive exam is given when the student is ready to apply for admission to candidacy. The comprehensive examination consists of both written and oral parts. The written part includes a complete review of the literature in the student's dissertation topic and a review of the major tools to be used in the dissertation work, and proposed research. The student's committee may require additional written sections. The student must demonstrate a mastery of the dissertation area, ability to think analytically and creatively, skill in using academic resources, and ability to complete the dissertation satisfactorily. The oral part of the comprehensive examination consists primarily of a professional presentation of a proposal for dissertation work and its defense. The committee may cover additional topics in the oral part.

A minimum of 24 hours of doctoral dissertation.

Successful public defense of the dissertation by the student. A minimum of 6 months must separate the comprehensive examination and the dissertation defense.

Rationale: All graduate degree programs are being rewritten to clarify existing issues with wording and to make the three degree programs in the department (and three options within each) as consistent as possible, without significantly changing degree requirements. Clarity and disparity among the programs has been a difficulty in student advising for all faculty. All requirements common to each degree are brought out to the top of the text, and some requirements are reworded to clarify limits rather than permissible options. No substantive changes have been made to the degree requirements themselves. For the Ph.D. degree, the wording regarding the qualifying examination has also been updated to reflect a faculty-approved transition to a research paper/presentation based exam, rather than the historical written theory-based exam. Financial impact: None.

DEPARTMENT OF INDUSTRIAL AND SYSTEMS ENGINEERING

REVISE INDUSTRIAL AND SYSTEMS ENGINEERING ADMISSION TEXT

In the 2014-15 Graduate Catalog, revise second bullet item and remove third bullet item as follows:

GRE scores for Ph.D. applicants.

Formerly: GRE scores.

Essay (two double-spaced pages – please contact department for current topic)

Rationale: The change makes the admission requirements consistent to the College one. Impact on other units: None. Financial impact: None.

REVISE INDUSTRIAL ENGINEERING MAJOR, MS

In the 2014-15 Graduate Catalog, remove current text and replace with the following:

Industrial Engineering Major, MS

Students who enroll in the Master of Science program may select a concentration in engineering management. The student may select either a thesis or non-thesis option. The thesis option requires 24 hours of course work, 2 hours of Industrial Engineering 550 Graduate Seminar, and 6 hours of thesis. The non-thesis option requires 27 hours of course work, 2 hours of Industrial Engineering 550 Graduate Seminar, and a 3-hour design project. Prerequisites are required for all specialties if the previous undergraduate degree is not an engineering discipline. Refer to the department's MS handbook for specific requirements.

Rationale: The change follows the departmental policy and MS handbook. Impact on other units: None. Financial impact: None.

REVISE INDUSTRIAL ENGINEERING MAJOR, PHD

In the 2014-15 Graduate Catalog, under Requirements heading, delete current text and replace with the following:

Requirements

The program of study requires a minimum of 72 graduate hours beyond the bachelor's degree, exclusive of credit for the master's thesis. This includes a minimum of 36 graduate hours of course work beyond the bachelor's degree and 24-36 hours of doctoral research and dissertation work. For a master's program completed at another institution or in another field, the requirement may exceed the 36 hours of course work (other than research and dissertation) dependent on the previous program of study. The student's major professor, with the concurrence of the dissertation committee, will prepare a program plan outlining what courses will be taken. The student's dissertation committee should include at least two ISE tenure-track or tenured faculty members and at least one member out of the ISE department.

The student needs to satisfactorily pass a comprehensive examination administered by the student's dissertation committee. The exam results are reported to the graduate director and filed in the department. The comprehensive exam is given when the student is ready to apply for admission to candidacy. The comprehensive examination consists of both written and oral parts. The student must demonstrate a mastery of the dissertation area, ability to think analytically and creatively, skill in using academic resources, and ability to complete the dissertation satisfactorily. A minimum of 6 months must separate the comprehensive examination and the dissertation defense. The student needs a successful public defense of the dissertation to reserve the degree.

Rationale: The added requirements clarify the departmental policy regarding its Ph.D. program. Impact on other units: None.
Financial impact: None.

REVISE RELIABILITY AND MAINTAINABILITY ENGINEERING, MS – INDUSTRIAL ENGINEERING CONCENTRATION

In the 2014-15 Graduate Catalog, revise Required Statistics Sequence and Reliability and Maintainability Engineering Electives as follows:

In the Required Statistics Sequence: remove course STAT 560 and replace with course IE 516

In the Reliability and Maintainability Engineering Electives: remove IE 516 and add MSE 421 and NE 441 to the list.

Rationale: The BAS department plans to discontinue Statistics 560 – Intro to Mathematical Statistics because of a retirement. Industrial Engineering 516 – Statistical Methods in Industrial Engineering covers similar materials. MSE 421 is added due to its relevance and for encouraging MSE students to participate in the program. Nuclear Engineering 441 - Corrosion in Nuclear Power Systems is added as an elective because of its relevance to the RME program. Impact on other units: None. Financial impact: None.

REVISE RELIABILITY AND MAINTAINABILITY ENGINEERING GRADUATE CERTIFICATE – INDUSTRIAL ENGINEERING CONCENTRATION

In the 2014-15 Graduate Catalog, replace third paragraph as follows:

Currently, the available elective courses are CBE 562, CBE 585 / NE 585, ECE 504, IE 516, IE 517, IE 522, ME 534, MSE 421, NE 441, NE 575, NE 579, NE 585, and STAT 567.

Rationale: Statistics 560 is removed as an elective because the BAS department plans to discontinue the course because of a retirement. Materials Science and Engineering 421 is added due to its relevance and for encouraging MSE students to participate in the program. Nuclear Engineering 441 is added as an elective because of its relevance to the RME program. Impact on other units: None. Financial impact: None.

DEPARTMENT OF MECHANICAL, AEROSPACE, AND BIOMEDICAL ENGINEERING

REVISE REQUIREMENTS – BIOMEDICAL ENGINEERING MAJOR, MS

In the 2014-15 Graduate Catalog, revise the second paragraph, first and second bullet points, revise as follows:

Common requirements for both options include:

- Completion of BME core courses BME 503, BME 511, and BME 521
- Participation in BME seminars.

REVISE REQUIREMENTS – BIOMEDICAL ENGINEERING MAJOR, PHD

In the 2014-15 Graduate Catalog, revise the second paragraph, first bullet point, revise as follows:

The biomedical engineering core curriculum comprising BME 503, BME 511, BME 521, and BME 601.

In the 2014-15 Graduate Catalog, revise the third paragraph, first bullet point, revise as follows:

Participation in BME seminars.

Rationale: The BME curriculum was substantially revised last year, and the requirements being amended here were introduced at that time. The department has determined that enforcing these requirements in the short term is not feasible. While it is hoped to develop the 510 (Science Communication) course in the future in collaboration with the College of Communications, sufficient resources are not available at this time. The department is therefore removing BME 510 and will revisit this issue later. Similarly, resources required for a full BME seminar series as part of a required course each semester are lacking. The department therefore intends to co-sponsor seminars with other departments. Impact on other units: None. Financial impact: None.

DEPARTMENT OF NUCLEAR ENGINEERING

REVISE REQUIREMENTS – NUCLEAR ENGINEERING MAJOR, MS

In the 2014-2015 Graduate Catalog, replace first, second, and third bullet items with the following 2 bullets:

A major consisting of 12 hours of graduate courses in nuclear engineering which must include at least two of the following courses – NE 511, NE 521, NE 540, NE 542 NE 551, NE 571.

An additional 12 hours of graduate courses related to the student's research, as approved by the student's committee.

Rationale: Two courses added (NE 540 and NE 542) in our breadth of study requirement to include subject areas (nuclear security and materials science) that are major fields of research in the department but were not previously included. Prescriptive requirements for 6 hours of elective courses and 6 hours in other courses deleted and rewritten as 12 hours to be approved by the student's committee in order to remove ambiguities in the previous requirements and to allow the students and their committees more freedom in selecting courses that are relevant to their research and career goals. Impact on other units: None. Financial impact: None.

Revise departmental requirement, under the Requirements heading (3rd paragraph) remove the 4th sentence:

Formerly: The student must submit a brief written proposal for each project undertaken, either thesis or engineering practice, which must be approved by the student's graduate committee.

Rationale: Requirement for a written proposal dropped because it is not required by the University and hasn't been necessary in the successful completion of MS project reports and theses. Impact on other units: None. Financial impact: None.

REVISE REQUIREMENTS – NUCLEAR ENGINEERING MAJOR, PHD

In the 2014-2015 Graduate Catalog, under the Requirements heading, delete bulleted list and replace with the following:

- A minimum of 48 course work hours and 24 doctoral research (NE 600) hours beyond a bachelor's degree. If the student has a master's degree when entering the Ph.D. program, then a minimum of 24 course work hours beyond all masters is required.
- A minimum of 30 hours in nuclear engineering courses numbered 500 and above (or the equivalent). These are exclusive of thesis, practice project, or dissertation credit.
- A minimum of 18 hours of course work in addition to the requirement of 30 hours of graduate nuclear engineering course hours. The 18 hours are to be related to the student's research, as approved by the student's committee. No more than twelve 400-level hours may be used to satisfy this requirement
- A minimum of 6 hours of 600-level courses. No more than 3 hours of the 600-level course hour requirement may come from a department other than nuclear engineering.

Rationale: Previous course hour requirements rewritten to remove ambiguities and to allow more freedom to students and their committees in selecting courses that are relevant to their research and career goals. Impact on other units: None. Financial impact: None.

In the 2014-2015 Graduate Catalog, revise the 3rd paragraph, next to last sentence by adding NE in front of course 600.

Registration for NE 600 is not permitted until the written examination is passed.

Rationale: Typo in previous description changed from "Registration for 600 is not permitted..." to "Registration for NE 600 is not permitted..." Impact on other units: None. Financial impact: None.

COLLEGE OF LAW

All changes effective Fall 2015

I. COURSE CHANGES

ADD

~~LAW 996~~ **ERROR**, 996 is a current course in the catalog. Suggested to replace with course 991. Dr. Parker agreed.

LAW 991 Tennessee Journal of Race, Gender, and Social Justice (1) Performance of duties as staff member or editor of the Tennessee Journal of Race, Gender, and Social Justice. Reviewing and editing responsibilities vary each semester as specified in the Tennessee Journal of Race, Gender, and Social Justice Policy Manual. Members of the Journal who are not on the senior editorial board receive one hour of credit for successfully completing two consecutive semesters of service. Members of senior editorial board receive one hour of credit for each semester of satisfactory service.

Grading Restriction: Satisfactory/No Credit grading only.

Repeatability: May be repeated. Maximum 4 hours.

Registration Restriction(s): Law students only.

Rationale: New course that expands curriculum. Impact on other units: None expected. Financial impact: None expected. Additional Documentation: None required.

REVISE TITLE AND DESCRIPTION

LAW 843 Bankruptcy (3) Basic elements of federal bankruptcy law providing relief for insolvent debtors and their creditors through liquidation of debtor assets or reorganization of the debtor. The course may include the following: The effect of bankruptcy law on business transactions and commercial and tort litigation, as well as family law and environmental law matters, a review of state creditor collection law, analysis of claims of creditors (e.g., lenders, tort victims, providers of goods or services), property of the estate used to pay claims, the automatic stay of creditor actions, the bankruptcy trustee's powers to avoid pre-bankruptcy transfers, and other basic bankruptcy rules. No prerequisites.

Registration Restriction(s): Law students only.

Formerly: Debtor-Creditor Law (3) Basic elements of federal bankruptcy law: claims, property of estate, automatic stay, trustee's avoidance powers, assumption and rejection of contracts, priority of distributions, and distinction between liquidation and rehabilitation. Enforcing judgments outside of bankruptcy.

Rationale: Revises title to more accurately describe course content and updates description in to reflect developments in course content. Impact on other units: None expected. Financial impact: None expected. Additional Documentation: None required.

COLLEGE OF NURSING

All changes effective Fall 2015

I. COURSE CHANGES

DROP

NURS 532 - Global Health and Security Threats (3)

NURS 533 - Global Disaster Nursing/Studies I (4)

NURS 534 - Global Disaster Nursing/Studies II (4)

NURS 535 - Global Disaster Nursing/Studies III (5)

NURS 536 - Global Disaster Nursing/Studies IV (8)

NURS 537 - Global Issues in Health Care Delivery During Disaster (3)

NURS 592 Nursing Administration: Macroanalysis (2)

Rationale: MSN concentration of Global Disaster Nursing as well as 2 certificate programs discontinued with the end of federal funding in May 2015 and the retirement of lead faculty. Decision further influenced by minimal number of enrollees. All students currently enrolled in certificate program will complete course work in Spring 2015. Substantive Change Reports to AACN and SACS-COC in process. Impact on other units: None. Financial impact: None.

REVISE TITLE, HOURS, DESCRIPTION, AND CONTACT HOURS DISTRIBUTION

NURS 507 Leadership and Change in Dynamic Systems (3) Explore advanced practice and nurse leader roles in facilitating change in individuals, groups, communities, populations, organizations, the nursing profession, and the health care system. Focus on improving health and healthcare through health promotion, policy-making, collaboration, and leadership in dynamic systems.

Contact Hour Distribution: 3 didactic.

Formerly: Concepts for Advanced Practice Nursing: Health Promotion and Health Policy (4) Exploration of advanced nursing practitioners and their role in the dynamic health care system. Emphasis on health policy, health promotion and the organizational, social, ethical, political, economic, and technological factors that impact advanced practice nursing and the delivery/promotion of health care.

Contact Hour Distribution: 3 didactic and 1 seminar.

Rationale: Created in 2006, Nurs 507 combined 2 separate courses: Health Policy and Health Promotion. Originally, it was conceived that the extra seminar hour would be used for off-site activities and conferences. Over the years, it has been changed to a standard 3 credit hour didactic course providing ample opportunities to cover content and meet course objectives as well as SLO #1,4,5,6. Impact on other units: None Financial Impact: None.

REVISE TITLE, HOURS, DESCRIPTION, AND GRADING OPTION (TO LETTER GRADE); ADD (RE)PREREQUISITE

NURS 583 Clinical Nurse Anesthesia Practicum/Seminar VII (2-9) Integration and application of theoretical foundations and development of clinical skills in nurse anesthesia practice.

(RE) Prerequisite(s): 549.

Formerly: Directed Clinical Practice in Nurse Anesthesia (1-10) Additional opportunities for advanced nursing practice in nurse anesthesia. Objectives to be developed collaboratively by student and faculty.

Grading Restriction: Satisfactory/No Credit or letter grade.

Rationale: In preparation for Commission of Colleges or Nursing Education accreditation review scheduled for March 2015 and Academic Program Review, the program curriculum was reviewed and revised to reflect current standards, specifically *Essentials of Master's Education for Advanced Practice Nursing*. To reflect how program curriculum builds on baccalaureate education. Program outcomes were revised as student learning outcomes which reflected CCNE language. Impact on other units: None. Financial Impact: None.

REVISE DESCRIPTION AND CONTACT HOUR DISTRIBUTION

NURS 575 Adult Health CNS I: Adult and Older Adult (6) Emphasis on the clinical nurse specialist role in continuous improvement in the three spheres of influence: patient, nurse, and system.

Contact Hour Distribution: 2 hours didactic and 4 hours clinical.

Formerly: Advanced nursing practice of health assessment, promotion, and maintenance of adult and older adult clients. Application of research, theory, and leadership principles in the clinical nurse specialist roles and health care settings serving the adult and older adult populations.

Contact Hour Distribution: 2 hours didactic and 16 hours clinical.

NURS 576 Adult Health CNS II: Adult and Older Adult (7) Expands the clinical nurse specialist role in the three spheres of influence: patient, nurse, and system.

Contact Hour Distribution: 2 hours didactic and 5 hours clinical.

Formerly: Continuation of 575. Emphasis on health restoration and management of advanced practice nursing care for adult and older adult clients with complex health problems and their families. Application of research, theory, and leadership systems to the clinical nurse specialist in a variety of roles and health care settings serving the adult and older adult populations.

Contact Hour Distribution: 2 hours didactic and 20 hours clinical.

Rationale: Proposed description is clearer reflection of course content. Revised hours distribution converts clinical hours from clock time to credit hours.

Rationale: In preparation for Commission of Colleges or Nursing Education accreditation review scheduled for March 2015 and Academic Program Review, the program curriculum was reviewed and revised to reflect current standards, specifically *Essentials of Master's Education for Advanced Practice Nursing*. To reflect how program curriculum builds on baccalaureate education. Program outcomes were revised as student learning outcomes which reflected CCNE language. Impact on other units: None. Financial Impact: None.

REVISE HOURS

NURS 631 - Advanced Practice Option I (2)

Formerly: (3)

Rationale: To correct error: As evident in Contact Hour Distribution (1 directed study and 1 practicum). 631 was always intended to be a 2 credit hour course. Impact on other units: None Financial Impact: None.

REVISE TITLE AND DESCRIPTION

NURS 501 Advanced Nursing Research (3) Research concepts necessary to critique and synthesize scholarly evidence to improve outcomes of practice.

Formerly: Nursing Research: Methods, Design, and Analysis (3) Basic principles of research process in application to clinical questions; critical evaluation of nursing and health-related research.

NURS 504 Advanced Health/Physical Assessment and Diagnostic Reasoning (3) Development of advanced assessment skills and diagnostic reasoning to determine client health status and needs. Application of physiological, pathophysiological, and psychosocial concepts with implications for advanced practice nursing.

Formerly: Advanced Health/Physical Assessment (3) Development of advanced clinical reasoning and assessment skills to determine client health status and needs. Application of physiological, pathophysiological, and psychosocial concepts with implications for advanced practice nursing.

NURS 511 Statistics for Evidence-based Practice in Nursing (3) Develop the foundational descriptive and inferential statistical skills required to analyze health-related data and report results.

Formerly: Statistical Applications to Nursing Research (3) Descriptive and inferential statistics: statistical concepts and applications to clinical settings and their applications to advanced practice nursing.

NURS 512 Practice Issues: Nurse Practitioner (1) Collaborative deliberation of issues related to advanced nurse practitioner role.

Formerly: Issues in Advanced Practice Nursing (1) Credit Hour Seminar provides a forum for collaborative deliberation on issues impacting the practice of advanced practice nursing and helps advanced practice nursing student transition to their independent practice roles.

NURS 516 Advanced Pathophysiology: Anesthesia Implications in Neurological and Cardiovascular Conditions (2) Integration of pathophysiology for patients with neurological and cardiovascular conditions requiring anesthetic care.

Formerly: Advanced Pathophysiology: Neurological/Cardiovascular with Anesthesia Implications (2) Review of anatomy and physiology and integration of pathophysiology involved in patients requiring anesthetic care for cardiac surgical procedures (both children and adults) with and without cardiopulmonary bypass, intercranial surgical procedures for vascular and mass occupying lesions, patients requiring somatosensory evoked potential monitoring, and patients requiring anesthesia for noncardiac and non-neurological procedures who present with either neurological and/or cardiovascular comorbidity.

NURS 517 Advanced Pathophysiology: Anesthetic Implications in Respiratory and Renal Conditions (2) Integration of pathophysiology for patients with respiratory and renal conditions requiring anesthetic care.

Formerly: Advanced Pathophysiology: Respiratory/Renal with Anesthesia Implications (2) Review of anatomy and physiology and integration of pathophysiology involved in administration of anesthesia for patients who present with renal or respiratory pathology. Pathological implications of acute and chronic renal failure, renal transplantation, pulmonary disease states: obstructive and restrictive diseases, one lung ventilation, and acute pulmonary disease states and their management.

NURS 518 Advanced Pathophysiology: Anesthesia Implications in Obstetrics and Pediatrics (2) Integration of pathophysiology for obstetrical and pediatric patients requiring anesthetic care.

Formerly: Advanced Pathophysiology: Obstetrical and Pediatric Pathophysiology with Anesthesia Implications (2) Review of anatomy and physiology with focus on the integration of pathophysiology for obstetrical and pediatric patients requiring anesthetic care.

NURS 522 Chemistry and Physics for Nurse Anesthesia (3) Application of fundamental principles of chemistry and physics to the practice of nurse anesthesia.

Formerly: Integrated Health Science for Anesthesia (3) Fundamental principles of chemistry and physics as related to practice of nurse anesthesia. Correlation of principles to clinical anesthesia practice.

NURS 526 Practice Issues: Nurse Anesthesia (2) Collaborative deliberation on issues related to the nurse anesthesia role.

Formerly: Professional Issues in Nurse Anesthesia (2) Exploration of historical and current issues surrounding nurse anesthesia education, practice, and the profession.

NURS 527 Clinical Experience in Pediatric Health (1-5) Clinical experience in the role of the Pediatric Nurse Practitioner in a variety of health care settings.

Formerly: Nursing of Women and Children: Clinical Experience in Children's Health (1-5) Clinical experience in the role of pediatric nurse practitioner or clinical nurse specialist in variety of health care settings serving children.

NURS 528 Development and Behavior of the Pediatric Population (2) Advanced practice nursing of the pediatric population focusing on issues of development and behavior.

Formerly: Well Child Care: Assessment of Growth, Development, and Behavior (2) Comprehensive and preventative care for the well child. Appropriate screening tools and related development theories. Focus is on the well child ages 0 to 21 years.

NURS 541 Care of Child with Complex Acute, Chronic, and Critical Illness (2) Physiology and pathophysiology of complex acute, chronic, and critical illnesses in pediatric population.

Formerly: Critically Ill Children (2) Physiology and pathophysiology of critically ill children and the recommended interventions in selected conditions for the APN. Focus is on critically ill children ages 0 to 21 years.

NURS 550 Pediatric Nurse Practitioner I (2) Advanced practice nursing of the pediatric population and families; health promotion and nursing interventions for comprehensive and preventative care.

Formerly: Nursing of Women and Children I (2) Advanced practice nursing of women, infants and children; health promotion and nursing interventions for actual or potential health problems of women, children, and families.

Rationale: Reflects change of concentration name from Nursing Care of Women and Children to Pediatric Nursing.

NURS 551 Pediatric Nurse Practitioner II (2) Advanced practice nursing of the pediatric population and families; role refinement in health maintenance and restoration.

Formerly: Nursing of Women and Children II (2) Continuation of 550. Advanced practice nursing of women, infants and children; role refinement of nurse practitioner or clinical specialist in health maintenance and restoration for women, children, and families.

NURS 560 Advanced Practice of Mental Health Nursing I (6) Etiologies of mental health, dysregulation, and person-centered recovery including evidence-based treatments. Skills in therapeutic relationship development, advanced holistic assessment, diagnostic reasoning, and therapeutic modalities are emphasized.

Formerly: Mental Health Nursing I (6) Theories of advanced therapeutic interventions for clients experiencing actual and potential mental health problems: advanced practice nursing in specialty of mental health; clinical practice with clients of various ages in acute care and community settings.

NURS 561 Advanced Practice Mental Health II (7) Advanced practice nursing in community settings for families and groups with actual and potential mental health problems.

Formerly: Mental Health Nursing II (7) Advanced practice nursing in community setting for families and groups with actual and potential mental health problems.

NURS 562 Care of the Pediatric Patient with an Acute Illness (2) Pathophysiology of acute minor illnesses in the pediatric population.

Formerly: Acute Illnesses in Children (2) Physiology and pathophysiology of acute minor illnesses in children and the recommended interventions in selected conditions for the APN. Focuses on ill children ages 0 to 21 years.

NURS 563 Care of the Pediatric Patient with Chronic Conditions (2) Pathophysiology and management of chronic conditions in the pediatric patient.

Formerly: Care of the Child with a Chronic Condition (2) Physiology and pathophysiology of chronic illnesses in children and the recommended interventions in selected conditions for the APN. Focus is on chronically ill children ages 0 to 21 years.

NURS 565 Teaching Practicum for Healthcare Professionals (1-6) Individually designed teaching experience in healthcare and academic settings.

Formerly: Teaching Practicum (1-6) Individually designed teaching experience in collegiate nursing program or nursing practice setting. Objectives to be developed collaboratively by student and faculty.

NURS 566 Educational Principles and Strategies for Healthcare Professionals (3) Analysis and application of educational principles and strategies for academia, consumer health, and continuing education.

Formerly: Educational Principles and Strategies (3) Exploration and analyses of selected education, curriculum; teaching - learning, measurement, and evaluation principles and theories as applied to instruction of collegiate nursing students, staff development, and patient education.

NURS 572 Family Nurse Practitioner III (2-4) Clinical experience in a variety of settings emphasizing advanced nursing competencies in the primary care of individuals and their families in all developmental stages.

Formerly: Family Nurse Practitioner II Clinical (2-4) Clinical experience in a variety of settings emphasizing advanced nursing competencies in the management and primary care of individuals and their families in all life developmental stages.

NURS 573 Family Nurse Practitioner IV (8) Advanced nursing management of complex health problems of individuals and their families in all developmental stages; role refinement and exploration of major practice issues; clinical experience in a variety of settings.

Formerly: Family Nurse Practitioner III (8) Continuation of 572. Advanced nursing management of multiple/complex health problems of individuals and families in all developmental life stages; role refinement and exploration of major issues of the family nurse practitioner; clinical experience in a variety of settings.

NURS 574 Practice Issues: Clinical Nurse Specialist (2) Collaborative deliberation on issues related to the clinical nurse specialist roles.

Formerly: Clinical Nurse Specialist: Foundation of Practice Roles (2) Seminar providing a forum for collaborative deliberation on issues and roles in the practice of clinical nurse specialists, and assisting clinical nurse specialist students to transition to independent practice roles.

NURS 582 Scholarly Inquiry (3) Non-thesis option. Individually designed supervised research or other scholarly experience.

Formerly: Scholarly Inquiry for Advanced Practice Nursing (3) Non-thesis option. Utilization of research process through experiential or critical evaluation of science in area of interest. Conducted under faculty guidance and culminating in scholarly product.

NURS 590 Nursing Administration I (6) Explore, analyze, and apply selected organizational, management, and leadership theories; financial principles of delivery of nursing services; and the adaptive processes of health care organizations for executive nursing administration.

Formerly: Nursing Administration: Macro-Analysis (6) Exploration, analysis, and application of selected organizational, management, and leadership theories and financial principles to delivery of nursing services. Structure, functions, organization, behaviors, and adaptive processes of health care organizations.

NURS 591 Nursing Administration II (6) Explore, analyze, and apply organizational, management, and financial principles and theories to mid-level nursing administration.

Formerly: Nursing Administration: Micro-Analysis (6) Utilization of human and financial resources, conflict resolution, and organizational development with application to mid-level and top-level nursing administration positions.

Rationale: In preparation for Commission of Colleges or Nursing Education accreditation review scheduled for March 2015 and Academic Program Review, the program curriculum was reviewed and revised to reflect current standards, specifically *Essentials of Master's Education for Advanced Practice Nursing*. To reflect how program curriculum builds on baccalaureate education. Program outcomes were revised as student learning outcomes which reflected CCNE language. Impact on other units: None. Financial Impact: None.

REVISE DESCRIPTION

NURS 505 Advanced Clinical Pharmacology (3) Focus on pharmacodynamics, pharmacokinetics, and pharmacotherapeutics for advanced nursing practice.

Formerly: Pharmacological agents utilized to treat common, recurrent health problems; indications, contraindications, side and interactive effects of commonly prescribed drugs.

NURS 506 Advanced Anesthesia Pharmacology (3) Pharmacological implications of anesthesia delivery with complex acute and chronic illnesses.

Formerly: Continuation of 505. Pharmacological implications of anesthesia delivery to acutely ill patients with multisystem influences. Advanced states of illness, extremes of age, and co-morbidities. Agents used in general anesthesia, regional anesthesia, IV regional anesthesia, acute pain management, and chronic pain management. Anesthetic implications of pharmacotherapy in perioperative patients.

NURS 510 Theoretical Foundations of Nursing (3) Historical evolution of nursing science and nursing's metaparadigm; critique and application of conceptual models and/or middle range theories which guide decision-making for advanced practice nursing, research, and leadership of healthcare teams.

Formerly: Historical evolution of nursing science; nursing's metaparadigm and selected philosophies, conceptual models and theories as structures which guide critical thinking in analysis, reasoning, and decision making for advanced practice nursing.

NURS 519 Psychopharmacology in Advanced Practice (3) Examination of neurobiologic basis and psychiatric illness; application of psychopharmacologic agents to modify symptoms and outcomes. Discussion of ethical and legal issues including consent.

Formerly: Examination of the neurobiological basis of psychiatric illness and the use of psychopharmacological agents to modify symptoms and outcomes. Evaluation of the role of psychoactive medications in relation to the use of other psychotherapeutic interventions.

NURS 524 Basic Principles of Anesthesia I (3) Introduction to scientific principles upon which anesthesia administration is based. Focus on sound elementary principles of safe anesthesia delivery for the beginning practitioner.

Formerly: An introduction to the scientific principles upon which anesthesia administration is based. The focus of this course (part one of a two-part series) is on the sound elementary principles of safe anesthesia delivery for the beginning practitioner.

NURS 525 Basic Principles of Anesthesia II (3) Provides intermediate scientific principles upon which nurse anesthetists develop and implement plans of care for safe anesthesia management.

Formerly: A continuation of 524 which builds upon the previous course to provide advanced elementary scientific principles upon which nurse anesthetists implement plans of care which have been developed. The focus of this course (part two of a two-part series) is on the sound basic principles of safe anesthesia management for the beginning practitioner.

NURS 523 Advanced Principles of Anesthesia Practice (2) Advanced concepts, principles, and implications of anesthetic management.

Formerly: Advanced concepts/principles of anesthetic management and legal implications of nurse anesthesia practice.

NURS 544 Clinical Nurse Anesthesia Practicum/Seminar I (2-11) Integration and application of theoretical foundations and development of clinical skills in nurse anesthesia practice.

Formerly: Integration and application of theoretical foundations and development of clinical skills in nurse anesthesia practice under supervision of Certified Registered Nurse Anesthetist (CRNA) and/or anesthesiologist.

NURS 545 Clinical Nurse Anesthesia Practicum/Seminar II (2-11) Integration and application of theoretical foundations and development of clinical skills in nurse anesthesia practice.

Formerly: Integration and application of theoretical foundations and development of clinical skills in nurse anesthesia practice under supervision of Certified Registered Nurse Anesthetist (CRNA) and/or anesthesiologist.

NURS 546 Clinical Nurse Anesthesia Practicum/Seminar III (2-11) Integration and application of theoretical foundations and development of clinical skills in nurse anesthesia practice.

Formerly: Integration and application of theoretical foundations and development of clinical skills in nurse anesthesia practice under supervision of Certified Registered Nurse Anesthetist (CRNA) and/or anesthesiologist.

NURS 547 Clinical Nurse Anesthesia Practicum/Seminar IV (2-11) Integration and application of theoretical foundations and development of clinical skills in nurse anesthesia practice.

Formerly: Integration and application of theoretical foundations and development of clinical skills in nurse anesthesia practice under supervision of Certified Registered Nurse Anesthetist (CRNA) and/or anesthesiologist.

NURS 548 Clinical Nurse Anesthesia Practicum/Seminar V (2-11) Integration and application of theoretical foundations and development of clinical skills in nurse anesthesia practice.

Formerly: Integration and application of theoretical foundations and development of clinical skills in nurse anesthesia practice under supervision of Certified Registered Nurse Anesthetist (CRNA) and/or anesthesiologist.

NURS 549 Clinical Nurse Anesthesia Practicum/Seminar VI (2-11) Integration and application of theoretical foundations and development of clinical skills in nurse anesthesia practice.

Formerly: Integration and application of theoretical foundations and development of clinical skills in nurse anesthesia practice under supervision of Certified Registered Nurse Anesthetist (CRNA) and/or anesthesiologist.

NURS 570 Family Nurse Practitioner I (6) Application of advanced assessment skills, health promotion concepts, and pathophysiologic alterations to develop beginning clinical-decision making skills in the primary care of individuals and their families with common health problems; clinical experience in the role of nurse practitioner in a variety of settings.

Formerly: Application of advanced health/physical assessment and diagnostic reasoning in nursing management and primary care and of individuals and their families with actual and potential acute health problems; clinical experience in role of family nurse practitioner in variety of settings.

NURS 571 Family Nurse Practitioner II (3) Emphasizes increasingly advanced nursing competencies in the primary care of individuals and their families in all developmental stages.

Formerly: Continuation of 570. Emphasizes increasing advanced nursing competencies in the management and primary care of individuals and their families in all developmental life stages.

NURS 578 Technology in Health Professions Education (3) Exploration and analyses of instructional technology and health information systems that enhance learning.

Formerly: Exploration and analyses of instructional technology and health information systems that enhance learning as applied to instruction of collegiate nursing students, staff development, and patient education.

NURS 579 – Epidemiology for Clinical Practice (3) Introduction of basic principles of epidemiology with special emphasis given to clinical practice applications.

Formerly: The basic principles of epidemiology will be introduced in this course with special emphasis given to clinical practice applications. Topics include a general overview of epidemiology, historical perspectives, epidemiology measures, surveillance, study design, and clinical decision making. Course is designed to equip students with the essential tools of epidemiology to use in practice.

Rationale: In preparation for Commission of Colleges or Nursing Education accreditation review scheduled for March 2015 and Academic Program Review, the program curriculum was reviewed and revised to reflect current standards, specifically *Essentials of Master's Education for Advanced Practice Nursing*. To reflect how program curriculum builds on baccalaureate education. Program outcomes were revised as student learning outcomes which reflected CCNE language. Impact on other units: None. Financial Impact: None.

NURS 622 - Methods for Translational Research (3) Provide students with methods and tools for the evaluation of existing evidence and testing application of interventions.

Formerly: Provide students with methods and tools for evaluating the strength of existing evidence through meta-synthesis and meta-analysis and testing application of interventions.

Rationale: Meta-synthesis/analysis are not expected outcomes in this course. Supports DNP SLO #1, 4, 6. Impact on other units: None. Financial Impact: None.

II.PROGRAM CHANGES

❖ DROP CONCENTRATION – NURSING MAJOR, MSN

Global Disaster Nursing

❖ DROP TWO CERTIFICATES

Global Disaster Nursing Graduate Certificate

Global Disaster Studies Graduate Certificate

REVISE REQUIREMENTS – NURSING MAJOR, MSN

In the 2014-15 Graduate Catalog under the heading “Concentration (choose one) make the following revisions:

Concentration (choose one)	Hours/Credit
NURS 574, NURS 575, NURS 576 Adult Health Nursing Clinical Nurse Specialist	15
NURS 529, NURS 538, NURS 539 Adult Health: Gerontology	13
NURS 544, NURS 545, NURS 546, NURS 547, NURS 548, NURS 549 Clinical Nurse Anesthesia Practicum/Seminar I, II, III, IV, V, VI	40
NURS 550, NURS 551, NURS 527, NURS 528, NURS 562, NURS 563 Nursing of Women and Children: Child Health	20
NURS 550, NURS 551, Nursing of Women and Children: Neonatal Health	4
NURS 560, NURS 561, NURS 519 Mental Health Nursing I, II	16
NURS 570, NURS 571, NURS 572, NURS 573 Family Nurse Practitioner I, II, III	19
NURS 590, NURS 591 Nursing Administration: Macro/Micro Analysis	12

Formerly:	
NURS 574, NURS 575, NURS 576 Adult Health Nursing Clinical Nurse Specialist	15
NURS 529, NURS 538, NURS 539 Adult Health: Gerontology	13
NURS 544, NURS 545, NURS 546, NURS 547, NURS 548, NURS 549 Clinical Nurse Anesthesia Practicum/Sem I, II, III, IV, V, VI	40
NURS 532, NURS 533, NURS 534, NURS 535, NURS 536, NURS 537 Global Disaster: Advanced Practice	27
NURS 532, NURS 533, NURS 534, NURS 537 Global Disaster: Management	14
NURS 550, NURS 551, NURS 552, NURS 554, NURS 555, NURS 556 Nursing of Women and Children: Women's Health	20
NURS 550, NURS 551, NURS 527, NURS 528, NURS 562, NURS 563 Nursing of Women and Children: Child Health	20
NURS 550, NURS 551, Nursing of Women and Children: Neonatal Health	4
NURS 560, NURS 561, NURS 519 Mental Health Nursing I, II	16
NURS 570, NURS 571, NURS 572, NURS 573 Family Nurse Practitioner I, II, III	19
NURS 590, NURS 591 Nursing Administration: Macro/Micro Analysis	12

Rationale: MSN concentration of Global Disaster Nursing as well as 2 certificate programs discontinued with the end of federal funding in May 2015 and the retirement of lead faculty. Decision further influenced by minimal number of enrollees. All students currently enrolled in certificate program will complete course work in spring 2015. Impact on other units: None. Financial impact: None.

In the 2014-15 Graduate Catalog under the heading "Program Requirements" make the following revisions:

Program Core Requirements	6
NURS 507 - Concepts for Advanced Practice Nursing: Health Promotion and Health Policy	3
NURS 510 - Theoretical Foundations of Nursing	3

Formerly:	
Program Core Requirements	7
NURS 507 - Concepts for Advanced Practice Nursing: Health Promotion and Health Policy	4
NURS 510 - Theoretical Foundations of Nursing	3

Rationale: To reflect changes in credit hours for course.

• ADD CONCENTRATION –NURSING MAJOR, DNP

Nursing Administration concentration

REVISE REQUIREMENTS – NURSING MAJOR, DNP

In the 2015-2016 *Graduate Catalog* revise to add the concentration name and requirements for BSN to DNP:

Requirements for Nursing Administration concentration	
NURS 501 – Nursing Research	3
NURS 590 – Nursing Administration: Macroanalysis	6
NURS 591 – Nursing Administration: Microanalysis	<u>6</u>
Total hours	15

Supports DNP SLO # 1, 2, 3, 4, 5.

Rationale: The College of Nursing offers the BSN to Doctor of Nursing Practice program (DNP), designed for BSN graduates who are interested in earning a clinical doctoral degree in nursing. Impact on other units: None. Financial impact: None.

COLLEGE OF SOCIAL WORK

All changes effective Fall 2015

I. COURSE CHANGES

(905) (SOWK) Social Work

REVISE DESCRIPTIONS

SOWK 531 Trauma Theory and Practice (3) Will immerse students in knowledge and issues related to working ethically and effectively with child, adolescent, and adult victims of child maltreatment, interpersonal traumas, manmade/natural disasters, and other types of chronic stress and trauma. Embeds the student within a theoretical understanding of these traumas, their symptoms, and their evidence-based treatment. The primary mode for gaining such an understanding of these victims and how to work with them is through case examples supplemented with salient readings. Will pay particular attention to cultural status, including race/ethnicity, gender, sexual orientation, socioeconomic status, disability status, and others in understanding and working with traumatized victims and survivors within a strengths perspective. The information presented in this course is applicable to both EBIP and MLCP students.

Formerly: Course will immerse students in the knowledge and issues related to working ethically and effectively with child and adolescent victims of child maltreatment, interpersonal traumas, and manmade/natural disasters. Will pay particular attention to cultural status, including race/ethnicity, gender, sexual orientation, socioeconomic status, disability status, and others in understanding and working with traumatized children while maintaining a strengths perspective.

SOWK 570 Evidence-based Policy and Practice with Families (3) One of three Interpersonal Practice concentration electives. This survey course provides an overview of problems affecting families in social work settings, the interventions that are ethically sound and empirically supported for addressing these problems, and the policies and regulations guiding the interventions and organizations affecting families in the field of social work. Attention is given to issues, interventions and programs that have been shown to treat a variety of behavioral and emotional concerns in families across culture, race and ethnicity. Particular interest is in the policy practice challenges to provide support for evidence-based interventions and appropriate programs for families. Critical examination of skills and strategies with this population is addressed with/within interdisciplinary organizations, diverse communities and related policies and policy issues.

Formerly: Course will immerse students in the knowledge and issues related to working ethically and effectively with child and adolescent victims of child maltreatment, interpersonal traumas, and manmade/natural disasters. Will pay particular attention to cultural status, including race/ethnicity, gender, sexual orientation, socioeconomic status, disability status, and others in understanding and working with traumatized children while maintaining a strengths perspective.

SOWK 571 Evidence-based Policy and Practice with Children and Adolescents (3) One of three Interpersonal Practice concentration electives. This survey course provides an overview of problems affecting children and adolescents in social work settings, the interventions that are ethically sound and empirically supported for addressing these problems, and the policies and regulations guiding the interventions and organizations affecting families in the field of social work. Attention is given to issues, interventions and programs that have been shown to treat a variety of behavioral and emotional concerns in children and adolescents across culture, race and ethnicity. Particular interest is in the policy practice challenges to provide support for evidence-based interventions and appropriate programs for families. Critical examination of skills and strategies with this population is addressed with/within interdisciplinary organizations, diverse communities and related policies and policy issues.

Formerly: Course will immerse students in the knowledge and issues related to working ethically and effectively with child and adolescent victims of child maltreatment, interpersonal traumas, and manmade/natural disasters. Will pay particular attention to cultural status, including race/ethnicity, gender, sexual orientation, socioeconomic status, disability status, and others in understanding and working with traumatized children while maintaining a strengths perspective.

SOWK 572 Evidence-Based Policy and Practice with Older Adults (3) One of three Interpersonal Practice concentration electives. This survey course provides an overview of problems and issues with the older population within the context of health and mental health care, the interventions that are ethically sound and empirically supported for addressing these problems, and the policies and regulations guiding the interventions and organizations affecting older adults in the field of social work. Attention is given to issues, interventions and programs that have been shown to treat a variety of behavioral and emotional concerns in older adults across culture, race and ethnicity. Particular interest is in the policy practice challenges to provide support for evidence-based interventions and appropriate programs for older adults. Critical examination of skills and strategies with this population is addressed with/within interdisciplinary organizations, diverse communities and related policies and policy issues.

Formerly: Course will immerse students in the knowledge and issues related to working ethically and effectively with child and adolescent victims of child maltreatment, interpersonal traumas, and manmade/natural disasters. Will pay particular attention to cultural status, including race/ethnicity, gender, sexual orientation, socioeconomic status, disability status, and others in understanding and working with traumatized children while maintaining a strengths perspective.

Rationale: Revising the descriptions more accurately describe the course content. Impact on other units: None. Financial impact: None.

REVISE HOURS

SOWK 680 Professional Development for Social Work Scholars (1)

Formerly: (2)

SOWK 693 Directed Study in Social Work Research (1-6)

Formerly: (3)

REVISE TITLE AND HOURS

SOWK 626 Critical Reasoning for Science and Research (3)

Formerly: Critical Thinking for Science and Research (2)

Rationale: The title of SWK 626 is being modified to better reflect the focus of the course. Given the content and its importance as a first-semester course for new PhD students, it is being increased to a 3-credit hour course. Conversely, SWK 680 is being changed to one credit to better reflect its content and purpose as a professional development seminar for students preparing for the job market. SWK 693 is being changed to a variable credit hour course to provide flexibility depending on the size, scope, and requirements of student research projects. Impact on other units: None. Financial impact: None.

REVISE GRADING FROM LETTER GRADE (A-F) TO S/NC GRADING ONLY

SOWK 630 Research Practicum (1) Individual research experience under the supervision of a faculty mentor.
Grading Restriction: Satisfactory/No Credit grading only.

SOWK 631 Research Practicum (1) Individual research experience under the supervision of a faculty mentor.
Grading Restriction: Satisfactory/No Credit grading only.

SOWK 632 Research Practicum (1) Individual research experience under the supervision of a faculty mentor.
Grading Restriction: Satisfactory/No Credit grading only.

Rationale: These classes are designed to provide individualized research experiences for students under the supervision of a faculty mentor. The Satisfactory/No Credit grade option provides more flexibility for students when developing their unique research plans given the status and expected outcomes of their individual research projects.

II. PROGRAM CHANGES

REVISE TRAUMA TREATMENT CERTIFICATE

In the 2015-16 Graduate Catalog, revise catalog text describing certificate program and requirements as follows:

The graduate certificate program in trauma treatment is only intended for currently admitted Social Work graduate students. This program provides students with the coursework and practical experience needed to provide trauma-specific, evidence-based interventions, and trauma-informed programming and policy development.

Field Placement Requirements

In addition to course requirements, trauma treatment students are required to elect a second year field placement that has the opportunity to focus on work with and/or on behalf of populations experiencing trauma. The learning plan will include trauma-specific learning goals.

Application Process

In order to be considered for the program, students must apply during the semester prior to their concentration year. The application includes a brief personal statement describing reasons for participating in the program, professional career goals, and a tentative schedule for the elective courses the student would like to take. Applications must be turned in no later than the semester before the first concentration semester begins. Students entering the concentration year either during the summer or fall of the following year will receive information about the program in early November. All applications must be turned in no later than February 15 of the following semester. However, entry into the program is on a first serve basis, so consider applying early if interested. Students entering their concentration year during the spring semester should contact the Chair of the Trauma Treatment Certificate Program during the fall semester preceding their concentration year.

Admission

To be admitted to this program, students must submit an application to the Chair of the Trauma Treatment Certificate Program by February 15.

Requirements

The certificate requires 12 hours of course work: 6 elective hours specifically designated as trauma specific, 3 selective course hours with one assignment in the course on a trauma-specific topic, 3 concentration course hours with one assignment in the course on a trauma-specific topic, and 12 hours in a trauma-specific field placement (i.e., a placement in which more than half of the student's time is spent working with traumatized clients client systems).

Trauma treatment students are required to complete the following free on-line training prior to the start of their concentration year: Trauma Focused Cognitive Behavioral Therapy (TF-CBT) <http://tfcbt.musc.edu/>

In addition, trauma treatment students will develop a field learning plan in preparation for their concentration field that focuses on trauma-specific learning. The field placement must be approved by the MSSW Field Coordinator.

1) The selective course and one concentration course must include a trauma-specific assignment approved prior to completing the assignment by the Trauma Treatment Administrator for that program. Trauma Treatment students will also work with their instructors to identify an appropriate assignment for their class.

2) Trauma treatment students must take two trauma electives (6 hours)
SOWK 531 (3) Trauma Theory and Practice, required; and
SOWK 529 (3) Military Social Work; or
SOWK 533 (3) Treatment of Trauma; or
SOWK 540 (3) Disaster Management and Trauma-Informed Systems

All students must take SOWK 531. However, students may petition the Trauma Treatment Chair to substitute another trauma-based graduate course for second trauma elective.

3) Attend 2 approved online or face-to-face seminars or webinars a semester, for a total of 3 hours each semester. These need to be approved by the Trauma Treatment Administrator for that program.

Students are advised to refer to the College of Social Work Student Handbook for further information.

Rationale: Revisions are necessary to provide further clarification on certificate requirements. Impact on other units: None. Financial impact: None.

COLLEGE OF VETERINARY MEDICINE

All changes effective Summer 2015

I. COURSE CHANGES

(VMD) Veterinary Medicine

ADD

VMD 848 Clinical Rotation in Bovine Production Medicine (2) Teaches techniques and procedures used by veterinarians in modern dairy and beef cattle production practice. Class includes travel and overnight stay at various production facilities. Training includes data analysis and use of common reproductive and productivity software. Students will participate in developing productivity plans, disease surveillance, and herd health maintenance programs.

Repeatability: May be repeated with consent of the instructor. Maximum 8 hours.

Registration Restriction(s): Veterinary Medicine Students only.

Rationale: This provides a two-week clinical elective in an area where students have minimal opportunities within the veterinary medical center. Production medicine is a growth area of the veterinary industry and has been identified as a target area for veterinary student training. This elective provides students a unique opportunity to gain training and skills expected of entry level bovine production veterinarians in both beef and dairy practice. The course is offered two times a year. The elective has been approved by the curriculum committee. **Financial impact:** Minor cost associated with travel and overnight housing of students.

VMD 827 Beef Cow Calf Summer Institute Elective (2) An intensive two-week field experience in production management of beef cow-calf operation, in partnership with Virginia Tech. Content focuses on the beef cattle industry, beef production, herd health reproductive performance, genetics, financial management and critical thinking skills.

Repeatability: May be repeated with consent of the instructor. Maximum 4 hours.

Registration Restriction(s): Veterinary Medicine Students only. Registration is with approval of the associate dean and BCCI faculty.

Rationale: This course is a partnership with VA tech at the Center for Beef-Cow Calf Excellence. Students who have externed at the center have found the experience to be exceptional. It provides a two-week intensive clinical elective in an area where students have limited opportunities within the veterinary medical center. Production medicine is a growth area of the veterinary industry and has been identified as a target area for veterinary student training by the American Veterinary Medical Association and US Governmental Agencies. This elective provides students interested in bovine production a unique opportunity to gain training and skills expected of entry level bovine production veterinarians in a nationally recognized beef cow-calf program. The program is offered once per year and 4 positions are retained for students enrolled at the University of Tennessee, College of Veterinary Medicine at no enrollment fee. Approved by the curriculum committee as an elective. **Financial impact:** Minor cost to students associated with travel and housing.

VMD 896 Clinical Rotation in Equine Field Services (2-3) Clinical training in medicine, surgery, specialty disciplines and herd health of horses. Direct responsibility for diagnosis, care and treatment of clinical patients.

Repeatability: May be repeated. Maximum 6 hours.

Registration Restriction(s): Veterinary Medicine Students only.

Rationale: Equine Field Services was taught together with Farm Animal Field Services as part of VMD893 – Clinical Rotation in Large Animal Clinical Sciences III. This resulted in variable grading time and training time in the two different focus areas when dividing students within a 3 weeks rotation block. The rotation will now be scheduled as 2 separate two-week rotations; Equine Field Services and Farm Animal Field Services. This will allow more cohesive scheduling and grading within each species focus area. Targeted training of students in individual focus areas will be enhanced. VMD893 will be named Clinical Rotation in Farm Animal Field Services. Clinical Rotation in Equine Field Services will be assigned a new VMD number. To maintain appropriate credit hours for graduation and continue to provide a total of 6 credit hours for the combination of Field Services (VMD893) and Equine Medicine (VMD891), VMD 891 will also decrease the standard rotation assignment to 2 weeks. Like all clinical rotations, options for 3 week rotation assignments will still exist. As such, credit hours will continue to be listed as 2-3 hours. Approved by the curriculum committee. **Financial Impact:** None.

VMD 889 Clinical Rotation in Equine Performance Medicine and Rehabilitation (2-3) Clinical training in Equine Performance Medicine and Rehabilitation (EPR), including lameness diagnosis, advanced orthopedic surgery, podiatry and rehabilitation of the equine.

Repeatability: May be repeated for a maximum of 6 hours.

Registration Restriction(s): Veterinary Medicine Students only.

Rationale: This provides a new two-week clinical elective in an emerging area of Equine Medicine and Surgery. EPR is an essential skill set for veterinarians in the sport horse industry. Use of state of the art equipment and facilities will provide more options in training for students focused on a career in equine medicine and surgery. This elective has been approved by the curriculum committee. **Financial impact:** None.

VMD 834 Clinical Rotation in Shelter Medicine-Spay/Neuter (2-3) Clinical experience in medical, behavioral and surgical problems in animals confined to animal shelters. Students gain extensive experience spaying and castrating animals. Students will identify methods of prevention, diagnosis, and treatment of diseases of sheltered animals with emphasis on infectious and behavioral disorders.

Repeatability: May be repeated. Maximum 6 hours.

Registration Restriction(s): Veterinary Medicine Students only.

Rationale: This provides a two-week clinical elective in Shelter Medicine and Spay-neuter. Surgical Skills requires repetition-based skills acquisition. Providing a service learning rotation that allows students to complete 20-30 surgeries in the 2 week rotation meets the learning outcomes for surgical competencies required by entry level veterinarians. Approved by the curriculum committee. Financial impact: A new mobile spay-neuter unit with truck has been donated by Pet-Smart Charities and additional funding has been provided by ASPCA to run the Spay Neuter Mobile Program. Funding for a faculty surgeon and technician has already been committed and the personnel have been in place since Spring of 2014.

VMD 830 Clinical Rotation in Swine Medicine Production (2-6) Clinical training program in swine production medicine at the Swine Medical Education Center at Iowa State. Students will train in an on-farm setting in swine production, management, consultation, pharmacology, and PRRSV diagnosis and management.

Repeatability: May be repeated. Maximum 6 hours.

Registration Restriction(s): Veterinary Medicine Students only. Upon approval of the associate dean and SMEC faculty.

Rationale: This rotation is a contracted clinical elective and provides a two- to six-week clinical elective in 3 different areas of swine production medicine where students have minimal educational opportunities within the Veterinary Medical Center and the State of Tennessee. The Swine Medical Education Center (SMEC) is a nationally recognized center of excellence in swine production education. An educational partnership has been contracted with UT and this clinical elective is one of three educational programs provided by SMEC to UTCVM students. Production Medicine is a growth area of the veterinary industry and has been identified as a target area for veterinary student training by national professional and governmental organizations. This elective provides students a unique opportunity to gain training and skills expected of entry level swine production veterinarians. The elective is offered at various times throughout the year. The elective is guaranteed for 6 weeks of training to UT veterinary student (1-3 students per year guaranteed by contract). This elective has been approved by the curriculum committee. Financial impact: Minor cost associated with travel to the student. Part of a multidisciplinary contract that is \$5,000 per year for 3 programs offered to 3rd and 4th year students. Student housing is provided at the Iowa State University facility.

VMD 829- Special Studies in Veterinary Medicine (1-8) Specially designed studies for students in novel special-interest topics and/or for students participating in self-directed learning environments. Topics are unique and not associated with standard core rotations or elective topics within the veterinary or MPH curriculum.

Grading Restrictions: Satisfactory/No Credit Grading only.

Repeatability: May be repeated for a maximum of 16 hours.

Registration Restriction(s): Veterinary Medicine Students only. Upon approval of the associate dean.

Rationale: This course is designed to meet the objectives of encouraging veterinary students to engage in a self-determined education, create life-long learners, and to encourage exploration of unique career opportunities necessary for a successful and rich career in veterinary medicine. Many educational opportunities do not fit into standard course formats, nor are they rationally graded as A-F. Examples of recent opportunities that our students have been unable to capture in our current course format include activities that would be titles as such: Considering Academia: teaching strategies in comparative anatomy (developing peer teachers), Problem Oriented Approach to Medical Decision Making: using workbooks within summer jobs and practice externships to learn standard methods of critical thinking and problem solving in veterinary medicine; Life-long Learner: self-directed learning modules in cytology, CDC Foreign Animal Disease Outbreak Surveillance; Congressional Intern: Animal Welfare Policies. By providing a course that is S/NC with variable credit, students may identify unique and meaningful educational experiences that enhance their training and broaden their career options. This meets a key learning outcome of our training program. Financial impact: none.

VMD 812 Success and Wellness One-Health I (1) Develop essential non-technical skills needed for veterinary professional competence. Areas covered include: communication skills, leadership skills, business management skills, ethical decision making skills, and health-related behavior skills. Students learn skills in medical academic achievement, personal finance management, ethical-decision making, stress management, career paths in veterinary medicine, communication and leadership skills needed in effective teamwork and the basics of mental health in the veterinary setting.

Grading Restrictions: Satisfactory/No Credit Grading only.

Repeatability: Not repeatable. May be taken once for credit.

Registration Restriction(s): Veterinary Medicine Students only.

Rationale: Critical areas of non-technical skills needed for successful practice in veterinary medicine will be taught. This is year one of a 4 year course that is under curricular design. The VMD Curriculum Committee and the College faculty voted June 10, 2014 to approve inclusion of non-technical skills into the curriculum and to initiate the content with this year-1 course. The course will be composed of in class discussion, work assignments, resume building and more task oriented activities. S/NC grading is elected as there is no planned exam and grading will be based on participation, attendance and completion of external projects. The course will be required within the general curriculum for graduation. The 1 credit hour assigned to this class will be moved from VMD 816, which will be reduced by 1 credit to maintain the total programmatic 165 required credit hour. Some of the content currently taught in VMD 816 will be incorporated into this course. The American Veterinary Medical Association Council on Education (AVMA COE) requires Colleges of Veterinary Medicine to provide instruction in the non-technical competencies provided in this course. This has been a greater focus of accreditation oversight in the past 2-3 years. This course will address educational objectives of our curriculum and meet educational standards set by the COE.

REVISE GRADING (FROM A - F GRADING TO SATISFACTORY/NO CREDIT GRADING ONLY)

VMD 814 Clinical Correlations and Ethics I (1)

Grading Restrictions: Satisfactory/No Credit grading only.

Formerly: Grading Restrictions -A-F

Rationale: Course grading is based upon attendance, participation in online discussion modules and project completion. Average student grade is an A. Due to grading standards and the uniform grade in the course, the course coordinator and curriculum committee indicate this course is better suited to an S/NC option grade.

REVISE HOURS AND GRADING (FROM A - F GRADING TO SATISFACTORY/NO CREDIT GRADING ONLY)

VMD 816 Clinical Correlations and Ethics II (1)

Grading Restrictions: Satisfactory/No Credit grading only.

Formerly: (2) and Grading Restrictions – A- F

Rationale: Course content will be reduced to a single 2 hour discussion session per week and will not meet the standard for a 2 credit class. Some of the content will be moved to the new VMD 812 course – Success and Wellness One-Health. Course grading is based upon attendance, participation in online discussion modules and project completion. Average student grade is an A. Due to grading standard the course coordinator and curriculum committee indicate this course is better graded as an S/NC option.

REVISE TITLE AND DESCRIPTION

VMD 893 Clinical Rotation in Farm Animal Field Services (2-3) Clinical training in medicine, surgery, specialty disciplines and herd health of food animals. Direct responsibility for diagnosis, care and treatment of clinical patients.

Formerly: Clinical Rotations in Large Animal Clinical Sciences III (2-3) Clinical training in medicine, surgery, specialty disciplines and herd health of food animals and horses. Direct responsibility for diagnosis, care and treatment of clinical patients.

Rationale: Equine Field Services was taught together with Farm Animal Field Services as part of VMD893 – Clinical Rotation in Large Animal Clinical Sciences III. This resulted in variable grading time and training time in the two different focus areas when dividing students within a 3 weeks rotation block. The rotation will now be scheduled as 2 separate two-week rotations; Equine Field Services and Farm Animal Field Services. This will allow more cohesive scheduling and grading within each species focus area. Targeted training of students in individual focus areas will be enhanced. VMD893 will be named Clinical Rotation in Farm Animal Field Services. Clinical Rotation in Equine Field Services will be assigned a new VMD number. To maintain appropriate credit hours for graduation and continue to provide a total of 6 credit hours for the combination of Field Services (VMD893) and Equine Medicine (VMD891), VMD 891 will also decrease the standard rotation assignment to 2 weeks. Like all clinical rotations, options for 3 week rotation assignments will still exist. As such, credit hours will continue to be listed as 2-3 hours. Financial Impact: None.

REQUESTING TO ALLOW ONE-HALF CREDIT HOUR ASSIGNMENTS

The College of Veterinary Medicine would like the option to request course hours in ½ credit hour increments. Credit hours would be allowed to be proportionally assigned ½ units as needed and per UT policy (i.e. 350 minutes of course content and lab equivalent and 1 hour of outside work per week or 7 hours lecture equivalent per ½ unit).

Formerly: Policy has dictated course credits for VMD courses to always be assigned in whole credit units only.

Rationale: The goal of veterinary education is to provide relevant content to students to meet learning objectives and ensure practice ready veterinarians. Essential content does not always fit into 1 credit hour blocks of information. As such, course must be shortened or lengthened to fit the credit hour criteria, irrespective of the material to be taught. Currently expanding credit hours and course expansion is becoming excessive (course bloat) within our program. Faculty feel they could more frequently eliminate redundancies and provide a more streamlined curriculum if they were less constrained by the current credit hour restrictions. This would allow more flexibility to reduce and expand course content to teach with the goal of meeting learning objectives and improve efficiency of the professional program. It has been noted that the Haslam College of Business has adopted such a ½ credit policy within their course credit assignment structure. This credit assignment opportunity was requested as a means to move forward with major curriculum revisions currently in progress. All change in course credit hour assignment will continue to require individual graduate council approval. This request is for a general policy change within the Veterinary Program. Financial Impact: None. VMD tuition is based on a single per semester fee irrespective of course credits taken, not fee-per-credit-hour basis. Alteration of credit hours has no financial impact on tuition or fees to the College or University.

II. PROGRAM CHANGES

REVISE REQUIREMENTS VETERINARY MEDICINE, DVM

In the 2014-15 Graduate Catalog, under the Requirements Heading, revise the 7th paragraph as follows:

The curriculum requires demonstrated competency of a minimum of 224 clinical skills by the conclusion of the 9th semester and successful completion 165 credit hours.

Formerly: The curriculum requires successful completion 165 credit hours.

Rationale: Students in clinical training are required to demonstrate technical competency in 224 of 523 core and global competencies required to practice entry level veterinary medicine. The faculty identified competency based outcomes to be completed within each clinical rotation. The required number for completion was determined as the proportion that can reasonably be completed by all students during the clinical year. The faculty voted April 2014 to accept these direct skills competency assessments as described. Such assessment is required by the AVMA Council on Education for Accreditation. Financial impact: The financial impact is an annual cost of \$2,500 for the additional software (One45) program access and assignment of assessment personnel to track compliance and outcome assessment. The total personnel time is estimated at 250 hours per year.

EFFECTIVE FALL 2015

ADD ACCELERATED DUAL DVM-PHD OPTION

The College of Veterinary Medicine and the Comparative and Experimental Medicine (CEM) graduate program offer a coordinated dual program leading to the conferral of both the Doctor of Veterinary Medicine and the Doctor of Philosophy degrees. The dual program allows veterinary students to apply up to 9 hours of DVM course work toward a PhD degree in CEM, leading to completion of both degrees in less time than would be required to earn both degrees independently. The accelerated program is designed to prepare highly motivated students for a career in veterinary research.

Students entering the dual degree program must meet minimum admission requirements for both the DVM and the PhD programs. Applicants for the DVM-PhD program must make separate application to, and be competitively and independently accepted by, the College of Veterinary Medicine for the DVM and the CEM program for the PhD. Students who have been accepted by the College of Veterinary Medicine may apply for approval to pursue the dual program any time prior to or after matriculation. Such approval will be granted, provided that dual program studies are started prior to entry into the fourth semester of DVM course work.

Students enrolled in the dual DVM-PhD program will be officially classified as primarily veterinary (DVM-seeking) students until the DVM coursework is completed, with the following exception: dual program students will typically be expected to enroll as PhD students during the summer semesters between their first and second years in the veterinary curriculum. After the DVM is conferred, the dual student's primary major will be CEM.

A dual program candidate must satisfy the graduation requirements of each program. The CEM program will award up to 33 hours of credit toward the PhD for acceptable performance (a grade of at least a "B" in A-F-graded courses) in approved courses offered by the College of Veterinary Medicine. Courses eligible for dual credit will be at the recommendation of the student's CEM major professor in consultation with the student's doctoral committee. A total of 48 course hours independent of dissertation (CEM 600) are required for the PhD degree (15 CEM hours plus 33 hours accepted from the DVM program). The doctoral comprehensive examination must be successfully completed within 2 years of completing all DVM course work.

Rationale: Current requirements for veterinary students seeking course credit toward an MS or PhD degree in Comparative and Experimental Medicine are as follows:

Exceptional veterinary students at the University of Tennessee, Knoxville, may be admitted to the comparative and experimental medicine graduate program but will be enrolled officially as veterinary students. During summers such students may take advantage of registering for graduate courses to be counted as elective courses in the veterinary program." (2014-2015 Graduate Catalog)

In the last 7 years, three DVM-seeking students have chosen this path, and these three students have now completed the DVM and are working toward the PhD. In proposing this dual program, we wish to more formally establish this dual option for our students in both programs, as well as provide an incentive for DVM students at the University of Tennessee to pursue the PhD toward a career in academic research, industry or governmental careers.

Therefore, the two changes being proposed herein are to

1. Allow students to share a limited number of hours between two degrees (student incentive).
2. Formally name and thus be able to market a dual program (college and university incentive).

A key initiative in the veterinary profession is to better meet the societal need for highly competent clinician scientists with veterinary training. The American Veterinary Medical Association's Council on Education (the accrediting body for veterinary colleges) continues to encourage colleges to better train their students for alternative career paths beyond clinical private practice. This "One Health – One Medicine" concept links human, animal, and environmental health and seeks to forge co-equal, all inclusive collaborations between physicians, osteopaths, veterinarians, dentists, nurses and other scientific-health and environmentally related disciplines. Veterinary colleges across the United States offer combined DVM-PhD programs, and both the College of Veterinary Medicine and

the Comparative and Experimental Medicine program wish to recruit the brightest students with an interest in academic research careers. Already, the minimum GPA requirement for out-of-state applicants to the veterinary program is higher (3.2/4.0) than the minimum set by the Graduate School (2.7/4.0) for admission to other graduate programs, including Comparative and Experimental Medicine. In addition, the average GPA for the 2014-2015 incoming veterinary class was 3.67. The College of Veterinary Medicine and Comparative and Experimental Medicine wish to attract and retain outstanding students interested in a career in research. Furthermore, the College of Veterinary Medicine has already begun to see the top Tennessee students accept positions at other colleges of veterinary medicine because of the lack of a dual program and a perceived research focus, such as what is being proposed herein.

Having a dual DVM-PhD option would make the University of Tennessee more competitive with other aspirational veterinary programs, as well as help meet the university's criteria for becoming a Top 25 Research University by increasing the number of PhD degrees conferred and increasing the career diversity of our student body. Although the number of veterinary students entering any given class is set at 85, graduate student numbers have the potential to grow. This dual option would help increase graduate student numbers and advanced degrees awarded by the university and enhance the research programs within our college. For students, such a program would be cost and time effective. Upon graduation, veterinarians average a debt load of \$162,113 (American Veterinary Medical Association, 2013 figure). Oftentimes, this debt load dissuades students from pursuing graduate degrees, although their loans are deferred during all advanced training. By completing the dual DVM/PhD program, graduates would shorten the time required to achieve both degrees and be able to start earning earlier than if the degrees were pursued in succession. Graduates with PhD degrees are generally competitive for industry and government jobs at salary ranges 50-100% higher than the entry level jobs in private practice making such dual degrees a wise return on investment (ROI). A recent AVMA report suggested a veterinary degree alone may not be a valuable ROI, compared to a bachelor's degree. Adding a PhD to the DVM, gives motivated and talented students career options to support their career choice together with sound financial backing.

A valid concern is the sharing of hours toward two separate degrees. Currently, students with a DVM who are entering a PhD program receive "credit" for 24 hours of course work, as do students with a master's degree. A typical student with a master's degree has earned a minimum of 30 additional course hours beyond the bachelor's degree. However, a typical student with a DVM has earned 165 additional course hours beyond the bachelor's degree. Therefore, the 9 hours requested to be double counted make up only 5% of the DVM curriculum. In addition, veterinary students currently enroll in CEM courses, such as journal clubs, that are used as electives toward their DVM. These journal clubs are an example of what might be shared between the two degrees. This proposal is similar to programs already established in the JD program (MA, MBA, MPH, or MPPA). As such, this request is not unique within the university system.

Additionally, establishing this accelerated program to asynchronously award the DVM and PhD degrees would be similar to what is already done with 3 + 1 programs such as those that award students with a bachelor's degree while they complete requirements in professional schools, such as medicine, veterinary medicine, and pharmacy.

We have met with Dr. Mary Albrecht to evaluate the impact of this proposal on SACS accreditation and need for additional APC review. Albrecht was very positive that this met the criteria for desired accelerated programs and she has included this program in her SACS notification letter. Albrecht did not view the outlined program differently than other advanced degrees where 9 credit hours are allowed to be transferred and credited to the advanced degree. Albrecht noted the DVM degree with its 165 hours, clearly exceeded minimums of similar programs in other units where such credits are also granted. Albrecht did not feel there was reason for this request to be reviewed by the APC as these are already approved programs with the same framework. Albrecht noted it was not the intent of the APC to approve each individual program but the type of program, which has been done. A draft of her letter to the SACS was provided to Dr. Kania, notifying her of the Dual DVM-PhD program.

Impact on other units: College of Veterinary Medicine and CEM faculty interact with other units such as GST, iBME and NIMBioS. A dual DVM-PhD option will likely attract a high caliber of students who will benefit our biomedical and bioanalytical research programs. This will not require additional faculty or facilities, but will more fully utilize their talents within our programs.

Financial impact: Veterinary students pay a differential tuition rate each fall and spring semester. This tuition would continue to be received by the College of Veterinary Medicine, as it is currently. During summer semesters, students enrolled in the dual DVM-PhD program would have their primary classification changed to CEM and would pay standard graduate tuition. This is currently done with veterinary students who enroll in CEM summer courses, as well as for students who pursue an MPH with a veterinary concentration simultaneously with their DVM degree. Ms. Deborah Shepherd, an on-site College of Veterinary Medicine admissions staff member, regularly performs these Banner classification changes.

The dual DVM-PhD option will likely increase enrollment in the CEM PhD program, requiring more assistantships. It will also open up funding opportunities for grants targeting research training for health professionals. There are several NIH K1 grants that we have not previously encouraged our students to apply for. Additionally, grants are provided by the COE (Center of Excellence) within the college of veterinary medicine. We do not plan to request additional funding for the program but provide greater competitiveness for outside graduate awards.

HASLAM COLLEGE OF BUSINESS

All Changes Effective Fall 2015

I. COURSE CHANGES

DEPARTMENT OF ACCOUNTING AND INFORMATION MANAGEMENT

Learning objectives for Accounting Major, Master of Accountancy

1. Application of technical accounting skills on contemporary issues. Demonstrate how to account for speculative derivatives and fair value hedges.
2. Application of technical accounting skills on tax provisions in financial statements. Demonstrate how to account for income taxes in GAAP financial statements and to perform the tax provision process.
3. Application of technical accounting skills on private vs governmental not-for-profit organizations. Students can identify differences in accounting and reporting for private vs. governmental not-for-profit organizations.
4. Conduct an efficient oral presentation to program peers encompassing qualitative and financial information about a specific industry.
5. Demonstrate proficiency in the use of appropriate technology to solve accounting and business problems.

(ACCT) Accounting

ADD

ACCT 509 Financial Institutions (3) Exposes students to various aspects of financial institutions.

Comment(s): Or consent of instructor.

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

This course supports learning objective 4 in the Master of Accountancy.

Support from assessment activities: No direct evidence from prior assessment activities; the demand from the "market" for this type of skill set prompted this proposal.

ACCT 522 Valuation I (3) Focus is on financial statement analysis, especially within the context of pricing the equity and debt interests of a business enterprise. Also encompasses basic valuation methods and techniques used to value such interests, as well as the Capital Asset Pricing Model.

Comment(s): Or consent of instructor.

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

This course supports learning objective 1 in the Master of Accountancy.

Support from assessment activities: No direct evidence from prior assessment activities; the demand from the "market" for this type of skill set prompted this proposal.

ACCT 523 Valuation II (3) Focus is on advanced valuation topics such as real estate, private firms, distressed firms, financial firms, the valuation of contingent claims (options, derivatives, futures, etc.), and managerial considerations to valuation such as valuation creation.

Comment(s): Or consent of instructor.

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

This course supports learning objective 1 in the Master of Accountancy.

Support from assessment activities: No direct evidence from prior assessment activities; the demand from the "market" for this type of skill set prompted this proposal.

Rationale: These new courses will meet the academic requirements of the profession, improve the marketability of our students, and increase the value-added proposition of the MAcc program. Staffing Impact: The course revision will not require additional accounting faculty lines, but will require that we retain lines that become open as faculty retire or leave UT. Financial Impact: None. Impact on Other Academic Units: None.

ACCT 535 Entity Taxation and Other Tax Topics (3) Introduction to tax strategy and planning. Income taxation of corporate operations including financial statement implications of income taxes. Introduction to entity formation, distributions, and liquidations. Introduction to tax issues pertaining to partnerships and S corporations. Course is intended for Master of Accountancy students in the audit and controls concentration.

Comment(s): Or consent of instructor.

Registration Restriction(s): Master of Accountancy.

Rationale: The course has been offered as one section of ACCT 531 for many years. This section comprised only audit and controls concentration students as the content differed in some respects from the section offered for the tax concentration. By assigning it its own number and by revising the title and description, this course will be clearly differentiated from ACCT 531. Staffing Impact: None; have already been offering course under ACCT 531. Financial Impact: None; course has already been taught as a separate section

of ACCT 531. This change will eliminate the need for two sections of ACCT 531. Impact on Other Academic Units: None. [College voted on and approved in spring 2014].

This course supports learning objective 2 in the Master of Accountancy. Support from assessment activities: No direct evidence from prior assessment activities; the demand from the "market" for this type of skill set prompted this proposal.

REVISE TITLE AND DESCRIPTION

ACCT 531 Tax Strategy and Corporation Tax Issues (3) Current issues in tax strategy and planning including investment models, implicit taxes, organizational form, and other selected topics. Income taxation of corporate operations including financial statement implications of income taxes. Course is intended for Master of Accountancy students in the taxation concentration.

Formerly: Tax Strategy and Entity Taxation (3) Introduction to tax research. Current issues in tax strategy and planning including investment models, implicit taxes, organizational form, and other selected topics. Income taxation of business entity operations including financial statement implications of income taxes.

Rationale: The course has been offered as one section of ACCT 531 for many years. This section comprised only tax concentration students as the content differed in some respects from the section offered for the audit and controls concentration. This course will now be clearly differentiated from ACCT 535, which we have requested as a new course number for the audit and controls concentration. Staffing Impact: None. Financial Impact: None. Impact on Other Academic Units: None.

This course supports learning objective 2 in the Master of Accountancy.

Support from assessment activities: No direct evidence from prior assessment activities; the demand from the "market" for this type of skill set prompted this proposal.

Equivalency Chart

Current Courses	Equivalent Courses Effective Fall 2015
ACCT 519	ACCT 522
ACCT 521	ACCT 509
BUAD 522	ACCT 523

(INMT) Information Management

ADD

INMT 540 IT Audit, Governance, and Frameworks (3) Focus is on IT Governance, IT Management Frameworks, IT Acquisition and Development, Project Management and other related concepts in preparation for work in IT Audit.

Comment(s): Or consent of instructor.

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

This course supports learning objective 5 in the Master of Accountancy.

Support from assessment activities: No direct evidence from prior assessment activities; the demand from the "market" for this type of skill set prompted this proposal.

INMT 544 Corporate Applications (3) Focus is on large systems in corporate environments. Topics include audit of enterprise resource management systems and database systems.

Comment(s): Or consent of instructor.

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

This course supports learning objective 5 in the Master of Accountancy.

Support from assessment activities: No direct evidence from prior assessment activities; the demand from the "market" for this type of skill set prompted this proposal.

INMT 548 IT Audit, Operations and Management (3) Focus is on IT Management, IT Center Operations, Service Level Management, and other related concepts in preparation for work in IT Audit.

Comment(s): Or consent of instructor.

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

This course supports learning objective 5 in the Master of Accountancy.

Support from assessment activities: No direct evidence from prior assessment activities; the demand from the "market" for this type of skill set prompted this proposal.

Rationale: These new courses will meet the academic requirements of the profession, improve the marketability of our students, and increase the value-added proposition of the MAcc program. These new courses are part of the new Information Management MAcc concentration. Staffing Impact: The program revision will require one additional tenure track information management faculty member. The search was approved by the provost during summer of 2014. Financial Impact: The program revision will result in funding for a tenure track line, however, the net effect of lines allocated to the Department is zero as the accounting program is losing one tenure

track faculty due to retirement. Impact on Other Academic Units: With the exception of possibly providing capacity for students from other graduate programs to fill unused seats in graduate IM courses, the program revision will have no impact on other academic units (only Accounting and Information Management).

Equivalency Chart

Current Course	Equivalent Course Effective Fall 2015
BUAD 521	INMT 544

DEPARTMENT OF BUSINESS ANALYTICS AND STATISTICS

Learning outcomes for the Business Analytics Major, MS

1. Demonstrate ability to identify the necessary data to address an important business question.
2. Demonstrate the ability to apply sound statistical analysis techniques to solve business problems, and to present these to the faculty and students.
3. Students will be able to present and defend data analysis conducted to address an important business question in business language for a general manager.

Learning outcomes for Management Science major, PhD (replaces existing learning outcomes)

1. Gain deep knowledge of the literature and developments in a specific area within the Analytics domain to further the appropriate methodological tools in this chosen area.
2. Possess the ability to develop and test research hypotheses by acquiring data from primary and secondary sources
3. Be able to conduct research that addresses real-world problems using quantitative and methodological models to visualize and interpret data.
4. Be able to clearly communicate their research findings and present their work at national and international research conferences.
5. Fulfill the growing need for faculty that can teach business analytics at the undergraduate and graduate levels in business analytics.

(BZAN) Business Analytics

ADD

BZAN 554 Customer Analytics (3) Introduction to predictive modeling for customer relationship management using data mining and supervised machine learning techniques with applications such as acquisition, up-sell, cross-sell, churn and customer lifetime value.

(RE) Prerequisite(s): 535

Comments: Or permission of instructor

Recommended Background: Experience with a programming language such as R or with data mining.

Rationale: Expand Analytics course offerings to marketing area of application. Based on a recent survey of academic programs administered by INFORMS, Marketing Analytics is the second highest among 13 industry sectors for full-time placement of Master's students in the area of Analytics. Approximately 12% of UT MSBA student internships were marketing related in 2014, and more than half the Business Analytics capstone projects, fall 2014, are marketing related. Seventeen out of 23 MSBA students are currently enrolled in a Marketing Analytics elective class offered as a special topics class fall semester 2014. The new course will require students to engage in a semester-long customer analytics project. At the culmination of the project, students will present their analysis and recommendations to the faculty and students. Financial Impact: A portion of the MSBA fee will be used to hire a clinical faculty with a PhD and real-world analytics experience as needed to free up appropriate faculty time to teach BZAN 554. Staffing Impact: A portion of the MSBA fee will be used to hire a clinical faculty with a PhD and real-world analytics experience as needed to free up appropriate faculty time to teach BZAN 554. Impact on other academic units: None.

Learning Outcomes: BZAN 554 supports Learning Outcome 2 of Business Analytics Major, MS.

BZAN 620 Prescriptive Analytics (3) Identification and formulation of linear, discrete, non-linear and recursive optimization models. Basic theory of feasible regions and optimal solutions. Exposure to exact and approximate solution methods.

Recommended Background: Two undergraduate courses in calculus and matrix algebra.

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

Learning Outcomes: BZAN 620 supports Learning Outcomes 1, 3, and 5 of Ph.D. in Management Science

BZAN 630 Decision and Operations Analytics (3) Decision making from a systems perspective, asking the right question for business analytics problems, root-cause analysis and conflict resolution, constraint management in manufacturing and project execution, analytical and simulation models for process modeling and evaluation, value of information in managing demand and supply systems, models for capacity planning and inventory management in supply chains.

Recommended Background: Two undergraduate courses in calculus, graduate introductory course in probability & stochastic processes.

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

Learning Outcomes: BZAN 630 supports Learning Outcomes 1, 2, 3, and 5 of Ph.D. in Management Science.

BZAN 640 Advanced Prescriptive Analytics (3) Prescriptive analytics based on convex, large-scale, and stochastic optimization. Polyhedral theory, decomposition, projection, mathematical treatment of simplex algorithm, primal and primal-dual interior point methods, convex programming, goal programming, introduction to stochastic programming.
(RE) Prerequisites: 610 and 620.

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

Learning Outcomes: BZAN 640 supports Learning Outcomes 1, 3, and 5 of Ph.D. in Management Science.

BZAN 641 Advanced Stochastic Analytics (3) The analysis and modeling of stochastic processes and Markov decision processes. Topics include renewal processes, Brownian motion, martingales, Markov decision processes and their solution using policy iteration methods and dynamic programming. Applications to queueing, inventory, scheduling, and financial decision models.

(RE) Prerequisites: 610 and 620.

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

Learning Outcomes: BZAN 641 supports Learning Outcomes 1, 2, 3, and 5 of Ph.D. in Management Science.

BZAN 642 Advanced Topics in Supply Chain Analytics (3) Supply chain network design models including facility location and capacity allocation, warehousing and transportation, aggregate planning, matching demand with supply, inventory modeling under deterministic and uncertain scenarios, multi-echelon and risk-pooling models, price optimization, value of information in managing demand and supply systems, role of operations flexibility, role of coordination and effective contracting on supply chain performance.

(RE) Prerequisites: 610, 620, and 630.

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

Learning Outcomes: BZAN 642 supports Learning Outcomes 1, 2, 3, and 5 of Ph.D. in Management Science.

BZAN 646 Modern Multivariate Techniques (3) An overview of Random Vectors and Matrices, Matrix Norms, Eigen-analysis and condition numbers. Multivariate normal distribution, Advances in Principal Component Analysis, Advances in Partial Least Squares, Factor Analysis, Canonical Correlation Analysis, Discriminant Analysis and Cluster Analysis, Sliced Inverse Regression and related methods.

(RE) Prerequisite(s): 552.

Recommended Background: two undergraduate courses in Calculus and Matrix Algebra.

Comments: Or permission of instructor.

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

Learning Outcomes: BZAN 646 supports Learning Outcomes 1, 3, and 5 of Ph.D. in Management Science.

BZAN 647 Customer Analytics (3) Advanced data mining and machine learning with applications in areas such as acquisition modeling, up-sell modeling, cross-sell modeling, churn modeling, and customer lifetime modeling. Topics will include regularized logistic regression, decision trees, neural networks, random forests, advanced performance measures, and bias-variance tradeoffs.

Comments: Students are expected to have had previous experience with programming in R, or with machine learning and data mining.

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

Learning Outcomes: BZAN 647 supports Learning Outcomes 1, 2, 3, 4, and 5 of Ph.D. in Management Science.

BZAN 649 Observational Studies and Causal Models in Business Analytics (3) The course will explore methods to make valid inferences from data that is collected without a formal randomized design. Econometric methods such as propensity scores, difference in difference estimators, selection models, and instrumental variables methods will be explored as well as specialized methods for panel data. Applications in marketing, accounting and finance will be highlighted.

(RE) Prerequisites: Economics 682.

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

Learning Outcomes: BZAN 649 supports Learning Outcomes 1, 2, 3, and 5 of Ph.D. in Management Science.

BZAN 650 Integrative Business Analytics Seminar (3) Faculty works with the students on a select topic of importance to industry.

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

Learning Outcomes: BZAN 650 supports Learning Outcomes 1, 2, 3, 4, and 5 of Ph.D. in Management Science.

BZAN 683 Special Topics in Business Analytics (1-6) Presentation of specialized analytics topics.

Repeatability: May be repeated. Maximum 6 hours.

(RE) Prerequisite: 553.

Comments: Or consent of instructor.

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

Learning Outcomes: BZAN 610 supports Learning Outcomes 1, 2, 3, and 5 of Ph.D. in Management Science.

BZAN 691 Research Apprenticeship (3) Student works with faculty member on a selected research topic.
Registration Restriction(s): Minimum student level – graduate.

Learning Outcomes: BZAN 691 supports Learning Outcomes 1, 2, 3, 4, and 5 of Ph.D. in Management Science.

Rationale for above BZAN 600-level adds: Driven by increases in computational power, availability of massive amounts of data, and a desire to use this data to improve decision making in business, the field of business analytics has grown rapidly in both industry and academics over the previous 5 years. This development has manifested itself in a growing number of programs being created in business analytics at the undergraduate and graduate level along with a rapid increase in the number of students enrolling in these programs. Consequently, it has created significant demand for faculty members trained in a wider spectrum of skills than that typically produced by colleges of business and provided a major opportunity for the Department of Business Analytics and Statistics. The Ph.D. concentration in Analytics requires the addition of a number of 600-level courses. By combining the strengths of faculty members across the Management Science and Statistics disciplines within the department we expect the new concentration in Analytics will significantly enhance the Management Science Ph.D. program in applicant quality, scholarly output, and academic placement. Financial and staffing impact: The concentration will eventually consume 4 FTEs. It will replace the dormant CBA concentration in Statistics that has required 2 FTEs and the dormant Ph.D. in Management Science that has required 1.5 FTEs (a total of 3.5 FTEs) to run. Eventually the proposed Ph.D. concentration in Analytics will be the only Ph.D. program offered by the department. There will be minimal impact on other departments.

ADD AS PRIMARY COURSES AND CROSS-LIST

BZAN 610 Probability and Stochastic Processes (3) Foundation in the theory and application of probability and random, time-dependent processes for analyzing system behavior, moment generating functions and Laplace transforms, the Poisson process and exponential distribution, Markov chains and Markov processes for modeling time-dependent behavior, queueing theory.

Cross-listed: (Same as Statistics 610)

Recommended Background: Two undergraduate courses in Calculus for mathematical sophistication, an undergraduate course in Statistics or consent of instructor.

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

Learning Outcomes: BZAN 610 supports Learning Outcomes 1, 3, and 5 of Ph.D. in Management Science.

BZAN 615 Statistical Inference (3) Univariate and multivariate distributions, transformations, inequalities, convergence. Likelihood and the MLE for various models, Fisher information matrix, asymptotic results. Hypothesis testing. Wald, score, likelihood ratio and randomization tests. Interval estimation. The bootstrap. Simultaneous inference. Lifetime distributions, censoring. Biased sampling.

Cross-listed: (Same as Statistics 615)

(RE) Prerequisites: Statistics 563.

Comments: Or permission of instructor.

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

Learning Outcomes: BZAN 615 supports Learning Outcomes 1, 3, and 5 of Ph.D. in Management Science.

BZAN 625 Bayesian Modeling and Computations (3) Bayes theorem, prior and posterior distributions, inference methods such as posterior means and HPD regions, Monte Carlo inference including Gibbs sampling, the Metropolis-Hastings algorithm, and importance sampling. Bayesian analysis of linear and non-linear regression models, model selection using Bayes factors. Predictive inference based on posterior distributions, and selected applications drawn from business and scientific settings.

Cross-listed: (Same as Statistics 625)

(RE) Prerequisites: 615 or Statistics 615.

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

Learning Outcomes: BZAN 625 supports Learning Outcomes 1, 3, and 5 of Ph.D. in Management Science.

BZAN 645 Advanced Topics in Data Mining (3) Selected topics in data mining. Read and critique current literature. Solve research problems motivated by real applications.

Cross-listed: (Same as Statistics 645).

Repeatability: May be repeated. Maximum 6 hours.

(RE) Prerequisite(s): 552.

Recommended Background: knowledge of programming language or consent of instructor.

Comments: Or permission of instructor.

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

Learning Outcomes: BZAN 645 supports Learning Outcomes 1, 2, 3, and 5 of Ph.D. in Management Science.

BZAN 648 Advanced Topics in Design of Experiments and Linear Models (3) Current topics in design of experiments and linear models, enabling students to understand and critique the literature and to utilize this literature in challenging applications.

Cross-listed: (Same as Statistics 648).

(RE) Prerequisite: 553.

Comments: Or permission of instructor.

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

Learning Outcomes: BZAN 648 supports Learning Outcomes 1, 2, 3, and 5 of Ph.D. in Management Science.

BZAN 671 Independent Study (3) Directed research on subject of mutual interest to student and faculty member.

Cross-listed: (Same as Statistics 671).

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

Learning Outcomes: BZAN 671 supports Learning Outcomes 1, 2, 3, and 5 of Ph.D. in Management Science.

Rationale for above BZAN 600-level adds: Driven by increases in computational power, availability of massive amounts of data, and a desire to use this data to improve decision making in business, the field of business analytics has grown rapidly in both industry and academics over the previous 5 years. This development has manifested itself in a growing number of programs being created in business analytics at the undergraduate and graduate level along with a rapid increase in the number of students enrolling in these programs. Consequently, it has created significant demand for faculty members trained in a wider spectrum of skills than that typically produced by colleges of business and provided a major opportunity for the Department of Business Analytics and Statistics. The Ph.D. concentration in Analytics requires the addition of a number of 600-level courses. By combining the strengths of faculty members across the Management Science and Statistics disciplines within the department we expect the new concentration in Analytics will significantly enhance the Management Science Ph.D. program in applicant quality, scholarly output, and academic placement. Financial and staffing impact: The concentration will eventually consume 4 FTEs. It will replace the dormant CBA concentration in Statistics that has required 2 FTEs and the dormant Ph.D. in Management Science that has required 1.5 FTEs (a total of 3.5 FTEs) to run. Eventually the proposed Ph.D. concentration in Analytics will be the only Ph.D. program offered by the department. There will be minimal impact on other departments.

REVISE DESCRIPTION AND REGISTRATION RESTRICTION

BZAN 531 Decision Optimization (3) Linear programming decision models, solutions, sensitivity analysis, linear and integer optimization models, transportation and selected network flow models, along with application issues of these models, introduction to a mathematical programming language and standard optimization software.

Registration Restriction(s): Master of Science – Business Analytics major; Dual MS-MBA Program, Business Analytics major; or Master of Business Administration – Business Analytics concentration. Minimum student level – graduate.

Formerly: 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.

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

BZAN 533 Quantitative Methods for Business Analytics (5) Probability, conditional probability and Bayes' rules, univariate and multivariate probability models and random variables, review of basic calculus, maximum likelihood estimation and inference including confidence intervals and hypothesis testing. Common sampling distributions: t, Chi-square, and F. Introduction to Monte Carlo simulation and bootstrapping. Mathematical methods for statistical modeling using matrix algebra. Extensive use of statistical programming languages.

Registration Restriction(s): Master of Science – Business Analytics major, or Dual MS-MBA Program, Business Analytics major. Minimum student level – graduate.

Formerly: 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.

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

BZAN 550 Business Analytics Experience (3) Application of the principles of analytics through a team-based, experiential project. Students work on a real-world business problem through the stages of problem identification, data acquisition and preparation, analysis, determination of recommendations, and presentation of findings.

Registration Restriction(s): Master of Science – Business Analytics major, or Dual MS-MBA Program, Business Analytics major. Minimum student level - graduate.

Formerly: Application of the principles of decision analytics through experiential descriptive and prescriptive model design and implementation.

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

Rationale: for 500-level Description change and Registration Restriction: Rationale: To better represent the content of the courses; to restrict enrollment to Master of Science – Business Analytics major, or Dual MS-MBA Program, Business Analytics major. Financial Impact: None. Staffing Impact: None. Impact on other academic units: None.

Learning Outcomes: Changes did not occur because of learning outcome results.

REVISE TO REMOVE CROSS LISTING; ADD REGISTRATION RESTRICTION AND COMMENT

BZAN 542 Data Mining Methods for Business Applications (3)

Comment: Or permission of instructor.

Registration Restriction: Master of Science – Business Analytics major or Dual MS-MBA Program, Business Analytics major or PhD, Management Science major. Minimum student level – graduate.

Formerly: Cross-listed: (Same as Statistics 574.)

SUPPORTING INFORMATION: Rationale: Course content for BZAN 542 different from course content Statistics 574. Financial Impact: None. Staffing Impact: None. Impact on other academic units: None.

Learning Outcomes: Change did not occur because of learning outcome results.

REVISE REGISTRATION RESTRICTION

BZAN 520 Operations and Lean Supply Chain Management (3)

Registration Restriction(s): Master of Science – Business Analytics major, Dual MS-MBA Program, Business Analytics major, or Master of Business Administration—Business Analytics concentration. Minimum student level – graduate.

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

BZAN 535 Statistical Methods for Business (3)

Registration Restriction(s): Master of Science – Business Analytics major; Dual MS-MBA Program, Business Analytics major; or Master of Business Administration – Business Analytics concentration. Minimum student level – graduate

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

SUPPORTING INFORMATION for 500-level Registration Restriction: Rationale: To restrict enrollment to MSBA, Dual MS-MBA, and MBA students. Financial Impact: None. Staffing Impact: None. Impact on other academic units: None.

Learning Outcomes: Change did not occur because of learning outcome results.

REVISE TO ADD (RE) PREREQUISITE AND DROP REGISTRATION RESTRICTION

BZAN 543 Data Management for Business Analytics (1.5)

(RE) Prerequisite: 535.

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

BZAN 544 Decision Support Systems for Business Analytics (1.5)

(RE) Prerequisite: 535.

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

BZAN 546 Simulation Modeling (1.5)

(RE) Prerequisite: 535.

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

BZAN 547 Directed Process Studies (1.5)

(RE) Prerequisite: 535.

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

BZAN 548 Time Series Forecasting (1.5)

(RE) Prerequisite: 535.

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

Rationale: for 500-level Registration Restriction: Rationale: To restrict enrollment to MSBA, Dual MS-MBA, and MBA students. Financial Impact: None. Staffing Impact: None. Impact on other academic units: None.

Learning Outcomes: Change did not occur because of learning outcome results.

(STAT) Statistics

Learning objectives for the Statistics major, MS:

1. Students should show sufficient understanding of the application of statistics to his or her field.
2. Students should be able to communicate this understanding to a statistics professional.

ADD

STAT 577 Data Mining Methods and Applications (3) Understanding and application of data mining methods. Data preparation; exploratory data analysis and data visualization; predictive modeling using generalized linear models, decision trees, neural networks; model assessment; cluster analysis; association analysis; and other topics. Use of standard computer packages.

Registration Restriction: Minimum student level – graduate.

Rationale: Course was formerly taught to master's students in Business Analytics. Course will now be taught for IGSP students. This course was inadvertently cross listed with BZAN 542 in last year's changes when it should not have been. Financial Impact: None. Staff Impact: None. Impact on other units: None.

Learning outcomes: This proposal supports Learning Outcomes 1 and 2 for the M.S. Statistics.

ADD AND CROSS-LIST AS SECONDARY COURSES

STAT 610 Probability and Stochastic Processes (3)

Cross-listed: (See Business Analytics 610.)

STAT 615 Statistical Inference (3)

Cross-listed: (See Business Analytics 615.)

STAT 625 Bayesian Modeling and Computations (3)

Cross-listed: (See Business Analytics 625.)

STAT 645 Advanced Topics in Data Mining (3)

Cross-Listed: (See Business Analytics 645.)

STAT 648 Advanced Topics in Design of Experiments and Linear Models (3)

Cross-listed: (See Business Analytics 648.)

STAT 671 Independent Study (3)

Cross-listed: (See Business Analytics 671.)

DROP SECONDARY CROSS-LISTED COURSE

STAT 574 Data Mining Methods for Business Applications (3)

Rationale: Course was formerly cross-listed and taught to master's students in Business Analytics. Course will now be taught for IGSP students. This course was inadvertently cross listed with BZAN 542 in last year's changes when it should not have been. Because BZAN was the primary in this cross-listing, STAT 542 has to be dropped. Because you cannot use the same number of a course taught within 6 years, needed to add a new course number (thus, the STAT 577 course addition). Financial impact: None. Impact on other units: None.

STAT 693 Independent Study (1–6)

Rationale: This course will be replaced by STAT 671, a 3 credit hour course. There will be a cross-listed independent study course, BZAN 671, and this change will eliminate any confusion in course numbers and credit hour requirements. Financial impact: None. Impact on other units: None.

DEPARTMENT OF MANAGEMENT

(MGT) Management

ADD

MGT 510 Leadership in Nonprofits and Social Entrepreneurship (3) Organizations pursuing goals for the benefit of society face a unique set of challenges compared to those with primarily for-profit goals. Though charged with vitally important missions, nonprofits and social ventures (for-profit businesses with a social mission) are too often poorly led and managed. Develops business-minded thinking and useful leadership skills in the future leaders of organizations with societal and nonprofit missions.

Credit Restriction: cannot also receive credit for ENT 410.

Rationale: Social entrepreneurship has become a normal part of the curriculum at most major business schools, and there is widespread interest in the topic by students from across a wide range of disciplines. The service learning element of the class allows application of skills and knowledge, the written and oral presentations hone communication skills, the teamwork requires collaboration, and the course is premised on an ethical basis that stresses social responsibility. The course has been offered twice in trial form as a special topics course; enrollment was good both times. Financial Impact: The course has been offered twice in trial form as a special topics course. This course will be offered in conjunction with an undergraduate section (ENT 410 with less reading and no secondary research project) so there is virtually no incremental cost in offering this course. Staffing Impact: The course has been offered twice in trial form as a special topics course. Course Format: The course combines case studies, service learning, and secondary research. The course will be offered by the business school once per year and will be open to graduate students from across the campus. There are no learning outcomes associated with this course.

II: PROGRAM CHANGES

REVISE BUSINESS ADMINISTRATION MAJOR, MBA

In the 2015-2016 *Graduate Catalog*, revise description in the following areas:

1) Under Admissions heading, second paragraph, replace second sentence with:

A completed file includes the online application submitted to the Graduate Admissions Office, transcripts of prior college work, an MBA program application, two completed applicant recommendation forms, and either the Graduate Management Admission Test (GMAT) score report or the Graduate Record Examination (GRE) score.

Formerly: A completed file includes the online application submitted to the Graduate Admissions Office, transcripts of prior college work, an MBA program application, two completed applicant recommendation forms, and the Graduate Management Admission Test (GMAT) score report.

2) Under Admissions heading, third paragraph, replace first and second sentences with:

For admission to the MBA program, consideration is given to (1) applicant's academic record with particular attention to the last two years of undergraduate work and previous graduate studies; (2) quality of work experience and other activities that demonstrate potential for leadership; (3) scores on the GMAT or GRE and the Test of English as a Foreign Language (TOEFL) for those whose native language is not English; and (4) recommendations from professors and/or work supervisors. The admission decision is based on all factors that make up the total application; therefore, there is no automatic cut-off for either grade point averages or GMAT/GRE scores.

Formerly: For admission to the MBA program, consideration is given to (1) applicant's academic record with particular attention to the last two years of undergraduate work and previous graduate studies; (2) quality of work experience and other activities that demonstrate potential for leadership; (3) scores on the GMAT and the Test of English as a Foreign Language (TOEFL) for those whose native language is not English; and (4) recommendations from professors and/or work supervisors. The admission decision is based on all factors that make up the total application; therefore, there is no automatic cut-off for either grade point averages or GMAT scores.

3) Under Admissions heading, fourth paragraph, replace with:

As a general policy, all applicants to the full-time MBA program are required to submit a valid (no older than five years) GMAT or GRE score as part of the application process. However, applicants who have at least 10 years of full-time professional work experience and an undergraduate GPA of 3.0 or higher may request in writing an exemption from this requirement. The MBA admissions committee reserves the right to request that the applicant take the GMAT or GRE if more information about academic potential (including writing, analytical thinking, and quantitative abilities) is needed after the admissions file is reviewed.

Formerly: As a general policy, all applicants to the full-time MBA program are required to submit a valid (no older than five years) GMAT score as part of the application process. However, applicants who have at least 10 years of full-time professional work experience and an undergraduate GPA of 3.0 or higher may request in writing an exemption from this requirement. The MBA admissions committee reserves the right to request that the applicant take the GMAT if more information about academic potential (including writing, analytical thinking, and quantitative abilities) is needed after the admissions file is reviewed.

Rationale: Decision based on benchmarking data indicating that aspirational schools accept either GMAT or GRE scores for admission. It is hoped that acceptance of GRE will make the program more competitive in attracting high-quality students, particularly from technical disciplines. Staffing Impact: None. Financial Impact: None.

DEPARTMENT OF ACCOUNTING AND INFORMATION MANAGEMENT (AIM)

REVISE ACCOUNTING MAJOR, MACC

In the 2015-2016 *Graduate Catalog*, under Admissions Heading, remove entire first paragraph and replace with:

Students may begin graduate course work for the MACC only in the fall semester. The application deadline is March 1 (February 1 for international students), and applications received after that date will be considered as space allows. The program is designed both for students who have completed an accredited baccalaureate degree program with a major in accounting and other areas. Students with an accounting degree from an accredited baccalaureate degree program normally meet the prerequisites for the program. Students with outstanding undergraduate records in areas other than accounting may qualify for the MACC program by completing prerequisite course work in accounting, information management, and business. The extent of such prerequisite course work will depend on the student's academic background. This option also may be available to current UT students in non-accounting majors having outstanding academic records. The availability of the "prerequisite option" for non-accounting majors is highly limited and selective, and approval to participate will be at the discretion of the MACC Admissions Committee and the Undergraduate Programs Office. Such approval will be based on the student's resume information, academic record, and potential for success in the accounting profession. All prerequisites must be completed prior to the start of graduate course work in the MACC program. University of Tennessee-Knoxville (UTK) undergraduate students in the accounting major applying to the MACC program will have the GMAT score submission requirement waived. This GMAT waiver also will apply to students in the

prerequisite option who take, at UTK, all of the accounting prerequisites above the principles level prescribed by the MAcc Program Director. MAcc applicants not in either of these categories generally will be required to submit a GMAT score to be considered for admission to the MAcc program. Applicants whose native language is not English must submit results of the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS).

Formerly: Students may begin graduate course work for the MAcc only in the fall semester. The application deadline is March 1 (February 1 for international students), and applications received after that date will be considered as space allows. The program is designed both for students who have completed an accredited baccalaureate degree program with a major in accounting and other areas. Students with an accounting degree from an accredited baccalaureate degree program normally meet all prerequisites for the program. Students with outstanding undergraduate records in areas other than accounting may qualify for the MAcc program by completing course work in introductory accounting and economics, and the following prerequisite undergraduate courses – Accounting 301, 311, 321, 411, 414, and 431; Information Management 341; and Finance 301, or their equivalents as approved by the Director of the MAcc program and the Undergraduate Programs Office. Other course work may be required or recommended depending on the student's academic background. All prerequisites must be completed prior to the start of graduate course work in the MAcc program. In addition to the general admission requirements, MAcc applicants are required to take the Graduate Management Admission Test (GMAT) and submit information on forms provided by the Department of Accounting and Information Management. Applicants whose native language is not English must submit results of the Test of English as a Foreign Language (TOEFL).

In the 2015-2016 *Graduate Catalog*, under Admissions Heading, remove sentence leading into bullets, modify text by bullets, and remove sentence just after bullets, and replace with:

The admission decision is based on all factors that make up the total application, with consideration given to factors such as:

1. The applicant's academic record.
2. Scores on the GMAT (unless waived), and TOEFL or IELTS for those whose native language is not English.
3. Internships and/or work experience and other activities that demonstrate potential for leadership.
4. Recommendations from professors and/or work supervisors.

Students will be expected to have a laptop computer for use in the program. Additional details concerning the hardware and software configurations required are posted on the departmental website.

Formerly: For admission to the MAcc program, consideration is given to:
Applicant's academic record with particular attention to the last two years of undergraduate work.
Scores on the GMAT, and TOEFL for those whose native language is not English.
Internships and/or work experience and other activities that demonstrate potential for leadership.
Recommendations from professors and/or work supervisors.
The admission decision is based on all factors that make up the total application; therefore, there is no automatic cutoff for either grade point average or GMAT scores.

Rationale: The AIM faculty recommends a waiver of the GMAT for UT AIM undergraduates (and for other applicants completing specified pre-requisite courses at UT) because: (1) performance in AIM undergraduate accounting courses is a better predictor of success in the MAcc than GMAT score, (2) waiving the GMAT makes the UT MAcc program more attractive to high-performing UT AIM undergraduates vis-à-vis other schools that require the GMAT thereby providing us with a competitive advantage.

- **ADD CONCENTRATION, ACCOUNTING MAJOR, MACC**

Information Management

In the 2015-2016 *Graduate Catalog*, add heading and text for new concentration:

Information Management

ACCT 507, ACCT 508, ACCT 509, ACCT 518, ACCT 522, ACCT 593, INMT 540, INMT 543, INMT 544, INMT 548

Learning outcomes: Same learning outcomes for MAcc as listed under course changes.

Rationale: This track is designed to address increasing demand from Accounting and other firms for accounting graduates with greater information technology knowledge. The concentration consists of five courses, in addition to the core MAcc courses. These courses highlight Audit, IT Audit, and Information Management and Security content. Upon completion of the concentration in Information Management, students will be expected to have the core content knowledge to sit for the Certified Information Systems Auditor certification. Students in the Information Management concentration will still prepare to sit for the CPA exam as part of the MAcc curriculum.

REVISE REQUIREMENTS – ACCOUNTING MAJOR MACC

In the 2015-2016 *Graduate Catalog* revise course requirements for Audit and Controls and Taxation concentrations:

Audit and Controls concentration

ACCT 507, ACCT 508, ACCT 509, ACCT 518, ACCT 522, ACCT 523, ACCT 535, ACCT 593, INMT 543, INMT 544

Taxation concentration

ACCT 507, ACCT 508, ACCT 509, ACCT 522, ACCT 530, ACCT 531, ACCT 532, ACCT 533, ACCT 539, ACCT 593

Formerly:

Audit and Controls concentration

ACCT 507, ACCT 518, ACCT 519, ACCT 521, ACCT 531, ACCT 593, BUAD 521, BUAD 522, BUAD 523, INMT 543.

Taxation concentration

ACCT 507, ACCT 521, ACCT 530, ACCT 531, ACCT 532, ACCT 533, ACCT 539, ACCT 593, BUAD 522, BUAD 523.

Rationale: These new courses will meet the academic requirements of the profession, improve the marketability of our students, and increase the value-added proposition of the MAcc program.

REVISE OTHER REQUIREMENTS TEXT

Under "Other Requirements" heading, remove last sentence and replace with:

This examination is included in the capstone courses (ACCT 509 for the audit and controls concentration, INMT 549 for the information management concentration, and ACCT 539 for the taxation concentration).

SUPPORTING INFORMATION. Rationale: To reflect changed courses.

DEPARTMENT OF BUSINESS ANALYTICS AND STATISTICS (BAS)

- **ADD CONCENTRATION, MANAGEMENT SCIENCE MAJOR, PHD**

Analytics

Learning outcomes for Management Science major, PhD, Analytics concentration (replaces existing learning outcomes)

1. Gain deep knowledge of the literature and developments in a specific area within the Analytics domain to further the appropriate methodological tools in this chosen area.
2. Possess the ability to develop and test research hypotheses by acquiring data from primary and secondary sources
3. Be able to conduct research that addresses real-world problems using quantitative and methodological models to visualize and interpret data.
4. Be able to clearly communicate their research findings and present their work at national and international research conferences.
5. Fulfill the growing need for faculty that can teach business analytics at the undergraduate and graduate levels in business analytics.

Rationale: Driven by increases in computational power, availability of massive amounts of data, and a desire to use this data to improve decision making in business, the field of business analytics has grown rapidly in both industry and academics over the previous 5 years. This development has manifested itself in a growing number of programs being created in business analytics at the undergraduate and graduate level along with a rapid increase in the number of students enrolling in these programs. Consequently, it has created significant demand for faculty members trained in a wider spectrum of skills than that typically produced by colleges of business and provided a major opportunity for the Department of Business Analytics and Statistics. The Ph.D. concentration in Analytics requires the addition of a number of 600-level courses. By combining the strengths of faculty members across the Management Science and Statistics disciplines within the department we expect the new concentration in Analytics will significantly enhance the Management Science Ph.D. program in applicant quality, scholarly output, and academic placement.

ADD HEADING AND TEXT FOR NEW CONCENTRATION

Before the Admission heading, add heading and text for new concentration

Analytics Concentration

The PhD concentration in analytics will focus on research specifically aimed at applying analytical tools for modeling and analyzing data to support decision making in complex real world systems in business and industry.

REVISE INTRODUCTORY TEXT – MANAGEMENT SCIENCE MAJOR, PHD

In the 2015-2016 *Graduate Catalog*, delete all introductory text and replace with:

The PhD with a major in management science is designed to prepare students for research related to the application of analytical tools to complex decision making. Three primary objectives of the program are

- To provide, through relevant course work, a thorough knowledge of common analytical models and their uses in business.
- To provide sufficient advanced study in a supporting area to qualify the graduate for a joint-faculty position in management science, business analytics, or any supporting area. The candidate may choose from the business functional areas (accounting, finance, marketing, management, and supply chain management) or other disciplines (e.g., computer science, forestry, ecology, and public administration).
- To develop in the student, through course work in management science, statistics, operations management, and computer science, a high degree of analytical maturity to enhance a potential career in management, research, or teaching.

Formerly: The PhD with a major in management science is designed to prepare students for research related to the application of mathematical tools to complex decision making. Three primary objectives of the program are:
 To provide, through management science course work, a thorough knowledge of common management science/operations research mathematical models and their uses.
 To provide sufficient advanced study in a supporting area to qualify the graduate for a joint-faculty position in the supporting area and management science. The candidate may choose from the business functional areas (accounting, finance, marketing, management, and logistics) or other disciplines (e.g., computer science, forestry, ecology, and public administration).
 To develop in the student, through course work in mathematics, statistics and computer science, a high degree of mathematical maturity to enhance a potential career in management, research, or teaching.

REVISE REQUIREMENTS – MANAGEMENT SCIENCE MAJOR, PHD

In the 2015-2016 *Graduate Catalog*, delete all text under Requirements Heading and replace with:

* The minimum courses are BZAN 610, BZAN 615, BZAN 620, BZAN 625 and BZAN 630.

A minimum of 48 semester hours of course work taken for graduate credit (exclusive of thesis or dissertation) is required. Some of the hours may be the course work from a master's program, although a master's is not a prerequisite for the doctorate. The candidate must complete a minimum of 24 hours of PhD course work (work beyond the masters) at the University of Tennessee, Knoxville, and at least 18 hours of the PhD course work must be at the 600 level. Both of these requirements are exclusive of thesis or dissertation credits. Entering students who have completed graduate studies in applicable fields will be granted course credits for work that is equivalent to required courses in the program. The program includes 6 semester hours of course work in an applied area.

Formerly: A minimum of 48 semester hours of course work taken for graduate credit (exclusive of thesis or dissertation) is required. Some of the hours may be the course work from a master's program, although a master's is not a prerequisite for the doctorate. The candidate must complete a minimum of 24 hours at the University of Tennessee, Knoxville, at least 6 of which must be at the 600 level. Both of these requirements are exclusive of thesis or dissertation credits. Entering students who have completed graduate studies in applicable fields will be granted course credits for work that is equivalent to required courses in the program. The program includes approximately 16 to 20 semester hours of course work in the applied area.

REVISE QUALIFYING EXAMINATION TEXT

Under Qualifying Examinations heading, delete first two paragraphs and replace with:

The student must demonstrate mastery of probability theory and stochastic processes (BZAN 610) and Bayesian modeling and computations (BZAN/STAT 625) by passing a written qualifying examination.

Formerly: The student must demonstrate mastery of probability theory and statistical inference (STAT 563) by passing a written qualifying examination.

Mastery of 12 to 14 semester hours in mathematics course work must be demonstrated by passing a written qualifying examination. Topics normally include numerical analysis (either MATH 471, MATH 472, MATH 453, and MATH 571, or MATH 571-MATH 572) and real analysis (MATH 445-MATH 446). Other options may be approved. In exceptional circumstances, the faculty will consider waiving the mathematics and/or statistics qualifying examinations.

Rationale: Driven by increases in computational power, availability of massive amounts of data, and a desire to use this data to improve decision making in business, the field of business analytics has grown rapidly in both industry and academics over the previous 5 years. This development has manifested itself in a growing number of programs being created in business analytics at the undergraduate and graduate level along with a rapid increase in the number of students enrolling in these programs. Consequently, it has created significant demand for faculty members trained in a wider spectrum of skills than that typically produced by colleges of business and provided a major opportunity for the Department of Business Analytics and Statistics. The Ph.D. concentration in Analytics requires the addition of a number of 600-level courses. By combining the strengths of faculty members across the Management Science and Statistics disciplines within the department we expect the new concentration in Analytics will significantly enhance the Management Science Ph.D. program in applicant quality, scholarly output, and academic placement. Financial and staffing impact: The concentration will eventually consume 4 FTEs. It will replace the dormant CBA concentration in Statistics that has required 2 FTEs and the dormant Ph.D. in Management Science that has required 1.5 FTEs (a total of 3.5 FTEs) to run. Eventually the proposed Ph.D. concentration in Analytics will be the only Ph.D. program offered by the department. There will be minimal impact on other departments.

REVISE REQUIREMENTS – BUSINESS ANALYTICS MAJOR, MS

In the 2015-2016 *Graduate Catalog*, under Requirements heading, make the following 2 revisions:

1. At core requirements listing – delete last course BZAN 505. Period will now be after course BZAN 548.
2. In last paragraph add BZAN 505. Sentence will now read, "...and BZAN 505 and SCM 505 are recommended..."

Rationale: BZAN 548 is now required because it is more broadly applicable to all areas of Analytics than BZAN 505. Financial Impact: None. Staffing Impact: None. Impact on other units: None. Change did not occur because of learning outcome results.

DEPARTMENT OF ECONOMICS

REVISE ECONOMICS MAJOR -- PHD

In 2015-2016 *Graduate Catalog*,

1. Add a last sentence in the first paragraph:
A master's degree in economics or a related field is not required for admission.
2. Delete the current sentence under the Requirements heading and replace with:
The program requires a minimum of 48 hours of course work beyond the bachelor's degree or 24 hours beyond the master's degree, plus at least 24 hours of 600 Doctoral Research and Dissertation. Specific department requirements for the PhD include the following.

Formerly: The program requires a minimum of 48 hours of course work beyond the bachelor's degree or 24 hours beyond the master's degree, plus at least 24 hours of 600 Doctoral Research and dissertation, and successful completion of the following.

3. Delete sentence under Economic Theory and replace with:
Satisfactory performance on microeconomic theory and macroeconomic theory qualifying examinations. Exams are administered twice during the summer following the first year of PhD coursework, and a student needs to pass the qualifying examinations to remain in the program.

Formerly: Microeconomic theory and macroeconomic theory by a qualifying exams taken not later than the beginning of the fourth semester of study.

4. After Quantitative Methods section, add heading "Research Paper" with the following text:
Research Paper
Satisfactory completion of a second-year research paper submitted to the faculty. A student needs to pass the requirement by the end of the fall semester of their third year to remain in the PhD program.
5. After Research Paper section, add heading, "Dissertation" with the following text:
Dissertation
Students are required to complete a doctoral dissertation and to defend it successfully before the faculty.
6. Under Other Requirements heading, delete all text and replace with:
Students demonstrate competence in at least two fields of specialization in economics by completion of a two-course sequence with a GPA of 3.25 or better in each field, *including* grades of B or better in each field course.

Students are required to complete (with a grade of B or better) two elective courses in economics at the 500 level or above. The two elective courses must be outside the core subject areas and outside the fields of specialization.

Formerly: Students failing a qualifying examination must retake the examination the next time offered. A qualifying examination may be taken a third time only with approval of the department. Failing a qualifying examination for a third time will result in dismissal from the doctoral program.

Students are required to demonstrate competence in at least two fields of specialization in economics by completion of a two-course sequence with a GPA of 3.25 or better in each field, grades of B or better in each field course, and by submission of a satisfactory research paper in one of those fields.

Students are required to complete (with a grade of B or better) two elective courses in economics at the 500 level or above. The two elective courses must be outside the core subject areas and outside the fields of specialization.

Students are required to complete a doctoral dissertation and to defend it successfully before the faculty.

Rationale: To reflect current activities in this program. Financial Impact: None. Staffing Impact: None. Impact on other units: None

DEPARTMENT OF MANAGEMENT

REVISE TEXT AND REQUIREMENTS HUMAN RESOURCE MANAGEMENT MAJOR -- MS

In 2015-2016 *Graduate Catalog*, under the Admissions heading, delete third sentence of second paragraph and replace with:

The foundations course work includes Accounting 200; Economics 201; Management 201, and Business Administration 242, or their equivalents as approved by the director of the HRM program.

Formerly: The foundations course work includes Accounting 200; Economics 201; Finance 300 or 301; and Business Administration 242, or their equivalents as approved by the director of the HRM program.

Rationale: Overview of business (Management 201) was identified as a more appropriate course for incoming HRM masters students who did not have a business undergraduate degree. Financial impact: None, MGT 201 is a large section course and there are not many entering HRM students who require the foundations courses. Staffing impact: None, MGT 201 is a large section course and there are not many entering HRM students who require the foundations courses. Impact on other units: None.

INTERCOLLEGIATE

COMPARATIVE AND EXPERIMENTAL MEDICINE

Effective Fall 2015

I. COURSE CHANGES

(CEM) COMPARATIVE AND EXPERIMENTAL MEDICINE

ADD

CEM 550 Introduction to Forensic Odontology (3) Development of the discipline within a medico-legal context. From crime scene to positive identification to courtroom, dental remains as evidence are studied from a historic to current approach using taphonomic, radiographic, histologic, pathologic, and anthropologic perspectives.

Registration Permission: Consent of instructor.

Rationale: This course introduces the student to the relevance of dentition and decomposing oro-facial skeletal structures as a means of positive identification of unidentifiable victims in forensic medicine. From a single decedent to multiple deaths from mass disasters, the course presents the human dentition in the broader realm of forensic science and the medico-legal investigation of death partnering with what the forensic pathologist, anthropologist, and entomologist do and crime scene dynamics. It introduces age estimation, bite mark analysis, expert witnessing, and mass disaster settings where the dentition not only identifies the victim but a possible suspect (bite marks) and the jurisprudence that defines and propagates this evidence.

CEM 552 Head and Neck Anatomy (4) Detailed gross dissection of the human head and neck with traditional musculo-skeletal and neuro-vascular emphasis.

Contact Hour Distribution: 1 hour lecture and 3 hours lab per week.

Registration Permission: Consent of instructor.

Rationale: This course provides the anatomical/structural foundation for the application of identification methods in forensic medicine. A basic knowledge, on par with medical and dental school training and reference, is crucial for understanding growth and development, soft tissue decomposition, and perimortem injury that may lead not only to identification but also to cause and manner of death.

CEM 554 Dental and Maxillofacial Anatomy/Histology (4) Human dento-facial embryology, odontogenesis, mineralized tissue histology and dental morphology.

Contact Hour Distribution: 3 hours lecture and 1 hour lab per week.

Registration Permission: Consent of instructor.

Rationale: This course presents the hard and soft tissue basis of forensic odontology. From every detail of gross dental morphology and the histological nuances of enamel, dentine, cementum, bone, and odontogenesis, a functional understanding of normal and pathological (both antemortem and perimortem) conditions permit engagement with the scene investigator, dentist, forensic pathologist, judge, and jury.

CEM 556 Head and Neck Osteology and Trauma (4) Detailed neuro- and viscero-cranial osteology, including embryology, post-natal facial growth and development, aging and degenerative pathology, and perimortem trauma.

Contact Hour Distribution: 2 hours lecture and 2 hours lab per week.

(DE)Prerequisite(s): 552.

Registration Permission: Consent of instructor.

Rationale: The head is the most violated and traumatized region of the victim. Therefore, understanding structure and mechanism of trauma, whether evaluated in fresh, decomposed, or skeletal condition, is crucial for courtroom presentation. This course provides the osteological precision underlying the soft tissues mastered in the "Head and Neck Anatomy" course. Understanding growth and development of the neurocranium (braincase) and viscero-cranium (facial skeleton) allows not only ageing of remains but an identification of fragments that indicate trauma. Blunt, sharp, and ballistic force effects are emphasized.

CEM 558 Laboratory Methods in Forensic Odontology (4) Instruction in oral autopsy procedures, preparation of crime scene or autopsy-related evidence, preparation of gross specimens and analysis, charting of dentitions, photography and radiography of dentitions, report writing for legal medicine, and dissection and light microscopy of tissues for reports and courtroom testimony.

Contact Hour Distribution: 1 hour lecture and 3 hours lab per week.

Registration Permission: Consent of instructor.

Rationale: While a laboratory component underscores/emphasizes the previous courses, this methods, "hands-on" course treats the remains as evidence to be recovered, processed for evaluation, examined, photographed, radiographed and presented for legal medicine.

II. PROGRAM CHANGES

- **ADD CONCENTRATION – COMPARATIVE AND EXPERIMENTAL MEDICINE MAJOR, MS**

Forensic Odontology concentration

In the 2015-16 Graduate Catalog add heading and text for the new concentration.

Comparative and Experimental Medicine – MS
Forensic Odontology concentration

This three-semester concentration is designed for anthropologists, dentists, registered dental hygienists, biologists, crime scene specialists, detectives, and medico-legal death investigators wishing introduction and formalization to skills in the search, recovery and collaborative identification of compromised human head and neck remains, and recognition of human and non-human bite marks at autopsy. This concentration is founded on the standards and guidelines established by the American Board of Forensic Odontology in the endeavors of human identification, bite mark investigation and analysis, dental age estimation, missing and unidentified persons, and mass fatality incident dental identification team development.

Training involves search, recovery, identification, and processing of fresh, mutilated, and decomposing and skeletal remains as evidence that has been exposed to many post-mortem environments from scattered and clandestine burials to aquatic and thermal contexts. Training will continue to include examination of those remains in the autopsy setting. Twice-monthly laboratory sessions at the Knox County Medical Examiner's Office – East Tennessee Regional Forensic Center will provide case work exposure. Training also involves recovery of relevant head and neck remains at an outdoor decomposition facility and processing for examination and report writing for submission as a defensible court document.

Applicants for the MS with a Forensic Odontology concentration must have a baccalaureate degree with course work in chemistry, including organic chemistry; mathematics, and basic biology. More advanced study in biology, such as biochemistry, anatomy, histology, cell biology, or other appropriate biomedical courses from an accredited university is recommended. For some students without such a background, prerequisite or concurrent course work will likely be necessary to succeed in the course of study.

Students must meet all requirements for the MS degree in Comparative and Experimental Medicine. This includes courses CEM 504, CEM 541, CEM 542, 4 credit hours of journal clubs, and 500- or 600-level statistics. The CEM 504 course may be substituted with another relevant and appropriate course, as approved by the student's committee and the director of the program. In lieu of a thesis, a capstone experience is required in which the student prepares an analytic research paper that thoroughly identifies and explores a scientific, technical, or social science issue associated with the field. This paper will be presented as a seminar, which is followed by an oral comprehensive exam by the student's committee.

Rationale: Adding concentration in CEM: Because Comparative and Experimental Medicine (CEM) is an intercollegiate program administered jointly by the College of Veterinary Medicine and the Graduate School of Medicine, offering the Forensic Odontology concentration within the CEM program was a natural fit. In addition, such a concentration would further strengthen cooperative and collaborative relationships between the two university units to further strengthen the intercollegiate nature of the CEM program. In addition, CEM has a strong human-related research component with its faculty members studying basic science as it relates to human diseases. In addition, the program already includes faculty members and graduate students focused on veterinary anatomy. This concentration would add an applied human science component to the program to reinforce its "One Medicine/One Health" approach. **Adding concentration:** The Forensic Odontology concentration addresses a need for professionals trained to investigate crime scenes, provide positive identifications, and to process dental remains as evidence. This need is currently unmet in the forensic community, and the proposed MS program would provide a much sought-after standard of training. Adding this concentration would also likely increase enrollment in and graduates from the CEM MS program, thus helping meet the university's Top 25 Initiative by increasing the number of master's degrees awarded, as well as maximizing degree offerings through this unique academic collaboration.

Impact on other units: The Forensic Odontology concentration would have a positive effect on other units, such as anthropology, by providing opportunities for advanced training in a specialized area that is currently not available. The concentration would complement and extend studies in the areas of histology, pathology, anatomy, and anthropology.

Financial impact: The Forensic Odontology concentration is intended to be financially self-sustaining with a model similar to that of the university's professional programs with tuition used to support program administration and instructional expenses. CEM administrators are developing a business plan.

ADD ACCELERATED DUAL DVM-PHD OPTION

In the 2015-16 Graduate Catalog add heading and text for the new accelerated DVM-PHD Program.

Accelerated Dual DVM-PhD Program

The Comparative and Experimental Medicine (CEM) graduate program and the College of Veterinary Medicine offer a coordinated dual program leading to the conferral of both the Doctor of Veterinary Medicine and the Doctor of Philosophy degrees. The dual program allows veterinary students to apply up to 9 hours of DVM course work toward a PhD degree in CEM, leading to completion of both degrees in less time than would be required to earn both degrees independently. The accelerated program is designed to prepare highly motivated students for a career in veterinary research.

Students entering the dual degree program must meet minimum admission requirements for both the DVM and the PhD programs. Applicants for the DVM-PhD program must make separate application to, and be competitively and independently accepted by, the College of Veterinary Medicine for the DVM and the CEM program for the PhD. Students who have been accepted by the College of Veterinary Medicine may apply for approval to pursue the dual program any time prior to or after matriculation. Such approval will be granted, provided that dual program studies are started prior to entry into the fourth semester of DVM course work.

Students enrolled in the dual DVM-PhD program will be officially classified as primarily veterinary (DVM-seeking) students until the DVM coursework is completed, with the following exception: dual program students will typically be expected to enroll as PhD students during the summer semesters between their first and second years in the veterinary curriculum. After the DVM is conferred, the dual student's primary major will be CEM.

A dual program candidate must satisfy the graduation requirements of each program. The CEM program will award up to 33 hours of credit toward the PhD for acceptable performance (a grade of at least a "B" in A–F-graded courses) in approved courses offered by the College of Veterinary Medicine. Courses eligible for dual credit will be at the recommendation of the student's CEM major professor in consultation with the student's doctoral committee. A total of 48 course hours independent of dissertation (CEM 600) are required for the PhD degree (15 CEM hours plus 33 hours accepted from the DVM program). The doctoral comprehensive examination must be successfully completed within 2 years of completing all DVM course work.

Rationale: Current requirements for veterinary students seeking course credit toward an MS or PhD degree in Comparative and Experimental Medicine are as follows:

"Exceptional veterinary students at the University of Tennessee, Knoxville, may be admitted to the comparative and experimental medicine graduate program but will be enrolled officially as veterinary students. During summers such students may take advantage of registering for graduate courses to be counted as elective courses in the veterinary program." (2014-2015 Graduate Catalog)

In the last 7 years, three DVM-seeking students have chosen this path, and these three students have now completed the DVM and are working toward the PhD. In proposing this dual program, we wish to more formally establish this dual option for our students in both programs, as well as provide an incentive for DVM students at the University of Tennessee to pursue the PhD toward a career in academic research, industry, or governmental careers.

Therefore, the two changes being proposed herein are to

1. Allow students to share a limited number of hours between two degrees (student incentive).
2. Formally name and thus be able to market a dual program (college and university incentive).

A key initiative in the veterinary profession is to better meet the societal need for highly competent clinician scientists with veterinary training. The American Veterinary Medical Association's Council on Education (the accrediting body for veterinary colleges) continues to encourage colleges to better train their students for alternative career paths beyond clinical private practice. This "One Health – One Medicine" concept links human, animal, and environmental health and seeks to forge co-equal, all inclusive collaborations between physicians, osteopaths, veterinarians, dentists, nurses and other scientific-health and environmentally related disciplines. Veterinary colleges across the United States offer combined DVM-PhD programs, and both the College of Veterinary Medicine and the Comparative and Experimental Medicine program wish to recruit the brightest students with an interest in academic research careers. Already, the minimum GPA requirement for out-of-state applicants to the veterinary program is higher (3.2/4.0) than the minimum set by the Graduate School (2.7/4.0) for admission to other graduate programs, including Comparative and Experimental Medicine. In addition, the average GPA for the 2014-2015 incoming veterinary class was 3.67. The College of Veterinary Medicine and Comparative and Experimental Medicine wish to attract and retain outstanding students interested in a career in research. Furthermore, the College of Veterinary Medicine has already begun to see the top Tennessee students accept positions at other universities because of the lack of a dual program and a perceived research focus.

Having a dual DVM-PhD option would make the University of Tennessee more competitive with other aspirational veterinary programs, as well as help meet the university's criteria for becoming a Top 25 Research University by increasing the number of PhD degrees conferred and increasing the career diversity of our student body. Although the number of veterinary students entering any given class is locked at 85, graduate student numbers have the potential to grow. This dual option would help increase graduate student numbers and advanced degrees awarded by the university and enhance the research programs within our college. For students, such a program would be cost and time effective. Upon graduation, veterinarians average a debt load of \$162,113 (American Veterinary Medical Association, 2013 figure). Oftentimes, this debt load dissuades students from pursuing graduate degrees, although their loans are deferred during all advanced training. By completing the dual DVM/PhD program, graduates would shorten the time required to achieve both degrees and be able to start earning earlier than if the degrees were pursued in succession. Graduates with PhD degrees are generally competitive for industry and government jobs at salary ranges 50–100% higher than the entry-level jobs in private practice, making such dual degrees a wise return on investment (ROI). A recent AVMA report suggested a veterinary degree alone may not be a valuable ROI, compared to a bachelor's degree. Adding a PhD to the DVM gives motivated and talented students career options to support their career choice together with sound financial backing.

A valid concern is the sharing of hours toward two separate degrees. Currently, students with a DVM who are entering a PhD program receive "credit" for 24 hours of course work, as do students with a master's degree. A typical student with a master's degree has earned a minimum of 30 additional course hours beyond the bachelor's degree. However, a typical student with a DVM has earned 165 additional course hours beyond the bachelor's degree. Therefore, the 9 hours requested to be double counted make up only 5% of the DVM curriculum. In addition, veterinary students currently enroll in CEM courses, such as journal clubs, that are used as electives toward their DVM. These journal clubs are an example of what might be shared between the two degrees. This proposal is similar to programs already established in the JD program (MA, MBA, MPH, or MPPA). As such, this request is not unique within the university system.

Additionally, establishing this accelerated program to asynchronously award the DVM and PhD degrees would be similar to what is already done with 3 + 1 programs such as those that award students with a bachelor's degree while they complete requirements in professional schools, such as medicine, veterinary medicine, and pharmacy.

We have met with Dr. Mary Albrecht to evaluate the impact of this proposal on SACS accreditation and need for additional APC review. Albrecht was very positive that this met the criteria for desired accelerated programs and she has included this program in her SACS notification letter. Albrecht did not view the outlined program differently than other advanced degrees where 9 credit hours are allowed to be transferred and credited to the advanced degree. Albrecht noted that the DVM degree, with its 165 credit hours, clearly exceeded minimums of similar programs in other units where such credits are also granted. Albrecht did not feel there was reason for this request to be reviewed by the APC because these are already approved programs with the same framework. Albrecht noted it was not the intent of the APC to approve each individual program but the type of program, which has been done. A draft of her letter to the SACS was provided to Dr. Kania, notifying her of the Dual DVM-PhD program.

Impact on other units: College of Veterinary Medicine and CEM faculty interact with other units such as GST, iBME and NIMBioS. A dual DVM-PhD option will likely attract a high caliber of students who will benefit our biomedical and bioanalytical research programs. This will not require additional faculty or facilities, but will more fully utilize their talents within our programs.

Financial impact: Veterinary students pay a differential tuition rate each fall and spring semester. This tuition would continue to be received by the College of Veterinary Medicine, as it is currently. During summer semesters, students enrolled in the dual DVM-PhD program would have their primary classification changed to CEM and would pay standard graduate tuition. This is currently done with veterinary students who enroll in CEM summer courses, as well as for students who pursue an MPH with a veterinary concentration simultaneously with their DVM degree. Ms. Deborah Shepherd, an on-site College of Veterinary Medicine admissions staff member, regularly performs these Banner classification changes.

The dual DVM-PhD option will likely increase enrollment in the CEM PhD program, requiring more assistantships. It will also open up funding opportunities for grants targeting research training for health professionals. There are several NIH K1 grants that we have not previously encouraged our students to apply for due to a lack of competitiveness that a dual program would help resolve. Additionally, grants are provided by the Center of Excellence in Livestock Diseases and Human Health. We do not plan to request additional funding for the program but provide greater competitiveness for outside graduate awards.