

Thursday January 19, 2012 2:00p.m.	Graduate Curriculum Committee	Law Library 4th Floor Rare Books Room
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Report

Present: Sibyl Marshall (Chair), David Bemis, Dan Feller, Will Gibbons (Graduate Student Senate), John Ma, Blanche O'Bannon, Rebecca Prosser, Christian Vossler, Scott Wall, Candace White.

Representing the Colleges: Toby Boulet, James Brace, Dana Bryson, Tom George, Thomas Haddox, R.J. Hinde, Jan Lee, Catherine Luther, Stefanie Ohnesorg, Carol Parker, Anne Smith, John Stier, Fred Wang. Also in attendance: Carolyn Hodges, Kay Reed, Catherine Cox, and Cheryl Norris.

The meeting was called to order by Sibyl Marshall at 2:00 p.m. The following curriculum proposals were approved as presented for recommendation to Graduate Council. The meeting adjourned at 4:00 p.m.

College of Agricultural Sciences and Natural Resources – Course changes: added 15, dropped 8, and revised 12. Program changes:

Add Minor: Watershed Minor – Interdisciplinary
 Drop Concentration: Agribusiness (Agricultural and Resource Economics Major, MS)
 Add Certificate: Land Surveying (Department of Biosystems Engineering and Soil Science)
 Add Concentration: Energy Science and Engineering (Biosystems Engineering Major, PhD)
 Add Concentration: Bio-Based Products and Wood Science and Technology (Forestry Major, MS)
 Add Concentration: Wildlife Health (Natural Resources Major, PhD)
 Add Concentration: Wildlife Health (Wildlife and Fisheries Science Major, MS)
 Add Minor: Wildlife Health (Department of Forestry, Wildlife and Fisheries)

College of Architecture and Design – Course changes: none. Program changes:

Add Concentration: High Performance Buildings (Architecture Major, MArch – Tracks 1, 2, & 3)
 Add Concentration: Conservation and Stewardship (Architecture Major, MArch – Tracks 1, 2, & 3)
 Add Certificate: Conservation and Stewardship
 Add Certificate: High Performance Buildings

College of Arts and Sciences – Course changes: added 45, dropped 58, and revised 44. Program changes:

Drop Academic Discipline: Latin American Studies (LAMS)
 Add Academic Discipline: Latin American and Caribbean Studies (LAC)

 Drop Academic Discipline: Medieval Studies (MDST)
 Add Academic Discipline: Medieval and Renaissance Studies (MRST)

 Add Concentration: Energy Science and Engineering (Ecology & Evolutionary Biology Major, PhD)

 Add Major and Degree: English Major, Master of Fine Arts (MFA) - Pending THEC approval
 Add Concentration: Literature, Criticism, and Textual Studies (English Major, MA)
 Add Concentration: Rhetoric, Writing, and Linguistics (English Major, MA)
 Drop Concentration: Writing concentration (English Major, MA)

 Add Concentration: Creative Writing (English Major, PhD)
 Add Concentration: Literature, Criticism, and Textual Studies (English Major, PhD)
 Add Concentration: Rhetoric, Writing, and Linguistics (English Major, PhD)

 Add Five-Year BA-MA: French Major
 Add Five-Year BA-MA: German Major

Drop Concentration: Health Physics (Physics Major, MS)
Add Concentration: Energy Science and Engineering (Physics Major, PhD)
Drop Major and Degree: Public Administration Major, MPA (Department of Political Science)
Add Major and Degree: Public Policy and Administration Major, Master of Public Policy & Administration (MPPA) - Pending THEC approval

College of Business Administration – Course changes: added 8, dropped 2, and revised 9. Program changes:

Renaming of Department - New department: Department of Marketing and Supply Chain Management

College of Communication and Information – Course changes: added 8, dropped 2, and revised 10. Program changes: None.

College of Education, Health, and Human Sciences – Course changes: added 20, dropped 12, and revised 30. Program changes:

Add Academic Discipline and courses: University Research Administration (UNRA) Dept: ELPS

Add Academic Discipline and courses: American Sign Language (ASL) Dept: TPTE

Add Certificate: University Research Administration (Dept of Educational Leadership & Policy Studies)

Add Concentration: Science, Technology, Engineering, and Mathematics (Teacher Ed, MS, Track 1 – TPTE)

Drop Concentration: Early Childhood Special Education (Teacher Education, MS, Track 1 – TPTE)

College of Engineering – Course changes: added 39, dropped 39, and revised 47. Program changes:

Drop Major, Degree, and Concentrations: Polymer Engineering, MS (Dept of Materials Science & Engr)

Drop Major, Degree, and Concentrations: Polymer Engineering, PhD (Dept of Materials Science & Engr)

College of Law – Course changes: added 16, dropped 0, and revised 1. Program changes to major.

College of Nursing – Course changes: added 2, dropped 0, and revised 8. Program changes to major.

College of Veterinary Medicine – Course changes: added 2, dropped 0, and revised 5. Program – none.

Intercollegiate – Comparative and Experimental Medicine – Course changes: added 0, dropped 1, and revised 3. Program changes – none.

Totals: Course adds = 155, course drops = 122, and course revisions 169. Total course changes = 446.

+ **Identifies academic disciplines that are being dropped/added.**

► **Identifies majors, degrees that are being dropped/added.**

‡ **Identifies certificates being dropped/added.**

◆ **Identifies concentrations that are being dropped/added.**

* **Identifies renaming of department.**

COLLEGE OF AGRICULTURAL SCIENCES AND NATURAL RESOURCES

All changes effective fall 2012

I. COURSE CHANGES

DEPARTMENT OF AGRICULTURAL LEADERSHIP, EDUCATION AND COMMUNICATIONS

(ALEC) Agricultural Leadership, Education and Communications

ADD

ALEC 522 Supervisory Leadership (3) Exploring techniques, models and theories of supervision. Principles and best practices for leading, administering, supervising, and managing agricultural leadership, education, extension and communication organizations. Analyzing selected case studies that apply theory to practice.

ALEC 523 Women in Leadership (3) Examination of theories and practical experiences of women in leadership positions. Understanding the theoretical underpinnings of women in leadership by examining literature, case studies, autobiographies and personal experiences.

ALEC 534 Methods of Teaching Agriscience (3) Methods and techniques for teaching agriculture, preparing lesson plans and units of instruction, developing activities for agriculture programs, and utilizing resources, multimedia, and computer technology into instruction.

Credit restriction: Students cannot receive credit for both 434 and 534.

ALEC 550 Multicultural Education and Cultural Competence in Diverse Organizations and Communities (3) Analysis of the dynamic interactions of personal and community characteristics, technical skills, interpersonal influence, commitment, goals, and power necessary for both leader and follower effectiveness in complex organizations including schools, non-profits and communities. Examination of leadership theories, cultural competences, and education theories in their applications in diverse schools, organizations, and communities.

DEPARTMENT OF AGRICULTURAL AND RESOURCE ECONOMICS

(AREC) Agricultural and Resource Economics

ADD 400-LEVEL COURSE FOR GRADUATE CREDIT

AREC 460 Rural Economic Development (3) Use of economic principles in understanding rural economic development at community and regional levels, emphasizing the linkages between rural and urban communities, business location decisions, and how geography shapes markets. Integrating historical and current information, students will explore efficiency and equity as driving forces behind public and private sector policy to encourage, manage and forecast domestic and international development.

(RE) Prerequisite(s): 320 or Economics 311.

Comments: Graduate standing may satisfy prerequisites.

DROP (DROPPED IN OCTOBER WITH COURSES NOT TAUGHT)

AREC 552 Advanced Agribusiness Seminar (3)

REVISE (RE)PREREQUISITES AND ADD COMMENT

AREC 420 International Agricultural Trade and Marketing (3)

(RE) Prerequisite(s): 320 or Economics 311.

Comments: Graduate standing may satisfy prerequisites.

REVISE (RE)PREREQUISITES

AREC 430 Food and Agricultural Policy (3)

(RE) Prerequisite(s): 320 or Economics 311.

AREC 472 Natural Resource Economics (3)

(RE) Prerequisite(s): 320 or Economics 311.

REVISE TO ADD COMMENTS

AREC 412 Agricultural Finance (3)

Comments: Graduate standing may satisfy prerequisites.

AREC 442 Agribusiness Management (3)

Comments: Graduate standing may satisfy prerequisites.

AREC 445 Economics of Biomass for Renewable Energy (3)

Comments: Graduate standing may satisfy prerequisites.

AREC 470 Policy Analysis for Environmental and Natural Resource Management (3)

Comments: Graduate standing may satisfy prerequisites.

DEPARTMENT OF BIOSYSTEMS ENGINEERING AND SOIL SCIENCES

(BSET) Biosystems Engineering Technology

ADD NEW 400-LEVEL COURSE FOR GRADUATE CREDIT

BSET 435 Construction Finance/Accounting and Law (3) Construction finance and cost accounting, industry formats, fixed and variable costs, record and report practices; capital equipment, depreciation, and expensing; forecasting costs and cash flow requirements, payment processes and time value of money, surety bonds and insurance; construction law, construction contracts, legal roles and responsibilities, the regulatory environment and licensing, lien laws and the contractor's rights, national and local labor law, administrative procedures to avoid disputes.

(RE) Prerequisite(s): Accounting 200.

Comments: Graduate standing may satisfy prerequisites.

ADD

BSET 501 Capstone Experience (1-3) Individualized experience incorporating theoretical background, hands-on experience, and technical reporting.

Grading Restriction: Satisfactory/No Credit grading only.

Repeatability: May be repeated. Maximum 9 hours.

Credit Level Restriction: Graduate credit only.

Registration Restriction: Master of Science - biosystems engineering technology major. Minimum student level - graduate.

SUPPORTING INFORMATION: Provides the non-thesis non-funded distance student with a viable capstone alternative.

REVISE TO DROP SECONDARY CROSS-LISTED COURSE

BSET 503 Seminar (1)

Formerly: Cross-listed: (See Environmental and Soil Sciences 503.)

(BSE) Biosystems Engineering

REVISE TO DROP SECONDARY CROSS-LISTED COURSES

BSE 503 Seminar (1)

Formerly: Cross-listed: (See Environmental and Soil Sciences 503.)

BSE 603 Seminar (1)

Formerly: Cross-listed: (See Environmental and Soil Sciences 603.)

(ESS) Environmental and Soil Sciences

REVISE PRIMARY COURSES TO DROP SECONDARY CROSS-LISTINGS

ESS 503 Seminar (1)

Formerly: Cross-listed: (Same as Biosystems Engineering 503; Biosystems Engineering Technology 503.)

ESS 603 Seminar (1)

Formerly: Cross-listed: (Same as Biosystems Engineering 603.)

Rationale: meet at the same time and place as BSE 503, BSE 603, and BSET 503, but should not be cross-listed. Is causing problems in figuring out differential tuition and fees. Impact on other units: none. Change coordinated with BSE and BSET programs.

DEPARTMENT OF ENTOMOLOGY AND PLANT PATHOLOGY

(EPP) Entomology and Plant Pathology

DROP

EPP 518 Evolution in Action (3)

DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY

(FDST) Food Science and Technology

ADD 400-LEVEL PRIMARY COURSE AND CROSS LIST

FDST 421 Food Microbiology (3) Physical, chemical, and environmental factors moderating growth and survival of food born microorganisms. Pathogenic and spoilage microorganisms affecting quality of foods and their control.

Cross-listed: (Same as Microbiology 421.)

(RE) Prerequisite(s): Microbiology 210 or 310.

Rationale: 421 is replacing 420, which is dropped in order to cross list with Microbiology, which already uses the number 420 for a different course. Impact on other units: None. Financial Impact: None. The course is already being taught under a different number.

ADD

FDST 545 Food Rheology (3) Principles of fundamental and empirical rheological tests are described. Rheological properties of food colloidal and polymeric systems and application of rheology to understand microstructure and functionality of food systems are discussed.

Recommended Background: Organic chemistry and Food chemistry.

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

FDST 616 Physical Properties of Foods (3) Will generally discuss physical properties of foods and applications of fundamental principles to understand and create colloidal and polymeric structures relevant to food systems.

Recommended Background: Organic chemistry and Food chemistry.

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

FDST 617 Food Proteins (3) Physicochemical properties of proteins used as ingredients in foods. Common methods used for the manufacturing of protein ingredients. Future trends in food proteins and novel methods for quantification and characterization of food proteins.

Recommended Background: Organic chemistry and Food chemistry.

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

FDST 618 Structure and Functionality of Polysaccharides (3) Occurrence of polysaccharides and their role in nature, conformation and behavior in solutions, gelling mechanisms, and applications.

Recommended Background: Organic chemistry and Food chemistry.

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

DROP

FDST 420 Food Microbiology (3)

Rationale: Course is being dropped in order to cross list with Microbiology, which already uses the number 420 for a different course.

FDST 615 Food Biopolymers

Rationale: Previously taught by 3 instructors, each teaching once in three years. Students could take the course repeatedly, maximum three times (9 hours). 615 is being rolled into the new 600 level courses 616, 617, and 618. Impact on other units: None. Financial impact: None. The same instructors will be teaching the same material but each course will be with individual number and title.

Equivalency Table

Current Course Food Science Technology (FST)	Equivalent Courses Effective Fall 2012 Food Science Technology (FST)
615	616, 617, 618

REVISE REPEATABILITY

FDST 503 Problems in Lieu of Thesis (2-3)

Repeatability: May be repeated. Maximum 12 hours.

REVISE TO ADD CREDIT RESTRICTION

FDST 516 Food Analysis (4)

Credit Restriction: Students cannot receive credit for both 415 and 516.

DEPARTMENT OF FORESTRY, WILDLIFE AND FISHERIES

(WFS) WILDLIFE AND FISHERIES SCIENCE

ADD

WFS 501 Ecology and Management of Wildlife Health (3) Review of ecological and environmental factors affecting wildlife health, and tools available for effective wildlife disease surveillance and management. Emphasis on the importance of multidisciplinary and interagency collaboration for management of wildlife health problems. Build skills on grant proposal writing for a disease study that involves a team of experts as collaborators and includes a budget, Biosafety forms (if appropriate), and an IACUC proposal (if appropriate).

Credit Restriction: Students cannot receive credit for both 401 and 501.

Rationale: A split 401/501 is proposed to provide graduate credit for the course. Impact on other units: none. Financial Impact: minimal – current UG class size will be increased by graduate student numbers. No additional teaching resources are required.

Equivalency Table

Current Course Wildlife and Fisheries Science (WFS)	Equivalent Courses Effective Fall 2012 Wildlife and Fisheries Science (WFS)
301	401, 501

DEPARTMENT OF PLANT SCIENCES

(PLSC) PLANT SCIENCES

ADD 400-LEVEL COURSE FOR GRADUATE CREDIT

PLSC 465 Biofuel Crop Ecology (2) Studies of the fundamental ecological, biochemical, functional, and agronomic aspects of bioenergy feedstocks, in the context of three distinct systems: ethanol from simple sugars, ethanol from structural carbohydrates, and diesel from oil crops. Special attention will be given to current technological paradigms in biology and materials science, as well as considerations of tradeoffs in terms of domestic security and impacts on the domestic food supply and ecology.

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

DROP

PLSC 555 History and Culture of International Gardens and Landscapes (3)

Rationale: Course content mirrors a dissimilarly numbered and related undergraduate course and will be renumbered to reflect this. Impact on other units: none. Financial impact: None.

ADD AND REQUEST APPROVAL FOR VARIABLE TITLE

PLSC 591 History and Culture of International Gardens and Landscapes (3) International travel experience will provide opportunities to learn how historic European estates, gardens, and arboreta reflect the climate, topography, history, philosophical social structure, art and politics at the time of their creation. Course will focus on observation of local plant material, study of different garden and landscape design styles, and will foster an appreciation of international cultures.

Repeatability: May be repeated. Maximum 6 hours.

Credit Restriction: Students cannot receive credit for both 491 and 591.

Rationale: Course content mirrors a dissimilarly numbered and related undergraduate course and will be renumbered to reflect this. The word "International" will be made variable, thus transcripts of repeating students may list both "History and Culture of French and Dutch Gardens and Landscapes" and "History and Culture of English Gardens and Landscapes" Course format and location: off campus-international travel, non-standard format. Impact on other units: none. Financial impact: None.

Equivalency Table

Current Course Plant Sciences (PLSC)	Equivalent Courses Effective Fall 2012 Plant Sciences (PLSC)
555	591

REVISE TO ADD CREDIT RESTRICTION

PLSC 593 Problems in Plant Sciences (1-3)

Credit Restriction: For MS students, a maximum of 6 hours may be applied to the major. For PhD students in PSI, a maximum of 9 hours may be applied to the major.

II. PROGRAM CHANGES

COLLEGE OF AGRICULTURAL SCIENCES AND NATURAL RESOURCES

- ▶ ADD INTERDISCIPLINARY MINOR
Watershed Minor

ADD HEADING AND TEXT FOR WATERSHED MINOR

Watershed Minor

Growing awareness of the complexity of water quantity and quality issues related to human activities leads to dealing with those issues on a watershed scale. This minor is for graduate students wishing to develop expanded skills in watershed science/engineering, planning and design, and culture and policy issues related to water. These skills are especially useful for careers in natural resource policy, water and land management, sustainable development and design for private industry, and storm water management for government agencies. Successful completion of the watershed minor is documented on the transcript.

The minor consists of 9 hours from the lists found on the minor website. The courses taken must include at least one course from the Watershed Core. Note that some classes may have prerequisites.

Watershed Minor Faculty

If you have any advising questions contact a Watershed Minor faculty member in your department or the college representative. The Watershed Minor Faculty is listed on the minor's website.

Admission to Candidacy

When application is made for admission to candidacy, the minor and courses required for the minor must be indicated.

Graduate Committee

The student's graduate committee must include at least one member of the Watershed Minor faculty.

Watershed Core courses:

BSE 416, BSET 574, FWF 590, GEOG 433, GEOG 436, GEOG 536

Science/Engineering courses:

BSE 532, BSE 555 or BSET 555, BSE 525 or ENVE 525, EEB 404, EEB 470, EEB 474, GEOL 450, GEOL 585, GEOL 586, GEOL 685, GEOL 485 or CE 485, ESS 544, ESS 554, ESS 511, ENVE 511, ENVE 512, ENVE 513, ENVE 520, ENVE 521, ENVE 530, ENVE 535 or GEOL 535, ENVE 595, FORS 514, GEOG 512, GEOG 633, LAR 501, WFS 443, WFS 533, WFS 536.

Social Science/Law/Philosophy Courses:

AREC 470, AREC 472, AREC 570, AREC 670, ECON 463, ECON 677, ECON 678, LAW 945, LAW 866, PHIL 545, SOCI 560.

DEPARTMENT OF AGRICULTURAL LEADERSHIP, EDUCATION AND COMMUNICATIONS

REVISE REQUIREMENTS: AGRICULTURAL LEADERSHIP, EDUCATION AND COMMUNICATIONS MAJOR, MS, THESIS AND NON-THESIS OPTIONS

In the 2011-2012 *Graduate Catalog* revise the 3rd bullet under both the thesis and non-thesis options as follows, A minimum of 18 hours of graduate credit in courses appropriate to the area of concentration taught in the department and a minimum of 6 hours taught from outside the department.

Rationale: Increase to 18 hrs give students better understanding of Agricultural Leadership, Education, Communications and Extension.

DEPARTMENT OF AGRICULTURAL AND RESOURCE ECONOMICS

- ◆ DROP CONCENTRATION – AGRICULTURAL AND RESOURCE ECONOMICS MAJOR, MS
Agribusiness Concentration

In the 2011-12 *Graduate Catalog*, remove heading and text for the agribusiness concentration.

Rationale: No students have been admitted into the concentration for the last three years and only two in five years. In recent years, agricultural and resource economics students have had difficulty registering for the business electives originally intended for this concentration. The Dual MS/MBA program was initiated to allow agricultural and resource economics students to concentrate more fully on agribusiness than they could in the agribusiness MS concentration. With the dual MS/MBA degree program, the agribusiness MS concentration becomes redundant. Course format: No change. Impact on other units: None. Financial impact: None.

REVISE AGRICULTURAL AND RESOURCE ECONOMICS MAJOR, MS

In the 2011-2012 *Graduate Catalog*, revise first paragraph, second sentence to reflect dropping of concentration. A non-thesis option is available with a concentration in agricultural economics.

REVISE DUAL MS/MBA PROGRAM – AGRICULTURAL AND RESOURCE ECONOMICS

In the 2011-2012 *Graduate Catalog*, revise first paragraph first sentence to reflect dropping of concentration.

The College of Business Administration and the College of Agricultural Sciences and Natural Resources offer a dual program leading to the conferral of both the Master of Business Administration and the Master of Science in the agricultural and resource economics major.

Under requirements heading revise as follows:

In the 1st paragraph, remove the 4th and 5th sentences and replace with the following:

The program includes a 10-week internship experience. A written comprehensive examination is required in the form of an approved written internship report integrating relevant coursework material with an approved internship project.

REVISE AGRICULTURAL AND RESOURCE ECONOMICS MAJOR, MS, - AGRICULTURAL ECONOMICS CONCENTRATION, NON-THESIS OPTION

In the 2011-2012 *Graduate Catalog* revise last sentence as follows:

Each student must pass a written comprehensive examination in the form of an approved written research project report integrating relevant coursework material with an approved research project.

DEPARTMENT OF ANIMAL SCIENCE

REVISE ADMISSIONS TEXT

In the 2011-2012 *Graduate Catalog*, under Admission heading, delete second paragraph and the 2 bullets with text after the 2nd paragraph.

REVISE ACADEMIC PROBATION TEXT

In the 2011-2012 *Graduate Catalog*, under Academic Probation heading, delete current text and replace with the following:

A graduate student will be placed on academic probation when the UT cumulative grade point average (GPA) falls below a 3.0 and at least 6 hours of graduate coursework have been completed, or when less than a C is earned in any course, or when given an NP grade in ANSC 500 or 600. For doctoral students, coursework for the MS degree, whether taken at UT or elsewhere, will not be included in cumulative GPA calculations. A student will be allowed to continue graduate study in subsequent semesters if each semester's GPA is a 3.0 or greater. Upon achieving a cumulative GPA of at least 3.0, the student will be removed from probationary status. ANSC 511 and AGNR 512 hours will not be used in probation GPA calculations.

REVISE DISMISSAL TEXT

In the 2011-2012 *Graduate Catalog*, under Dismissal heading, delete current text and replace with the following:

A graduate student on academic probation earning less than a 3.0 semester grade point average, or less than a C in any course, or NP in ANSC 500 or 600, may be dismissed from the program. Even if not on academic probation, other reasons for dismissal include failure to make adequate progress towards other degree requirements (e.g., research project, thesis/dissertation preparation), academic dishonesty (e.g., plagiarism, falsification of data), or other forms of gross misconduct as defined by the Office of Equity and Diversity, Human Resources, Dean of Students' Office, *Hilltopics* or Graduate Council. Dismissal will be accomplished by written notice to the student with a copy to The Graduate School.

Rationale: Changes add clarity to program policies. Impact on other units: None.

DEPARTMENT OF BIOSYSTEMS ENGINEERING AND SOIL SCIENCE

‡ ADD CERTIFICATE – LAND SURVEYING

In the 2012-13 *Graduate Catalog* add heading, text and requirements for new certificate: Land Surveying.

Land Surveying Graduate Certificate

The Biosystems Engineering and Soil Science Department offers a graduate certificate in land surveying. The program is designed for working engineering or technology professionals interested in obtaining licensure to practice land surveying. The program consists of six or more three-hour graduate courses, some of which are available through distance education.

The graduate certificate is earned by completing 18 hours from the following courses with a grade of B or better: BSET 412 (3); BSET 435 (3); BSET 534 (3); BSE 555 or BSET 555 (3); BSET 562 (6); and BSE 562 (3). The hours may later be applied toward a graduate degree if the student is admitted into the BSET degree program and meets all other degree requirements.

Applicants must meet the minimum admission requirements and be admitted to the University of Tennessee, Knoxville, Graduate School. The only academic prerequisite for the certificate program is a bachelor's degree from a recognized university or college.

Rationale: a good number of students are interested in the coursework to enable them to sit for the surveying exam, but are not really interested in an advanced degree. Impact on other units: none. Financial impact: none; exclusively uses existing classes.

REVISE REQUIREMENTS – BIOSYSTEMS ENGINEERING TECHNOLOGY MAJOR, MS, NON-THESIS OPTION

In the 2011-12 *Graduate Catalog*, non-thesis showcase, add a second course offering to the capstone experience as indicated below.

Capstone Experience (project and report, typically BSET 508 or 3 hrs BSET 501) 3

Rationale: Adding a capstone course option for students not on campus and not able to complete the project in a single semester.

◆ ADD CONCENTRATION – BIOSYSTEMS ENGINEERING MAJOR, PHD Energy Science and Engineering Concentration

In the 2012-13 *Graduate Catalog* add heading, text and requirements for CIRE concentration.

Energy Science and Engineering Concentration

This concentration is offered in collaboration with the Center for Interdisciplinary Research and Graduate Education (CIRE). The CIRE is a joint effort between the College of Engineering, other UTK colleges, the UT Institute of Agriculture, and the Oak Ridge National Laboratory. The students who wish to pursue this concentration will normally have completed 6 credit hours of Core and 3 credit hours of Knowledge Breadth coursework specified under Energy Science and Engineering Ph.D. program section of this catalog.

DEPARTMENT OF ENTOMOLOGY AND PLANT PATHOLOGY

ADD TEXT AND CLARIFICATION OF REQUIREMENTS FOR MINOR: ENTOMOLOGY AND PLANT PATHOLOGY

In the 2012-13 *Graduate Catalog* add heading and text for minor.

Entomology and Plant Pathology Minor

The Entomology and Plant Pathology minor requires 9 hours of course work in the department with at least 6 hours in 500-level courses and above (excluding EPP 500, EPP 502, EPP 531, EPP 533, EPP 541, EPP 600, EPP 603, and EPP 640). The student's graduate committee must include a member of the faculty from the Entomology and Plant Pathology department who will be responsible for designating courses required for the minor.

DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY

REVISE REQUIREMENTS: FOOD SCIENCE AND TECHNOLOGY MAJOR, MS

In the 2011-12 *Graduate Catalog*, revise thesis and non-thesis options as follows:

For the thesis option – revise the 1st and 3rd bullets as follows:

Prior to research for the thesis, the student must develop a detailed written research plan and submit it to his/her committee by the end of the second semester in the program. A minimum of 6 hours of FDST 500 Thesis is required to fulfill degree requirements.

All students are required to take 1 hour ANSC 525 or PLSC 525 Research Ethics and 2 hours of FDST 501 Seminar during their program. Students are expected to attend FDST 501 Seminars and participate in discussions during their master's program.

For the non-thesis option – revise the 3rd bullet as follows:

All students are required to take 1 hour ANSC 525 or PLSC 525 Research Ethics and 2 hours of FDST 501 Seminar during their program. Students are expected to attend FDST 501 Seminars and participate in discussions during their master's program.

Rationale: FDST 510 is no longer offered and thus not required. Research Ethics course (ANSC/PLSC 525) provides essential information for graduate students and the faculty in FDST department find it necessary for all students to take the course.

REVISE REQUIREMENTS – FOOD SCIENCE AND TECHNOLOGY MAJOR, PHD

In the 2011-12 *Graduate Catalog*, revise 2nd, 6th, and 7th bullets as follows:

A dissertation is required for the Doctor of Philosophy degree. Each student must develop a detailed written plan for the dissertation research and submit it to his/her committee by the end of the second semester in the program.

All students must complete FDST 601 (2 hours) and are expected to attend 601 during their PhD program. One credit hour of PLSC 525 or ANSC 525 must be taken before admission to candidacy.

Each student must pass both written and oral comprehensive examinations prior to admission to candidacy. Major professors will advise candidates on competencies expected. A final oral examination is required that includes a defense of the dissertation and subject matter that the student's committee considers appropriate.

Rationale: Research Ethics course (ANSC/PLSC 525) provides essential information for graduate students. Faculty in FDST department find it necessary for all students to take the course. A FDST faculty member is already co-teaching PLSC/ANSC 525.

DEPARTMENT OF FORESTRY, WILDLIFE AND FISHERIES



ADD CONCENTRATION – FORESTRY MAJOR, MS

Bio-Based Products and Wood Science and Technology Concentration

In the 2011-2012 *Graduate Catalog*, after the description of requirements for the major, add heading and text for the new concentration.

Bio-Based Products and Wood Science and Technology Concentration

Students in this concentration must complete a thesis. The concentration in bio-based products and wood science and technology is designed to prepare graduate students for analytical and research careers in the public and private sectors and to prepare students interested in entering a PhD program. The same minimum hour requirements as the major (thesis option) apply. For this concentration 18 hours of wood science, chemistry, engineering, or forestry-related; 6 hours of statistics or 6 hours of other quantitative methods related to the candidate's thesis, 6 hours of thesis, and two hours of seminar are required.

Justification: There is a need for this concentration given increased interests from undergraduate students who are attending traditional wood science and technology curriculums throughout the U.S., Europe, and Asia. Concentration will allow the Department of Forestry, Wildlife and Fisheries (FWF), and the affiliated Center for Renewable Carbon, to expand its academic programs by attracting highly-qualified students that may otherwise attend other universities with concentrations in this area. This concentration also expands the academic scope of FWF and bridges the students' perceptions-gap between traditional wood science curriculum and more contemporary curriculums in bio-based products. Initial student potential is anticipated to be from four to ten new graduate students per year given the diverse FWF faculty associated with the Center for Renewable Carbon. Long-term potential for graduate students may far exceed these initial numbers. Financial impact: None expected. The faculty members within this subject area already mentor graduate students. No new additional resources will be required for this M.S. thesis concentration. Offering the concentration also is expected to significantly increase the FWF Department's graduate student recruitment.

◆ ADD CONCENTRATION – NATURAL RESOURCES MAJOR, PHD

Wildlife Health Concentration

In the 2011-2012 *Graduate Catalog* after the description of requirements for the major, add heading and text for the new concentration.

Wildlife Health Concentration

The wildlife health concentration is designed to prepare students for wildlife health-related service and research careers in the public and private sectors, and to prepare students interested in pursuing further professional training. The same requirements as specified for the major hold for the concentration, with the additional stipulation that up to 24 hours of course work completed for a master's or professional degree may be applied to the 48-hour requirement, a minimum of 12 of the remaining 24 (or 30 of the 48 if no master's or professional degree) hours must be graded A-F and be from wildlife health-related courses, and a minimum of 6 of the hours must be at the 600-level or above, exclusive of dissertation hours.

Rationale: There is a lack of programs that provide concentrated training in this area for those who wish to seek a career in wildlife health. Ultimately, the lack of training results in individuals holding positions for which they are inadequately trained, whether biologists or veterinarians. There are a few veterinary programs (e.g., UC-Davis in coordination with California Department of Fish and Game) that are beginning to address this need for veterinarians, often in response to the recent statement by the AVMA recognizing the need for veterinarians to be trained in wildlife and zoo animals. However, these training programs are post-DVM and do not provide an avenue for non-veterinarians. Furthermore, these programs are heavy on medical training but not on ecology or biology training, which is important when dealing with free-ranging wildlife. Proper training is important in any career and it follows that the degree should be reflective of the training. Students graduating with a documented concentration in Wildlife Health will have an edge in securing jobs in their chosen field. The Center for Wildlife Health in the FWF Department is in a unique position to provide specialized training in Wildlife Health to both biologists and veterinarians. Therefore, we propose a Wildlife Health concentration within the Natural Resources (PhD) major be added to the FWF graduate program.

◆ ADD CONCENTRATION – WILDLIFE AND FISHERIES SCIENCE, MS

Wildlife Health Concentration

In the 2011-2012 *Graduate Catalog* after the description of requirements for the major, add heading and text for the concentration.

Wildlife Health Concentration

The wildlife health concentration is designed to prepare students for wildlife health-related service and research careers in the public and private sectors, and to prepare students interested in pursuing further graduate and/or professional training. The same requirements as specified for the major hold for the concentration, with the additional stipulation that of the minimum of 24 hours of required graduate course work, at least 9 of the 24 hours must be from wildlife health-related courses.

REVISE ADMISSION TEXT – NATURAL RESOURCES MAJOR (FWF), PHD

In the 2011-12 *Graduate Catalog*, under admission heading, remove 1st sentence and replace with the following two sentences:

Applicants to the PhD program must have a bachelor's degree or foreign equivalent, or have a professional degree in either medicine (including veterinary medicine) or law. Generally, individuals who possess a master's degree in addition to a bachelor's or professional degree will be given preference over those without a master's degree.

REVISE ADMISSION TEXT – WILDLIFE AND FISHERIES SCIENCE MAJOR, MS

In the 2011-12 *Graduate Catalog*, under admission heading, revise 1st sentence as follows:

For admission, the student must have a bachelor's degree from an accredited institution in forestry, wildlife, fisheries, or another natural resource area, or a professional degree in medicine (including veterinary medicine), or law.

▶ ADD MINOR – WILDLIFE HEALTH (FWF)

In the 2011-2012 *Graduate Catalog* after the Forestry Minor add heading and text for the Wildlife Health Minor.

Wildlife Health Minor

The Wildlife Health minor requires 9 hours selected from wildlife health-related courses (500-level or above). The student's committee must include a member of the faculty from the Center for Wildlife Health who will be responsible for designating courses required for the Wildlife Health minor.

DEPARTMENT OF PLANT SCIENCES

REVISE REQUIREMENTS – PLANT SCIENCES MAJOR, MS

In the 2011-2012 *Graduate Catalog*, under the Requirement heading, remove 2nd and 3rd bullet and replace with the following bullet.

Successful completion of 12 hours of course work in the major at the graduate level (400 or above), exclusive of Plant Sciences PLSC 502 and PLSC 503. With agreement of the graduate student's committee, six of these hours may be satisfied by ART 481, BCMB 404, BCMB 522, BCMB 523, CSE 560, EEB 414, EEB 433, EEB 560, ESS 434, ESS 544, ESS 511, ESS 516, GEOG 439, INSC 560, or SOCI 633.

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

In the 2011-2012 *Graduate Catalog*, under the Requirements Heading, remove the 5th paragraph. All other text remains as is.

Rationale: The Plant Sciences faculty determined that graduate student attendance at PLSC 504 Seminars should be expected of students but not a curricular requirement. PLSC 504 had exclusive enrollment from PS graduate students. Financial impact: We anticipate a decrease in enrollment in PLSC 504 and corresponding increase in other Plant Sciences courses.

COLLEGE OF ARCHITECTURE AND DESIGN

All changes effective fall 2012

PART II: PROGRAM CHANGES

- ◆ ADD CONCENTRATION - ARCHITECTURE MAJOR, MArch (FOR TRACK 1, TRACK 2 AND TRACK 3)
High Performance Buildings

In the 2012-13 *Graduate Catalog*, add the following heading, text, and requirements for the new concentration:

High Performance Buildings Concentration

Potential resources:
Institute for Smart Structures (ISS)
College of Engineering
Oak Ridge National Laboratory (ORNL)
Center for Clean Products (ISSE)

The high performance buildings concentration incorporates knowledge from a wide range of disciplines that share a common base within the College of Architecture and Design and other University of Tennessee Colleges and Institutes. The methodology is based on an integrated design process in which design, research and technology are reinforced with disciplines such as building design, product development, materials science, building physics, climatic design, structural design, computation and modeling, and production techniques. In addition, individual methods from these and other perspectives are also encouraged.

The high performance buildings concentration may address issues of the innovative and sustainable design of buildings, building components and (sub) systems of buildings, and on how these relate to each other and to architecture as an integrated complex system.

The high performance buildings concentration offers opportunities for topical study such as, but not limited to:

Advanced Skills in Design with Technology'
Facade Design and High-Performance Building Envelopes'
Innovative uses of Traditional materials, both massive and lightweight'
Building Performance Design, Development, and Evaluation (energy, structural, mechanic, construction, etc.)'
Digital Modeling and Digital Manufacturing'
Smart Structures and Lightweight Structures'
New Materials and environmental performance criteria'
Design with climate: daylight, solar, water harvesting, passive cooling'

Requirements for high performance buildings concentration:

One of the following:

ARCH 586 Adv Arch Des: Sustainable Arch (6)
ARCH 588 Adv Arch Des: Structural Innovations (6)
ARCH 590 Adv Arch Des: Special Topics (6)
ARCH 599 Design VII: Diploma Thematic Studio (6)

And, as an option for Track 1 only:

ARCH 572 Design VI: Design Integration (6)

plus 6 hours from the following list of courses in approved building technology topics:

ARCH 508 Preservation Technology (3)
ARCH 509 Seminar in Design Integration (3)
ARCH 525 Special Topics in Architecture (1-3)

Of the six elective hours, up to 3 hours may be from:

ARCH 526 Directed Readings in Architecture (3)
ARCH 593 Independent Study (1-9)

Of the six elective hours, up to 3 hours may be from approved courses in other departments, such as:

CE 562 Structural Systems (3)
CE 573 Prestressed Concrete (3)
CE 576 Masonry Design (3)
ME 567 Smart Structures and Materials (3)
MSE 512 Fundamentals of Materials Science and Engineering II (3)

Rationale: The HPB concentration is a spinoff of the Solar Decathlon project, the UT Zero work and the Institute for Smart Structures – all efforts in the College to advance the research cum teaching efforts of our faculty. This concentration should have a direct impact on the quality, quantity and diversity of our graduate recruiting efforts, and will position well the School within our peer and aspirational institutions. In addition, the HPB concentration impacts and benefits the School, the College and allied disciplines (particularly in engineering disciplines) pedagogically and financially through the evolution of HPB concentration coursework and associated grant funding in providing the opportunity to partner with internal and external units and organizations (see above). This has broader implications for the development faculty resources for supporting on-going research and research assistantships.

◆ ADD CONCENTRATION – ARCHITECTURE MAJOR, MArch (FOR TRACK 1, TRACK 2 AND TRACK 3)
Conservation and Stewardship

In the 2012-13 *Graduate Catalog*, add the following heading, text, and requirements for the new concentration:

Conservation and Stewardship Concentration

Potential resources:
Baker Center for Public Policy
UTK Library Special Collections
UTK McClung Museum
Knox Heritage
East Tennessee Historical Society and Museum
The Cultural Landscape Foundation (Washington)

The conservation and stewardship concentration has three goals: to expand local knowledge through topical research, to document the physical environment and the human effect on these environments, and to disseminate that documented knowledge to educate future practitioners and scholars, and the public at-large. Focusing on the local and regional characteristics of urban and landscape design provides a direct link to the College and University mission.

The conservation and stewardship concentration engages a wide range of disciplines that share common interests. This concentration is a multi-disciplinary, inter-collegiate locus of research and public service projects that operates across colleges, across campuses, across the state and region. It promotes and produces knowledge and techniques in the restoration and regeneration of a wide array of cultural artifacts. Broadly based in the arts and the sciences, the conservation and stewardship concentration focuses on collaborative research and coursework – in particular on the relationships between the design disciplines and their effect on both built and natural environments. With the increased concern for sustainable responses to designed and natural environments, the coursework explores the processes and systems that affect both local and global responses to contemporary issues of public policy.

The conservation and stewardship concentration offers opportunities for topical study such as, but not limited to:

Sustainable Urban and Rural Landscapes
TVA and Public Policy
Cultural Resource Conservation and Development
Architectural Preservation

Requirements for conservation and stewardship concentration

(Required of all Master of Architecture students in concentration)

ARCH 525 Research Methods

Six hours from the following:

ARCH 505 History and Theory of Architectural Stewardship (3)
ARCH 508 Preservation Technology (3)
ARCH 520 History of American Architecture (3)
ARCH 586 Adv Arch Des: Sustainable Arch (6)
ARCH 590 Adv Arch Des: Special Topics (6)
ARCH 599 Design VII: Diploma Thematic Studio (6)
ARCH 525 Special Topics in Architecture (1-3)
LAR 501 Introduction to Sustainable Design (3)
LAR 503 + 504 Landscape Architecture: Histories and Theories I + II

Up to 3 elective hours may be from:

ARCH 526 Directed Readings in Architecture (3)
ARCH 591 Foreign Study
ARCH 593 Independent Study (1-9)
LAR 515 Directed Readings in Landscape Architecture (3)

Of the six elective hours, 3 hours may be from approved courses in other departments, such as Art.
ART 481 Museum Studies I: Museums, Purpose and Function

ANTHROPOLOGY

ANTH 510 Method and Theory in Cultural Anthropology

CLASSICS

CLAS 436 Cities and Sanctuaries of the Greek and Roman World

GEOGRAPHY

GEOG 410 Global Positioning Systems and Geographic Data

GEOG 411 Introduction to Geographic Information Science

GEOG 421 Geography of Folk Societies

HISTORY

HIST 642 Seminar in 19th-Century United States

HIST 643 Seminar in 20th-Century United States

INTERDISCIPLINARY PROGRAMS

WOST 548 Transforming Critical Thinking: Constructive Thinking and Educational Implications

POLITICAL SCIENCE

POLS 548 Public Policy Process

POLS 549 Environmental Policy

POLS 556 Policy Analysis

Optional Course (Master of Architecture Student only)

ARCH 500* Thesis (directly related to CS topic as approved by committee)

* Requires a pre-requisite of Arch 580 (offered Fall Term only)



ADD CERTIFICATE – ARCHITECTURE MAJOR, MArch

Conservation and Stewardship

In the 2012-13 *Graduate Catalog*, add heading, text, and requirements for the new certificate:

Conservation and Stewardship Certificate

The College of Architecture and Design offers a certificate in Conservation and Stewardship that engages a wide range of disciplines. This program is a multi-disciplinary, inter-collegiate locus of research and public service projects that operates across colleges, across campuses, across the state and region. It promotes and produces knowledge and techniques in the restoration and regeneration of a wide array of cultural artifacts. Broadly based in the arts and the sciences, the Conservation and Stewardship Certificate focuses on collaborative research and coursework – in particular on the relationships between the design disciplines and their effect on both built and natural environments. The coursework explores the processes and systems that affect both local and global responses to contemporary issues of public policy. The certificate curriculum offers opportunities for topical study such as, but not limited to: Sustainable Urban and Rural Landscapes; TVA and Public Policy; Cultural Resource Conservation and Development; Architectural Preservation.

Admission

Submit online application to Graduate Admissions Office. Students must be admitted to the university as degree-seeking graduate students either in master's programs, doctoral programs, or in the certificate program. Application to the certificate program is made by submitting graduate transcripts and a letter of application to the Chair of Graduate Architecture.

Program of Study

The 12-hour certificate is earned by completing ARCH 525, and a minimum of 6 hours from the following directed electives: ARCH 505, ARCH 508, ARCH 520, ARCH 586, ARCH 590, ARCH 599, LAR 501, LAR 503, or LAR 504. For other recommended courses, consult with an academic advisor or the Chair of Graduate Architecture. To register for any Special Topics course, and for a list of other courses that fulfill the requirements for this certificate, students should consult with an academic advisor or the Chair of Graduate Architecture. Students must maintain a GPA of 3.0 in certificate-related courses.

‡ ADD CERTIFICATE – ARCHITECTURE MAJOR, MArch
High Performance Buildings

In the 2012-13 *Graduate Catalog*, add heading, text, and requirements for the new certificate:

High Performance Buildings Certificate

The High Performance Buildings Certificate (HPBC) incorporates knowledge from a wide range of disciplines that share a common base within the College of Architecture and Design and other University of Tennessee Colleges and Institutes. The methodology is based on an integrated design process in which design, research and technology are reinforced with disciplines such as building design, product development, materials science, building physics, climatic design, structural design, computation and modeling, and production techniques. In addition, individual methods from these and other perspectives are also encouraged.

Admission

Submit online application to Graduate Admissions Office. Students must be admitted to the university as degree-seeking graduate students either in master's programs, doctoral programs, or in the certificate program. Application to the certificate program is made by submitting graduate transcripts and a letter of application to the Chair of Graduate Architecture.

Program of Study

The 12-hour certificate is earned by completing one of the following graduate elective 6-hour studios: ARCH 586, ARCH 590. Students in the Track 1 curriculum may opt for ARCH 572. All students in the HPBC must choose two courses (6-hours) from the following 3-hour courses: ARCH 508, ARCH 509, or ARCH 525. To register for any Special Topics course, and for a list of other courses that fulfill the requirements for this certificate, students should consult with an academic advisor or the Chair of Graduate Architecture. Students must maintain a GPA of 3.0 in certificate-related courses.

Up to 6 hours from the following list of courses in approved building technology topics: ARCH 508, ARCH 509, or ARCH 525.

ARCH 505, ARCH 508, ARCH 520, ARCH 586, ARCH 590, ARCH 599, LAR 501, LAR 503, or LAR 504. For other recommended courses, consult with an academic advisor or the Chair of Graduate Architecture. Other course credits may be taken from a pool of courses approved by the Graduate Architecture Committee. Students must maintain a GPA of 3.0 in certificate-related courses.

REVISE TEXT – ARCHITECTURE MAJOR, MArch

In the 2011-12 *Graduate Catalog*, make the following revisions under the Architecture major:

Second paragraph, remove the fifth word “most” from the first sentence. And, remove the last two sentences from the same paragraph (paragraph ends with “standards”).

Fourth paragraph, Track 1, add “3-semester” to sentence as follows: Track 1 is a 3-semester post professional degree...

Fourth paragraph, Track 2, place sentence period after the word architecture and delete remainder of sentence.

Fourth paragraph, Track 3, delete current sentence and replace with the following: Track 3 is a 3.5 year professional degree program for students who already hold a bachelor's degree in another field other than architecture (students may be eligible for advanced standing).

Under Requirements Heading, second sentence, delete the word “must” and replace with “ought to” (options ought to be selected.)

COLLEGE OF ARTS AND SCIENCES

All changes effective fall 2012

PART I: COURSE CHANGES

SCHOOL OF ART

ARTA Art Two-Dimensional Arts

REVISE (RE) PREREQUISITE AND DELETE COMMENT

ARTA 413 Painting IV (6)

(RE) Prerequisite(s): 8 hours of 313.

REVISE (RE) PREREQUISITE

ARTA 431 Photography III (4)

(RE) Prerequisite(s): 331 or permission of instructor.

ARTC Art Four-Dimensional Arts

DROP PRIMARY CROSS LISTED COURSE (DROPPING ALSO FROM UG CATALOG)

ARTC 433 History of Film and Modern and Contemporary Art (3)

Cross-listed: (Same as Cinema Studies 430.)

Rationale: Course is being moved to Art History. Impact on other units: Cross listed with Cinema Studies. Financial impact: No impact.

REVISE PRIMARY COURSE TO CHANGE THE CROSS-LISTED SECONDARY NUMBER AND REVISE REPEATABILITY

ARTC 435 Cinematography as Art (4)

(Same as Cinema Studies 435.)

Repeatability: May be repeated. Maximum 16 hours.

ARTC 436 Video Art (4)

(Same as Cinema Studies 436.)

Repeatability: May be repeated. Maximum 16 hours.

Rationale: Allows students concentrating in four-dimensional art to use more hours as the content of these courses varies. Cinema Studies is changing their number to match the ARTC number.

ARTD Art Design/Graphic

REVISE (RE) PREREQUISITES AND (RE) COREQUISITES

ARTD 405 Computer Enhanced Graphic Design (3)

(RE) Prerequisite(s): 251 or permission of instructor.

(RE) Corequisite(s): 252.

(ARTH) Art History

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

ARTH 433 History of Film and Modern and Contemporary Art (3) Study of the development and interaction between the cinematic arts and the visual arts within the context of 20th- and 21st-century art history.

Cross-listed: (Same as Cinema Studies 433.)

Rationale: This course has been listed in four-dimensional arts and has always been available for art history and studio credit. The studio component has been dropped and the course is now more appropriately categorized as art history.

REVISE PRIMARY COURSES TO CHANGE THE CROSS-LISTED SECONDARY ACADEMIC DISCIPLINE

ARTH 431 Medieval Art of the West, 800-1400 (3)

Cross-listed: (Same as Judaic Studies 432; Medieval and Renaissance Studies 432.)

ARTH 441 Northern European Painting, 1350-1600 (3)

Cross-listed: (Same as Medieval and Renaissance Studies 442.)

ARTH 451 The Art of Italy, 1250-1450 (3)
Cross-listed: (Same as Medieval and Renaissance Studies 452.)

Rationale: Medieval Studies is changing to Medieval and Renaissance Studies.

(ART) Art

DROP

ART 563 Graduate Printmaking III (2-6)

ART 564 Graduate Printmaking IV (2-6)

REVISE TITLE

ART 535 Graduate 4D Arts I (2-6)

ART 536 Graduate 4D Arts II (2-6)

REVISE TO ADD REPEATABILITY

ART 561 Graduate Printmaking I (2-6)
Repeatability: May be repeated. Maximum 10 hours.

ART 562 Graduate Printmaking II (2-6)
Repeatability: May be repeated. Maximum 10 hours.

(Formerly: Not repeatable. May be taken once for 2-6 hours.)

DEPARTMENT OF BIOCHEMISTRY AND CELLULAR AND MOLECULAR BIOLOGY

(BCMB) Biochemistry and Cellular and Molecular Biology

REVISE TO DELETE (RE)PREREQUISITE AND ADD RECOMMENDED BACKGROUND

BCMB 512 Advanced Molecular Biology (3)
Recommended Background: Prior knowledge of molecular biology and biochemistry and/or consent of instructor.

DEPARTMENT OF CHEMISTRY

(CHEM) Chemistry

ADD

CHEM 603 Candidacy Proposal (2) Preparation of a candidacy proposal (CP) based on current and proposed research and oral defense of the CP that demonstrates an in depth and broad perspective.
Grading Restriction: Satisfactory/No Credit grading only.
Registration Restriction(s): Minimum student level - graduate.
Registration Permission(s): Consent of department head.

CHEM 604 Original Research Proposal (1) Preparation and oral defense of an original research proposal based on thorough survey of chemical literature.
Grading Restriction: Satisfactory/No Credit grading only.
Registration Restriction(s): Minimum student level - graduate.
Registration Permission(s): Consent of department head.

DROP

CHEM 601 Chemistry Research Proposal (2)

REVISE TO DELETE (RE) PREREQUISITE

CHEM 430 Advanced Inorganic Chemistry (3)

CHEM 552 Applications of Organic Reactions (3)

DEPARTMENT OF EARTH AND PLANETARY SCIENCES

(GEOL) Geology

ADD

GEOL 566 Water and Air Pollution (3) Focuses on the impacts of human activities on the water and atmospheric cycles. Emphasis is on field and lab activities to learn methods of measuring pollution. Topics include: industrial pollution, sewage contamination, heavy metals and some biological impacts.

Recommended Background: 1 lab course in Geology and 1 lab course in Chemistry.

REVISE RECOMMENDED BACKGROUND

GEOL 545 Siliciclastic Petrogenesis (4)

Recommended Background: Chemistry, mineralogy, petrology, sedimentology, or consent of instructor.

REVISE PRIMARY COURSE TO ADD CROSS LISTING AND REVISE RECOMMENDED BACKGROUND

GEOL 559 Introduction to Oceanography (3)

Cross-listed: (Same as Microbiology 559.)

Recommended Background: Introductory geology or introductory biology or consent of instructor.

RESCIND COURSE ADD – (GEOL 552, FROM FEBRUARY 2010 MINUTES, PAGE G1483)

Rescind course add (GEOL 552, Process Geomorphology) from February 2010 Minutes due to miscommunication between the primary (Geology) and secondary (Geography). The action request: drop GEOL 450 for graduate credit and add it as a 500-level course GEOL 552, was not communicated to the Geography Department. Consequently, Geography students have taken GEOG 450, not realizing the course was not available for GR credit. Because GEOL 552 was never offered nor in the Timetable, then we are able to remove it in Banner without any complications.

DEPARTMENT OF ECOLOGY AND EVOLUTIONARY BIOLOGY

(EEB) Ecology and Evolutionary Biology

REVISE TO DROP (RE) PREREQUISITE AND ADD RECOMMENDED BACKGROUND

EEB 474 Ichthyology (4)

Recommended Background: Biology 250.

EEB 484 Conservation Biology (3)

Recommended Background: Biology 250.

DEPARTMENT OF ENGLISH

(ENGL) English

ADD

ENGL 555 Creative Thesis (1-6) Supervised writing of a book-length creative thesis, typically a collection of poems or short stories or a novel.

Grading Restriction: Satisfactory/No Credit grading only.

Repeatability: May be repeated. Maximum 6 hours.

Credit Level Restriction: Graduate credit only.

Registration Restriction(s): Master of Fine Arts – English major. Minimum student level - graduate.

Rationale: Serves as the thesis course for the new MFA degree, creative writing concentration. Financial impact: None.

REVISE PRIMARY COURSE TO CHANGE THE SECONDARY ACADEMIC DISCIPLINE

ENGL 401 Medieval Literature (3)

Cross-listed: (Same as Medieval and Renaissance Studies 405.)

ENGL 402 Chaucer (3)

Cross-listed: (Same as Medieval and Renaissance Studies 406.)

Rationale: Medieval Studies academic discipline is changing to Medieval and Renaissance Studies.

DEPARTMENT OF GEOGRAPHY

(GEOG) Geography

ADD

GEOG 516 Topics in Qualitative Methods (3) Overview of key qualitative methodology in human geography. Qualitative research design and rigor; fieldwork methods; research ethics.

GEOG 530 Pollen and Other Microfossils in Quaternary Research (3) Pollen grains and other microfossils in Quaternary sediments as proxy indicators of past vegetation, climate, and disturbance regimes.

GEOG 581 Grant Proposal Writing in Geography (3) Writing successful grant proposals to secure funding for research and other scholarly pursuits in geography.
Grading Restriction: Satisfactory/No Credit grading only.
(RE) Corequisite(s): 504.

REVISE REPEATABILITY

GEOG 509 Topics in Geography (2-3)

Repeatability: May be repeated with consent of instructor. Maximum 9 hours.

REVISE DESCRIPTION

GEOG 435 Biogeography (3) Study of the changing distribution patterns of plants and animals on a variety of spatial and temporal scales. The effects of plate tectonics, climate change, and human activity on world biota.

INTERDISCIPLINARY PROGRAMS

Cinema Studies

(CNST) Cinema Studies

ADD NEW 400-LEVEL SECONDARY CROSS LISTED COURSES FOR GRADUATE CREDIT

CNST 433 History of Film and Modern Art (3)

Cross-listed: (See Art History 433.)

CNST 435 Cinematography as Art (4)

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

CNST 436 Video Art (4)

Cross-listed: (See Art Four Dimensional Arts 436.)

DROP SECONDARY 400-LEVEL CROSS LISTED COURSES

CNST 430 History of Film and Modern Art (3) [Primary: Art Four-Dimensional Arts (ARTC) 433]

CNST 431 Cinematography as Art (4) [Primary: Art Four-Dimensional Arts (ARTC) 435]

CNST 432 Video Art (4) [Primary: Art Four-Dimensional Arts (ARTC) 436]

Rationale: The Cinema Studies program would like to go back to the former numbers for these courses so they will be the same numbers as the primary courses. All are cross listed Art Four Dimensional Arts or Art History courses. Financial impact: No impact.

Cinema Studies Equivalency Table

Current Courses	Equivalent Courses Effective Fall 2012
CNST 430 (Primary: ARTC 433)	CNST 433 (Primary ARTH 433)
CNST 431 (Primary: ARTC 435)	CNST 435 (Primary ARTC 435)
CNST 432 (Primary: ARTC 436)	CNST 436 (ARTC 436)

Latin American Studies

(LAMS) Latin American Studies

✚ DROP ACADEMIC DISCIPLINE AND ALL COURSES

LAMS 430 - Contemporary Brazilian Studies (3) (Primary course: Portuguese 430)

LAMS 432 - Topics in Literature and Culture of the Portuguese-speaking World (3) (Primary: Portuguese 432)

LAMS 456 - Latin American Government and Politics (3) (Primary: Political Science 456)

LAMS 465 - Latin American Film and Culture (3) (Primary: Spanish 465)

LAMS 479 - Disenchanted Texts in Hispanic Literature (3) (Primary: Spanish 479)

LAMS 510 Special Topics (3)

+ ADD ACADEMIC DISCIPLINE, SUBJECT CODE, AND COURSES; AND CROSS-LIST 400-LEVEL AS SECONDARY

(LAC) Latin American and Caribbean Studies

LAC 430 - Contemporary Brazilian Studies (3)

Cross-listed: (See Portuguese 430.)

LAC 432 - Special Topics in Literature and Culture of the Portuguese-speaking World (3)

Cross-listed: (See Portuguese 432.)

LAC 465 - Latin American Film and Culture (3)

Cross-listed: (See Spanish 465.)

LAC 479 - Disenchanted Texts in Hispanic Literature (3)

Cross-listed: (See Spanish 479.)

LAC 510 Special Topics (3) Topics vary.

Repeatability: May be repeated. Maximum 6 hours.

Rationale: The name change to Latin American and Caribbean Studies, recognizes the international approach to studying Latin American and the Caribbean in a comprehensive and holistic manner. Faculty added who have an expertise in the Caribbean.

Equivalency Table

Current LAMS courses	Equivalent LAC Courses Effective Fall 2012
430 (Primary: Portuguese 430)	430 (Primary: Portuguese 430)
432 (Primary: Portuguese 432)	432 (Primary: Portuguese 432)
465	465
479	479
510	510

Medieval Studies

(MDST) Medieval Studies

+ DROP ACADEMIC DISCIPLINE, SUBJECT CODE, AND ALL COURSES

MDST 401 Dante and Medieval Culture (Primary: Italian 401)

MDST 402 Petrarch and Boccaccio (Primary: Italian 402)

MDST 405 Medieval Literature (Primary: English 401)

MDST 406 Chaucer (Primary: English 402)

MDST 410 Topics in Medieval/Early Modern French Literature (Primary: French 410)

MDST 432 Medieval Art of the West, 800-1400 (Primary: Art History 431)

MDST 442 Northern European Painting, 1350-1600 (Primary: Art History 441)

MDST 452 The Art of Italy, 1250-1450 (Primary: Art History 451)

MDST 475 Ancient and Medieval Political Thought (Primary: Political Science 475)

MDST 510 Special Topics

+ ADD ACADEMIC DISCIPLINE, SUBJECT CODE, AND COURSES AND CROSS-LIST 400-LEVEL AS SECONDARY

(MRST) Medieval and Renaissance Studies

MRST 401 - Dante and Medieval Culture (3)

Cross-listed: (See Italian 401.)

MRST 402 - Petrarch and Boccaccio (3)*Cross-listed: (See Italian 402.)***MRST 405 - Medieval Literature (3)***Cross-listed: (See English 401.)***MRST 406 – Chaucer (3)***Cross-listed: (See English 402.)***MRST 410 - Topics in Medieval/Early Modern French Literature (3)***Cross-listed: (See French 410.)***MRST 432 - Medieval Art of the West, 800-1400 (3)***Cross-listed: (See Art History 431.)***MRST 442 - Northern European Painting, 1350-1600 (3)***Cross-listed: (See Art History 441.)***MRST 452 - The Art of Italy, 1250-1450 (3)***Cross-listed: (See Art History 451.)***MRST 510 Special Topics (3) Topics vary.***Repeatability: May be repeated. Maximum 6 hours.*

Rationale: The Marco Institute and the Medieval Studies program intend for this program to assume a newly expanded range of chronological study to include interdisciplinary courses, materials, faculty, and students of both the middle-ages and the renaissance era. The name change reflects this newly expanded emphasis.

EQUIVALENCY TABLE

Current Course MEDIEVAL STUDIES [MDST]	Equivalent Course Fall 2012 MEDIEVAL and RENAISSANCE STUDIES, [MRST]
MDST 401 (Primary ITAL 401)	MRST 401 (Primary ITAL 401)
MDST 402 (Primary ITAL 402)	MRST 402 (Primary ITAL 402)
MDST 405 (Primary ENGL 401)	MRST 405 (Primary ENGL 401)
MDST 406 (Primary ENGL 402)	MRST 406 (Primary ENGL 402)
MDST 410 (Primary FREN 410)	MRST 410 (Primary FREN 410)
MDST 432 (Primary ARTH 431)	MRST 432 (Primary ARTH 431)
MDST 442 (Primary ARTH 441)	MRST 442 (Primary ARTH 441)
MDST 452 (Primary ARTH 451)	MRST 452 (Primary ARTH 451)
MDST 510	MRST 510

DEPARTMENT OF MATHEMATICS**(MATH) Mathematics**

REVISE TO DELETE DE PREREQUISITE

MATH 421 Combinatorics (3)**DEPARTMENT OF MICROBIOLOGY****(MICR) Microbiology**

ADD NEW 400-LEVEL SECONDARY COURSE FOR GRADUATE CREDIT

MICR 421 Food Microbiology (3)*Cross-listed: (See Food Science and Technology, 421.)*

ADD SECONDARY CROSS LISTED COURSE

MICR 559 Introduction to Oceanography (3)*Cross-listed: (See Geology 559.)*

DEPARTMENT OF MODERN FOREIGN LANGUAGES AND LITERATURES

(FREN) French

REVISE PRIMARY COURSE TO CHANGE ACADEMIC DISCIPLINE NAME OF THE SECONDARY

FREN 410 Topics in Medieval/Early Modern French Literature (3)

Cross-listed: (Same as Medieval and Renaissance Studies 410.)

(ITAL) Italian

ADD NEW 400-LEVEL COURSE FOR GRADUATE CREDIT

ITAL 405 Topics in Italian Culture, History, and Literature (3) Comprehensive view and critical analysis of themes related to Italian culture. Taught in Italian. Topics vary by semester. Writing Emphasis Course.

Repeatability: May be repeated. Maximum 6 hours.

REVISE PRIMARY COURSE TO CHANGE ACADEMIC DISCIPLINE NAME OF THE SECONDARY

ITAL 401 Dante and Medieval Culture (3)

Cross-listed: (Same as Medieval and Renaissance Studies 401.)

ITAL 402 Petrarch and Boccaccio (3)

Cross-listed: (Same as Medieval and Renaissance Studies 402.)

(PORT) Portuguese

REVISE PRIMARY COURSE TO CHANGE ACADEMIC DISCIPLINE NAME OF THE SECONDARY

PORT 430 Contemporary Brazilian Studies (3)

Cross-listed: (Same as Latin American and Caribbean Studies 430.)

PORT 432 Topics in the Literature and Culture of the Portuguese-speaking World (3)

Cross-listed: (Same as Latin American and Caribbean Studies 432.)

(SPAN) Spanish

REVISE PRIMARY COURSE TO CHANGE ACADEMIC DISCIPLINE NAME OF THE SECONDARY

SPAN 465 Latin American Film and Culture (3)

Cross-listed: (Same as Cinema Studies 465; Latin American and Caribbean Studies 465.)

SPAN 479 Disenchanted Texts in Hispanic Literature (3)

Cross-listed: (Same as Latin American and Caribbean Studies 479.)

SCHOOL OF MUSIC

(MUEN) Music Ensemble

REVISE TITLE

MUEN 554 Pep Band (1)

(MUV) Music Voice

REVISE HOURS AND REPEATABILITY

MUV 510 Vocal Literature Seminar (2)

Repeatability: May be repeated. Maximum 4 hours.

DEPARTMENT OF PHILOSOPHY

(PHIL) Philosophy

ADD

PHIL 573 Topics in Metaphysics (3) Topics vary.
Repeatability: May be repeated if topic differs. Maximum 9 hours.

PHIL 574 Topics in Epistemology (3) Topics vary.
Repeatability: May be repeated if topic differs. Maximum 9 hours.

PHIL 626 Topics in Metaphysics and Epistemology (3) Topics vary.
Repeatability: May be repeated if topic differs. Maximum 9 hours.

DROP

PHIL 543 Topics in Business Ethics (3)

PHIL 544 Topics in Applied Ethics (3)

PHIL 546 Topics in Bioethics (3)

Rationale: The department no longer has particular strength in these areas. If the content is on occasion desired for a course, we will teach it under the title Topics in Ethics or Value Theory. Impact on other units: No known impact. Financial impact: No impact.

PHIL 549 Practicum in Applied Ethics (1-3)

Rationale: The department no longer places sufficient emphasis on Applied Ethics to require this formal option.

PHIL 575 Topics in Metaphysics and Epistemology (3)

Rationale: Being replaced by the two added courses 573 and 574, which reflect the teaching areas of two faculty members.

PHIL 589 PhD Practicum in Applied Ethics (1-15)

REVISE (RE) PREREQUISITE

PHIL 435 Intermediate Formal Logic (3)
(RE) Prerequisite(s): 235.

DEPARTMENT OF PHYSICS AND ASTRONOMY

(PHYS) Physics

ADD NEW 400-LEVEL COURSE FOR GRADUATE CREDIT

PHYS 405 Science, Technology, and Public Policy (3) The United States faces challenges which include climate change, energy independence, human genomics, nano-technology, and modified food crops. The process by which public policy decisions are made, currently and historically, in the federal government is examined with an eye to the role scientists, advocacy groups, industry, researchers, national laboratories and individual citizens play in setting public policy. The role played by political values in setting the research agenda is explored.
Registration Restriction: Minimum junior standing.

Rationale: No course at UT currently addresses these issues. Similar courses exist at other universities. Impact on other units: No impact (course may in the future be co-listed with Political Science). Financial impact: No impact.

DEPARTMENT OF POLITICAL SCIENCE

(POLS) Political Science

ADD

POLS 543 Law, Regulation and Public Policy (3) Policymaking by executive agencies through rulemaking, enforcement and adjudication; legislative, executive and judicial control of agency actions.

POLS 553 Non-Profit Management (3) An overview of the history, scope, and management of not-for-profit organizations.

POLS 571 Foundations of Security Studies (3) Analysis of decision making in security affairs. Topics covered include deterrence theory, crisis stability, nuclear strategy, and the political uses of military coercion.

POLS 573 War, Peace, and Grand Strategy (3) An exploration of the military, economic, and social sources of great power competition in international politics.

POLS 599 Professional Development (1) Discussion of issues pertaining to teaching, research, and service for political scientists in academic and applied settings.

Rationale: This course will replace 594. It will subsume the college teaching course, but will be much broader. Financial impact: None.

DROP 400-LEVEL COURSES FOR GRADUATE CREDIT (RETAINING COURSES IN UNDERGRADUATE CATALOG)

POLS 425 Media and Politics (3)

POLS 430 United States Constitutional Law: Sources of Power and Restraint (3)

POLS 431 United States Constitutional Law: Civil Rights and Liberties (3)

POLS 435 Criminal Law and Procedure (3)

POLS 441 Public Budgeting (3)

POLS 442 Administrative Law and Regulatory Policymaking (3)

POLS 445 Administration of Justice (3)

POLS 451 Ethnic Conflict in Foreign Countries (3)

POLS 452 The Politics of Sub-Saharan Africa (3)

POLS 454 Government and Politics of China and Japan (3)

POLS 456 Latin American Government and Politics (3)

POLS 459 Government and Politics of Russia and Eastern Europe (3)

POLS 461 Policymaking in Democracies (3)

POLS 463 Contemporary Middle East Politics (3)

POLS 471 International Political Economy (3)

POLS 473 Negotiation, Bargaining and Diplomacy (3)

POLS 474 International Organization (3)

POLS 475 Ancient and Medieval Political Thought (3)

POLS 476 Modern Political Thought (3)

Rationale: Our Graduate Handbook prohibits our graduate students taking undergraduate courses for graduate credit. We have expanded our graduate curriculum so that there are ample offerings for our graduate students as well as graduate students in other programs. We do not need to retain these undergraduate courses in the graduate catalog. Financial impact: No impact.

DROP

POLS 520 Political Theory (3)

POLS 582 Land Use and Comprehensive Planning (3)

POLS 584 Environmental Planning (3)

POLS 594 College Teaching in Political Science (1)

POLS 597 Special Topics in Planning (1-3)

POLS 628 Topics in Political Theory (3)

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

REVISE TITLE

POLS 514 Research Design and Methodology in Public Administration (3)

DEPARTMENT OF PSYCHOLOGY

(PSYC) Psychology

ADD NEW 400-LEVEL COURSES FOR GRADUATE CREDIT

PSYC 433 Theories of Counseling Psychology (3) Traditional and contemporary theoretical conceptualizations and strategies in counseling psychology practice.

(RE) Prerequisite(s): 110 or 117 or consent of instructor.

PSYC 436 Positive Psychology (3) Theories and research about subjective well-being, neuropsychological correlates of positive emotions, and practical application of psychological resources such as optimism, resilience, and mindfulness.

(RE) Prerequisite(s): 110 or 117 or consent of instructor.

PSYC 464 Drugs and Behavior (3) A review of the behavioral and neurobiological actions of all major psychoactive drugs, focusing on how drugs alter behavior by influencing brain mechanisms.

(RE) Prerequisite(s): 110 or 117 or consent of instructor.

ADD

PSYC 660 Responsible Conduct of Research in Behavioral Science (3) Ethical issues in psychological research: advising & mentoring, authorship, conflicts of interest, data handling, human subjects, misconduct, non-human animal subjects.

REVISE HOURS

PSYC 596 Lab in Psychological Assessment (2)

REVISE REPEATABILITY

PSYC 674 Advanced Practicum in Counseling Psychology (3-6)
Repeatability: May be repeated. Maximum 24 hours.

PSYC 676 Field Placement in Counseling Psychology (3)
Repeatability: May be repeated. Maximum 24 hours.

REVISE TO ADD REPEATABILITY

PSYC 698 Seminar in Supervision and Consultation (1)
Repeatability: May be repeated. Maximum 4 hours.

DEPARTMENT OF RELIGIOUS STUDIES

(REST) Religious Studies

REVISE TO DELETE REGISTRATION PERMISSION

REST 425 Seminar in Western Religions (3)

REST 430 Seminar in North American Religions (3)

REVISE DESCRIPTION AND REMOVE REGISTRATION PERMISSION

REST 440 Seminar in Comparative Religion (3) Cross-cultural analysis of global religious actors, movements, and themes.

DEPARTMENT OF SOCIOLOGY

(SOCI) Sociology

ADD NEW 400-LEVEL COURSES FOR GRADUATE CREDIT

SOCI 431 Applied Sociological Research (3) Survey of advanced topics in sociological research, and hands-on application of research methods.
(RE) Prerequisite(s): 331.
Comment(s): Encouraged for students interested in graduate school. Required for sociology honors students.

SOCI 449 Juvenile Delinquency and Social Policy (3) Examines the historical and contemporary nature and social contexts of juvenile delinquency, as well as theoretical explanations of and social reactions to delinquency in American society.

SOCI 456 Punishment and Society (3) Examines theories and practices of punishment, including imprisonment, capital punishment, transnational penal trends, and social policy alternatives.

SOCI 466 Issues in Race and Ethnicity (3) Survey of advanced topics in the sociological study of race and ethnicity.

DROP 400-LEVEL COURSES (DROPPING ALSO FROM UG CATALOG)

SOCI 445 Global Solutions for Global Justice (3)

SOCI 459 White Collar Crime (3)

SOCI 462 Population (3)

Rationale: 462 is being moved to the 300 level where it is more appropriate.

EQUIVALENCY TABLE

Current Course	Equivalent Course Effective Fall 2012
SOCI 351	SOCI 449
SOCI 462	SOCI 362

REVISE TITLE

SOCI 455 Law and Society (3)

PART II: PROGRAM CHANGES

DEPARTMENT OF CHEMISTRY

REVISE REQUIREMENTS – CHEMISTRY MAJOR, PHD

In the 2011-12 Graduate Catalog, delete bullet 4 and replace with the following:

Preparation of a written candidacy proposal (CP) based on current and proposed research and oral defense of the CP to give 2 hours credit in CHEM 603.

Also, add the sentence below as bullet 5.

Preparation and defense of an original research proposal (ORP) to give 1 hour of credit in CHEM 604.

With the addition of bullet 5, there are now 7 bullets total.

DEPARTMENT OF ECOLOGY AND EVOLUTIONARY BIOLOGY

- ◆ ADD CONCENTRATION – ECOLOGY AND EVOLUTIONARY BIOLOGY MAJOR – PHD
Energy Science and Engineering concentration

In the 2011-12 Graduate Catalog, add heading, text, and requirements for participation in the ESE concentration.

Energy Science and Engineering Concentration

This concentration is offered in collaboration with the Center for Interdisciplinary Research and Graduate Education (CIRE). The CIRE is a joint effort between University of Tennessee colleges and the Oak Ridge National Laboratory. The students who wish to pursue this concentration will normally have completed 6 credit hours of the ESE Core for CIRE students, 8 credit hours of the Core for EEB students, and 1 hour of CIRE seminar.

DEPARTMENT OF ENGLISH

- ▶ ADD MAJOR AND DEGREE
English Major – Master of Fine Arts (MFA) **(PENDING THEC APPROVAL)**
- ◆ ADD CONCENTRATIONS – ENGLISH MAJOR, MA
Literature, Criticism, and Textual Studies concentration
Rhetoric, Writing, and Linguistics concentration
- ◆ DROP CONCENTRATION – ENGLISH MAJOR, MA
Writing concentration
- ◆ ADD CONCENTRATIONS – ENGLISH MAJOR, PHD
Creative Writing concentration
Literature, Criticism, and Textual Studies concentration
Rhetoric, Writing, and Linguistics concentration

In the 2011-12 *Graduate Catalog*, revise introductory paragraph to reflect the above degree and concentration changes.

The Department of English offers the Master of Arts, Master of Fine Arts, and Doctor of Philosophy degrees with a major in English. Concentrations for the MA are available in the following two areas: Literature, Criticism, and Textual Studies (thesis or non-thesis option) and Rhetoric, Writing, and Linguistics (thesis option only). Concentrations for the PhD are available in Literature, Criticism, and Textual Studies; Rhetoric, Writing, and Linguistics; and Creative Writing (with creative dissertation).

ADD HEADING AND TEXT FOR NEW CONCENTRATION FOR THE ENGLISH MAJOR, MA

In the 2011-12 *Graduate Catalog*, remove the "Writing concentration" heading and text and replace with heading and text for new concentration.

Rhetoric, Writing, and Linguistics concentration

The MA's concentration in rhetoric, writing, and linguistics offers specialized training for students who plan to do free-lance writing, to teach writing courses at the college level, to work as professional writers in business or industry, or to pursue the PhD in writing, rhetoric or composition. The program combines aspects of our regular MA degree training with specific writing courses and a thesis project that allows students to explore their topic in greater depth. Our graduates go on to excellent PhD programs in English as well as careers in editing, publishing, technical writing, and the non-profit and private sectors. Students who go on to complete the PhD may also find the MA with writing emphasis excellent training for programs in Rhetoric and Composition.

REVISE ENGLISH MAJOR – MA – WRITING PROJECT

In the 2011-12 *Graduate Catalog*, remove all current text under the Writing Project heading and replace with the following:

Thesis

Students must complete a thesis that uses research to analyze some aspect of writing or rhetorical theory. The nature and length of the thesis project will be determined by the Director of Graduate Studies in English after consulting with the student and the thesis director. In addition to the thesis director, two other Department of English faculty members will supervise and approve the thesis; at least one should be from the literature faculty.

ADD HEADING, TEXT, AND REQUIREMENTS FOR THE NEW MFA DEGREE

English Major, MFA (Pending THEC Approval)

The MFA degree with an emphasis in Creative Writing promotes a combination studio/academic course of study allowing degree candidates to hone their skills as writers and grow as artists through rigorous application of craft. Students receive critical feedback on poetry, fiction and creative nonfiction in writing workshops, scrutinize aspects of genre in special topics classes and investigate larger theoretical and historical contexts for creative work in Literature and RWL classes.

The program culminates in a thesis project comprised of a book length manuscript of original creative work. While the MFA is an ideal stepping stone for those students who plan to teach creative writing at any level and those who wish to pursue a PhD in English with a concentration in Creative Writing, the faculty of the Creative Writing Program at the University of Tennessee believes that study and practice of literary arts is intrinsically valuable and our program is designed first and foremost for those students who wish to dedicate their lives to writing well.

1. Students must complete 12 hours chosen from the following four courses:

ENGL 580
ENGL 581
ENGL 582
ENGL 686

2. Students must complete 12 hours chosen from the following courses:

ENGL 506	ENGL 507	ENGL 508	ENGL 509	ENGL 513	ENGL 514	ENGL 520	ENGL 521
ENGL 531	ENGL 540	ENGL 541	ENGL 550	ENGL 551	ENGL 552	ENGL 560	ENGL 561
ENGL 575	ENGL 576	ENGL 583	ENGL 584	ENGL 585	ENGL 586	ENGL 588	ENGL 589
ENGL 590	ENGL 591	ENGL 593	ENGL 594	ENGL 600	ENGL 610	ENGL 611	ENGL 620
ENGL 621	ENGL 630	ENGL 631	ENGL 640	ENGL 641	ENGL 650	ENGL 651	ENGL 652
ENGL 660	ENGL 661	ENGL 662	ENGL 670	ENGL 671	ENGL 672	ENGL 680	ENGL 682
ENGL 690	ENGL 694						

3. Students must complete 6 hours of ENGL 555.

4. Foreign Language Requirement:

MFA candidates must demonstrate proficiency in one foreign language. This requirement can be fulfilled in one of the following ways: Completion of a second year of language at college level with a grade of C or better, completion of French 302 or German 332 with a grade of B or better, or by passing a foreign language examination as administered at the University of Tennessee.

5. Final Examination:

MFA candidates must pass an oral examination, which consists of a public reading from the candidate's project in lieu of thesis, followed by a question-and-answer session open to both the public and the professorial committee.

Rationale: This is to better serve those students who would like to do the creative writing MFA but who now enroll in the writing concentration in the MA program. Having both degrees will allow the department to develop curricula appropriate for the two populations of students. Impact on other units: No impact. Financial impact: No impact.

INTERDISCIPLINARY PROGRAMS

REVISE REQUIREMENTS – MEDIEVAL STUDIES CERTIFICATE

In the 2011-12 Graduate Catalog, under the Requirements heading, first and second bullets, change the academic discipline of MDST to MRST.

DEPARTMENT OF MODERN FOREIGN LANGUAGES AND LITERATURES

ADD FIVE YEAR BA-MA PROGRAM TO FRENCH

In the 2011-12 *Graduate Catalog*, add the 5-year BA-MA Program to French

Five-Year BA-MA Program – French Major

For qualified students, the Department of Modern Foreign Languages and Literatures offers a 5-year BA-MA program with a BA major in French and Francophone Studies and a non-thesis MA major in French. The primary component of the 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 BA degree and the MA degree. Qualifications for admission to the program are:

- The student must have an overall cumulative GPA of 3.0 and a cumulative GPA of 3.5 in undergraduate French courses to be considered for admission to the program.
- Conditional and full admission of a student into this program must be approved by the Department of Modern Foreign Languages and Literatures and by the Graduate School.
- Conditional admission may be granted after completing 64 hours of the requirements for the BA in French and Francophone Studies, as specified by any Undergraduate Catalog in effect during that student's attendance at the University of Tennessee, Knoxville, provided that the Catalog has been in effect within six years of the date of graduation.
- Conditional admission must be obtained before taking a graduate course that is to be used to satisfy the requirements of both the BA degree and the MA degree.
- Full admission may be granted after completing 96 hours of the requirements for the BA in French and Francophone Studies, as specified by any Undergraduate Catalog in effect during that student's attendance at the University of Tennessee, Knoxville, provided that the Catalog has been in effect within six years of the date of graduation. A cumulative GPA of 3.5 in undergraduate French courses is required for full admission.
- Any course taken for graduate credit prior to satisfying all requirements for the BA degree must be approved by the department head (or designee) and by the Graduate School.
- A student will not be eligible for a graduate assistantship until the student has satisfied all of the requirements for the BA degree.

ADD FIVE YEAR BA-MA PROGRAM TO GERMAN

In the 2011-12 *Graduate Catalog*, add the 5-year BA-MA Program to German

Five-Year BA-MA Program – German Major

For qualified students, the Department of Modern Foreign Languages and Literatures offers a 5-year BA-MA program with a BA major in German and a non-thesis MA major in German. The primary component of the 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 BA degree and the MA degree. Qualifications for admission to the program are:

- The student must have an overall cumulative GPA of 3.0 and a cumulative GPA of 3.5 in undergraduate German courses to be considered for admission to the program.
- Conditional and full admission of a student into this program must be approved by the Department of Modern Foreign Languages and Literatures and by the Graduate School.
- Conditional admission may be granted after completing 64 hours of the requirements for the BA in German, as specified by any Undergraduate Catalog in effect during that student's attendance at the University of Tennessee, Knoxville, provided that the Catalog has been in effect within six years of the date of graduation.
- Conditional admission must be obtained before taking a graduate course that is to be used to satisfy the requirements of both the BA degree and the MA degree.
- Full admission may be granted after completing 96 hours of the requirements for the BA in German, as specified by any Undergraduate Catalog in effect during that student's attendance at the University of Tennessee, Knoxville, provided that

the Catalog has been in effect within six years of the date of graduation. A cumulative GPA of 3.5 in undergraduate German courses is required for full admission.

- Any course taken for graduate credit prior to satisfying all requirements for the BA degree must be approved by the department head (or designee) and by the Graduate School.
- A student will not be eligible for a graduate assistantship until the student has satisfied all of the requirements for the BA degree.

DEPARTMENT OF PHYSICS AND ASTRONOMY

- ◆ DROP CONCENTRATION – PHYSICS MAJOR, MS
Health Physics
- ◆ ADD CONCENTRATION – PHYSICS MAJOR – PHD
Energy Science and Engineering concentration

In the 2011-12 Graduate Catalog, add heading, text, and requirements for participation in the ESE concentration.

Energy Science and Engineering Concentration

This concentration is offered in collaboration with the Center for Interdisciplinary Research and Graduate Education (CIRE). The CIRE is a joint effort between University of Tennessee colleges and the Oak Ridge National Laboratory. The students who wish to pursue this concentration will normally have completed the ESE Core for CIRE students, and 1 hour of CIRE seminar.

In the graduate catalog, Physics Major, PhD, after the 2nd paragraph, insert the following paragraph

Students concentrating in energy science and engineering must take a minimum of 15 hours of 600-level courses, of which at least 6 hours are offered by the department and at least 6 hours are from a list of courses offered by several departments which are appropriate for a concentration in energy science and engineering. This list is available from the Graduate Program Director.

In the graduate catalog, Physics Major, PhD, 1st paragraph, after 2nd sentence (chemical physics sentence), insert the following sentence

Students concentrating in energy science and engineering should complete ESE 511, ESE 512 (Introduction to Energy Science and Technology (3 + 3 credits), at least 3 hours from the Knowledge Breadth Curriculum (a list of courses is available from the Graduate Program Director) and 3 credit hours (1+1+1) of topical seminars in the focus area of CIRE.

DEPARTMENT OF POLITICAL SCIENCE

- ▶ DROP MAJOR AND DEGREE
Public Administration Major, MPA degree
- ▶ ADD MAJOR AND DEGREE
Public Policy and Administration Major, MPPA (Master of Public Policy and Administration) Pending THEC Approval

In the 2012 *Graduate Catalog*, add the following new program

Public Policy and Administration Major, MPPA Pending THEC Approval

The Master of Public Policy and Administration (MPPA) degree with a major in Public Policy and Administration prepares students for careers in the public and not-for-profit sectors. After completing a common core of foundational courses, students specialize either in public management or public policy. The program consists of a total of 36 credit hours and includes a recommended internship. No thesis is required for the completion of the degree.

Admission

Applicants for admission to the program must have a bachelor's degree or its equivalent. Normally, an overall average of 3.0 and an average of 3.2 in the last two years of Political Science or social science courses are required. In addition, all students must submit acceptable scores from the Graduate Record Examination (GRE) general.

Requirements

The MPPA is a non-thesis program requiring 36 hours. Specific requirements include the following.

I. Foundations of Public Policy and Administration 21 hours

Part A. (all four of the following courses are required)

Political Science 550 Public Administration
Political Science 548 Public Policy Process
Political Science 560 Public Budgeting and Finance
Political Science 562 Public Management

Part B. (two of the following courses are required)

Political Science 512 Quantitative Political Analysis
Political Science 513 Quantitative Political Analysis
Political Science 514 Research Design and Methodology in Public Administration

Part C. (one of the following courses is required)

Political Science 539 State and Local Government
Political Science 542 Legal Foundations of Public Administration
Political Science 558 Politics of Administration
Political Science 566 Ethics, Values, and Morality in Public Administration

II. Specialized Track 9 hours

Students must choose either the Management Track or one of the Policy tracks.

Management Track (three of the following courses are required)

Political Science 539 State and Local Government
Political Science 542 Legal Foundations of Public Administration
Political Science 558 Politics of Administration
Political Science 564 Human Resource Management
Political Science 566 Ethics, Values, and Morality in Public Administration
Political Science 660 Contemporary Perspectives on Public Administration

Note: Students may use one course outside the department to meet this requirement with the prior approval of the program director.

General Policy Track (three of the following courses are required)

Political Science 549 Environmental Policy
Political Science 556 Policy Analysis
Political Science 581 Foundations of Planning
Political Science 654 Contemporary Public Policies

Note: Students may use one course outside the department to meet this requirement with the prior approval of the program director.

Global Security Policy Track (three of the following courses are required)

Political Science 556 Policy Analysis
Political Science 580 International Relations
Political Science 682 Theory and Analysis of U.S. Foreign Policy
Political Science 684 International Law
Political Science 685 Conflict Processes
Political Science 686 Arms Control, Deterrence and Nuclear Nonproliferation

Note: Students may use one course outside the department to meet this requirement with the prior approval of the program director.

III. Internship 6 hours

Political Science 569 Internship in Public Administration

Note: Although an internship is highly recommended, students may choose to take two additional approved courses in lieu of an internship. Students may take these courses outside the department to meet this requirement with the prior approval of the program director.

Rationale: The MPA program is being recast as Master of Public Policy and Administration. By broadening the focus of the program, we can involve more faculty members, attract a wide pool of students, and greatly expand opportunities for internships. Adding the two policy tracks also brings the program more into line with our PhD program. Finally, this restructuring is being done with an eye toward securing reaccreditation for the program. Impact on other units: No impact. Financial impact: No impact.

COLLEGE OF BUSINESS ADMINISTRATION

All changes effective Fall 2012

PART I: COURSE CHANGES

DEPARTMENT OF ECONOMICS

(ECON) Economics

ADD

ECON 611 Topics in Theoretical and Applied Microeconomics (3) Construction and analysis of microeconomic models. Advanced topics in game theory, decision theory, and mechanism design.

ECON 612 Experimental and Behavioral Economics (3) Design of economic experiments and the analysis of experimental data. "Paradoxical" findings and behavioral economic theories. Comparison of traditional and behavioral models.

ADD NEW 400-LEVEL COURSE FOR GRADUATE CREDIT

ECON 471 Public Finance Expenditure Analysis (3) Problems of collective consumption, external effects, public investment, social decision making. Writing-emphasis course.
(RE) Prerequisite: 311 or 312.

REVISE DESCRIPTION

ECON 435 Industrial Organization (3) Monopoly and competition in the global economy. Interrelationship of market structure, business behavior, and economic performance.

DEPARTMENT OF MANAGEMENT

(MGT) Management

ADD

MGT 560 Monetization of Technology Enabled Social Media (3) An applied learning experience for students to gain the necessary skills to create sustainable customer value for organizations from technology-enabled social media. Students will post and comment on a private blog about insights from extensive research of such business areas as search, blogging, games, crowd sourcing, online-2-offline commerce, business software, etc. The students then apply this knowledge to an entrepreneurial company.
(RE) Prerequisite: Business Administration 518, or permission of instructor.

* **INFORMATIONAL ITEM: DEPARTMENT NAME CHANGE**

FORMER DEPARTMENT: DEPARTMENT OF MARKETING AND LOGISTICS

NEW DEPARTMENT: DEPARTMENT OF MARKETING AND SUPPLY CHAIN MANAGEMENT

THE UNIVERSITY of TENNESSEE
KNOXVILLE

MEMORANDUM

To: Jan Williams, Dean, College of Business Administration
From: Susan Martin, Provost and Senior Vice Chancellor for Academic Affairs
cc: Carolyn Hodges, Vice Provost and Dean of the Graduate School
Sally McMillan, Vice Provost for Academic Affairs
Date: 1/11/2012
Re: Change to Name of Department of Marketing and Logistics

I have received the College's request to change the name of the Department of Marketing and Logistics to the Department of Marketing and Supply Chain Management. I have no objections to this change.

Please let me know if anything further is needed regarding this matter.

(MARK) Marketing

ADD

MARK 535 Product Innovation, Design, and Development (3) Will help students understand and master the entire new product development process, from innovation through design to launch. Emphasis is placed on active and team-based learning, and the development of both analytical and creative abilities.

(RE) Prerequisite: Business Administration 518.

MARK 598 Special Topics in Marketing (3-6) Seminar designed to study current issues in Marketing.

Repeatability: May be repeated. Maximum 6 hours.

Registration Permission: Consent of Instructor.

DROP

MARK 520 Marketing and Customer Value (3)

(LOG) LOGISTICS

REVISE TITLE AND DESCRIPTION

LOG 599 Special Topics in Supply Chain Management (3-6) Seminar designed to study current issues in Supply Chain Management.

DEPARTMENT OF STATISTICS, OPERATIONS AND MANAGEMENT SCIENCE

(MGSC) MANAGEMENT SCIENCE

ADD

MGSC 530 Business Skills Development (1) Designed to build skills that MSBAs need to successfully apply knowledge in the business world. Business communications and career development.

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

(STAT) STATISTICS

ADD EXISTING 400-LEVEL COURSE FOR GRADUATE CREDIT

STAT 474 Data Mining and Business Analytics (3) Understanding and application of data mining methods. Data preparation, exploratory data analysis and visualization, cluster analysis, logistic regression, decision trees, neural networks, association rules, model assessment, and other topics. Applications to real world data. Use of standard computer packages.

(RE) Prerequisite(s): 320 with grade of C or better.

DROP

STAT 564 Statistical Inference (3)

REVISE TITLE AND DESCRIPTION

STAT 563 Probability and Mathematical Statistics (3) Basic probability and probability models, Bayes theorem, discrete and continuous distributions, expected values, moments and moment generating functions, functions of several variables, correlation and independence, bivariate normal distribution, order statistics, sampling distributions, the Central Limit Theorem, principles of point and interval estimation, likelihood theory and the method of maximum likelihood, principles of hypothesis testing and the generalized likelihood ratio test.

STAT 571 Statistical Methods for Business (3) Data collection strategies including simple design of experiments. Structured querying language. Descriptive statistics. Estimation and hypothesis testing. Importance of assumptions. Quantile plots and goodness of fit. Prediction intervals. ANOVA, linear regression, chi-square tests for categorical data, logistic regression. Use of statistical and database software.

STAT 572 Applied Regression Analysis for Business (3) Matrix approach to multiple linear regression. Normal equations, interaction and confounding, use of dummy variables, model selection. Leverage, influence and collinearity. Autocorrelated errors. Logistic regression, maximum likelihood estimation, analysis of deviance, retrospective studies. Tree based models for discrete and continuous outcomes. Robust regression, and weighted least squares. Applications involving predictive modeling for credit risk and customer acquisition. Case studies from accounting, finance, and marketing.

REVISE TITLE, DESCRIPTION; DROP (RE)PREREQUISITE; ADD RECOMMENDED BACKGROUND

STAT 567 Survival Analysis (3) Introduction to survival analysis. Statistical analysis of time-to-event data with different types of censoring. Regression models including the Cox proportional hazards model. Time-to-failure, customer retention and other types of data depending on student interest.

Recommended Background: Calculus and a prior graduate statistics course.

REVISE DESCRIPTION, DROP (RE)COREQUISITES, AND ADD (RE)PREREQUISITES

STAT 573 Design of Experiments (3) Factorial experiments. Design principles: randomization, replication, and blocking. Split unit designs. Optimal design. Orthogonal arrays, fractional factorials and response surface methodology. Conjoint analysis, website experiments, and other business applications emphasized.

(RE) Prerequisite(s): 538 or 572 or permission of instructor.

REVISE TITLE, DESCRIPTION, AND (RE)PREREQUISITES

STAT 574 Data Mining Methods for Business Applications (3) Understanding and application of data mining methods. Data preparation; exploratory data analysis and visualization; cluster analysis; logistic regression; decision trees; neural networks; association rules; model assessment; and other topics. Applications to business problems. Use of standard computer packages.

(RE) Prerequisite(s): 571 or consent of instructor.

REVISE (RE)PREREQUISITES

STAT 576 Multivariate and Data Mining Techniques (3)

(RE) Prerequisite(s): 572 and 574.

PART II: PROGRAM CHANGES

* INFORMATIONAL ITEM: DEPARTMENT NAME CHANGE

FORMER DEPARTMENT: DEPARTMENT OF MARKETING AND LOGISTICS

NEW DEPARTMENT: DEPARTMENT OF MARKETING AND SUPPLY CHAIN MANAGEMENT

REVISE FULL-TIME MBA ADMISSION TEXT

In the 2011-2012 *Graduate Catalog*, add a 4th paragraph under Admission Heading. First 3 paragraphs remain as is.

Admission

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.

REVISE DUAL MS-MBA PROGRAM – BUSINESS ADMINISTRATION / AGRICULTURAL AND RESOURCE ECONOMICS

In the 2011-2012 *Graduate Catalog*, under Requirements heading, first paragraph, remove the fourth and fifth sentences and replace with the following sentence.

The program includes a 10-week internship experience. A written comprehensive examination is required in the form of an approved written internship report integrating relevant coursework material with an approved internship project.

REVISE MBA PROGRAM FOR WORKING PROFESSIONALS – EXECUTIVE MBA

In the 2011-2012 *Graduate Catalog*, Executive MBA heading, revise the first paragraph (fourth and fifth sentences) and the third paragraph (first, second, and third sentences) to reflect a change in program emphasis and application process.

First paragraph revision:

The Executive MBA places considerable emphasis on global business, strategic thinking, and individual leadership skills. In addition to the traditional Executive MBA curriculum, the program also offers specialized areas of focus (e.g., supply

chain management, healthcare, and strategic leadership) providing students the opportunity to choose an area relevant to their career goals and current business trends.

Third paragraph revision:

Applications are accepted for January entry only. Applications are accepted on a rolling basis, with early application encouraged. Applications received after September 1 will be considered subject to space availability.

DEPARTMENT OF STATISTICS, OPERATIONS AND MANAGEMENT SCIENCE

REVISE BUSINESS ANALYTICS MAJOR, MS – CORE REQUIREMENTS

In the 2011-2012 *Graduate Catalog*, under the Requirements heading remove current listing of core requirement courses and replace with the following:

Core Requirements: MGSC 530, MGSC 531, MGSC 532, MGSC 534, OMS 505, STAT 563 or 565, STAT 566, STAT 571, STAT 572, STAT 574, ACCT 505 or ACCT 506, and MKTG 505.

REVISE TO MOVE STATISTICS MAJOR, MS

In the 2011-2012 *Graduate Catalog*, move the Statistics Major, MS, heading, text, and requirements from a stand-alone major to under the Intercollegiate Graduate Statistics Program.

SUPPORTING INFORMATION: Rationale: The Department of Statistics, Operations and Management Science is emphasizing its MS program in Business Analytics. Staffing units: None. Financial impact: None. Impact on other units: None.

REVISE INTERCOLLEGIATE GRADUATE STATISTICS PROGRAM (IGSP) TO ADD STATISTICS MAJOR, MS

In the 2011-2012 *Graduate Catalog*, revise the IGSP text to add the Statistics Major, MS. Remove current text and replace with the following text.

Intercollegiate Graduate Statistics Program (IGSP)

The Intercollegiate Graduate Statistics Program (IGSP) is a formal University of Tennessee, Knoxville, academic program established to enable students to earn either a minor or an MS in statistics simultaneously with a master's or doctoral degree in another department. Approved course work taken to meet doctoral requirements in the student's home department may also be credited toward the MS in statistics. Similarly, approved course work in statistics taken to meet the requirements for a master's or doctoral degree in another department may also count toward the statistics minor. The program is open to graduate students in all participating departments which have an approved minor and/or MS joint major curriculum offered through the program. The program is administered by an executive committee, consisting of college representatives from all colleges with approved programs, with advisory input from the program faculty.

Requirements

Degree Program	Hours in Approved IGSP Courses
Master's in home department, minor in statistics	9
Master's in home department, MS in statistics*	21
Doctorate in home department, minor in statistics	15
Doctorate in home department, MS in statistics**	21

* The MS in statistics requires 30 hours separate from the degree requirements in the home department.

**The MS in statistics requires 30 hours.

Course options consist of courses in statistics offered either by the Department of Statistics, Operations and Management Science or by other departments, which have been reviewed and approved by the IGSP Executive Committee. Students completing two master's degrees and doctoral students taking an MS with a major in statistics or a minor in statistics must pass a written comprehensive examination in statistics, constructed and evaluated by the student's examination committee. No formal comprehensive examination is required of students earning a statistics minor along with a master's in another field beyond questions the home department wishes to include as part of the comprehensive examination for the master's degree.

Procedures

The student's home department must have a program of courses approved by the executive committee. That program will specify the sequences of statistics courses, chosen from the IGSP approved list, that are considered appropriate by the home department. Students who wish to participate in this program should contact their college representative or the Chair of IGSP in the Department of Statistics, Operations and Management Science.

The student's graduate committee must include a member of the IGSP faculty. For students seeking doctoral degrees or the Master of Science with a major in statistics, the committee member must be a faculty member in the Department of Statistics, Operations and Management Science.

The IGSP Student Application Form must be completed by the student, signed by the appropriate committee members and submitted to the Chair of the Executive Committee. The completed and signed form is then submitted to the Graduate School for the official enrollment to the IGSP and as the official application for the Admission to Candidacy for the MS degree.

Successful completion of the statistics MS or minor is recognized by appropriate documentation on the student's transcript. Students who do not complete the requirements of the minor or MS will still receive academic credit for the statistics courses they have successfully completed.

STATISTICS MAJOR, MS

The Master of Science with a major in statistics provides students with the foundation in theory and practice required for the effective application of statistical techniques in their chosen fields of study. Department faculty members participate in a variety of consulting and research projects and collaborate with researchers from many academic disciplines.

Admission

The master of science degree with a major in statistics is available only through a dual degree program. Applicants for the statistics major must be current graduate students in a degree seeking program at the University of Tennessee, Knoxville in a department or program which has established an approved program of study through the Intercollegiate Graduate Statistics Program (IGSP). See student application form at www.bus.utk.edu/stat/IGSP.

Applicants must have completed at least two years of college-level mathematics, including the calculus of several variables and matrix algebra, and be proficient in a computer language.

Requirements

A minimum of 30 credit hours must be completed for the master's degree. Required of all students are 6 hours in statistical methods and 3 hours in statistical theory. Students must complete a minimum of 21 hours in approved statistics courses, exclusive of consulting, internship, independent study, or thesis.

Comprehensive Examination

Students must pass a written comprehensive examination. Should a student fail the examination, the student may retake it. The result of the second examination is final.

Information about the exam may be found at www.bus.utk.edu/stat/IGSP.

SUPPORTING INFORMATION Rationale: The department of Statistics, Operations and Management Science is emphasizing its MS program in Business Analytics. Staffing units: None. Financial impact: None. Impact on other units: None.

COLLEGE OF COMMUNICATION AND INFORMATION

All changes effective Fall 2012

I. COURSE CHANGES

(CCI) COMMUNICATION AND INFORMATION

ADD

CCI 605 Philosophical and Theoretical Foundations of Communication and Information (3) An overview of the philosophical presuppositions and theoretical frameworks that have informed the fields in communication and information.
Registration Restriction(s): Enrollment is limited to students in the College of Communication and Information or consent of instructor. Minimum student level – graduate.

CCI 611 Statistical Design and Analysis for CCI Research (3) Methods of statistical analysis of data in Communication and Information. Begins with a review of basic probability and descriptive statistical concepts, then moves to consider statistical inference and hypothesis-testing, focusing on regression and ANOVA. Emphasizes the use and interpretation of statistics in communication and information research.
Registration Restriction(s): Enrollment is limited to students in the College of Communication and Information or consent of instructor. Minimum student level –graduate.

CCI 631 Quantitative Communication and Information Research Methods I (3) Introduction to quantitative approaches to research in the fields of communication and information. Theoretical underpinnings of the different approaches are reviewed.
Registration Restriction(s): Enrollment is limited to students in the College of Communication and Information or consent of instructor. Minimum student level –graduate.

CCI 635 Qualitative Communication and Information Research Methods I (3) Introduction to qualitative approaches to research in the fields of communication and information. Theoretical underpinnings of the different approaches are reviewed.
Registration Restriction(s): Enrollment is limited to students in the College of Communication and Information or consent of instructor. Minimum student level –graduate.

DROP

CCI 610 (6)

CCI 615 (6)

REVISE HOURS AND REPEATABILITY

CCI 620 - Communication and Information Professional Development Seminar (1)
Repeatability: May be repeated. Maximum 3 hours.

REVISE TO DELETE (RE) PREREQUISITE

CCI 640 - Advanced Communication and Information Research Methods (3)

CCI 651 - Contemporary Issues in Science, Technology, Engineering, and Medical Communication and Information. (3)

CCI 653 - Contemporary Issues in Law, Policy, and Ethics in Communication and Information (3)

CCI 654 - Contemporary Issues in Management of Communication and Information within Organizations (3)

CCI 655 - Contemporary Issues in International and Intercultural Communication and Information (3)

REVISE TITLE, DESCRIPTION, AND (RE) PREREQUISITE

CCI 643 - Qualitative Communication and Information Research Methods II (3) Advanced theory and application of qualitative research methods to communication and information research.
(RE)Prerequisite: 635.

CCI 644 - Quantitative Communication and Information Research Methods II (3) Advanced theory and application of quantitative research methods to communication and information.
(RE)Prerequisite: 631.

REVISE HOURS

CCI 660 Topics in Communication and Information (3-6)

SCHOOL OF ADVERTISING AND PUBLIC RELATIONS

(ADVT) Advertising

ADD NEW COURSE AND CROSS-LIST AS SECONDARY

ADVT 680 Mass Communication Theory (3) Survey of major theories and studies in mass communication.

Cross-listed: (See Journalism and Electronic Media 680.)

Registration Restriction(s): Enrollment is limited to students in the College of Communication and Information or consent of instructor. Minimum student level –graduate.

(PBRL) PUBLIC RELATIONS

ADD NEW COURSE AND CROSS-LIST AS SECONDARY

PBRL 680 Mass Communication Theory (3) Survey of major theories and studies in mass communication.

Cross-listed: (See Journalism and Electronic Media 680.)

Registration Restriction(s): Enrollment is limited to students in the College of Communication and Information or consent of instructor. Minimum student level –graduate.

SCHOOL OF COMMUNICATION STUDIES

(CMST) Communication Studies

ADD

CMST 680 Communication Theory (3) Survey of major theories and studies in interpersonal and organizational communication.

Registration Restriction(s): Enrollment is limited to students in the College of Communication and Information or consent of instructor. Minimum student level –graduate.

SCHOOL OF INFORMATION SCIENCES

(INSC) Information Sciences

REVISE DESCRIPTION AND REGISTRATION RESTRICTION

INSC 680 Information Science Theory (3) Survey of major theories and studies in information science.

Registration Restriction(s): Enrollment is limited to students in the College of Communication and Information or consent of instructor. Minimum student level –graduate.

SCHOOL OF JOURNALISM AND ELECTRONIC MEDIA

(JREM) Journalism and Electronic Media

ADD NEW PRIMARY COURSE AND CROSS-LIST

JREM 680 Mass Communication Theory (3) Survey of major theories and studies in mass communication.

Cross-listed: (Same as Advertising 680 and Public Relations 680.)

Registration Restriction(s): Enrollment is limited to students in the College of Communication and Information or consent of instructor. Minimum student level – graduate.

II. PROGRAM CHANGES

REVISE REQUIREMENTS – COMMUNICATION AND INFORMATION MAJOR, PHD

In the 2011-12 *Graduate Catalog*, revise under each heading as indicated below:

Requirements:

Revise the 61 hours to 62. A minimum of 62 hours...

Core Courses (17 hours)

CCI 605, CCI 631, CCI 635, CCI 620 (2 credits), CCI 611 or Advanced Statistics, Additional CCI Doctoral Level Course.

Primary Concentration (12 hours):

3 credit hours of ADVST 680, CMST 680, INSC 680, JREM 680, or PBRL 680. Other concentration courses will be defined by the student and his/her program committee.

Cognate Area (9 hours):

Defined by the student and his/her program committee.

Dissertation (24 hours)

Other Requirements: delete all text under this heading and replace with the following 2 paragraphs.

Within the combined primary concentration and cognate areas, a total of 6 credit hours must be from theory-focused courses and 6 credit hours must be from methods courses. Courses both inside and outside the college (including graduate-level courses in the schools) may be identified as theory and/or method courses.

All courses require the approval of the student's program committee and the associate dean. A preliminary program plan must be submitted to the associate dean's office by April 1st of the second semester of study. A final program plan must be submitted before the student undertakes his/her comprehensive exam.

COLLEGE OF EDUCATION, HEALTH, AND HUMAN SCIENCES

All changes effective Fall 2012

I. COURSE CHANGES

DEPARTMENT OF CHILD AND FAMILY STUDIES

(CFS) Child and Family Studies

ADD

CFS 672 Professional Seminar 2: Professional Socialization (1) Preparing for a position in a professional setting: finding and understanding job announcements, preparing curriculum vitae, teaching philosophy and research statements, navigating the interview process, accepting a position and transitioning to a professional occupation.

REVISE TITLE, DESCRIPTION, AND HOURS

CFS 572 Professional Seminar 1: Introduction to CFS (1) Professional orientation to the field of Child and Family Studies; consideration of multi-disciplinary trends, current research and application, ethics, publication and research planning.

DEPARTMENT OF EDUCATIONAL LEADERSHIP AND POLICY STUDIES

+ ADD NEW ACADEMIC DISCIPLINE, SUBJECT CODE, AND COURSES

(UNRA) University Research Administration

UNRA 504 Fundamentals of Sponsored Research (3) An overview of the research administration process from finding appropriate funding opportunities, developing and writing a proposal, receiving an award, carrying out the project, and finally, closing on the project.

UNRA 505 The Federal Framework (3) An overview and in-depth analysis of the history and framework of federal funding for science and education, including agency governance, structure, and policy; federal regulations applicable to grants and contracts; and a comparison of grants, cooperative agreements, contracts, and other funding mechanism.

UNRA 506 Non-Government Sponsored Programs (3) Will focus and examine the world of non-government sponsored programs and common sources of funding from non-government sources including foundations and private industry.

UNRA 507 Contracting for Sponsored Programs (3) Illustrates the structure and components of contract formation including: basic contract types, negotiation, navigating troublesome clauses, and subcontracts. In addition, the roles and responsibilities of both sponsor representatives and institutional research administrators will be explored to integrate technical knowledge with operational aspects contracting process.

UNRA 508 Compliance in Research Administration (3) Examines the critical compliance issues pertaining to sponsored research including the responsible conduct of research, export control, and protection of human and animal subject. Additionally, the course will cover financial compliance areas such as the American Recovery and Reinvestment Act, Federal Funding Accountability and Transparency Act, and Effort Reporting.

UNRA 509 Sponsored Programs Accounting (3) Provides an overview of the functions of cost principles, administrative guidelines, and agency specific guidelines in budget development and spending decisions with emphasis on cost share, allowable costs, effort certification, program income, sub-recipient monitoring, financial reporting and project closeout. In addition, it will analyze the audit process and emphasize the importance of proper internal controls.

Rationale: The new certificate in University Research Administration (UNRA), is a six-course, 18 hour, on-line program designed to prepare current and prospective university research administrators with the skills and credibility to hold advanced positions in research administration. Financial impact: Depending on the outcome of deliberations concerning the funding of online programs, the proposed certificate should have little financial impact on the department or College. The courses will be delivered online, with staff drawn from experts in research administration from across the state. All of the instructors will hold doctoral degrees and will be paid as adjuncts in accordance with University policy governing such pay. The department will provide the services of a coordinator to oversee and manage the program and ensure its academic integrity. While the program is expected to be self-supporting, it may mean that the coordinator is given a one-course a year download if a comparable buyout is not possible.

(EDAM) Educational Administration and Supervision

REVISE PRIMARY CROSS-LISTED COURSE TO DROP (RE) PREREQUISITE

EDAM 617 Case Study Methods in Educational Research (3)

Cross listed (Same as HEAM 617.)

REVISE REPEATABILITY (PRIMARY CROSS-LISTED COURSE) AND DROP CROSS-LISTING

EDAM 606 Leadership Forum (1-3)

Repeatability: May be repeated. Maximum 24 hours.

(ELPS) Educational Leadership and Policy Studies

REVISE TO REQUEST VARIABLE TITLE

ELPS 593 Independent Study (1-3)

ELPS 595 Special Topics (1-3)

ELPS 693 Independent Study (1-3)

ELPS 695 Special Topics (1-3)

(HEAM) Higher Educational Administration

DROP SECONDARY CROSS-LISTED COURSE

HEAM 606 Leadership Forum (1-3)

Cross-listed (See EDAM 606.)

REVISE SECONDARY COURSE TO DROP (RE) PREREQUISITE

HEAM 617 Case Study Methods in Educational Research (3)

Cross listed (See as EDAM 617.)

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY AND COUNSELING

(COUN) Counselor Education

REVISE TITLE

COUN 665 Advanced Group and Systems Theory and Interventions (3)

(CSE) Cultural Studies in Education

ADD

CSE 639 Contemporary Philosophies in Education (3) An Examination of current debates within various philosophical fields of study as they relate to education.

DROP

CSE 544 Survey of Contemporary Philosophies in Education (3)

Rationale. 544 upgraded to 600 level course (639), which more accurately reflects the knowledge base students need for the course.

DROP PRIMARY CROSS-LISTED COURSES

CSE 560 Introduction to Qualitative Research in Education (3)

Cross-listed (Same as EDPY 555.)

Rationale. Reassigned to a different subject area with a number change (EPDY 559) . (See Equivalency Table.) Financial Impact: None.

CSE 661 Advanced Qualitative Research in Education (3)

Cross-listed (Same as EDPY 661.)

Rationale. Reassigned to a different subject area (EDPY 659). (See Equivalency Table.). Financial Impact: None.

Equivalency Table	
Current Course (Fall 2011)	Equivalent Course (Fall 2012)
CSE 544	CSE 639
CSE 560	EDPY 559
CSE 661	EDPY 659

(EDPY) Educational Psychology

ADD

EDPY 559 Introduction to Qualitative Research in Education (3) Fundamentals of qualitative methods. Overview of various qualitative approaches, data collection and analysis methods. Focus on skill development for data collection through interviews, observation, and document analysis, as well as the importance of reflexivity as a qualitative researcher.

Rationale: Replaces EDPY 555, and thus improves clarity in the sequence of 559 and 659 courses.

EDPY 603 Mediated Learning Theory (3) Seminar focused on in-depth study of the ideas of Lev Vygotsky and Reuven Feuerstein. Emphasis placed on exploring various aspects of these theories as they relate to other social constructivist ideas and implications for practice in many types of educational settings that are supported by research, with specific focus on a theoretical framework for meeting the needs of marginalized learners.

EDPY 659 Advanced Qualitative Research in Education (3) Implementing and writing qualitative studies in educational settings. Qualitative data collection, analysis, and report writing.

(RE) Prerequisite(s): 559.

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

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

Rationale: Replaces CSE 661 to minimize course-evaluation confusion linked to cross-listed courses (see Equivalency Table).

EDPY 682 Educational Research Methods (3) Builds on a knowledge of basic educational research methods, with an emphasis on acquiring quantitative and qualitative research design skills necessary to answer applied questions within education and related fields. Conducting literature reviews, critiquing research, and designing a research proposal will be emphasized. Course is designed primarily for Doctoral-level students.

DROP SECONDARY CROSS-LISTED COURSES

EDPY 555 Introduction to Qualitative Research in Education (3)

Cross-listed (See Cultural Studies in Education CSE 560.)

Rationale: Primary (CSE 560) being dropped. Content reassigned to EDPY 559.

EDPY 661 Advanced Qualitative Research in Education (3)

Cross-listed (See Cultural Studies in Education CSE 661.)

Rationale: Cross-listing dropped. Reassigned to a different number (EDPY 659).

DROP

EDPY 582 Educational Research Fundamentals (3)

Rationale: Content reassigned to a higher academic level (EDPY 682). (See Equivalency Table.).

EDPY 671 Advanced Seminar in Applied Educational Psychology

Rationale: Reassigned as LEES 671 to be included in a revised set of core courses for all doctoral students in LEEDS.

REVISE TITLE AND DESCRIPTION

EDPY 506 Introduction to Educational Research (3) An introduction to methods and procedures of quantitative and qualitative research, with an emphasis on acquiring skills necessary to analyze and critique scholarly literature and develop fundamental research plans. Course may be delivered via distance education. Course is designed primarily for Masters- level students.

Equivalency Table	
Current Course (Fall 2011)	Equivalent Course (Fall 2012)
EDPY 555	EDPY 559
EDPY 671	LEES 671

EDPY 582	EDPY 682
CSE 560	EDPY 559
CSE 661	EDPY 659

(IT) Instructional Technology

ADD

IT 681 Designing Problem-Based Learning Environments (3) Development and integration of problem-based learning pedagogy into curriculum. Examination of literature to understand the theoretical perspective for design of this type of learning environment.

Comments: Requires admission to the PhD program with a concentration in LEEDS or consent of instructor.

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

Rationale: 681 is a re-instatement of the IT 680 course inadvertently dropped in 2010.

Equivalency Table	
Current Course (Fall 2011)	Equivalent Course (Fall 2012)
IT 680 (Fall 2010)	IT 681

(LEES) Learning Environments and Educational Studies

ADD

LEES 671 Advanced Seminar in Theories of Learning (3)

Study and collaborative reflection on selected topics related to behaviorist, social cognitive, information processing, constructivist, and cognitive theories of learning as applied in educational settings. Emphasis is placed on development of theoretical frameworks and comparison and contrast of learning principles supported by research.

(DE) Prerequisite: EDPY 572.

Comment(s): Primarily for doctoral students in fields related to teaching, learning and development of children and adults including instructional technology. Doctoral students in the Learning Environments and Educational Studies program are required to take this course.

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

Rationale: This course is replacing (EDPY 671).

Equivalency Table	
Current Course (Fall 2011)	Equivalent Course (Fall 2012)
EDPY 671	LEES 671

REVISE HOURS, REPEATABILITY, AND DROP REGISTRATION RESTRICTION

LEES 640 Doctoral Seminar in Learning Environments and Educational Studies (3)

Repeatability: May be repeated. Maximum 6 hours.

(SCHP) School Psychology

ADD

SCHP 651 Professional Practice in School Psychology: Clinic (1-6) Supervised experience in delivering school psychology service within a clinic setting.

Grading restriction: Satisfactory/No Credit grading only.

Repeatability: May be repeated. Maximum 24 hours.

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

Comment(s): requires admission to the school psychology major or consent of instructor.

SCHP 652 Advanced Professional Practice within School Psychology (1-6) Supervised experience in delivering school psychology services within school settings.

Grading restriction: Satisfactory/No Credit grading only.

Repeatability: May be repeated. Maximum 24 hours.

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

Comment(s): requires admission to the school psychology major or consent of instructor.

SCHP 653 Internship Exploration and Application in School Psychology (1-3) Examination and exploration of APA, APPIC and non-accredited internships. Students will make application for school psychology internships and learn the components of an internship contact.

Grading Restriction: Satisfactory/No Credit grading only.

Repeatability: May be repeated. Maximum 9 hours.

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

Comment(s): requires admission to the school psychology major or consent of instructor.

REVISE HOURS, ADD REPEATABILITY, AND DROP (RE) PREREQUISITE

SCHP 546 Practicum in Consultation and Intervention (1-6)

Repeatability: May be repeated. Maximum 24 hours.

REVISE TITLE, HOURS, AND DESCRIPTION

SCHP 650 Introduction to Professional Practice in School Psychology (1-3) Field setting observations, interviews, and data collection to facilitate understanding of the roles and functions of school psychologists within education settings.

DEPARTMENT OF KINESIOLOGY, RECREATION, AND SPORT STUDIES

(SPST) Sport Studies

REVISE DESCRIPTION

SPST 542 Sociological Aspects of Sport (3) Using sociological theories and scholarship to examine social and cultural influences on sport and physical activity. Course is based on a social justice framework and a cultural studies perspective.

DEPARTMENT OF PUBLIC HEALTH

(PUBH) Public Health

REVISE HOURS AND REPEATABILITY

PUBH 680 Special Topics (1-3)

Repeatable: Maximum 9 hours.

REVISE GRADING (FROM A-F GRADING TO S/NC)

PUBH 609 Public Health Doctoral Seminar (1)

Grading Restriction: Satisfactory/No Credit grading only.

DEPARTMENT OF THEORY AND PRACTICE IN TEACHER EDUCATION

+ ADD NEW ACADEMIC DISCIPLINE, SUBJECT CODE, AND ADD 400-LEVEL COURSE FOR GRADUATE CREDIT

(ASL) American Sign Language

ASL 435 Linguistics of American Sign Language (3) Introduction to grammatical and linguistic structures of ASL.

Language variations, discourse, bilingualism, and language contact also covered. Conducted in ASL.

(RE) Prerequisite(s): 211.

Rationale: With the current academic discipline of Educational Interpreting, students outside the program who have an interest and are searching for ASL classes may not be able to locate them. We dropped EI 431, 432 and 435, and we are adding the ASL subject area and the ASL 435 course.

(EI) EDUCATIONAL INTERPRETING

DROP FOR GRADUATE CREDIT

EI 431 American Sign Language III (3)

EI 432 American Sign Language IV (3)

EI 435 Linguistics of American Sign Language (3)

Equivalency Table	
Current Course Fall 2011	Equivalent Course Fall 2012
EI 431	ASL 211
EI 432	ASL 212
EI 435	ASL 435

(MEDU) Math Education

REVISE TITLE

MEDU 485 Teaching Mathematics in the Secondary School (3)

MEDU 530 Teaching Mathematics in the Elementary School (3)

REVISE TITLE AND DESCRIPTION

MEDU 543 Teaching Mathematics in Middle School (3) Unit planning, daily planning, grouping and other strategies for teaching mathematics. Course is for those with little preparation in teaching middle school mathematics.

(SCED) Science Education

REVISE TITLE

SCED 531 Teaching Science in the Elementary School (3)

(SPED) SPECIAL EDUCATION

ADD

SPED 570 Psychology and Characteristics of Individuals with Disabilities/Exceptionalities (3) General characteristics of individuals with disabilities/exceptionalities. Educational and community supports and services for children and into adulthood.

Comment: Admission to graduate program or consent of instructor.

SPED 574 Nature and Characteristics of Gifted Learners (3) Introduction to foundational concepts related to giftedness and talent development in students K-12. An overview of characteristics of gifted children, the history and philosophy of gifted education, and the manner in which the needs of such students, including those from culturally and linguistically diverse backgrounds and those with disabilities, are served in schools. Serves as one of the course requirements for the employment standard and the endorsement in gifted and talented education although it is also a viable elective for general education.

DROP FOR GRADUATE CREDIT

SPED 470 Psychology of the Exceptional Child (3)

Rationale: Adding a new course (SPED 570) to be offered to graduate students while 470 is offered only to undergraduate students.

EQUIVALENCY TABLE	
Current Course Fall 2011	Equivalent Course Fall 2012
SPED 402 SPED 470	SPED 570

REVISE DESCRIPTION

SPED 586 Seminar in Research Techniques in Special Education (3) Evaluation of appropriate research methodologies with individuals who have disabilities.

REVISE TO ADD (DE) PREREQUISITE

SPED 456 Effective Instruction of Students with Learning Disabilities and Other High Incidence Disabilities (3)

(DE) Prerequisite(s): 402 or consent of instructor.

REVISE TO DROP (RE) COREQUISITE

SPED 556 Methods of Teaching Students with Emotional and Behavioral Disorders (3)

REVISE DESCRIPTION

SPED 420 Field Experience in Special Education Programs (3) Practicum in teaching special education. Planning, developing, implementing, and evaluating instruction for students with mild disabilities.

REVISE DESCRIPTION, DROP REGISTRATION RESTRICTION AND ADD (RE) PREREQUISITE

SPED 459 Physical and Health Impairments: Educational Implications (3) Characteristics of students with neuromotor, orthopedic, and musculoskeletal impairments, degenerative and terminal conditions, health impairments including infectious diseases, and sensory losses and the impact of these disabilities on student learning. Adaptations and teaching strategies for meeting the needs of students with physical, health, and sensory impairments in general and special education contexts.

(RE) Prerequisite(s): 402 or 470.

REVISE TO ADD (DE)COREQUISITE

SPED 430 Applied Behavior Analysis in School Settings (3)

(DE) Corequisite(s): 432.

REVISE TITLE, DESCRIPTION AND ADD (RE) PREREQUISITE

SPED 575 Strategies for Teaching K-12 Students Who Are Gifted and Have High Ability (3) Topics include measurement and assessment issues implicit in the identification process and methods for assessing educational progress and growth of children who are gifted including those from culturally and linguistically diverse backgrounds and those with disabilities. Teaching methods, curriculum design, and programming options for content delivery. This is one of the course requirements for meeting the employment standard and add-on endorsement in gifted and talented education. It is also a viable elective for general education.

(RE) Prerequisite: 574.

REVISE TO DELETE (DE)COREQUISITE AND ADD (RE)COREQUISITE

SPED 432 Psychology and Education of Students with Moderate/Severe Disabilities (6)

(RE) Corequisite(s): 430 or Educational Psychology 515.

REVISE DESCRIPTION, AND (RE) COREQUISITE

SPED 419 Psychology and Education of Students with Mild Disabilities (6) Nature and characteristics of persons with mild disabilities and the educational strategies appropriate for these persons.

(RE) Corequisite 420 or 456.

(TPTE) Theory and Practice in Teacher Education

REVISE DESCRIPTION

TPTE 535 Inquiry Teaching and Learning (3) Use of subject area content from one or more disciplines (e.g., literacy, mathematics, science or social science) to promote active learning. Goal is to model and promote effective use of inquiry and guided inquiry techniques that develop experimental, analytical, and problem solving skills.

II. PROGRAM CHANGES

DEPARTMENT OF CHILD AND FAMILY STUDIES

REVISE TEXT AND REQUIREMENTS: CHILD AND FAMILY STUDIES MAJOR, PHD

In the 2011-2012 *Graduate Catalog* remove first paragraph and replace with the following:

The department supports a doctoral program that features the integration of human development, family studies, and early childhood education, and which focuses specifically on the themes of development and learning in context, cross-cultural/contextual issues, and children and families at risk. It prepares students for teaching and research positions as well as those in policy, practice, and community outreach, recognizing that a rigorous research background is required for all of them. The program is flexible, allowing students to develop individualized programs in which they can focus on a selected area of study.

Further information about the PhD program can be found at <http://cfs.utk.edu/grad/default.html>

Revise requirements as indicated below:

The requirements specified below are in addition to those of the Graduate School.

Requirements	Hours	Credit
Core: CFS 510, CFS 550, CFS 552	9	
¹ CFS Specialization	16	
² Statistics/Analytic Courses	9	
³ Research Methods	6	
⁴ Electives outside of CFS	6	
Professional Seminar 1 – CFS 572	1	
Professional Seminar 2 – CFS 672	1	
⁵ Dissertation	24	
Total	72	

¹ Minimum of 16 semester hours of Child and Family Studies courses; at least 6 hours must be at the 600-level. Can include courses from MS degree.

² 3 hours of graduate-level statistics plus two additional analytic courses (quantitative or qualitative)

³ CFS 570 and a 600-level methods course selected from CFS 650, CFS 660, CFS 633.

⁴ Can include additional Methods/Analytic courses.

⁵ Must be preceded by a master's thesis or predoctoral research project that is approved by the student's doctoral committee.

Rationale: Program hours reduced (from 86 to 72) so they resemble those of many similar programs.

DEPARTMENT OF EDUCATIONAL LEADERSHIP AND POLICY STUDIES

‡ ADD CERTIFICATE – UNIVERSITY RESEARCH ADMINISTRATION

In the 2011-2012 *Graduate Catalog*, add heading, text, and requirements for the new certificate as follows:

University Research Administration

The department of Educational Leadership and Policy Studies offers a graduate certificate in University Research Administration (UNRA). Participants will complete a six-course, 18 hour, on-line program designed to prepare current and prospective university research administrators with the skills and credibility to hold advanced positions in research administration. The curriculum for the University Research Administration Graduate Certificate is - UNRA 504 (3 hours), UNRA 505 (3 hours), UNRA 506 (3 hours), UNRA 507 (3 hours), UNRA 508 (3 hours), UNRA 509 (3 hours).

MOVE CERTIFICATE: URBAN EDUCATION

In the 2011-2012 *Graduate Catalog*, move heading and text for the Urban Education Certificate from the Department of Educational Leadership and Policy Studies to the department of Theory and Practice in Teacher Education..

REVISE DEPARTMENT INTRODUCTORY TEXT – EDUCATIONAL ADMINISTRATION MAJOR

In the 2011-2012 *Graduate Catalog*, revise first sentence to remove the words “and supervision” from the sentence. First sentence should read: Through the educational administration programs, the department ...

Add sentence below as a third paragraph. Sentence being added to insert the distance education information to the text.

Courses for the educational administration program are offered online through Distance Education.

Remove last sentence of second paragraph: Specialized coursework leading to the urban education certificate is available in the area of urban education.

REVISE CERTIFICATE - EDUCATIONAL ADMINISTRATION (PREK-12)

In the 2011-2012 *Graduate Catalog*, add the following as a second paragraph.

Courses for this degree are offered online through Distance Education.

REVISE EDUCATIONAL ADMINISTRATION MAJOR, MS

In the 2011-2012 *Graduate Catalog*, under the Licensure Alternative heading, add the following sentence as a fourth paragraph. This is to add the distance education information into the text.

Courses for this degree are offered online through Distance Education.

REVISE EDUCATION MAJOR, EDS – EDUCATIONAL ADMINISTRATION CONCENTRATION

In the 2011-2012 *Graduate Catalog*, under the Licensure Alternative heading, add the following sentence as a fourth paragraph. This is to add the distance education information into the text.

Courses for this degree are offered online through Distance Education.

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY & COUNSELING

REVISE EDUCATIONAL PSYCHOLOGY, MS, APPLIED EDUCATIONAL PSYCHOLOGY CONCENTRATION

In the 2011-2012 *Graduate Catalog*, under the Requirements heading, revise text and requirements as follows:
In the third sentence, remove the word “department” and replace with “concentration.” In the fourth footnote, remove second sentence and replace as follows:

Non-thesis students take EDPY 505, EDPY 506, or EDPY 550.

REVISE COUNSELOR EDUCATION MAJOR, PHD

In the 2011-2012 *Graduate Catalog* revise text and requirements as follows:

- 1) In the second paragraph, second sentence – remove the word “will” and replace with “can”. (Students in the PhD major in counselor education can work toward...). Also, same paragraph, remove third sentence from the paragraph.
- 2) Third paragraph, under doctoral program admission, remove the five bullets and replace with the following five bullets:

- Academic aptitude for doctoral-level study.
- Previous professional experience, counseling preferred.
- Fitness for the profession, including self-awareness and emotional stability.
- Oral and written communication skills.
- Potential for scholarship, professional leadership, and advocacy.

- 3) Fourth paragraph, at the end of the last sentence add the words, “are preferred.” (meet the admission requirements are preferred.)

- 4) Revise hours in the showcase as follows:

Major	24
Professional Orientation	7
Cognate	6
Research	12
Dissertation	24
Total	73

REVISE EDUCATION MAJOR, PH.D. LEARNING ENVIRONMENTS AND EDUCATIONAL STUDIES CONCENTRATION

In the 2011-2012 *Graduate Catalog* delete all current text and replace with the following:

The Learning Environments and Educational Studies (LEEDS) doctoral concentration explicitly links the fields of cultural studies, human learning and development from an applied educational psychology perspective, and instructional technology to prepare graduates to work in high level professional careers in a wide range of settings such as higher education, K-12 education, community-based agencies and community-based participatory research, research institutions and other applied educational, social and political settings. The mission of the doctoral concentration in Learning Environments and Educational Studies (LEEDS) in the Department of Educational Psychology and Counseling is to ground students in theoretical, philosophical and research foundations of human learning and development, cultural and social contexts of educational environments (both formal and informal), the design process of technology-supported

learning environments, and skills for inquiring into and critiquing these environments.

<http://web.utk.edu/~edpsych/LEEDS/default.html>

The program features

Emphasis on participatory theories of learning, social justice, and innovative uses of technology

Interdisciplinary research team involvement in design, analysis, presentations at regional and national conferences, and publication of studies

Focus on learning in community

International and intercultural atmosphere

Opportunity to gain higher education teaching experience

Requirements

Students may be admitted to the doctoral program with or without a Master's degree. Students need to meet regularly with their advisor to determine courses they need to meet Graduate School and LEEDS program requirements, and personal goals. In addition, all students must complete a minimum of 24 dissertation hours and a minimum of 6 hours as a cognate in a related field outside the department. Many students take addition hours to (a) meet prerequisites for some required courses, (b) earn one or more credentials in areas such as qualitative research or measurement and evaluation, and (c) to further personal scholarly interests.

REVISE GRADUATE CERTIFICATE – EVALUATION, STATISTICS, AND MEASUREMENT

In the 2011-2012 *Graduate Catalog*, remove all 10 bullets with text and last two sentences and replace with the following:

Requirements for the Graduate Certificate in Evaluation, Statistics, and Measurement

- EDPY 533 - Program Evaluation I
- EDPY 534 - Program Evaluation II
- EDPY 577 - Statistics in Applied Fields I
- EDPY 677 - Statistics in Applied Fields II
- EDPY 678 - Statistics in Applied Fields III*
- One of the following: EDPY 581 - Classroom Measurement or EDPY 583 - Survey Research.
- Individuals must submit an appropriate work sample (e.g., completed evaluation report, completed research paper) that showcases their skills in evaluation, statistics, and/or measurement. This work sample will be reviewed by the ESM faculty.
- Individuals must be currently enrolled in a Doctoral Program at the University of Tennessee or have earned a doctoral degree from UT or another university.
- Individuals must complete all 18 credits of the courses listed above.
- Individuals must earn at least a 3.5 GPA in the certificate courses.
- All courses must be completed within the five years of applying for a certificate.
- *Another advanced statistics or measurement course may be substituted for this course with written permission from the ESM Certificate Coordinator.

DEPARTMENT OF THEORY AND PRACTICE IN TEACHER EDUCATION DEPARTMENT

MOVE CERTIFICATE – URBAN EDUCATION

In the 2011-2012 *Graduate Catalog*, move and revise the Urban Education Certificate from the Department of ELPS to TPTE as follows:

The Department of Theory and Practice in Teacher Education offers a graduate certificate in urban education for experienced urban teachers. A cohort group is competitively selected each year. Participants complete a 12-credit hour, four-course program of study over a two-year period. First-year courses are TPTE 595 and TPTE 540. Second-year courses are TPTE 595 and TPTE 540.

◆ ADD CONCENTRATION TO TEACHER EDUCATION, MS (TRACK 1)

Science, Technology, Engineering, and Mathematics

In the 2011-2012 *Graduate Catalog*, add heading, text, and requirements for the new Science, Technology, Engineering and Mathematics (STEM) concentration with a specialization in gifted education.

Science, Technology, Engineering and Mathematics Concentration with a Specialization in Gifted Education - Track 1

Note: This concentration is offered via distance education (DE). STEM offers a specialization in gifted education. Specific course selection and sequence should be determined in consultation with student's advisor.

Thesis Option Only

¹ Core

12

² Concentration	12
Related Studies	6
TPTE 500 (Thesis)	6
Total	36

¹ TPTE 517; TPTE 540, TPTE 586; TPTE 588.

²SCED 572; SCED 509; MEDU 543 or SCED 543; MEDU 583 or SCED 565; ELED 524; EDDE 504 or SPED 504 (3 hours); TPTE 595; SPED 575.

REVISE TEACHER EDUCATION, MS – SPECIAL EDUCATION CONCENTRATION, TRACK 1

In the 2011-2012 *Graduate Catalog*, revise footnote 2 to add asterisk and course options for distance education. In footnote 2 (for both thesis and non-thesis options), add asterisk after "gifted education" (gifted education* 6-9). Also, after last footnote under both options add the asterisk and explanation as follows:

*Courses in Gifted Education are available via distance education: TPTE 595; SPED 575; ELED 524; SCED 572; SPED 504. Specific course selection and sequence should be determined in consultation with the student's advisor. Gifted courses may be taken in partial fulfillment of degree requirements in other degree programs upon approval of the student's graduate committee.

◆ DROP CONCENTRATION FROM TEACHER EDUCATION, TRACK 1, MS

Early Childhood Special Education

Rationale: These program changes were made a couple of years ago, but the catalog has not been updated.

REVISE TEACHER EDUCATION MAJOR, MS

In the 2011-2012 *Graduate Catalog*, under the Track 1 heading, remove as a concentration option "early childhood special education" as this concentration is being dropped.

COLLEGE OF ENGINEERING

All changes effective Fall 2012

I. COURSE CHANGES

DEPARTMENT OF CHEMICAL AND BIOMOLECULAR ENGINEERING

(CBE) Chemical and Biomolecular Engineering

DROP

CBE 511 Chemical and Biomolecular Engineering Journal Club (1)

ADD

CBE 555 Elements of Synthetic Biology and Metabolic Engineering (3) Cross-disciplinary course combining synergistic approaches of synthetic biology and metabolic engineering to design complex cellular metabolisms to solve challenging problems related to health, energy, and environment with integration of state-of-the-art computational and experimental techniques.

Credit Restriction: Students cannot receive credit for both 455 and 555.

Registration Permission: Consent of instructor.

CBE 611 Chemical and Biomolecular Engineering Journal Club (1) Readings and discussion based on current literature.

Grading Restriction: Satisfactory/No Credit grading only.

Repeatability: May be repeated. Maximum 3 hours.

Credit Restriction: A maximum of 3 hours can be applied toward a graduate degree in Chemical and Biomolecular Engineering.

Comment(s): Graduate standing in Chemical and Biomolecular Engineering.

Registration Permission: Consent of instructor.

Equivalency Chart

Current Course	Equivalent Course Effective Fall 2012
CBE 511	CBE 611

REVISE TITLE ON PRIMARY COURSE AND REMOVE ENGINEERING SCIENCE AS A SECONDARY LISTED COURSE

CBE 586 Sustainable Engineering, Design, and Analysis (3)

Cross-listed: (Same as Environmental Engineering 586.)

REVISE TITLE

CBE 691 Special Topics in Chemical and Biomolecular Engineering (3)

DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

(CE) Civil Engineering

REVISE (RE) PREREQUISITE

CE 472 Steel Design (3)

(RE) Prerequisite: 371.

CE 474 Reinforced Concrete Design (3)

(RE) Prerequisite: 371.

REVISE RECOMMENDED BACKGROUND

CE 571 Behavior of Steel Structures (3)

Recommended Background: 371.

CE 573 Prestressed Concrete (3)

Recommended Background: 371.

CE 574 Behavior of Reinforced Concrete Members (3)

Recommended Background: 371.

CE 576 Masonry Design (3)

Recommended Background: 371.

(ENVE) Environmental Engineering

REVISE TITLE (SECONDARY COURSE)

ENVE 586 Sustainable Engineering, Design, and Analysis (3)

Cross-listed: (See Chemical and Biomolecular Engineering 586.)

DEPARTMENT OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE

(COSC) Computer Science

ADD EXISTING 400-LEVEL COURSE(S) FOR GRADUATE CREDIT

COSC 425 Machine Learning (3) Machine learning is concerned with computer programs that automatically improve their performance through experience. Covers the theory and practice of machine learning from a variety of perspectives. We cover topics such as learning decision trees, neural network learning, statistical learning methods, genetic algorithms, Bayesian learning methods, explanation-based learning, and reinforcement learning. Programming assignments include hands-on experiments with various learning algorithms.

(RE) Prerequisite(s): 302; Electrical and Computer Engineering 313 or Mathematics 323.

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

COSC 440 Formal Foundations of Software Engineering (4) Principles of analysis and design of information systems. Principles of program design and verification, formal objects, formal specifications.

(RE) Prerequisite(s): 311.

COSC 456 Computer Graphics (3) Digital image synthesis, geometric modeling and animation. Topics may include visual perception, displays and color spaces, frame buffers, affine transformations, data structures for geometric primitives, visible surface determination, shading and texturing, anti-aliasing computing light transport, rendering equation, shader programming, general purpose GPU programming, level of detail, curves and surfaces, and graphics hardware.

(RE) Prerequisite(s): 302.

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

COSC 461 Compilers (3) Lexical analysis, parsing, program representation, type systems, runtime environments, code generation, optimization techniques.

(RE) Prerequisite(s): 302.

COSC 465 Databases and Scripting Languages (3) Introduction to database theory, models, and query formation. Survey of scripting languages, their uses, and their interconnectivity with databases.

(RE) Prerequisite(s): 311, 365.

REVISE (RE) PREREQUISITES

COSC 462 Parallel Programming (3)

(RE) Prerequisite(s): 360 or 361.

(ECE) Electrical and Computer Engineering

ADD EXISTING 400-LEVEL COURSE FOR GRADUATE CREDIT

ECE 444 Microwave Circuits (3) Transmission-line theory, microstrip and coplanar lines, S-parameters, matching networks, couplers, low-pass and band-pass filters, diode detectors, and mixers. Design of transistor amplifiers including noise performance. Design, fabrication, and measurements (1-10GHz) of microwave-integrated circuits using CAD tools and network analyzers.

(RE) Prerequisite(s): 341.

ADD EXISTING 400-LEVEL COURSE FOR GRADUATE CREDIT AND REVISE PREREQUISITE

ECE 454 Computer and Network Security (3) Basic security concepts, secret key cryptography, public key cryptography, hashes and message digests, program security, operating system security, authentication and public key infrastructure, security protocols, SSL/TLS, IPsec/VPN, electronic mail security, firewalls, web security, DDoS attacks and defense.

(RE) Prerequisite(s): 313 or Mathematics 323.

ADD

ECE 611 Convex Optimization (3) Convex set, convex function, convex optimization, KKT condition, quadratic optimization, geometric programming, duality theory, gradient methods, constrained optimization algorithm, interior method.

ECE 612 Discrete Optimization (3) Greedy algorithm, matroid theory, network flow optimization, integer programming, branch and bound, cutting plane algorithm, Lagrangian duality, mixed integer programming.

ECE 616 Nonlinear Programming (3) Gradient, Newton's, conjugate direction, quasi-Newton, gradient projection methods, affine scaling for LP, KKT and Fritz John conditions, Lagrange multiplier algorithms, dual methods.

REVISE (RE) PREREQUISITES

ECE 451 Computer Systems Architecture (3)

(RE) Prerequisite(s): Computer Science 160 and Electrical and Computer Engineering 255.

REVISE DESCRIPTION AND (RE) PREREQUISITES

ECE 453 Introduction to Computer Networks (3) Introduction to the design and implementation of computer networks. Topics to be covered include: layered network architecture, physical media, data link protocols, network routing, transport layer, network programming interfaces such as sockets, and applications. Examples will be primarily based on protocols in the Internet. Include Level 1 design projects with programming assignments related to networking protocols.

(RE) Prerequisite(s): 313 or Mathematics 323.

REVISE (RE) PREREQUISITES

ECE 471 Introduction to Pattern Recognition (3)

(RE) Prerequisite(s): 313 or Mathematics 323; Mathematics 200 or Mathematics 251.

ECE 472 Introduction to Digital Image Processing (3)

(RE) Prerequisite(s): 313 or Mathematics 323; Mathematics 200 or Mathematics 251.

REVISE DESCRIPTION

ECE 553 Computer Networks (3) In-depth overview to the design and implementation of computer networks. It features a top-down approach in the discussion from the application layer down to the physical layer. Topics to be covered include: layered network architecture, physical media, data link protocols, network routing, transport layer, network programming interfaces such as sockets, and applications. Case studies on protocols will be primarily based on the Internet and the TCP/IP suite. Includes hands-on programming assignments related to networking protocols and concrete application problems.

REVISE DESCRIPTION AND REVISE (RE) PREREQUISITE TO (DE) PREREQUISITE

ECE 617 Special Topics in Systems Theory I (3) Topics of current interest to students and faculty: large-scale systems, model-order reduction, estimation and system identification, algebraic- and geometric-system theories, and advanced-design methods.

(DE) Prerequisite(s): 511.

ECE 618 Special Topics in Systems Theory II (3) Topics of current interest to students and faculty: large-scale systems, model-order reduction, estimation and system identification, algebraic- and geometric-system theories, and advanced-design methods.

(DE) Prerequisite(s): 511.

REVISE TITLE, DESCRIPTION AND (RE) PREREQUISITE

ECE 631 Advanced Topics in Mixed-Signal Integrated Circuit Design (3) Design and analysis of mixed-signal integrated circuits for data acquisition and other applications requiring combined analog and digital functionality. Design and simulation techniques using modern industry-standard tools.

(RE) Prerequisite(s): 532.

REVISE TITLE; DROP (RE) PREREQUISITE AND ADD REGISTRATION PERMISSION

ECE 651 Computer-Aided Design of VLSI Systems (3)

Registration Permission: Consent of instructor.

DEPARTMENT OF INDUSTRIAL AND INFORMATION ENGINEERING

(IE) Industrial Engineering

REVISE DESCRIPTION

IE 514 Advanced Information Systems Analysis and Design (3) Concepts, methodologies, techniques, and tools essential for modern Information Systems (IS) development are covered with concentration in three major areas: the Internet Technologies, Relational Database Management, and Integrated Development Environments (Visual Studio IDE)/SQL Server/Oracle. The processes and related methodologies and skills in the System Development Life Cycle (SDLC) are broadly introduced yet in depth.

IE 526 Advanced Applications of Systems Modeling and Simulation (3) Modeling and simulation of business and industry systems to enhance management, strategic, and operational decision-making. Hands-on experiences of simulation software package (e.g., Arena) will be provided with case studies in manufacturing, supply chain and logistics, healthcare, etc. *Cross-listed: (Same as Management Science 526.)*

IE 603 Design and Analysis of Industrial Experiments (3) Fundamental theory, concepts and procedures required in the efficient design and analysis of industrial experiments. Specific topics discussed include: review of fundamental principles of the design of experiments and ANOVA methodology, introduction to linear statistical models, experimental design models, cross classification models, two-way classification models, mixed models, specialized designs allowing multiple restrictions on randomization with or without replication, orthogonal arrays, symmetric and mixed full and fractional factorial experiments, response surface methodology, and Taguchi methods.

DEPARTMENT OF MATERIALS SCIENCE AND ENGINEERING

(MSE) Materials Science and Engineering

ADD

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.

Recommended background: 350 or equivalent.

MSE 571 Ion Beam Analysis of Materials (3) Fundamental aspects of modern ion beam analysis of materials, including elastic nuclear scattering, nuclear reaction analysis, ion beam channeling, and MeV ion microprobes.

DROP

MSE 543 Basic Polymer Physics

REVISE TO ADD CROSS-LISTED COURSE

MSE 573 Fundamentals of Irradiation Effects in Nuclear Materials (3) Detailed analysis of the atomistic mechanisms controlling radiation damage and effects on materials in nuclear environments.

Cross-listed: (See Nuclear Engineering 540.)

REVISE TO DROP (RE) PREREQUISITE(S) AND ADD RECOMMENDED BACKGROUND

MSE 515 Diffusion, Phase Transformations, and Microstructure of Materials (3)

Recommended Background: 513.

MSE 516 Fundamentals of Plastic Deformation (3)

Recommended Background: 512.

MSE 522 Defects in Crystals (3)

Recommended Background: 421.

MSE 527 Welding Metallurgy II (3)

Recommended Background: 525.

MSE 578 Advanced Biomaterials: Biological Applications of Nanomaterials (3)

Recommended Background: 474.

MSE 588 Cell and Tissue-Biomaterials Interaction (3)

Recommended Background: 474.

MSE 611 Fundamentals of Thermodynamics, Phase Transformations, and Material Simulations at Small Length Scales (3)

Recommended Background: 513.

MSE 644 Optoelectronic Processes in Polymeric Materials (3)

Recommended Background: 543 or equivalent.

MSE 650 Mechanical Behavior of Solids at Elevated Temperatures (3)

Recommended Background: 512.

MSE 652 High Performance Fibers (3)

Recommended Background: 553.

MSE 666 Nanoindentation and Small-Scale Contact Mechanics (3)

Recommended Background: 512.

MSE 672 Introduction to Transmission EM and Electron Diffraction (3)

Recommended Background: 405 or 511 or 572.

MSE 674 Materials Physics (3)

Recommended Background: 511 and 514.

MSE 675 Advanced Structural Analysis (3)

Recommended Background: 511 and 514.

MSE 680 Advanced Transmission Electron Microscopy (3)

Recommended Background: 405 or 511 or 572, 672, or 673.

DEPARTMENT OF MECHANICAL, AEROSPACE, AND BIOMEDICAL ENGINEERING

(AE) Aerospace Engineering

ADD AS SECONDARY CROSS-LISTED COURSES

AE 517 Finite Elements for Engineering Applications (3)

Cross-listed: (See Mechanical Engineering 517.)

AE 518 Computational Fluid-Thermal Systems (3)

Cross-listed: (See Mechanical Engineering 518.)

AE 536 Continuum Mechanics (3)

Cross-listed: (See Mechanical Engineering 536.)

AE 545 Optical Engineering I (3)

Cross-listed: (See Mechanical Engineering 545.)

AE 546 Optical Engineering II (3)

Cross-listed: (See Mechanical Engineering 546.)

AE 644 Theory of Turbulence (3)

Cross-listed: (See Mechanical Engineering 644.)

AE 655 Advanced Topics in Computational Fluid Dynamics (3)

Cross-listed: (See Mechanical Engineering 655.)

AE 656 Advanced Computational Fluid Dynamics Practice (3)

Cross-listed: (See Mechanical Engineering 656.)

Rationale: Replaces Engineering Science courses being dropped. Impact on other units: None. Financial Impact: None.

DROP SECONDARY COURSES (ENGINEERING SCIENCE IS PRIMARY OWNER. THE ENGINEERING SCIENCE ACADEMIC DISCIPLINE AND ALL COURSES ARE BEING DROPPED)

AE 539 Continuum Mechanics (3) (See Engineering Science 539.)

AE 571 Finite Elements for Engineering Applications (3) (See Engineering Science 551.)

AE 572 Computational Fluid-Thermal Systems (3) (See Engineering Science 552.)

AE 645 Theory of Turbulence (3) (See Engineering Science 645)

AE 661 Advanced Topics in Computational Fluid Dynamics (3) (See Engineering Science 651.)

AE 662 Advanced Computational Fluid Dynamics Practice (3) (See ES 652.) dropped in October, Courses Not Taught

Rationale: Courses are cross listed with Engineering Science courses that are being dropped.

(BME) Biomedical Engineering

ADD AS SECONDARY CROSS-LISTED COURSES

BME 517 Finite Elements for Engineering Applications (3)

Cross-listed: (See Mechanical Engineering 517.)

BME 518 Computational Fluid-Thermal Systems (3)

Cross-listed: (See Mechanical Engineering 518.)

BME 536 Continuum Mechanics (3)

Cross-listed: (See Mechanical Engineering 536.)

BME 545 Optical Engineering I (3)

Cross-listed: (See Mechanical Engineering 545.)

BME 546 Optical Engineering II (3)

Cross-listed: (See Mechanical Engineering 546.)

Rationale: Replaces Engineering Science courses being dropped. Impact on other units: None. Financial Impact: None.

ADD

BME 573 Biomechanics of Hard and Soft Tissue (3) Introduction to terminology, physiology, and analytical methods for mechanics of living tissue. Continuum mechanics analysis of hard and soft tissue, biological fluid flows. Flow properties of blood, rheology of blood in micro vessels; bioviscoelasticity of fluids and solids, mechanical properties of blood vessels; skeletal, heart and smooth muscle; bone and cartilage. Research paper.

Rationale: Replaces Engineering Science 571.

DROP SECONDARY COURSES (ENGINEERING SCIENCE IS PRIMARY OWNER. THE ENGINEERING SCIENCE ACADEMIC DISCIPLINE AND ALL COURSES ARE BEING DROPPED)

BME 539 Continuum Mechanics (3) (See Engineering Science 539)

BME 561 Finite Elements for Engineering Application (3) (See Engineering Science 551)

BME 562 Computational Fluid-Thermal Systems (3) (See Engineering Science 552)

BME 571 Biomechanics of Hard and Soft Tissue (3) (See Engineering Science 571)

Rationale: Courses cross listed with Engineering Science courses that are being dropped. Impact on other units: None.

(ES) Engineering Science

+ DROP ACADEMIC DISCIPLINE AND ALL COURSES

500 Thesis (1-15)

502 Registration for Use of Facilities (1-15)

527 Fracture Mechanics (3)

533 Dynamics (3) secondary (Primary is: ME 533)

534 Mechanical Vibrations (3) secondary (Primary is: ME 534)

539 Continuum Mechanics (3) Primary (secondary courses are: AE 539, BME 539, and ME 539)

541 Fluid Mechanics I (3) secondary (Primary is: ME 541)

542 Fluid Mechanics II (3) secondary (Primary is: ME 542)

551 Finite Elements for Engineering Applications (3) Primary (secondary courses: AE 571, BME 561, and ME 561)

552 Computational Fluid-Thermal Systems (3) Primary (secondary courses: AE 572, BME 562, and ME 562)

559 Advanced Mechanics of Materials I (3) secondary (Primary is: ME 559)

566 Optical Engineering I (3)

567 Optical Engineering II (3)

571 Biomechanics of Hard and Soft Tissue (3) Primary (secondary course: BME 571) dropped Oct., Courses Not Taught

577 Neural and Fuzzy Approaches in Engineering (3) secondary (Primary is: NE 577)

581 Special Topics in Engineering Mechanics (3)

586 Green Engineering (3) secondary (Primary is: CBE 586)

595 Seminar (1)

600 Doctoral Research and Dissertation (3-15)

645 Theory of Turbulence (3) Primary (secondary course: AE 645)

651 Advanced Topics in Computational Fluid Dynamics (3) Primary (secondary courses: AE 661 and ME 651)

652 Advanced Computational Fluid Dynamics Practice (3) Primary (secondary courses: AE 662, ME 652) Dropped Oct

657 Computational Mechanics Seminar (1)

659 Advanced Mechanics of Materials II (3) secondary (Primary is: ME 659)

671 Advanced Topics in Applied Artificial Intelligence (3) secondary (Primary is: NE 671)

681 Advanced Topics in Engineering Mechanics (3)

Rationale: Engineering Science is being changed to an interdepartmental major in the College of Engineering. Needed Engineering Science courses are being absorbed by (Aerospace Engineering, Biomedical Engineering, Mechanical Engineering).

(ME) Mechanical Engineering

ADD

ME 524 Fracture Mechanics (3) Mechanisms of fracture and crack growth; stress analysis; crack tip plastic zone; energy principles in fracture mechanics; fatigue-crack initiation and propagation; fracture mechanic design and fatigue life prediction. Analytical, numerical, and experimental methods for determination of stress intensity factors. Current topics in fracture mechanics.

Registration Permission: Consent of instructor.

Rationale: Replaces Engineering Science 527. Impact on other units: None. Financial Impact: None.

ME 564 Engineering Optics and Microscopy (3) Introduction to basic optical theories and principles for engineers. Advanced optical and scanning probe microscopy techniques and applications.

Credit Restriction: Students cannot receive credit for both 464 and 564.

Recommended Background: Differential equations, linear algebra.

Registration Permission: Consent of instructor.

ME 589 Hybrid Electric Vehicle Control Systems Design and Analysis (3) Dynamic modeling, simulation and analysis of complete hybrid electric vehicle systems. Linear control design techniques and discrete logic design applied to HEV power trains and operating mode controls. Digital and real-time control and hardware issues of automotive systems. Design and human factors engineering issues of vehicle controls and displays.

Registration Permission: Consent of instructor.

ADD AS PRIMARY AND CROSS-LIST

ME 517 Finite Elements for Engineering Applications (3) Modern computational theory applied to conservation principles across the engineering sciences. Weak forms, extremization, boundary conditions, discrete implementation via finite element, finite difference, finite volume methods. Asymptotic error estimates, accuracy, convergence, stability. Linear problem applications in 1, 2 and 3 dimensions, extensions to non-linearity, non-smooth data, unsteady, spectral analysis techniques, coupled equation systems. Computer projects in heat transfer, structural mechanics, mechanical vibrations, fluid mechanics, heat/mass transport.

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

Comment(s): Bachelor's degree in engineering or natural science required.

Registration Permission: Consent of instructor.

Rationale: Replaces Engineering Science 551. Impact on other units: None. Financial Impact: None.

ME 518 Computational Fluid-Thermal Systems (3) Modern approximation theory applied to incompressible-thermal flows. Navier-Stokes equations, well-posedness, boundary conditions, non-dimensional groups, conjugate heat transfer, algebraic/differential closure models for turbulence. Weak forms, extremization, finite element/finite volume discrete implementations, a priori error estimates, accuracy, convergence, stability. Numerical linear algebra, sparse matrix methods. Applications in boundary layers, stream function-vorticity, pressure projection, free-surface, pseudo-compressibility completion theories. Solution-adaptive h- and r-meshing, optimal solution estimates. Augmentation theories for stability, numerical diffusion, Fourier spectral analyses, optimal forms. Computer projects.

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

Registration Permission: Consent of instructor.

Rationale: Replaces Engineering Science 552. Impact on other units: None. Financial Impact: None.

ME 536 Continuum Mechanics (3) Cartesian tensors, transformation laws, basic continuum mechanics concepts; stress, strain, deformation, constitutive equations. Conservation laws for mass, momentum, energy. Applications in solid and fluid mechanics.

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

Registration Permission: Consent of instructor.

Replaces Engineering Science 539. Impact on other units: None. Financial Impact: None.

ME 545 Optical Engineering I (3) Wave optics; scalar diffraction theory; introduction to Fourier optics; ray or geometric optics; lens, mirror, gratings; paraxial design methods; introduction to aberrations.

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

Registration Permission: Consent of instructor.

Replaces Engineering Science 566. Impact on other units: None. Financial Impact: None.

ME 546 Optical Engineering II (3) Statistical optics; spontaneous and induced emission: black and gray body radiation; incoherent, partial and totally coherent radiation; mutual coherence function; detectors; radiometry.

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

(DE) Prerequisite(s): 545.

Registration Permission: Consent of instructor.

Rationale: Replaces Engineering Science 567. Impact on other units: None. Financial Impact: None.

ME 644 Theory of Turbulence (3) Mathematical foundations for turbulent flow characterization, energy spectra, Kolmogorov hypothesis, eddy cascade structure, turbulent diffusion concept. Time averaging, Reynolds stress tensor, similarity solutions, algebraic and differential turbulence closure models. Space filtering, large eddy simulation (LES) theory, various filter concepts, approximations, Fourier transforms, Reynolds stress tensor extensions. Smagorinsky, multi-scale, Gaussian closure models for unsteady time-accurate LES CFD. Applications in external and internal flows. Computer projects.

Cross-listed: (Same as Aerospace Engineering 644.)

(DE) Prerequisite(s): 518.

Registration Permission: Consent of instructor.

Rationale: Replaces Engineering Science 645. Impact on other units: None. Financial Impact: None.

ME 655 Advanced Topics in Computational Fluid Dynamics (3) Modern approximation theory for Euler and Navier-Stokes conservation systems, compressible flow, hyperbolic forms, boundary conditions. Weak forms, extremization, finite element/finite volume/flux vector discrete implementations, a priori error estimates, accuracy, convergence, stability. Numerical linear algebra, approximate factorization, sparse matrix methods. Dissipation, Fourier spectral analysis, smooth and non-smooth solutions.

Cross-listed: (Same as Aerospace Engineering 655.)

(DE) Prerequisite(s): 518.

Registration Permission: Consent of instructor.

Rationale: Replaces Engineering Science 651. Impact on other units: None. Financial Impact: None.

ME 656 Advanced Computational Fluid Dynamics Practice (3) Applications of modern CFD theory and code practice for Euler and Navier-Stokes conservation systems. Computer projects in incompressible/compressible flow, viscous, turbulent, reacting and/or inviscid/potential subsonic to hypersonic flows.

Cross-listed: (Same as Aerospace Engineering 656.)

(DE) Prerequisite(s): 644 and 655.

Registration Permission: Consent of instructor.

Rationale: Replaces Engineering Science 652. Impact on other units: None. Financial Impact: None.

DROP SECONDARY COURSES (ENGINEERING SCIENCE IS PRIMARY. THE ENGINEERING SCIENCE ACADEMIC DISCIPLINE AND ALL COURSES ARE BEING DROPPED)

ME 539 Continuum Mechanics (3)

ME 561 Finite Elements for Engineering Applications (3)

ME 562 Computational Fluid-Thermal Systems (3)

ME 651 Advanced Topics in Computational Fluid Dynamics (3)

ME 652 Advanced Computational Fluid Dynamics Practice (3) Dropped in October, Courses Not Taught

REVISE PRIMARY COURSES TO DROP THE ENGINEERING SCIENCE REFERENCE AS A SECONDARY

ME 533 Dynamics (3)

Cross-listed: (Same as Aerospace Engineering 533.)

ME 534 Mechanical Vibrations (3)

Cross-listed: (Same as Aerospace Engineering 535; Biomedical Engineering 534.)

ME 541 Fluid Mechanics I (3)

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

ME 542 Fluid Mechanics II (3)

Cross-listed: (Same as Aerospace Engineering 542.)

ME 559 Advanced Mechanics of Materials I (3)

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

ME 659 Advanced Mechanics of Materials II (3)

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

DEPARTMENT OF NUCLEAR ENGINEERING

Nuclear Engineering (NE)

REVISE PRIMARY TO ADD SECONDARY CROSS-LISTING

NE 540 Fundamentals of Irradiation Effects in Nuclear Materials (3) Detailed analysis of the atomistic mechanisms controlling radiation damage and effects on materials in nuclear environments.

Cross-listed: (Same as Materials Science and Engineering 573.)

REVISE PRIMARY COURSES TO DROP THE ENGINEERING SCIENCE REFERENCE AS A SECONDARY

NE 577 Neural and Fuzzy Approaches in Engineering (3)

Cross-listed: (Same as Aerospace Engineering 577; Biomedical Engineering 577; Mechanical Engineering 577.)

NE 671 Advanced Topics in Applied Artificial Intelligence (3)

Cross-listed: (Same as Mechanical Engineering 671.)

II. PROGRAM CHANGES

MOVE THE ENGINEERING SCIENCE MAJOR, DEGREES AND CONCENTRATIONS FROM THE DEPARTMENT OF MECHANICAL, AEROSPACE, AND BIOMEDICAL ENGINEERING TO UNDER THE COLLEGE OF ENGINEERING – INTERDEPARTMENTAL

Engineering Science major – MS
Applied Mechanics concentration
Flight Test Engineering concentration
Systems and Controls concentration
Thermal-Fluid Mechanics concentration

Engineering Science major – Dual MS-MBA

Engineering Science major – PhD
Applied Mechanics concentration
Energy Science and Engineering concentration
Systems and Controls concentration
Thermal-Fluid Mechanics concentration

In the 2011-2012 *Graduate Catalog*, insert text for the Engineering Science Major, MS:

Engineering Science Major

Master of Science and Doctor of Philosophy degrees with a major in engineering science are offered through an interdepartmental program. The program is intended only for students whose research is best supported by a collection of courses that is interdisciplinary and so would not meet course requirements for any other major. As part of the application process, the applicant must choose an Engineering Science concentration from either Aerospace, Biomedical, Civil, or Mechanical Engineering programs. The student's departmental home is that of the chosen concentration and of the student's major professor.

Admission

Applicants for admission to the engineering science program are expected to have earned a bachelor's degree from an accredited undergraduate program in engineering or physics. Students from other appropriate disciplines (e.g. chemistry, mathematics, etc.) can be admitted but additional engineering courses may be required. Entering students must have, as a minimum, competency in mathematics through ordinary differential equations. Submit online application to the Graduate Admissions Office.

MS Requirements

A student, with the concurrence of his/her advisory committee, may choose between a thesis option and a non-thesis option. All course work must be approved by the student's major professor and committee.

Thesis Option

Specific requirements of the thesis option are a minimum of 30 semester hours including:
Engineering courses – 12 hours minimum (may include, but is not restricted to, courses offered by the home department).
Mathematics (400-level or above) - 6 hours minimum.

Related courses – 6 hours maximum (may include additional courses in mathematics, computer science, or the physical and life sciences).

Master's thesis – 6 hours through the department of the major professor.

A final oral examination covering the thesis and related course work.

Non-Thesis Option

Specific requirements of the non-thesis option are a minimum of 30 semester hours including:

Engineering courses – 15 hours minimum (may include, but is not restricted to, courses offered by the home department).

Mathematics (400-level or above) – 6 hours minimum.

Related courses – 9 hours maximum (may include additional courses in mathematics, computer science, or the physical and life sciences).

A final written examination covering the course work.

Note 1: At least two-thirds of the minimum required hours must be taken in courses numbered at or above the 500 level.

Note 2: Other 500-level engineering courses that are approved by the student's advisory committee and the home department's Director of Graduate Studies may be substituted for the mathematics courses.

In the 2011-2012 *Graduate Catalog*, insert text for the Engineering Science Major, PhD:

Engineering Science Major, PhD

All students must complete a minimum of 72 semester hours beyond the bachelor's degree, exclusive of credit for the master's thesis. These shall include a minimum of 24 semester hours in Doctoral Research and Dissertation and a minimum number of semester hours in other courses, as specified by the home department. Courses will depend on the student's research program and all must be approved by the student's advisory committee.

Students must satisfy math requirement of the host department.

All examination requirements of the home department.

Successful defense of the dissertation.

Energy Science and Engineering Concentration

This concentration is offered in collaboration with the Center for Interdisciplinary Research and Graduate Education (CIRE). The CIRE is a joint effort between the College of Engineering, other University of Tennessee colleges, and the Oak Ridge National Laboratory. The students who wish to pursue this concentration will normally have completed 6 Core credit hours, 3 credit hours of Knowledge Breadth, and 6 credit hours of Knowledge Specialization coursework (minimum 15 hours) specified under the Energy Science and Engineering major, (PhD) program section of this catalog.

In the 2011-2012 *Graduate Catalog*, insert text for the Dual MS-MBA, Engineering Science Major

Dual MS-MBA Program – Engineering Science

Requirements

Fall - First Year	Hours
Session 1: 7 1/2 weeks	
ACCT 506 - Managerial Accounting I	1.5
ECON 505 - Economics of Strategy	1.5
STAT 505 - Quantitative Methods	1.5
MARK 505 - Marketing and Demand Management I	1.5
BUAD 515 - Business Skills Development	1.5
Session 2: 7 1/2 weeks	
ACCT 505 - Financial Accounting I	1.5
MGT 505 - Leading Complex Organizations	1.5
MARK 506 - Marketing and Demand Management II	1.5
LOG 505 - Supply Chain Logistics 1: Strategic Issues in Supply Side Supply Chain Management	1.5
BUAD 516 - Business Skills Development II	1.5
Total fall hours	15
Spring - First Year	
Session 1: 7 1/2 weeks	
FINC 505 - Financial Management I	1.5
LOG 506 - Supply Chain Logistics 2: Strategic Issues in Demand Side Supply Chain Management	1.5
MGSC 505 - Descriptive Modeling	1.5
OMS 505 - Operations Management	1.5
BUAD 517 - Business Skills Development III	1.5
Session 2: 7 1/2 weeks	
MGT 506 - Competitive Strategy	1.5
FINC 506 - Financial Management II	1.5
BULW 505 - Foundations of Business Law and Ethics	1.5
ECON 506 - Market Forces in Global Environment	1.5
BUAD 518 - Innovation in Practice	1.5
¹ Engineering Science Major course	3.0
Total spring hours	18

Summer - First Year	
¹ Engineering Science Major course / Mathematics course	6.0
Total summer hours	6
Fall - Second Year	
¹ Engineering Science Major courses	6-9
MBA Electives (Entrepreneurship and Innovation preferred)	6-9
Total fall hours	12-15
Spring - Second Year	
¹ Engineering Science Major courses / Mathematics courses	9.0
Total spring hours	9
Total hours required for dual program	60

¹MS requirements: 12 hours minimum in the engineering major and 6 hours minimum mathematics courses (400-level or above).

Dual degree candidates enrolled in engineering science are required to take 18 hours of graduate-level engineering courses. This program requires a course work plan, approved by the Dual Program Committee Chair, including a concentration.

Rationale: Engineering Science is being changed to an interdepartmental major in the College. Impact on other units: The Engineering Science degrees will be available to students in all engineering majors which have a concentration in Engineering Science.

DEPARTMENT OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE

REVISE REQUIREMENTS – ELECTRICAL ENGINEERING MAJOR, PHD

In the 2011-12 *Graduate Catalog*, for items 1, a and b; and items 2, a and b – delete current text and replace as follows. Also, under #2, delete item “c.”

1. For doctoral program, a minimum of 72 hours, including both course and research credit hours, is required. For students holding only a BS degree, a minimum of 39 graduate course credit hours is required. Graduate course work excludes research and dissertation credit as well as 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. The course credit hours should satisfy the following conditions:

a. Six semester hours of mathematics at the 400-level* or above, approved by the graduate committee; or 6 semester hours of courses in the department at the 500-level or above; or 6 hours of courses outside the department approved by the student's dissertation committee and the graduate committee.

b. An additional 18 semester hours must be taken in courses numbered at or above the 500 level. In addition, the student must satisfy requirements 2 through 7 below.

2. For students holding an MS degree in Electrical Engineering, Computer Engineering or Computer Science from the University of Tennessee will be required to take a minimum of 15 hours of graduate course credit, excluding research and dissertation credit or seminar courses. Other students will be required to take a minimum of 24 hours of graduate course credit. These course credit hours must include the following:

a. A minimum of 9 hours in the department of 600-level course work. At least 3 hours of this work must be in an area other than the student's major area.

b. A minimum of 6 semester course credit hours of mathematics (offered by the Mathematics department) at the 500-level or above, as approved by the graduate committee.

REVISE REQUIREMENTS – COMPUTER ENGINEERING MAJOR, PHD,

In the 2011-12 *Graduate Catalog*, for items 1, a and b; and items 2, a and b – delete current text and replace as follows. Also, under #2, delete item “c.”

1. For doctoral program, a minimum of 72 hours, including both course and research credit hours, is required. For students holding only a BS degree, a minimum of 39 graduate course credit hours is required. Graduate course work excludes research and dissertation credit as well as 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. The course credit hours should satisfy the following conditions:

a. Six semester hours of mathematics at the 400-level* or above, approved by the graduate committee; or 6 semester hours of courses in the department at the 500-level or above; or 6 hours of courses outside the department approved by the student's dissertation committee and the graduate committee.

b. An additional 18 semester hours must be taken in courses numbered at or above the 500 level. In addition, the student must satisfy requirements 2 through 7 below.

2. For students holding an MS degree in Electrical Engineering, Computer Engineering or Computer Science from the University of Tennessee will be required to take a minimum of 15 hours of graduate course credit, excluding research and dissertation credit or seminar courses. Other students will be required to take a minimum of 24 hours of graduate course credit. These course credit hours must include the following:

a. A minimum of 9 hours in the department of 600-level course work. At least 3 hours of this work must be in an area other than the student's major area.

b. A minimum of 6 semester course credit hours of mathematics (offered by the Mathematics department) at the 500-level or above, as approved by the graduate committee.

REVISE REQUIREMENTS – COMPUTER SCIENCE MAJOR, PHD

In the 2011-12 *Graduate Catalog*, delete second paragraph under the Requirements section and replace as follows:

A minimum of 72 hours, including both course and research hours, is required. Original research reported in a dissertation of high quality is emphasized. Doctoral (PhD) students holding an MS degree in Electrical Engineering, Computer Engineering or Computer Science from the University of Tennessee will be required to take a minimum of 15 hours of graduate course credit. Students pursuing the direct PhD degree will be required to take a minimum of 39 graduate hours.

All other PhD students will be required to take a minimum of 24 graduate hours. Graduate course work excludes research and dissertation hours as well as seminar courses. Courses COSC 530, COSC 560, and COSC 580 or COSC 581 are required for the degree. At least 6 hours of 600-level graded courses must be taken in computer science at the University of Tennessee, Knoxville. The student's advisor and committee will establish the specific course requirements.

DEPARTMENT OF MATERIALS SCIENCE AND ENGINEERING



DROP MAJOR, DEGREE, AND CONCENTRATIONS

Polymer Engineering – MS

Polymer Processing concentration

Polymer Science concentration

Polymer Engineering – PhD

Polymer Processing concentration

Polymer Science concentration

REVISE INTRODUCTORY TEXT

In the 2011-12 *Graduate Catalog*, revise department introductory text to reflect dropping of Polymer Engineering. Delete the first two sentences of the first paragraph and replace with the following two sentences.

Graduate programs are offered leading to the degrees of Master of Science and Doctor of Philosophy with a major in materials science and engineering. The materials science and engineering program is flexible and interdisciplinary in nature.

REVISE ADMISSION PARAGRAPH

In the 2011-12 *Graduate Catalog*, delete the words “and polymer engineering” from the first sentence.

Rationale: The polymer engineering degree will be absorbed into the polymers concentration of the MSE engineering program.

REVISE MATERIALS SCIENCE AND ENGINEERING MAJOR, MS (THESIS AND NON-THESIS OPTIONS)

In the 2011-2012 *Graduate Catalog*, Thesis option, 2nd bullet, revise 2nd sentence as follows:

These courses must include MSE 515 and MSE 516 for the metallurgy concentration; MSE 539, MSE 540, and MSE 552 for the polymers concentration; two graduate specialization courses approved by the student's faculty committee for the materials concentration; two courses from the approved nanomaterials specialization list for the nanomaterials concentration; and two courses from the approved specialization list for the biomaterials concentration.

In the 2011-2012 *Graduate Catalog*, Non-Thesis option, 1st bullet, revise 5th sentence as follows:

The non-thesis option for all concentrations must include the same courses required for the thesis option.

REVISE REQUIREMENTS – MATERIALS SCIENCE AND ENGINEERING MAJOR, PHD

In the 2011-2012 *Graduate Catalog*, after the bullets, first paragraph, add as a sixth sentence

...required for the master's program. Coursework in the polymers concentration must include the courses required for the master's program and MSE 639. For students in the nanomaterials...

In the 2011-2012 *Graduate Catalog*, second paragraph, add as a fourth sentence

...toward degree requirements. Coursework in the polymers concentration must include the courses required for the master's program and MSE 639. For students in the nanomaterials...

In the 2011-2012 *Graduate Catalog*, third paragraph, add as a third sentence

...hours of dissertation. Coursework in the polymers concentration must include the courses required for the master's program and MSE 639. For students in the nanomaterials...

DEPARTMENT OF MECHANICAL, AEROSPACE, AND BIOMEDICAL ENGINEERING

MOVE THE ENGINEERING SCIENCE MAJOR, DEGREES, AND CONCENTRATIONS FROM THE DEPARTMENT OF MECHANICAL, AEROSPACE, AND BIOMEDICAL ENGINEERING TO UNDER THE COLLEGE (INTERDEPARTMENTAL).

Engineering Science major – MS
Applied Mechanics concentration
Flight Test Engineering concentration
Systems and Controls concentration
Thermal-Fluid Mechanics concentration

Engineering Science major – Dual MS-MBA

Engineering Science major – PhD
Applied Mechanics concentration
Energy Science and Engineering concentration
Systems and Controls concentration
Thermal-Fluid Mechanics concentration

In the 2011-2012 *Graduate Catalog*, remove the Engineering Science text (for the Master's, Dual, and PhD programs) from under the department of MABE and move under the College as Interdepartmental.

REVISE DEPARTMENT INTRODUCTORY TEXT

In the 2011-2012 *Graduate Catalog*, revise introductory text as follows:

Remove asterisk and sentence following asterisk.

Revise first paragraph, first sentence to delete the words "and engineering science."

Delete second paragraph.

Delete fifth paragraph.

Revise sixth paragraph: keep first sentence and delete remainder of paragraph.
Introductory text will now have four paragraphs.

Rationale: Engineering Science is being changed to an interdepartmental major in the College of Engineering (change of "ownership").
Impact on other units: The Engineering Science degrees will be available to students in all engineering majors that are listed as concentrations in Engineering Science.

COLLEGE OF LAW

All changes effective fall 2012

I. COURSE CHANGES

ADD

836 Advanced Gratuitous Transfers (3) A detailed study of the non-tax aspects of estate planning and gratuitous transmission of wealth from a counseling and drafting perspective. Topics to be covered include: drafting multi-generational trusts including discretionary distributions and future interests; powers of appointment; powers of attorney; charitable gifts; and fiduciary duties. Students will complete two substantial planning and drafting projects requiring them to design an estate plan for a hypothetical client, draft all of the necessary implementing documents, and explain the plan and the documents in writing to the client.

(DE) Prerequisite: 935.

Comment: Limited Enrollment.

Registration Restriction(s): Law students only.

839 Negotiable Instruments (2) Basic coverage of commercial paper, including checks, notes, and other negotiable instruments (Articles 3 and 4 of the Uniform Commercial Code).

Registration Restriction(s): Law students only.

841 Secured Transactions (3) Coverage of Uniform Commercial Code Article 9 and relevant Bankruptcy Code provisions dealing with security interests in personal property.

Registration Restriction(s): Law students only.

846 Disability Law (3) An overview of disability law with a major emphasis on the Americans with Disabilities Act, the Rehabilitation Act of 1973, and the Individuals with Disabilities Education Act. Will focus on many of the policy issues that arise in the area of disability law examining how laws impact the lives of people with disabilities in such areas as employment discrimination, public accommodations, housing, and education, with a particular emphasis on employment discrimination. Will survey relevant cases, statutes, articles, and legal doctrines and explore how this area of law reflects societal attitudes towards people who are perceived as having or not having disabilities. Will introduce students to social science research addressing salient disability issues in contemporary society, in addition to statutes and case law.

Registration Restriction(s): Law students only.

856 Advanced Criminal Law (3) Examines corporate criminal liability (also commonly known as white collar crime). Deals with selected substantive criminal law and procedural areas important when dealing with business or corporate clients. Course coverage includes the study and application of several federal criminal statutes, and some state common law doctrines.

Registration Restriction(s): Law students only.

878 Ownership and Justice (2) Examines a number of classical and contemporary justifications of individual ownership of property. Coverage will include (among others) the labor theory, the constructivist view (as per modern economists and certain social philosophers), the Rawlsian view, and efforts of contemporary Christian philosophers to locate ownership within the community. Considered alongside philosophical materials will be contemporary legal scholarship that focuses on problems of self-realization and distribution. Will seek to apprehend the necessary conditions of any regime of individual ownership as well as the margins of what can be considered property.

Registration Restriction(s): Law students only.

880 Behavioral Economics (2) Seminar course will study the policy implications of behavioral economics. In contrast to the standard rational model of economic behavior, human beings' cognitive abilities and willpower are limited. Moreover individuals do not always act in their self-interest, but can act generously even when contrary to their economic self-interest. Because of this, individuals frequently act in ways that depart systematically from the predictions of economists' standard models. Behavioral economics attempts to understand these departures and, more generally, integrate psychologists' understanding of human behavior into economic analysis.

Comment: This seminar does not require a background in economics.

Registration Restriction(s): Law students only.

888 International Religious Freedom (3) Seminar course will examine the multitude of issues that stem from the right to freedom of thought, conscience, religion, or belief. Following a philosophical and historical overview of the development of the right across various political and religious traditions, students will explore a wide range of contested and often charged legal questions, including defining the relationship between church and state, between freedom of religion and related rights such as freedom of expression and association, and the scope of legitimate limitations on freedom of religion. Readings will pay particular attention to the American experience, though the context for the seminar will be decidedly comparative in nature, bringing into consideration competing political, religious, and ideological frameworks. The common touchstone for analysis will be based on developing an understanding of the right to freedom of religion or belief as it is set forth in key international instruments – including the Universal Declaration of Human Rights and the International Covenant on Civil and Political Rights – as well as regional commitments including the European Convention for the protection of Human Rights and Fundamental Freedoms.

Registration Restriction(s): Law students only.

889 International Intellectual Property Law (3) Intellectual property is increasingly becoming an area of global concern, and practitioners in both intellectual property law and international law need to know how the system operates. Explores the international intellectual property systems, including the various international agreements and institutions as they relate to copyrights, patents, and trademarks, plus some important related doctrines. It also explores some comparative aspects of how these various intellectual property rights are implemented in different countries.

Registration Restriction(s): Law students only.

890 European Union Law: Rights (3) Seminar course introduces students to the EU's burgeoning legal and constitutional processes by exploring "next generation" issues, including the status of fundamental human rights in the EU, the division of powers between member states and the Union, and the EU's role within the international system, particularly as it relates to questions of foreign policy, security, and development. A survey of the history and evolution of the EU will provide students with a critical understanding of key EU institutions, including relevant treaties, charters, and decision. Will analyze substantive thematic issue areas, including free movement and other rights related to freedom, security and justice, common foreign and security policy, and EU institution-member state-international community relations. Primary texts, including Court of Justice jurisprudence and other EU institution resolutions and decisions will be considered, as well as the role of other European agencies, and how they interrelate to the primary institutions.

Registration Restriction(s): Law students only.

891 Global Constitutionalism (3) Globalization continues to exert a powerful influence on all aspects of modern life, and there are few problems that are not global in scope. The definition, development, and interpretation of laws, including the scope of fundamental rights, have not been immune from this influence. The practice of legal comparativism enjoys a long and respected history. However, with the growing entrenchment of rule of law and civil rights among western democracies and the explosive growth in written constitutions around the world, has this practice remained one of simple comparativism, or is something more profound happening below the surface? Among other questions, this seminar will explore what the implications of this possibility may be and what, if any similarities and/or differences continue to characterize the constitutional experiences of these states. Primary constitutional texts and leading Supreme Court jurisprudence from select countries will be considered in the context of a number of key areas including human dignity, national security, separation of powers, and church-state relations.

Registration Restriction(s): Law students only.

892 International Human Rights Law (3) Examines the norms, institutions, and application of key international and regional human rights regimes. The substance and procedure of the United Nations human rights system (treaty and non-treaty-based mechanisms) and regional human rights systems, including the European, Inter-American, and African systems, will be explored in detail, as well as other treaties and mechanisms related to the development and protection of human rights. Specific topics include individual and group rights, political and economic/cultural rights, the interaction between human rights and trade, globalization, and the war on terror.

(DE) Prerequisite(s): 886 or permission of the professor.

Registration Restriction(s): Law students only.

894 Employment Law Seminar (2 - 3) Seminar course will examine selected topics in employment law. Students will be expected to write a research paper that satisfies the expository writing requirement.

Comment: Limited enrollment.

Registration Restriction(s): Law students only.

961 Patent Prosecution (2) Teaches fundamental skills for patent lawyers. Will focus on translating an invention disclosure into the highly specialized language of a patent claim, which requires an understanding of the invention, the prevailing case law, and the patent examination process, as well as an understanding of the scrutiny to which a claim is subjected during litigation. Covers the mechanics of drafting various types of claims and discussing their applicability in various situations, a survey of recent case law from the Federal Circuit that affect patent claim drafting, litigation and Markman claim construction hearings, and the basics of prosecution before the U.S. Patent and Trademark Office. Will have several short written projects, which will include a client interview summary, various exercises describing and/or claiming different inventions, responses to rejections from the Patent & Trademark Office, and written critiques of exemplary claims. These preliminary projects will build up to the final projects, which will be the drafting of a complete patent application.

(DE) Corequisite(s): 955.

Registration Restriction(s): Law students only.

981 Business Torts (3) After the 1980s, there was a significant evolution in the relationship among antitrust, business tort, and unfair competition law. Will focus on the developments in business torts, and in particular, how the law should regulate, promote, or discourage competitive behavior in the marketplace. Will survey the fields of unfair competition, commercial disparagement and defamation, interference torts, the torts of fraud and negligent misrepresentation, misappropriation of trade secrets, and state consumer fraud.

Registration Restriction(s): Law students only.

989 Moot Court Executive Board (1) Performance of duties as members of the Executive Moot Court Board, including research, analysis, writing in developing problems and materials for interscholastic appellate and trial advocacy competitions and helping students prepare for those competitions.

Grading Restriction: Satisfactory/No Credit grading only.

Repeatability: May be repeated. Maximum 2 hours.

Registration Restriction(s): Law students only.

REVISE DESCRIPTION

886 Public International Law (3) Seminar course introduces the system of norms, rules, institutions, and procedures that regulate interactions among and between state and non-state actors on the international level. As part of this introduction, a number of themes will be explored, including the tensions between international law and municipal law, state sovereignty and individual rights, and the use of force and settlement of international disputes. These themes will emerge through an examination of a variety of sources, including customary and treaty law, international and regional adjudication and arbitration, and the activity of international and regional intergovernmental bodies.

II. PROGRAM CHANGES

REVISE REQUIREMENTS – LAW, JD

In the 2011-12 *Graduate Catalog*, revise first paragraph, second sentence to add “989” to list of courses.

REVISE REQUIREMENTS – CONCENTRATION IN BUSINESS TRANSACTIONS

In the 2011-12 *Graduate Catalog*, delete “Law 840 Commercial Law” from list of required courses, and add the following sentence immediately after the list of required courses: “in addition to the other requirements either Law 840 Commercial Law or Law 841 Secured Transactions is required to complete the Concentration in Business Transactions.”

COLLEGE OF NURSING

All Changes Effective: Fall 2012

PART I: COURSE CHANGES

(NURS)

ADD

578 Technology in Health Professions Education (3) 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.

Contact Hour Distribution: 2 hours lecture and 1 hour lab per week.

Registration Restriction: Minimum student level – graduate.

584 Directed Clinical Practice (1-10) Additional opportunities for advanced nursing practice. Objectives to be developed collaboratively by student and faculty.

Grading Restriction: Satisfactory/No Credit or letter grade.

Repeatability: May be repeated. Maximum 14 hours.

Comment(s): Enrollment in or completion of graduate-level courses in clinical nursing required.

Credit Level Restriction: Graduate credit only.

Registration Restriction(s): Master of Science in Nursing – nursing major. Minimum student level – graduate.

REVISE NAME AND DESCRIPTION OF PRIMARY COURSE

612 Health and Health Care Policy/Planning (3) Examination of policies affecting health and health care; policymaking process; interactions between health professionals, consumer groups, various forms of media, and government in policy development. Cross-listed: (Same as Public Health 612.)

REVISE NAME, DESCRIPTION AND REGISTRATION RESTRICTION(S)

583 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.

Registration Restriction(s): Master of Science in Nursing – nursing major: nurse anesthesia concentration. Minimum student level – graduate.

Rationale: This course is now linked to a \$500 course fee, applicable only to nurse anesthesia concentration students. Revising to restrict the course to the appropriate concentration. Impact on other units: None. Financial impact: None.

REVISE HOURS AND CONTACT HOURS

533 Global Disaster Nursing I (4)

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

534 Global Disaster Nursing II (4)

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

535 Global Disaster Nursing/Studies III (5)

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

REVISE TO DROP (RE)PREREQUISITES

624 Evidence-Based Practice and Use of Information Technology (3)

REVISE (RE)PREREQUISITE(S)

631 Advanced Practice Option I (2)

(RE) Prerequisite(s): 620 and 630.

REVISE TO DROP (RE)COREQUISITE(S)

632 Advanced Practice Option II (4)

PART II: PROGRAM CHANGES

REVISE INTRODUCTORY TEXT, ADMISSION REQUIREMENTS, DOCTORAL COMMITTEE, AND SPECIAL POLICIES – NURSING MAJOR, PHD

In the 2012-13 *Graduate Catalog*, introductory text, first paragraph, first bullet: add science as last word of sentence. Text should read: Analyze, test, refine, and expand the theoretical basis of nursing science.

In the 2012-13 *Graduate Catalog*, introductory text, second paragraph: delete first two sentences. Add a new first sentence: The program offers part-time as well as fulltime study options. Also, prior to the final sentence, add a new sentence: Optional certificate programs in nursing education, health policy, and global disaster nursing are available. The certificate in health policy is offered jointly with the Department of Public Health.

In the 2012-13 *Graduate Catalog*, under Admission heading, revise fourth bullet: delete (the combined verbal and quantitative portions of) and replace (Exam) with (Examination). Text should read: Achieve a competitive score on the Graduate Record Examination.

In the 2012-13 *Graduate Catalog*, under Admission heading, last bullet, first sentence: replace (March) with (October) and (fall) with (summer). Text should read: Schedule a personal interview with the College of Nursing PhD Student Admissions Committee prior to October 15 of the year preceding summer admission.

In the 2012-13 *Graduate Catalog*, under Doctoral Committee heading, delete third sentence, and revise the next sentence to read: Four faculty, holding the rank of assistant professor or above, comprise the dissertation committee....

In the 2012-13 *Graduate Catalog*, under Special Policies heading, add two new bullets:

The College of Nursing requires all students to have professional liability insurance coverage before enrolling in nursing courses.

BSN to PhD students must be eligible to practice nursing in Tennessee or one of the interstate compact states.

COLLEGE OF VETERINARY MEDICINE

All changes effective summer 2012

COURSE CHANGES

(VMD) Veterinary Medicine

ADD

VMD 810 Advanced Veterinary Dermatology (1-2) Advanced clinical training in diagnosis and treatment of skin diseases of small and large animals.

Repeatability: may be repeated. Maximum 4 hours.

Registration Restriction(s): Veterinary Medicine Students only.

VMD 819 Clinical Rotation in Small Animal Integrative Medicine and Wellness (1-2) Clinical experience in combining conventional therapies and complementary medical modalities as a holistic approach to wellness, including the prevention and treatment disease in small animals.

Repeatability: May be repeated. Maximum 4 hours.

Registration Restriction(s): Veterinary Medicine Students only.

REVISE HOURS AND ADD REPEATABILITY

VMD 808 Advanced Diagnostic Imaging (2-3)

Repeatability: May be taken once for credit.

REVISE HOURS

VMD 809 Advanced Small Animal Medicine (2-3)

VMD 883 Clinical Rotations in Small Animal Clinical Sciences III (2-3)

REVISE TO REMOVE REPEATABILITY

VMD 860 Veterinary Dermatology (2)

VMD 876 Small Animal Nutrition (1-2)

Repeatability: May be repeated. Maximum 2 hours.

INTERCOLLEGIATE

All changes effective Fall 2012

I. COURSE CHANGES

COMPARATIVE AND EXPERIMENTAL MEDICINE

CMVM Comparative and Experimental Medicine – Veterinary Medicine

REVISE TITLE

CMVM 612 Journal Club in Biomedical and Diagnostic Sciences (1)

DROP

CMVM 617 Journal Club in Comparative Medicine (1)

Rationale: The Comparative Medicine Department has been combined with the Pathobiology Department to create the Biomedical and Diagnostic Sciences Department. We seek to drop this course because the department with which it was associated no longer exists as such.

REVISE GRADING OPTION TO ADD S/NC AS AN OPTION

CMVM 501 Special Topics in Comparative and Experimental Medicine (1–6)

CMVM 610 Advanced Topics in Comparative and Experimental Medicine (1–3)