

**Attachment 2**  
**Academic Affairs**  
**Consent Agenda Supplemental Information**

**College of Agriculture (10-17-13)**

Pages 2-4 (curriculum change)

**College of Engineering (11-7-13)**

Pages 5-9 (course changes)

Pages 10-53 (curriculum changes)

**College of Business Administration (11-19-13)**

Pages 54-58 (curriculum change)

**College of Human Ecology (12-5-13)**

Pages 59-60 (course changes)

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**College of Architecture, Planning and Design (12-20-13)**

Page 65 (course additions)

**Graduate Council (12-3-13)**

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## College of Agriculture (10-17-13)

### Undergraduate Curriculum Changes

#### Agricultural Economics

Concurrent B.S./M.S. in Agricultural Economics

FROM:

#### *Admission Requirements*

Applicants must meet the following requirements:

- The student must be seeking a B.S. degree from the Department of Agricultural Economics.
- The student must have completed ~~AGEC 120~~, AGEC 500, AGEC 505, ~~STAT 325 (or equivalent)~~, and six additional hours of agricultural economics courses. Applicants are encouraged to apply prior to entering their senior year.
- The student's cumulative undergraduate GPA must be at least 3.5.

#### *Application Process*

Applicants should follow the K-State Graduate School application process. The application form can be found on the Department's website. Required elements of the application include:

- The K-State graduate application form, which should be completed on-line with the appropriate application fee.
- A brief cover letter and a 2-page statement of objectives for graduate study.
- Three letters of reference.
- Transcript(s) of all undergraduate work completed at the time of application.
- ~~The Graduate Record Examination (GRE) is required for admission to the graduate program. Applicants without the GRE may be admitted on a probationary basis, but will be required to take the GRE.~~

Applications are evaluated by the Department's Graduate Committee, which will provide a recommendation to the Director of Graduate Studies about an applicant's suitability for the program.

#### *Program Formats and Guidelines*

Once admitted to the concurrent B.S./M.S degree program, the student should consult the graduate handbook (<http://www.kstate.edu/grad/gscurrent/handbook/>) and the Department's guidelines for graduate programs (available at the Department website) for policies regarding supervisory committee, program of study, final examination, etc. The successful applicant should identify a major professor within two semesters of admission to the program.

The B.S. degree may be awarded at any time following the completion of the undergraduate degree requirements. Alternatively, the B.S. and M.S. degrees may be awarded concurrently. Students in the concurrent program must complete all undergraduate requirements with the exception that up to 9 credit hours of AGEC classes taken for graduate credit can count toward the undergraduate degree. Those graduate credits can only be used as unrestricted electives in the undergraduate degree.

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TO:

### *Admission Requirements*

Applicants must meet the following requirements:

- The student must be seeking a B.S. degree from the Department of Agricultural Economics.
- The student must have completed AGEC 500, AGEC501, AGEC 505, and six additional hours of agricultural economics courses. Applicants are encouraged to apply prior to entering their senior year.
- The student's cumulative undergraduate GPA must be at least 3.5.

### *Application Process*

Applicants should follow the K-State Graduate School application process. The application form can be found on the Department's website. Required elements of the application include:

- The K-State graduate application form, which should be completed on-line with the appropriate application fee.
- A brief cover letter and a 2-page statement of objectives for graduate study.
- Three letters of reference.
- Transcript(s) of all undergraduate work completed at the time of application.

Applications are evaluated by the Department's Graduate Committee, which will provide a recommendation to the Director of Graduate Studies about an applicant's suitability for the program.

### *Program Formats and Guidelines*

Once admitted to the concurrent B.S./M.S degree program, the student should consult the graduate handbook ( <http://www.kstate.edu/grad/gscurrent/handbook/>) and the Department's guidelines for graduate programs (available at the Department website) for policies regarding supervisory committee, program of study, final examination, etc. The successful applicant should identify a major professor within two semesters of admission to the program.

The B.S. degree may be awarded at any time following the completion of the undergraduate degree requirements. Alternatively, the B.S. and M.S. degrees may be awarded concurrently.

Students in the concurrent program must complete all undergraduate requirements with the exception that up to 9 credit hours of AGEC, ECON or STAT classes taken for graduate credit can count toward the undergraduate degree. Those graduate credits can only be used as unrestricted electives in the undergraduate degree.

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**RATIONALE:** The required coursework is modified to reflect the recent changes in the undergraduate curriculum. The GRE requirement is deleted because the students applying for the concurrent program are our undergraduate students, for whom we have sufficient information on their qualifications. The last change in policy is to reflect the existing requirements for the M.S. program that include ECON and STAT courses. The proposed change will expand the student's opportunity to pursue the concurrent degree.

**IMPACT:** The Department Head of Statistics (Dr. Gary Gadbury) consented to the change via email (August 27, 2013). The Department Head of Economics (Dr. Bill Blankenau) indicated that he had no concerns via email (August 28, 2013).

**EFFECTIVE DATE:** Fall 2014

## **College of Engineering (11-7-13)**

Non-Expedited COURSE PROPOSALS  
Course Changes Courses Numbered 000-599

### **Architectural Engineering and Construction Science**

From: ~~DEN 210~~ - History of Building and Construction (3) I. An introduction to the art and science of building. Historical review from ancient to contemporary including related construction methods, equipment, and systems. Three hours recitation a week.

K-State 8 Topics  
Aesthetic Interpretation  
Historical Perspectives

To: CNS 110 - History of Building and Construction (3) I. An introduction to the art and science of building. Historical review from ancient to contemporary including related construction methods, equipment, and systems. Three hours recitation a week.

K-State 8 Topics  
Aesthetic Interpretation  
Historical Perspectives

Rationale – This course is required for primarily Architectural Engineering & Construction Science and Management curricula students. It is taught by Architectural Engineering and Construction Science faculty, therefore should be listed in the Architectural Engineering and Construction Science Department. It is a first or second semester freshman course, thus the 110 numbering.

Impact: NONE

Effective Date: Fall 2014

From: CNS ~~320~~ Construction Materials (2) I,II. Study and analysis of construction materials, their properties, selection, and use. Two hours recitation a week.

To: CNS 220 Construction Materials (2) I,II. Study and analysis of construction materials, their properties, selection, and use. Two hours recitation a week.

Rationale: Revision of course number to reflect the level in the curriculum.

Impact: NONE

Effective Date: Fall 2015

From: ~~CE~~ 331 Strength of Materials A (3) I,II Behavior of materials subjected to tension, compression, shear, and bending; ~~design~~ of beams and columns. Three hours recitation a week. Prerequisite: CNS 231.

To: CNS 331 Strength of Materials and Analysis (3) I,II Study of behavior of materials subjected to tension, compression, shear, and bending; analysis of beams and columns. Three hours recitation a week. Prerequisite: CNS 231 and Professional Program Standing in CNSM.

Rationale: This course has been traditionally taught for the Construction Science and Management majors by Civil Engineering. The rationale is to shift it to the Department of Architectural Engineering and Construction Science with the other structural courses taught within the department.

Impact: NONE. This course has been taught by an Instructor whose time is split between Civil Engineering and the Dept. of Architectural Engineering and Construction Science. It is anticipated that this arrangement will continue for the foreseeable future.

Effective Date: Spring 2016

From: ~~CE~~ 332 Strength of Materials A Laboratory (1) I,II Tests to determine the physical properties of various structural materials. Analysis and interpretation of test data. Three hours lab a week. ~~Prerequisite: ENGL 120 or 100 with grade of A or B, and one course in graphics.~~ Prerequisite or concurrent enrollment: ~~CE~~ 331.

To: CNS 332 Strength of Materials Laboratory (1) I,II Tests to determine the physical properties of various structural materials. Analysis and interpretation of test data. Three hours lab a week. Prerequisite or concurrent enrollment: CNS 331.

Rationale: Same as CNS 331 rationale.

Impact: This has been discussed with Civil Engineering. Both departments agree for scheduling and teaching of this class to be arranged jointly to use the testing lab in the Civil Engineering Department.

Effective Date: Spring 2016

## New Courses 000-599

### **Architectural Engineering and Construction Science**

ADD: CNS 210 Graphic Communication I (1) I, II Introduction to graphic communication principles and methods using orthographic projections, isometrics, and perspective drawings and sketches and their application to the engineering, design, and construction industry. One hour recitation and two hours lab per week. Prerequisite or concurrent enrollment: CNS 220

Rationale: Prerequisite course to provide additional skills needed for courses taught later in the Construction Science and Management coursework.

Impact: NONE

Effective Date: Fall 2015

### **Biological and Agricultural Engineering**

ADD: BAE 250 Solid Modeling (1) Basics of solid modeling with the PTC software Pro Engineer/Creo. Modeling parts, creating assemblies, and creating drawings based on modeled parts and assemblies. 3 hr lab/week. Prereq.or concurrent: ME 212.

Offered: Spring

Rationale: Major off-road equipment manufactures require that their new hires know the Pro E/Creo solid modeling program. This course was developed and has been offered as service to students wishing to add knowledge of this program to their skill set in order to pursue positions with these employers. It has been offered as a problems course for the past two years with an enrollment of six students each time it was offered. It is anticipated as a regular course this enrollment will be greater.

Effective: Fall 2014

Impact: None

ADD: BAE 445 Biological Engineering Fundamentals. (3) Integration of biochemistry, microbiology, and biology principles into engineering with topics such as chemistry of biomolecules, material and energy balances, enzyme kinetics, biochemical reactions, unit operations, reactor engineering, and application of biological engineering principles in industrial processes. Three hours recitation a week. Prerequisite: BIOL 198 and BAE 345 or CE 533 or CHE 354 and CHE 355.

Offered: Fall

Effective term for requested action: Term Fall Year 2014

Rationale: This course will be a required core course in the biological, environmental and machine systems options in the BSE program. It is designed to address the need to include advanced biological sciences in the BSE program.

Impact (i.e. if this impacts another unit): No impact to other departments.

ADD: BAE 450 Off Road Machine Power Components. (3) Engine thermodynamics, fuel and combustion, engine components, engine cycles, engine power transfer and efficiencies, exhaust gas emissions. Mechanical power transfer mechanisms: bearings, belt drives, chain drives, gear drives, shaft drives. Hydraulic power transfer components and systems, fluid mechanics, hydraulic motors. Prerequisite: BAE 350

Offered: Fall

Effective term for requested action: Term Fall Year 2014

Rationale: The design of off-road machines is about directing energy or power toward some task. This course will focus on the mechanics and mechanisms used to convert fuel to energy and apply it to a beneficial task.

Impact (i.e. if this impacts another unit): No impact to other departments.

ADD: BAE 550 Advanced Machinery Drive Components (3) Basic hydrostatic and hybrid drive system concepts and design. Application of these technologies to agriculture construction and other off road equipment applications. Prerequisite: BAE 450

Offered: Spring

Effective term for requested action: Term Fall Year 2014

Rationale: Hydrostatic drive systems are uniquely common to many different off-road applications. Hybrid drive systems are similar to hydrostatic systems and are likely to find acceptance in off-road equipment applications. This course will consider both drive systems in detail.

Impact (i.e. if this impacts another unit): No impact to other departments.



## **Electrical and Computer Engineering**

**ADD:** ECE 115. New Student Design Project (1) Students work in teams to design, develop, test, and present a solution to an appropriate engineering challenge assigned to all students in the given semester.

**Offered:** Spring

**Rationale:** This is a second semester course for new ECE students that will now give one hour of credit for the introductory design process that students will conduct as teams during the semester. This course will replace the spring semester offering of ECE015 which is the department's zero credit new-student-assembly orientation course. Changing the second-semester zero-credit ECE015 to a required one-credit course during that semester will provide the opportunity and motivation for significantly more depth in the design project, including more programming and teamwork experience, better preparing new students for their later coursework and careers.

**Effective:** Fall 2014

**Impact:** None

## Curriculum Changes

### **Architectural Engineering and Construction Science & Management**

#### **Architectural Engineering**

**Effective term for requested action:** Term Fall Year 2014

**Rationale:** The proposed curriculum revisions in Architectural Engineering reflect the course revisions also proposed for the construction program. Revisions include two new courses and new approaches reflecting the industry's educational requirements. These revisions will also meet the upcoming revisions in the accreditation requirements for the program. Some of the revisions reflect the need to address retention of students in the program.

**Impact (i.e. if this impacts another unit):** Geology

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**Bachelor's degree requirements  
Pre-professional program  
(PARE)**

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**Freshman year**

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**First semester (15 credit hours)**

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- ARE 020 - Architectural Engineering Seminar **Credits:** (0)
- ARE 100 - Architectural Engineering Orientation **Credits:** (4)
- CHM 210 - Chemistry I **Credits:** (4)
- ~~DEN 210~~ - History of Building and Construction **Credits:** (3)
- ~~GEOL 100 - Earth in Action~~ **Credits:** (3)
- MATH 220 - Analytic Geometry and Calculus I **Credits:** (4)

**Second semester (16 credit hours)**

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- ARE 020 - Architectural Engineering Seminar **Credits:** (0)
- BIOL 198 - Principles of Biology **Credits:** (4)
- or
- CHM 230 - Chemistry II **Credits:** (4)
- CNS 320 - Construction Materials **Credits:** (2)
- ECON 110 - Principles of Macroeconomics **Credits:** (3)
- ENGL 100 - Expository Writing I **Credits:** (3)
- MATH 221 - Analytic Geometry and Calculus II **Credits:** (4)

**Sophomore year**

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**Bachelor's degree requirements  
Pre-professional program  
(PARE)**

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**Freshman year**

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**First semester (13 credit hours)**

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- ARE 020 - Architectural Engineering Seminar **Credits:** (0)
- ARE 100 - Architectural Engineering Orientation **Credits:** (2)
- CHM 210 - Chemistry I **Credits:** (4)
- CNS 110 - History of Building and Construction **Credits:** (3)
- MATH 220 - Analytic Geometry and Calculus I **Credits:** (4)

**Second semester (16 credit hours)**

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- ARE 020 - Architectural Engineering Seminar **Credits:** (0)
- BIOL 198 - Principles of Biology **Credits:** (4)
- or
- CHM 230 - Chemistry II **Credits:** (4)
- CNS 220 - Construction Materials **Credits:** (2)
- ECON 110 - Principles of Macroeconomics **Credits:** (3)
- ENGL 100 - Expository Writing I **Credits:** (3)
- MATH 221 - Analytic Geometry and Calculus II **Credits:** (4)

**Sophomore year**

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| <hr/> <p><b>Third semester (16 credit hours)</b></p> <hr/> <ul style="list-style-type: none"> <li>• ARE 020 - Architectural Engineering Seminar <b>Credits:</b> (0)</li> <li>• CNS 200 - Computer Applications in Engineering and Construction <b>Credits:</b> (2)</li> <li>• COMM 105 - Public Speaking IA <b>Credits:</b> (2)</li> <li>• ENGL 200 - Expository Writing II <b>Credits:</b> (3)</li> <li>• MATH 222 - Analytic Geometry and Calculus III <b>Credits:</b> (4)</li> <li>• PHYS 213 - Engineering Physics I <b>Credits:</b> (5)</li> </ul> <hr/> <p><b>Fourth semester (15 credit hours)</b></p> <hr/> <ul style="list-style-type: none"> <li>• ARE 020 - Architectural Engineering Seminar <b>Credits:</b> (0)</li> <li>• ART 100 - 2- Dimensional Design <b>Credits:</b> (3)</li> <li>• or</li> <li>• ART 190 - Drawing I <b>Credits:</b> (3)</li> <li>• or</li> <li>• ART 200 - 3- Dimensional Design <b>Credits:</b> (3)</li> <li>• CE 333 - Statics <b>Credits:</b> (3)</li> <li>• MATH 240 - Elementary Differential Equations <b>Credits:</b> (4)</li> <li>• PHYS 214 - Engineering Physics II <b>Credits:</b> (5)</li> </ul> <hr/> <p><b>Professional program (ARE)</b></p> <hr/> <p><b>Junior year</b></p> <hr/> <p><b>Fifth semester (17 credit hours)</b></p> <hr/> <ul style="list-style-type: none"> <li>• ARE 020 - Architectural Engineering Seminar <b>Credits:</b> (0)</li> <li>• ARE 532 - Lighting Systems Design <b>Credits:</b> (2)</li> </ul> | <hr/> <p><b>Third semester (16 credit hours)</b></p> <hr/> <ul style="list-style-type: none"> <li>• ARE 020 - Architectural Engineering Seminar <b>Credits:</b> (0)</li> <li>• CNS 200 - Computer Applications in Engineering and Construction <b>Credits:</b> (2)</li> <li>• COMM 105 - Public Speaking IA <b>Credits:</b> (2)</li> <li>• ENGL 200 - Expository Writing II <b>Credits:</b> (3)</li> <li>• MATH 222 - Analytic Geometry and Calculus III <b>Credits:</b> (4)</li> <li>• PHYS 213 - Engineering Physics I <b>Credits:</b> (5)</li> </ul> <hr/> <p><b>Fourth semester (16 credit hours)</b></p> <hr/> <ul style="list-style-type: none"> <li>• ARE 020 - Architectural Engineering Seminar <b>Credits:</b> (0)</li> <li>• ART 100 - 2- Dimensional Design <b>Credits:</b> (3)</li> <li>• or</li> <li>• ART 190 - Drawing I <b>Credits:</b> (3)</li> <li>• or</li> <li>• ART 200 - 3- Dimensional Design <b>Credits:</b> (3)</li> <li>• CE 333 - Statics <b>Credits:</b> (3)</li> <li>• MATH 240 - Elementary Differential Equations <b>Credits:</b> (4)</li> <li>• PHYS 214 - Engineering Physics II <b>Credits:</b> (5)</li> <li>• <u>CNS 210 Graph Comm 1 <b>Credits:</b> (1)</u></li> </ul> <hr/> <p><b>Professional program (ARE)</b></p> <hr/> <p><b>Junior year</b></p> <hr/> <p><b>Fifth semester (17 credit hours)</b></p> <hr/> <ul style="list-style-type: none"> <li>• ARE 020 - Architectural Engineering Seminar <b>Credits:</b> (0)</li> <li>• ARE 532 - Lighting Systems Design <b>Credits:</b> (2)</li> </ul> |
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| <ul style="list-style-type: none"> <li>• CE 212 - Elementary Surveying Engineering <b>Credits:</b> (3)</li> <li>• CE 533 - Mechanics of Materials <b>Credits:</b> (3)</li> <li>• CE 534 - Mechanics of Materials Laboratory <b>Credits:</b> (1)</li> <li>• CNS 321 - <del>Construction Techniques and Detailing</del> <b>Credits:</b> (3)</li> <li>• IMSE 530 - Engineering Economic Analysis <b>Credits:</b> (2)</li> <li>• (enroll in 2 credit hours)</li> <li>• ME 513 - Thermodynamics I <b>Credits:</b> (3)</li> </ul>  | <ul style="list-style-type: none"> <li>• CE 212 - Elementary Surveying Engineering <b>Credits:</b> (3)</li> <li>• CE 533 - Mechanics of Materials <b>Credits:</b> (3)</li> <li>• CE 534 - Mechanics of Materials Laboratory <b>Credits:</b> (1)</li> <li>• CNS 321 – <u>Graph Comm II</u> <b>Credits:</b> (3)</li> <li>• IMSE 530 - Engineering Economic Analysis <b>Credits:</b> (2) - (enroll in 2 credit hours)</li> <li>• ME 513 - Thermodynamics I <b>Credits:</b> (3)</li> </ul>  |
| <p><b>Sixth semester (17 credit hours)</b></p>   | <p><b>Sixth semester (17 credit hours)</b></p>  |
| <hr/> <ul style="list-style-type: none"> <li>• ARE 020 - Architectural Engineering Seminar <b>Credits:</b> (0)</li> <li>• ARE 310 - Introduction to AutoCAD <b>Credits:</b> (1)</li> <li>• ARE 522 - Loading and Load Paths in Buildings <b>Credits:</b> (2)</li> <li>• ARE 534 - Thermal Systems <b>Credits:</b> (3)</li> <li>• CE 537 - Introduction to Structural Analysis <b>Credits:</b> (3)</li> <li>• CNS 325 - Construction <del>Drawings</del> <b>Credits:</b> (3)</li> <li>• ECE 519 - Electric Circuits and Control <b>Credits:</b> (4)</li> <li>• STAT 490 - Statistics for Engineers <b>Credits:</b> (1)</li> </ul> | <hr/> <ul style="list-style-type: none"> <li>• ARE 020 - Architectural Engineering Seminar <b>Credits:</b> (0)</li> <li>• ARE 310 - Introduction to AutoCAD <b>Credits:</b> (1)</li> <li>• ARE 522 - Loading and Load Paths in Buildings <b>Credits:</b> (2)</li> <li>• ARE 534 - Thermal Systems <b>Credits:</b> (3)</li> <li>• CE 537 - Introduction to Structural Analysis <b>Credits:</b> (3)</li> <li>• CNS 325 - Construction <u>Documents</u> <b>Credits:</b> (3)</li> <li>• ECE 519 - Electric Circuits and Control <b>Credits:</b> (4)</li> <li>• STAT 490 - Statistics for Engineers <b>Credits:</b> (1)</li> </ul> |
| <p><b>Senior year</b></p>  | <p><b>Senior year</b></p>   |
| <p><b>Seventh semester (17 credit hours)</b></p>   | <p><b>Seventh semester (17 credit hours)</b></p>  |
| <hr/> <ul style="list-style-type: none"> <li>• ARE 020 - Architectural Engineering Seminar <b>Credits:</b> (0)</li> <li>• ARE 411 - Architectural Engineering Design <b>Credits:</b> (3)</li> <li>• ARE 528 - Reinforced Concrete Structures <b>Credits:</b> (3)</li> </ul>  | <hr/> <ul style="list-style-type: none"> <li>• ARE 020 - Architectural Engineering Seminar <b>Credits:</b> (0)</li> <li>• ARE 411 - Architectural Engineering Design <b>Credits:</b> (3)</li> <li>• ARE 528 - Reinforced Concrete Structures <b>Credits:</b> (3)</li> </ul>   |

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| <ul style="list-style-type: none"> <li>• ARE 533 - Building Electrical Systems <b>Credits:</b> (3)</li> <li>• ARE 537 - Acoustic Systems <b>Credits:</b> (2)</li> <li>• ENGL 415 - Written Communication for Engineers <b>Credits:</b> (3)</li> <li>• ME 512 - Dynamics <b>Credits:</b> (3)</li> </ul>  | <ul style="list-style-type: none"> <li>• ARE 533 - Building Electrical Systems <b>Credits:</b> (3)</li> <li>• ARE 537 - Acoustic Systems <b>Credits:</b> (2)</li> <li>• ENGL 415 - Written Communication for Engineers <b>Credits:</b> (3)</li> <li>• ME 512 - Dynamics <b>Credits:</b> (3)</li> </ul>  |
| <p><b>Eighth semester (15 credit hours)</b></p>   | <p><b>Eighth semester (15 credit hours)</b></p>   |
| <hr/> <ul style="list-style-type: none"> <li>• *Humanities or Social Science Elective <b>Credits:</b> (3)</li> <li>• ARE 020 - Architectural Engineering Seminar <b>Credits:</b> (0)</li> <li>• ARE 524 - Steel Structures <b>Credits:</b> (3)</li> <li>• ARE 536 - Plumbing/Fire Protection Systems Design <b>Credits:</b> (3)</li> <li>• ARE 540 - Building Mechanical Systems <b>Credits:</b> (3)</li> <li>• ME 571 - Fluid Mechanics <b>Credits:</b> (3)</li> </ul> | <hr/> <ul style="list-style-type: none"> <li>• *Humanities or Social Science Elective <b>Credits:</b> (3)</li> <li>• ARE 020 - Architectural Engineering Seminar <b>Credits:</b> (0)</li> <li>• ARE 524 - Steel Structures <b>Credits:</b> (3)</li> <li>• ARE 536 - Plumbing/Fire Protection Systems Design <b>Credits:</b> (3)</li> <li>• ARE 540 - Building Mechanical Systems</li> </ul> <p><b>Credits:</b> (3)</p> <ul style="list-style-type: none"> <li>• ME 571 - Fluid Mechanics <b>Credits:</b> (3)</li> </ul> |
| <p><b>Fifth year</b></p>  | <p><b>Fifth year</b></p>  |
| <p><b>Ninth semester (15 credit hours)</b></p>  | <p><b>Ninth semester (15 credit hours)</b></p>  |
| <hr/> <ul style="list-style-type: none"> <li>• *Complementary Elective <b>Credits:</b> (3)</li> <li>• *Complementary Elective <b>Credits:</b> (3)</li> <li>• Free Elective <b>Credits:</b> (3)</li> <li>• ARE 020 - Architectural Engineering Seminar <b>Credits:</b> (0)</li> <li>• ARE 590 - Integrated Building System Design <b>Credits:</b> (3)</li> <li>• CE 522 - Soil Mechanics I <b>Credits:</b> (3)</li> </ul>  | <hr/> <ul style="list-style-type: none"> <li>• *Complementary Elective <b>Credits:</b> (3)</li> <li>• *Complementary Elective <b>Credits:</b> (3)</li> <li>• Free Elective <b>Credits:</b> (3)</li> <li>• ARE 020 - Architectural Engineering Seminar <b>Credits:</b> (0)</li> <li>• ARE 590 - Integrated Building System Design <b>Credits:</b> (3)</li> <li>• CE 522 - Soil Mechanics I <b>Credits:</b> (3)</li> </ul>  |
| <p><b>Tenth semester (15 credit hours)</b></p>  | <p><b>Tenth semester (15 credit hours)</b></p>  |
| <hr/> <ul style="list-style-type: none"> <li>• *Complementary elective <b>Credits:</b> (3)</li> <li>• *Complementary elective <b>Credits:</b> (3)</li> </ul>  | <hr/> <ul style="list-style-type: none"> <li>• *Complementary elective <b>Credits:</b> (3)</li> <li>• *Complementary elective <b>Credits:</b> (3)</li> <li>• *Humanities or Social Science Elective <b>Credits:</b> (3)</li> </ul>  |

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| <ul style="list-style-type: none"> <li>• *Humanities or Social Science Elective <b>Credits:</b> (3)</li> <li>• <a href="#">ARE 020 - Architectural Engineering Seminar Credits:</a> (0)</li> <li>• <a href="#">ARE 539 - Architectural Engineering Management Credits:</a> (3)</li> <li>• <a href="#">ARE 690 - Senior Project Credits:</a> (3)</li> </ul>   | <ul style="list-style-type: none"> <li>• <a href="#">ARE 020 - Architectural Engineering Seminar Credits:</a> (0)</li> <li>• <a href="#">ARE 539 - Architectural Engineering Management Credits:</a> (3)</li> <li>• <a href="#">ARE 690 - Senior Project Credits:</a> (3)</li> </ul>  |
| <p><b>Notes</b></p> <hr/> <p>For additional information about the University General Education program, check the <a href="#">requirements</a> specified by the <a href="#">College of Engineering</a>.</p> <p>*Humanities and Social Science Electives are to be selected from the College of Engineering Humanities and Social Science Elective Course List <del>approved by the College of Engineering. Students should select these courses as needed to complete the requirements of the K-State 8 General Education program.</del></p> <p>*Complementary Electives are to be selected from the approved departmental list.</p> <p><b>IMPORTANT NOTES: Students who first enroll in Summer 2011 or later must meet the requirements of the <a href="#">K-State 8</a> General Education Program. Students who began their programs of study in earlier terms under the University General Education (<a href="#">UGE</a>) program may complete their degrees with UGE requirements or may choose to move to the K-State 8. Students should check with their academic advisors to determine which choice would be better. To switch, students must consult with their academic advisors. Students who are readmitted in Summer 2011 and later will be designated as meeting the K-State 8 by the Office of Admissions. Deans' offices can make an</b></p> | <p><b>Notes</b></p> <hr/> <p>For additional information about the University General Education program, check the <a href="#">requirements</a> specified by the <a href="#">College of Engineering</a>.</p> <p>*Humanities and Social Science Electives are to be selected from the <u>official</u> College of Engineering Humanities and Social Science Elective Course List.</p> <p>*Complementary Electives are to be selected from the approved departmental list.</p> <p><b>IMPORTANT NOTES: Students who first enroll in Summer 2011 or later must meet the requirements of the <a href="#">K-State 8</a> General Education Program. Students who began their programs of study in earlier terms under the University General Education (<a href="#">UGE</a>) program may complete their degrees with UGE requirements or may choose to move to the K-State 8. Students should check with their academic advisors to determine which choice would be better. To switch, students must consult with their academic advisors. Students who are readmitted in Summer 2011 and later will be designated as meeting the K-State 8 by the Office of Admissions. Deans' offices can make an exception for the readmitted student who has completed UGE or who would prefer to complete UGE requirements.</b></p> |

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| <p>exception for the readmitted student who has completed UGE or who would prefer to complete UGE requirements.<br/> <b>Total credit hours required for graduation (158)</b></p> <hr/> | <p><b>Total credit hours required for graduation (157)</b></p> |
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**Changes:**

- Change DEN 210, History Bldg & Const (3) to CNS 110, History Bldg & Const (3)
- Change CNS 320, Const Materials (2) to CNS 220, Const Materials (2)
- Add CNS 210, Graph Comm I (1)
- Change CNS 321, Const Tech & Detail (3) to CNS 321, Graph Comm II (3)
- Change CNS 325, Const Drawings (3) to CNS 325, Const Documents (3)
- Change ARE 100, Orientation (1) to ARE 100, Orientation (2)
- Drop Geol 100 Earth and Action (3)

**Architectural Engineering and Construction Science & Management**

<http://catalog.k-state.edu/content.php?catoid=13&navoid=1316>

| <p><b>Architectural Engineering/Construction Science and Management</b></p> <hr/>  | <p><b>Architectural Engineering/Construction Science and Management</b></p> <hr/>  |
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| <p><b>Pre-professional programs admission</b><br/> New students, including transfer students, should submit the standard application form directly to the Office of Admissions. The admission criteria are the same as those for the university and the College of Engineering. Any student who has completed more than 15 credit hours at Kansas State University in any major outside the Department of Architectural Engineering and Construction Science may change majors into either pre-professional program provided that the student has a resident cumulative GPA of 2.3 or better.</p> <p><b>Admission to the professional programs</b><br/> There are two distinct and separate pre-professional programs within the department: the pre-professional architectural engineering program and the pre-professional construction science and management program, each containing different course requirements. Other than course requirements specific to each</p> | <p><b>Pre-professional programs admission</b><br/> New students, including transfer students, should submit the standard application form directly to the Office of Admissions. The admission criteria are the same as those for the university and the College of Engineering. Any student who has completed more than 15 credit hours at Kansas State University in any major outside the Department of Architectural Engineering and Construction Science may change majors into either pre-professional program provided that the student has a resident cumulative GPA of 2.3 or better.</p> <p><b>Admission to the professional programs</b><br/> There are two distinct and separate pre-professional programs within the department: the pre-professional architectural engineering program and the pre-professional construction science and management program, each containing different course requirements. Other than course requirements specific to each</p> |



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| <p>program, the general procedures for acceptance into the respective professional program are similar and are described in the following paragraphs.</p> <p>The pre-professional students must complete the first portion of the program prior to taking any upper-division professional program courses. An application to the professional program must be submitted to the <del>the</del> Department of Architectural Engineering and Construction Science by the end of the eighth week of either the spring or fall semester. This submission will be immediately prior to the student's pre-enrollment into any of the upper-division professional program courses. All courses in the lower-division pre-professional program core of the program of application, valid at the time the student entered the university, must be completed and all grade criteria must be met by the end of the semester that the application is submitted. An exception to this rule is the student who expects to complete these criteria during the summer semester at KSU. Those students should also make application in the spring semester prior to pre-enrollment. All eligible applicants will be allowed to pre-enroll into professional program courses with the understanding that they will be dropped if they do not complete the requirements for admission to the professional program prior to the beginning of the subsequent semester. Applications will be reviewed by the department's Academic Affairs Committee and accepted or rejected as soon as possible after semester grades are issued.</p> <p><b>Pre-professional course requirements</b><br/>Applicants must meet the following criteria for admission to the professional program of the curriculum as follows. Students must have:</p> <ol style="list-style-type: none"> <li>1. Achieved a GPA of 2.3 or better in all of the courses in the lower-division pre-professional program core and courses which apply to the professional program, and;</li> </ol> | <p>program, the general procedures for acceptance into the respective professional program are similar and are described in the following paragraphs.</p> <p>The pre-professional students must complete the first portion of the program prior to taking any upper-division professional program courses. An application to the professional program must be submitted to the Department of Architectural Engineering and Construction Science by the end of the eighth week of either the spring or fall semester. This submission will be immediately prior to the student's pre-enrollment into any of the upper-division professional program courses. All courses in the lower-division pre-professional program core of the program of application, valid at the time the student entered the university, must be completed and all grade criteria must be met by the end of the semester that the application is submitted. An exception to this rule is the student who expects to complete these criteria during the summer semester at KSU. Those students should also make application in the spring semester prior to pre-enrollment. All eligible applicants will be allowed to pre-enroll into professional program courses with the understanding that they will be dropped if they do not complete the requirements for admission to the professional program prior to the beginning of the subsequent semester. Applications will be reviewed by the department's Academic Affairs Committee and accepted or rejected as soon as possible after semester grades are issued.</p> <p><b>Pre-professional course requirements</b><br/>Applicants must meet the following criteria for admission to the professional program of the curriculum as follows. Students must have:</p> <ol style="list-style-type: none"> <li>1. Achieved a GPA of 2.3 or better in all of the courses in the lower-division pre-professional program core and courses which apply to the professional program, and;</li> <li>2. Earned a grade of credit (CR) in a departmental seminar for each semester</li> </ol> |
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| <p>2. Earned a grade of credit (CR) in a departmental seminar for each semester that the applicant was enrolled in the lower-division pre-professional program core, and;</p> <p>3. Completed the following courses (or equivalent) with grades of C or better:</p>  | <p>that the applicant was enrolled in the lower-division pre-professional program core, and;</p> <p>3. Completed the following courses (or equivalent) with grades of C or better:</p> |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |                    |                                      |          |                              |          |                      |                     |                            |          |                                    |  |        |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |         |                                      |          |                              |          |                      |          |                      |          |                                    |          |                                     |
|--|--|--------------|---------|---------------------------------------|----------|-----------------------|-----------|--|---------|--------------|---------|-------------|--------|---------|---------|---|---------|------------------------|----------|--------------------|--------------------|--------------------------------------|----------|------------------------------|----------|----------------------|---------------------|----------------------------|----------|------------------------------------|--|--------|--------------|---------|---------------------------------------|----------|-----------------------|-----------|--|---------|--------------|---------|-------------|--------|---------|---------|---|---------|------------------------|----------|--------------------|---------|--------------------------------------|----------|------------------------------|----------|----------------------|----------|----------------------|----------|------------------------------------|----------|-------------------------------------|
| Architectural engineering  | Architectural engineering  |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |                    |                                      |          |                              |          |                      |                     |                            |          |                                    |  |        |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |         |                                      |          |                              |          |                      |          |                      |          |                                    |          |                                     |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Course</th> <th>Course Title</th> </tr> </thead> <tbody> <tr> <td>ARE 100</td> <td>Architectural Engineering Orientation</td> </tr> <tr> <td>BIOL 198</td> <td>Principles of Biology</td> </tr> <tr> <td><b>or</b></td> <td></td> </tr> <tr> <td>CHM 230</td> <td>Chemistry II</td> </tr> <tr> <td>CHM 210</td> <td>Chemistry I</td> </tr> <tr> <td>CE 333</td> <td>Statics</td> </tr> <tr> <td>CNS 200</td> <td>Computer Applications in Engineering and Construction</td> </tr> <tr> <td>CNS 320</td> <td>Construction Materials</td> </tr> <tr> <td>COMM 105</td> <td>Public Speaking IA</td> </tr> <tr> <td><del>DEN 210</del></td> <td>History of Building and Construction</td> </tr> <tr> <td>ECON 110</td> <td>Principles of Macroeconomics</td> </tr> <tr> <td>ENGL 100</td> <td>Expository Writing I</td> </tr> <tr> <td><del>GEOL 100</del></td> <td><del>Earth in Action</del></td> </tr> <tr> <td>MATH 220</td> <td>Analytical Geometry and Calculus I</td> </tr> </tbody> </table> | Course   | Course Title | ARE 100 | Architectural Engineering Orientation | BIOL 198 | Principles of Biology | <b>or</b> |  | CHM 230 | Chemistry II | CHM 210 | Chemistry I | CE 333 | Statics | CNS 200 | Computer Applications in Engineering and Construction | CNS 320 | Construction Materials | COMM 105 | Public Speaking IA | <del>DEN 210</del> | History of Building and Construction | ECON 110 | Principles of Macroeconomics | ENGL 100 | Expository Writing I | <del>GEOL 100</del> | <del>Earth in Action</del> | MATH 220 | Analytical Geometry and Calculus I | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Course</th> <th>Course Title</th> </tr> </thead> <tbody> <tr> <td>ARE 100</td> <td>Architectural Engineering Orientation</td> </tr> <tr> <td>BIOL 198</td> <td>Principles of Biology</td> </tr> <tr> <td><b>or</b></td> <td></td> </tr> <tr> <td>CHM 230</td> <td>Chemistry II</td> </tr> <tr> <td>CHM 210</td> <td>Chemistry I</td> </tr> <tr> <td>CE 333</td> <td>Statics</td> </tr> <tr> <td>CNS 200</td> <td>Computer Applications in Engineering and Construction</td> </tr> <tr> <td>CNS 220</td> <td>Construction Materials</td> </tr> <tr> <td>COMM 105</td> <td>Public Speaking IA</td> </tr> <tr> <td>CNS 110</td> <td>History of Building and Construction</td> </tr> <tr> <td>ECON 110</td> <td>Principles of Macroeconomics</td> </tr> <tr> <td>ENGL 100</td> <td>Expository Writing I</td> </tr> <tr> <td>ENGL 200</td> <td>Expository Writing 2</td> </tr> <tr> <td>MATH 220</td> <td>Analytical Geometry and Calculus I</td> </tr> <tr> <td>MATH 221</td> <td>Analytical Geometry and Calculus II</td> </tr> </tbody> </table> | Course | Course Title | ARE 100 | Architectural Engineering Orientation | BIOL 198 | Principles of Biology | <b>or</b> |  | CHM 230 | Chemistry II | CHM 210 | Chemistry I | CE 333 | Statics | CNS 200 | Computer Applications in Engineering and Construction | CNS 220 | Construction Materials | COMM 105 | Public Speaking IA | CNS 110 | History of Building and Construction | ECON 110 | Principles of Macroeconomics | ENGL 100 | Expository Writing I | ENGL 200 | Expository Writing 2 | MATH 220 | Analytical Geometry and Calculus I | MATH 221 | Analytical Geometry and Calculus II |
| Course   | Course Title   |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |                    |                                      |          |                              |          |                      |                     |                            |          |                                    |  |        |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |         |                                      |          |                              |          |                      |          |                      |          |                                    |          |                                     |
| ARE 100  | Architectural Engineering Orientation  |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |                    |                                      |          |                              |          |                      |                     |                            |          |                                    |  |        |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |         |                                      |          |                              |          |                      |          |                      |          |                                    |          |                                     |
| BIOL 198   | Principles of Biology  |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |                    |                                      |          |                              |          |                      |                     |                            |          |                                    |  |        |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |         |                                      |          |                              |          |                      |          |                      |          |                                    |          |                                     |
| <b>or</b>  |  |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |                    |                                      |          |                              |          |                      |                     |                            |          |                                    |  |        |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |         |                                      |          |                              |          |                      |          |                      |          |                                    |          |                                     |
| CHM 230  | Chemistry II   |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |                    |                                      |          |                              |          |                      |                     |                            |          |                                    |  |        |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |         |                                      |          |                              |          |                      |          |                      |          |                                    |          |                                     |
| CHM 210  | Chemistry I  |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |                    |                                      |          |                              |          |                      |                     |                            |          |                                    |  |        |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |         |                                      |          |                              |          |                      |          |                      |          |                                    |          |                                     |
| CE 333   | Statics  |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |                    |                                      |          |                              |          |                      |                     |                            |          |                                    |  |        |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |         |                                      |          |                              |          |                      |          |                      |          |                                    |          |                                     |
| CNS 200  | Computer Applications in Engineering and Construction  |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |                    |                                      |          |                              |          |                      |                     |                            |          |                                    |  |        |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |         |                                      |          |                              |          |                      |          |                      |          |                                    |          |                                     |
| CNS 320  | Construction Materials   |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |                    |                                      |          |                              |          |                      |                     |                            |          |                                    |  |        |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |         |                                      |          |                              |          |                      |          |                      |          |                                    |          |                                     |
| COMM 105   | Public Speaking IA   |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |                    |                                      |          |                              |          |                      |                     |                            |          |                                    |  |        |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |         |                                      |          |                              |          |                      |          |                      |          |                                    |          |                                     |
| <del>DEN 210</del>   | History of Building and Construction   |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |                    |                                      |          |                              |          |                      |                     |                            |          |                                    |  |        |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |         |                                      |          |                              |          |                      |          |                      |          |                                    |          |                                     |
| ECON 110   | Principles of Macroeconomics   |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |                    |                                      |          |                              |          |                      |                     |                            |          |                                    |  |        |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |         |                                      |          |                              |          |                      |          |                      |          |                                    |          |                                     |
| ENGL 100   | Expository Writing I   |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |                    |                                      |          |                              |          |                      |                     |                            |          |                                    |  |        |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |         |                                      |          |                              |          |                      |          |                      |          |                                    |          |                                     |
| <del>GEOL 100</del>  | <del>Earth in Action</del>   |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |                    |                                      |          |                              |          |                      |                     |                            |          |                                    |  |        |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |         |                                      |          |                              |          |                      |          |                      |          |                                    |          |                                     |
| MATH 220   | Analytical Geometry and Calculus I   |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |                    |                                      |          |                              |          |                      |                     |                            |          |                                    |  |        |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |         |                                      |          |                              |          |                      |          |                      |          |                                    |          |                                     |
| Course   | Course Title   |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |                    |                                      |          |                              |          |                      |                     |                            |          |                                    |  |        |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |         |                                      |          |                              |          |                      |          |                      |          |                                    |          |                                     |
| ARE 100  | Architectural Engineering Orientation  |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |                    |                                      |          |                              |          |                      |                     |                            |          |                                    |  |        |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |         |                                      |          |                              |          |                      |          |                      |          |                                    |          |                                     |
| BIOL 198   | Principles of Biology  |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |                    |                                      |          |                              |          |                      |                     |                            |          |                                    |  |        |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |         |                                      |          |                              |          |                      |          |                      |          |                                    |          |                                     |
| <b>or</b>  |  |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |                    |                                      |          |                              |          |                      |                     |                            |          |                                    |  |        |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |         |                                      |          |                              |          |                      |          |                      |          |                                    |          |                                     |
| CHM 230  | Chemistry II   |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |                    |                                      |          |                              |          |                      |                     |                            |          |                                    |  |        |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |         |                                      |          |                              |          |                      |          |                      |          |                                    |          |                                     |
| CHM 210  | Chemistry I  |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |                    |                                      |          |                              |          |                      |                     |                            |          |                                    |  |        |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |         |                                      |          |                              |          |                      |          |                      |          |                                    |          |                                     |
| CE 333   | Statics  |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |                    |                                      |          |                              |          |                      |                     |                            |          |                                    |  |        |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |         |                                      |          |                              |          |                      |          |                      |          |                                    |          |                                     |
| CNS 200  | Computer Applications in Engineering and Construction  |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |                    |                                      |          |                              |          |                      |                     |                            |          |                                    |  |        |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |         |                                      |          |                              |          |                      |          |                      |          |                                    |          |                                     |
| CNS 220  | Construction Materials   |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |                    |                                      |          |                              |          |                      |                     |                            |          |                                    |  |        |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |         |                                      |          |                              |          |                      |          |                      |          |                                    |          |                                     |
| COMM 105   | Public Speaking IA   |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |                    |                                      |          |                              |          |                      |                     |                            |          |                                    |  |        |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |         |                                      |          |                              |          |                      |          |                      |          |                                    |          |                                     |
| CNS 110  | History of Building and Construction   |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |                    |                                      |          |                              |          |                      |                     |                            |          |                                    |  |        |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |         |                                      |          |                              |          |                      |          |                      |          |                                    |          |                                     |
| ECON 110   | Principles of Macroeconomics   |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |                    |                                      |          |                              |          |                      |                     |                            |          |                                    |  |        |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |         |                                      |          |                              |          |                      |          |                      |          |                                    |          |                                     |
| ENGL 100   | Expository Writing I   |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |                    |                                      |          |                              |          |                      |                     |                            |          |                                    |  |        |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |         |                                      |          |                              |          |                      |          |                      |          |                                    |          |                                     |
| ENGL 200   | Expository Writing 2   |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |                    |                                      |          |                              |          |                      |                     |                            |          |                                    |  |        |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |         |                                      |          |                              |          |                      |          |                      |          |                                    |          |                                     |
| MATH 220   | Analytical Geometry and Calculus I   |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |                    |                                      |          |                              |          |                      |                     |                            |          |                                    |  |        |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |         |                                      |          |                              |          |                      |          |                      |          |                                    |          |                                     |
| MATH 221   | Analytical Geometry and Calculus II  |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |                    |                                      |          |                              |          |                      |                     |                            |          |                                    |  |        |              |         |                                       |          |                       |           |  |         |              |         |             |        |         |         |   |         |                        |          |                    |         |                                      |          |                              |          |                      |          |                      |          |                                    |          |                                     |

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| <a href="#">MATH 221</a>  | Analytical Geometry and Calculus II  | <a href="#">MATH 222</a>                                 | Analytical Geometry and Calculus III                         |
| <a href="#">MATH 222</a>  | Analytical Geometry and Calculus III | <a href="#">MATH 240</a>                                 | Elementary Differential Equations                            |
| <a href="#">MATH 240</a>  | Elementary Differential Equations    | <a href="#">PHYS 213</a>                                 | Engineering Physics I  |
| <a href="#">PHYS 213</a>  | Engineering Physics I                | <a href="#">PHYS 214</a>                                 | Engineering Physics II                                       |
| <a href="#">PHYS 214</a>  | Engineering Physics II               |  |  |
| <p>4. Met the academic grade policy standards. A letter grade of C or better is required for all prerequisites prior to taking subsequent pre-professional program courses.</p> |                                      | <u>Construction Science &amp; Management engineering</u> |  |
|   |                                      | <b><u>Course</u></b>                                     | <b><u>Course Title</u></b>                                   |
|   |                                      | <a href="#">CNS 100</a>                                  | <u>Construction Science &amp; Management Orientation</u>     |
|   |                                      | <a href="#">CNS 110</a>                                  | <u>History of Building &amp; Construction</u>                |
|   |                                      | <a href="#">ENGL 100</a>                                 | <u>Expository Writing 1</u>                                  |
|   |                                      | <a href="#">ENGL 200</a>                                 | <u>Expository Writing 2</u>                                  |
|   |                                      | <a href="#">PHYS 113</a>                                 | <u>General Physics 1</u>                                     |
|   |                                      | <a href="#">PHYS 114</a>                                 | <u>General Physics 2</u>                                     |
|   |                                      | <a href="#">CNS 200</a>                                  | <u>Computer Applications in Engineering and Construction</u> |
|   |                                      | <a href="#">CE 212</a>                                   | <u>Elementary Surveying Engineering</u>                      |
|   |                                      | <a href="#">COMM 105</a>                                 | <u>Public Speaking IA</u>                                    |
|   |                                      | <a href="#">MATH 205</a>                                 | <u>General Calculus and Linear Algebra</u>                   |
|   |                                      | <a href="#">ECON 110</a>                                 | <u>Principles of Macroeconomics</u>                          |
|   |                                      | <a href="#">CNS 231</a>                                  | <u>Statics A</u>   |

|  |   |                                |
|--|---|--------------------------------|
|  | <a href="#"><u>CNS<br/>210</u></a>  | <u>Graphic Comm 1</u>          |
|  | <a href="#"><u>CNS<br/>220</u></a>  | Construction Materials         |
|  | <a href="#"><u>ACCTG<br/>231</u></a>  | <u>Accounting for Business</u> |
|  | <p>4. Met the academic grade policy standards. A letter grade of C or better is required for all prerequisites prior to taking subsequent pre-professional program courses.</p> |                                |

# Construction Science and Management

Effective term for requested action: Term Fall Year 2014

**Rationale:** The proposed curriculum revisions in Construction and Management have been considered for some time. As the industry changes, so must the curriculum change. Revisions include new courses and new approaches reflecting the industry’s educational requirements. These revisions will also meet the upcoming revisions in the accreditation requirements for the program. Some of the revisions reflect the need to address retention of students in the program.

**Impact (i.e. if this impacts another unit):** Math, Civil Engineering

|   |   |
|---|---|
| <p><b>Construction Science and Management (CNSM) (B.S.)</b></p> <hr/> <p>←</p> <p><b>Bachelor’s degree requirements<br/>Pre-professional program (PCNSM)</b></p> <hr/> <p><b>Freshman year</b></p> <hr/> <p><b>Fall semester (<del>13</del> credit hours)</b></p> <hr/> <ul style="list-style-type: none"> <li>• <a href="#">CNS 016 - Construction Seminar</a><br/><b>Credits:</b> (0)</li> <li>• <a href="#">CNS 100 - Construction Science and Management Orientation</a> <b>Credits:</b> (<del>1</del>)</li> <li>• <del><a href="#">COMM 105 - Public Speaking IA</a><br/><b>Credits:</b> (2)</del></li> <li>• <del><a href="#">DEN 210 - History of Building and Construction</a> <b>Credits:</b> (3)</del></li> <li>• <a href="#">ENGL 100 - Expository Writing I</a><br/><b>Credits:</b> (3)</li> <li>• <del><a href="#">MATH 220 - Analytic Geometry and Calculus I</a> <b>Credits:</b> (4)</del></li> </ul> <p><b>Spring semester (<del>15</del> credit hours)</b></p> <hr/> <ul style="list-style-type: none"> <li>• <del><a href="#">*Humanities or Social Science Elective</a><br/><b>Credits:</b> (3)</del></li> <li>• <a href="#">CE 212 - Elementary Surveying Engineering</a> <b>Credits:</b> (3)</li> <li>• <a href="#">CNS 016 - Construction Seminar</a><br/><b>Credits:</b> (0)</li> <li>• <del><a href="#">CNS 320 - Construction Materials</a><br/><b>Credits:</b> (2)</del></li> </ul> | <p><b>Construction Science and Management (CNSM) (B.S.)</b></p> <hr/> <p>←</p> <p><b>Bachelor’s degree requirements<br/>Pre-professional program (PCNSM)</b></p> <hr/> <p><b>Freshman year</b></p> <hr/> <p><b>Fall semester (<u>14</u> credit hours)</b></p> <hr/> <ul style="list-style-type: none"> <li>• <a href="#">CNS 016 - Construction Seminar</a><br/><b>Credits:</b> (0)</li> <li>• <a href="#">CNS 100 - Construction Science and Management Orientation</a> <b>Credits:</b> (<u>2</u>)</li> <li>• <a href="#">CNS 110 - History of Building and Construction</a> <b>Credits:</b> (3)</li> <li>• <a href="#">ENGL 100 - Expository Writing I</a><br/><b>Credits:</b> (3)</li> <li>• <a href="#">MATH 205 – Gen Calc Linear Algebra</a><br/><b>Credits:</b> (3)</li> <li>• <a href="#">*Humanities or Social Science Elective</a><br/><b>Credits:</b> (3)</li> </ul> <p><b>Spring semester (<u>14</u> credit hours)</b></p> <hr/> <ul style="list-style-type: none"> <li>• <a href="#">CE 212 - Elementary Surveying Engineering</a> <b>Credits:</b> (3)</li> <li>• <a href="#">CNS 016 - Construction Seminar</a><br/><b>Credits:</b> (0)</li> <li>• <a href="#">CNS 200 – Comp App in Engr/Const</a><br/><b>Credits:</b> (2)</li> <li>• <a href="#">ECON 110 - Principles of Macroeconomics</a> <b>Credits:</b> (3)</li> </ul> |
|---|---|

|   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• ECON 110 - Principles of Macroeconomics Credits: (3)</li> <li>• PHYS 113 - General Physics I Credits: (4)</li> </ul>   | <ul style="list-style-type: none"> <li>• COMM 105 - Public Speaking IA Credits: (2)</li> <li>• PHYS 113 - General Physics I Credits: (4)</li> </ul>   |
| <p>Sophomore year</p>   | <p>Sophomore year</p>   |
| <hr/> <p>Fall semester (<del>15</del> credit hours)</p>   | <hr/> <p>Fall semester (<u>16</u> credit hours)</p>   |
| <ul style="list-style-type: none"> <li>• ACCTG 231 - Accounting for Business Operations Credits: (3)</li> <li>• CNS 016 - Construction Seminar Credits: (0)</li> <li>• <del>CNS 200 - Computer Applications in Engineering and Construction Credits: (2)</del></li> <li>• CNS 231 - Statics A Credits: (3)</li> <li>• ENGL 200 - Expository Writing II Credits: (3)</li> <li>• PHYS 114 - General Physics II Credits: (4)</li> </ul>  | <ul style="list-style-type: none"> <li>• ACCTG 231 - Accounting for Business Operations Credits: (3)</li> <li>• CNS 016 - Construction Seminar Credits: (0)</li> <li>• <u>CNS 210 – Graphic Comm 1 Credits: (1)</u></li> <li>• <u>CNS 220 – Const Materials Credits: (2)</u></li> <li>• CNS 231 - Statics A Credits: (3)</li> <li>• ENGL 200 - Expository Writing II Credits: (3)</li> <li>• PHYS 114 - General Physics II Credits: (4)</li> </ul>  |
| <p>Professional program (CNSM)</p>  | <p>Professional program (CNSM)</p>  |
| <hr/> <p>Spring semester (<u>16</u> credit hours)</p>   | <hr/> <p>Spring semester (<u>17</u> credit hours)</p>   |
| <ul style="list-style-type: none"> <li>• <del>*Humanities or Social Science Elective Credits: (3)</del></li> <li>• <del>*Humanities or Social Science Elective Credits: (3)</del></li> <li>• <del>CE 331 - Strength of Materials A Credits: (3)</del></li> <li>• <del>CE 332 - Strength of Materials A Laboratory Credits: (1)</del></li> <li>• CNS 016 - Construction Seminar Credits: (0)</li> <li>• <del>CNS 321 - Construction Techniques and Detailing Credits: (3)</del></li> <li>• CNS 330 - Site Construction Credits: (3)</li> </ul> | <ul style="list-style-type: none"> <li>• <u>MANGT 420 – Mgmt Concepts Credits: (3)</u></li> <li>• <u>CNS 310 – Intro to AutoCAD Credits: (1)</u></li> <li>• <u>CNS 331 - Strength of Materials A Credits: (3)</u></li> <li>• <u>CNS 332 - Strength of Materials A Laboratory Credits: (1)</u></li> <li>• CNS 016 - Construction Seminar Credits: (0)</li> <li>• CNS 321 – <u>Graphic Comm II Credits: (3)</u></li> <li>• CNS 330 - Site Construction Credits: (3)</li> <li>• <u>STAT 350 – Business &amp; Econ Stat 1 Credits: (3)</u></li> </ul> |
| <p>Junior year</p>  | <p>Junior year</p>  |
| <hr/> <p>Fall semester (<u>18</u> credit hours)</p>   | <hr/> <p>Junior year</p>  |
| <ul style="list-style-type: none"> <li>• <del>ARE 310 – Introduction to AutoCAD Credits: (1)</del></li> <li>• <del>ARE 537 – Acoustic Systems Credits: (2)</del></li> </ul>   | <hr/> <p>Fall semester (<u>16</u> credit hours)</p>   |

- [CNS 016 - Construction Seminar](#)  
**Credits:** (0)
- [CNS 325 - Construction Drawings](#)  
**Credits:** (3)
- ~~[CNS 522 - Theory of Structures](#)  
**Credits:** (3)~~
- ~~[CNS 534 - Heating and Air Conditioning](#)  
**Credits:** (3)~~
- ~~[CNS 536 - Water Supply and Plumbing](#)  
**Credits:** (3)~~
- ~~\*\*\* [STAT 350 - Business and Economic Statistics I](#)  
**Credits:** (3)~~

**Spring semester (18 credit hours)**

- 
- [CNS 016 - Construction Seminar](#)  
**Credits:** (0)
  - ~~[CNS 524 - Steel Construction](#)  
**Credits:** (3)~~
  - ~~[CNS 535 - Electrical and Lighting](#)  
**Credits:** (3)~~
  - ~~[CNS 540 - Construction Methods and Equipment](#)  
**Credits:** (3)~~
  - ~~[CNS 542 - Ethics and Professional Standards](#)  
**Credits:** (1)~~
  - ~~[CNS 650 - Construction Safety](#)  
**Credits:** (2)~~
  - ~~[ENGL 417 - Written Communication for the Workplace](#)  
**Credits:** (3)~~
  - ~~\*\*\* [MANGT 390 - Business Law I](#)  
**Credits:** (3)~~

**Senior year**

**Fall semester (17 credit hours)**

- 
- ~~\*\*Professional Elective **Credits:** (2)~~
  - [CNS 016 - Construction Seminar](#)  
**Credits:** (0)
  - ~~[CNS 523 - Timber Construction](#)  
**Credits:** (2)~~
  - ~~[CNS 641 - Construction Estimating](#)  
**Credits:** (4)~~
  - ~~[CNS 642 - Construction Management](#)  
**Credits:** (3)~~
  - ~~[CNS 645 - Construction Scheduling and Cost Control](#)  
**Credits:** (3)~~

- [CNS 524 - Steel & Timber Const](#)  
**Credits:** (3)
- [CNS 535 - Electrical Serv & Install](#)  
**Credits:** (3)
- [ARE 312 - Intro to Revit](#) **Credits:** (1)
- [CNS 016 - Construction Seminar](#)  
**Credits:** (0)
- [CNS 325 - Construction Drawings](#)  
**Credits:** (3)
- [CNS 440 - Const Meth & Equip](#)  
**Credits:** (3)
- [CNS 550 - Construction Safety](#)  
**Credits:** (3)
- [CNS 542 - Ethics & Prof Standards](#)  
**Credits:** (1)

**Spring semester (14 credit hours)**

- 
- [CNS 016 - Construction Seminar](#)  
**Credits:** (0)
  - [CNS 534 - Heating & Air Cond](#)  
**Credits:** (3)
  - [CNS 510 - Comp Apps BIM/ Navisworks](#) **Credits:** (2)
  - [CNS 642 - Construction Management](#)  
**Credits:** (3)
  - [CNS 641 - Const Estimate](#) **Credits:** (3)
  - [CNS 645 - Const Sched & Cost Cont](#)  
**Credits:** (3)

**Senior year**

**Fall semester (17 credit hours)**

- 
- [ENGL 417 - Writ Comm/Workplace](#)  
**Credits:** (3)
  - [CNS 016 - Construction Seminar](#)  
**Credits:** (0)
  - [CNS 528 - Conc & Masonry Const](#)  
**Credits:** (3)
  - [CNS 536 - Water Supply & Plmg](#)  
**Credits:** (3)
  - [CNS 643 - Precon Serv/Design-Build](#)  
**Credits:** (3)

|  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• <del>MANGT 420 – Management Concepts</del><br/><b>Credits: (3)</b></li> </ul> <p><b>Spring semester (18 credit hours)</b></p> <hr/> <ul style="list-style-type: none"> <li>• **Professional Elective <b>Credits: (3)</b></li> <li>• **Management Elective (Labor)<br/><b>Credits: (3)</b></li> <li>• **Management Elective <b>Credits: (3)</b></li> <li>• <del>CE 322 – Soil and Foundation Construction</del> <b>Credits: (3)</b></li> <li>• CNS 016 - Construction Seminar<br/><b>Credits: (0)</b></li> <li>• <del>CNS 528 – Concrete and Masonry Construction</del> <b>Credits: (3)</b></li> <li>• CNS 660 - Construction Operations<br/><b>Credits: (3)</b></li> </ul>  | <ul style="list-style-type: none"> <li>• <a href="#">CNS 646 – Const Finan Management</a><br/><b>Credits: (3)</b></li> <li>• <a href="#">MANGT 390 – Business Law 1</a><br/><b>Credits: (3)</b></li> </ul> <p><b>Spring semester (16 credit hours)</b></p> <hr/> <ul style="list-style-type: none"> <li>• **Professional Elective <b>Credits: (2)</b></li> <li>• <u>**Professional Elective <b>Credits: (2)</b></u></li> <li>• **Management Elective (Labor)<br/><b>Credits: (3)</b></li> <li>• **Management Elective <b>Credits: (3)</b></li> <li>• <u>*Humanities or Social Science Elective</u><br/><b>Credits: (3)</b></li> <li>• <a href="#">CNS 016 - Construction Seminar</a><br/><b>Credits: (0)</b></li> <li>• <a href="#">CNS 660 - Construction Operations</a><br/><b>Credits: (3)</b></li> </ul>  |
| <p><b>Notes</b></p> <hr/> <p>For additional information about the University General Education program, check the <a href="#">requirements</a> specified by the <a href="#">College of Engineering</a>.</p> <p>*Humanities and Social Science Electives are to be selected from the <del>College of Engineering</del> <a href="#">Humanities and Social Science Elective Course List</a> approved by the <del>College of Engineering</del>. Students should select these courses as needed to complete the requirements of the K-State 8 General Education program.</p> <p>**Management Electives and Professional Electives are to be selected from approved departmental lists.</p> <p>***These courses in Statistics and Business &amp; Management require Junior standing.</p> <p><b>IMPORTANT NOTES: Students who first enroll in Summer 2011 or later must meet the requirements of the <a href="#">K-State 8</a> General Education Program.</b></p> <p><b>Students who began their programs of study in earlier terms under the University General Education (UGE) program may complete their degrees with UGE requirements or may choose to move to the K-State 8. Students should check with their academic advisors to determine which</b></p> | <p><b>Notes</b></p> <hr/> <p>For additional information about the University General Education program, check the <a href="#">requirements</a> specified by the <a href="#">College of Engineering</a>.</p> <p>*Humanities and Social Science Electives are to be selected from <u>approved catalog list of Social Science/Humanities courses (see <a href="#">engineering course list</a>)</u>. Students should select these courses as needed to complete the requirements of the K-State 8 General Education program.</p> <p>**Management Electives and Professional Electives are to be selected from approved departmental lists.</p> <p>***These courses in Statistics and Business &amp; Management require Junior standing.</p> <p><b>IMPORTANT NOTES: Students who first enroll in Summer 2011 or later must meet the requirements of the <a href="#">K-State 8</a> General Education Program.</b></p> <p><b>Students who began their programs of study in earlier terms under the University General Education (UGE) program may complete their degrees with UGE requirements or may choose to move to the K-State 8. Students should check with their academic advisors to determine which</b></p> |



|  |  |
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| <p><b>choice would be better. To switch, students must consult with their academic advisors. Students who are readmitted in Summer 2011 and later will be designated as meeting the K-State 8 by the Office of Admissions. Deans' offices can make an exception for the readmitted student who has completed UGE or who would prefer to complete UGE requirements.</b></p> <p><b>Total hours required for graduation (130)</b></p> <hr/> <hr/> | <p><b>choice would be better. To switch, students must consult with their academic advisors. Students who are readmitted in Summer 2011 and later will be designated as meeting the K-State 8 by the Office of Admissions. Deans' offices can make an exception for the readmitted student who has completed UGE or who would prefer to complete UGE requirements.</b></p> <p><b>Total hours required for graduation (130)</b></p> <hr/> <hr/> |
|--|--|

**Summary of Curriculum Revisions:**

- Delete MATH 220, Analys Geom & Calc 1 (4)
- Add MATH 205, Gen Calc Linear Algebra (3)
- Change CNS 100, CNSM Orientation, to 2 credit hours
- Change DEN 210, History Bldg & Const (3), to CNS 110, History Bld & Const (3)
- Change CNS 320, Const Materials to CNS 220, Const Materials
- Add CNS 210, Graphic Comm 1 (1)
- Delete CE 331, Strength Materials A (3)
- Delete CE 332, Strength Materials A Lab (1)
- Add CNS 331, Strength of Mat/Analysis (3)
- Add CNS 332, Strength of Materials Lab (1)
- Delete CNS 522, Theory of Structures (3)
- Change CNS 325, Const Drawing (3), to CNS 325, Const Documents (3)
- Change CNS 524, Steel Const to CNS 524, Steel & Timber Const (3)
- Add ARE 312, Intro to Revit (1)
- Add CNS 440, Const Meth & Equip (3)
- Change CNS 650, Construction Safety(2) to CNS 550, Construction Safety (2)
- Add CNS 510, Comp Apps BIM/Navisworks (2)
- Change CNS 641, Const Estimating (4) to CNS 641, Const Estimating (3)
- Delete CNS 523, Timber Construction (2)
- Add CNS 643, Precon Serv/Design-Build (3)
- Add CNS 646, Const Finan Management (2)
- Delete CE 322, Soil & Fdn Const (3)
- Delete ARE 537, Acoustic Systems (2)
- Delete Hum/SS Elect (3)
- Delete Prof Elective (1)

# Biological and Agricultural Engineering (BAE)

## Biological Systems Engineering (BSE) – Biological Option

**Effective term for requested action:** Term Fall Year 2014

### Rationale:

In order to improve the assessment process and ensure that the Biological Systems Engineering (BSE) degree program meets all the requirements for ABET accreditation, we have developed a 94-credit common core for all three options with the remaining credits focused on option specific required courses and career dependent electives (Track Electives). The common core includes all science, math, and basic engineering required for accreditation under the biological engineering criteria. The proposed changes for the Biological option are summarized in the table below. A new course (BAE 445 – Biological Engineering Fundamentals) is included in the common core to address the need to add more advanced biological topics in the BSE program in conjunction with ABET accreditation. BIOCH 521 (General Biochemistry) is being added as a required course in the Biological option to provide students the knowledge and background in biochemistry – regarded as important in various tracks in the Biological option (e.g., Biomedical Engineering, Biotechnology, and Bioprocessing). Elective courses (BIOL/BIOCH/CHM, BAE, and College of Engineering courses) are consolidated into Track Electives, identified based on possible career options, including Biomedical, Biofuels, Bioprocessing, and Biotechnology. Three credits of Humanities/Social Science electives are also being dropped and added to the Track Electives to provide more flexibility, while providing sufficient Humanities/Social Sciences in the program, for ABET requirements of breadth, and for satisfying the K-State 8 requirements.

| To be dropped                       |           | To be added                       |           |
|-------------------------------------|-----------|-----------------------------------|-----------|
| BIOL/BIOCH/CHM Electives            | 9         | BIOCH 521 – General Biochemistry  | 3         |
| BAE Electives                       | 6         | BAE 445 – Biol. Engg Fundamentals | 3         |
| College of Engineering Electives    | 12        | Track Electives                   | 24        |
| Humanities/Social Science Electives | 3         |                                   |           |
| <b>Total Credits</b>                | <b>30</b> |                                   | <b>30</b> |

**Impact (i.e. if this impacts another unit):** The Department of Biochemistry and Molecular Biophysics was contacted and did not express any concern regarding the additional 10-15 students in the BSE – Biological option who will take BIOCH 521 each year.

| <b>FROM:</b>           |   |      |  | <b>TO:</b>             |   |      |  |
|------------------------|---|------|--|------------------------|---|------|--|
| <b>Freshman</b>        |   | Sem. |  | <b>Freshman</b>        |   | Sem. |  |
| <b>Fall Semester</b>   | COURSE                                      | hrs. |  | <b>Fall Semester</b>   | COURSE                                      | hrs. |  |
| BAE 020                | Engineering Assembly                        | 0    |  | BAE 020                | Engineering Assembly                        | 0    |  |
| BAE 101                | Intro Biol and Agric Engg Tech              | 1    |  | BAE 101                | Intro Biol and Agric Engg Tech              | 1    |  |
| BAE 131                | Intro Design Biological and Agric Engineers | 1    |  | BAE 131                | Intro Design Biological and Agric Engineers | 1    |  |
| CHM 210                | Chemistry I                                 | 4    |  | CHM 210                | Chemistry I                                 | 4    |  |
| ECON 110               | Principles of Macroeconomics                | 3    |  | ECON 110               | Principles of Macroeconomics                | 3    |  |
| MATH 220               | Analytic Geometry and Calculus I            | 4    |  | MATH 220               | Analytic Geometry and Calculus I            | 4    |  |
| COMM 105               | Public Speaking 1A                          | 2    |  | COMM 105               | Public Speaking 1A                          | 2    |  |
|                        |   | 15   |  |                        |   | 15   |  |
| <b>Freshman</b>        |   | Sem. |  | <b>Freshman</b>        |   | Sem. |  |
| <b>Spring Semester</b> | COURSE                                      | hrs. |  | <b>Spring Semester</b> | COURSE                                      | hrs. |  |
| BAE 020                | Engineering Assembly                        | 0    |  | BAE 020                | Engineering Assembly                        | 0    |  |
| BAE 231                | Biological Systems Engg Project I           | 1    |  | BAE 231                | Biological Systems Engg Project I           | 1    |  |
| BIOL 198               | Principles of Biology                       | 4    |  | BIOL 198               | Principles of Biology                       | 4    |  |
| CHM 230                | Chemistry II                                | 4    |  | CHM 230                | Chemistry II                                | 4    |  |
| ENGL 100               | Expository Writing I                        | 3    |  | ENGL 100               | Expository Writing I                        | 3    |  |

|                        |   |              |      |                        |  |              |      |
|------------------------|---|--------------|------|------------------------|--|--------------|------|
| MATH 221               | Analytic Geometry and Calculus II             | 4            |      | MATH 221               | Analytic Geometry and Calculus II              | 4            |      |
|                        |   | 16           |      |                        |  | 16           |      |
| <b>Sophomore</b>       |   |              | Sem. | <b>Sophomore</b>       |  |              | Sem. |
| <b>Fall Semester</b>   | COURSE  |              | hrs. | <b>Fall Semester</b>   | COURSE   |              | hrs. |
| BAE 020                | Engineering Assembly                          | 0            |      | BAE 020                | Engineering Assembly                           | 0            |      |
| BAE 331                | Biological Systems Engg Project II            | 1            |      | BAE 331                | Biological Systems Engg Project II             | 1            |      |
| CHM 350                | General Organic Chemistry                     | 3            |      | CHM 350                | General Organic Chemistry                      | 3            |      |
| MATH 222               | Analytic Geometry and Calculus III            | 4            |      | MATH 222               | Analytic Geometry and Calculus III             | 4            |      |
| PHYS 213               | Engineering Physics I                         | 5            |      | PHYS 213               | Engineering Physics I                          | 5            |      |
| _____                  | Humanities or Social Science Elective*        | 3            |      | _____                  | Track Elective**                               | 3            |      |
|                        |   | 16           |      |                        |  | 16           |      |
| <b>Sophomore</b>       |   |              | Sem. | <b>Sophomore</b>       |  |              | Sem. |
| <b>Spring Semester</b> | COURSE  |              | hrs. | <b>Spring Semester</b> | COURSE   |              | hrs. |
| BAE 020                | Engineering Assembly                          | 0            |      | BAE 020                | Engineering Assembly                           | 0            |      |
| BAE 345                | Properties of Biological Materials            | 2            |      | BAE 345                | Properties of Biological Materials             | 2            |      |
| CE 530                 | Statics and Dynamics                          | 3            |      | CE 530                 | Statics and Dynamics                           | 3            |      |
| CHM 351                | General Organic Chemistry Lab                 | 2            |      | <u>OR CE 333</u>       | <u>Statics</u>                                 | <u>3</u>     |      |
| MATH 240               | Elementary Differential Equations             | 4            |      | CHM 351                | General Organic Chemistry Lab                  | 2            |      |
| PHYS 214               | Engineering Physics II                        | 5            |      | MATH 240               | Elementary Differential Equations              | 4            |      |
|                        |   | 16           |      | PHYS 214               | Engineering Physics II                         | 5            |      |
|                        |   |              |      |                        |  | 16           |      |
| <b>Junior</b>          |   |              | Sem. | <b>Junior</b>          |  |              | Sem. |
| <b>Fall Semester</b>   | COURSE  |              | hrs. | <b>Fall Semester</b>   | COURSE   |              | hrs. |
| BAE 020                | Engineering Assembly                          | 0            |      | BAE 020                | Engineering Assembly                           | 0            |      |
| <del>BAE 545</del>     | <del>Biological Process Engineering</del>     | <del>3</del> |      | <del>BAE 445</del>     | <del>Biological Engineering Fundamentals</del> | <del>3</del> |      |
| EECE 519               | Electric Circuits and Control                 | 4            |      | EECE 519               | Electric Circuits and Control                  | 4            |      |
| ME 513                 | Thermodynamics I                              | 3            |      | ME 513                 | Thermodynamics I                               | 3            |      |
| ME 571                 | Fluid Mechanics                               | 3            |      | ME 571                 | Fluid Mechanics                                | 3            |      |
| _____                  | Biology / Biochemistry / Chemistry Elective** | 3            |      | _____                  | Track Elective**                               | 3            |      |
|                        |   | 16           |      |                        |  | 16           |      |
| <b>Junior</b>          |   |              | Sem. | <b>Junior</b>          |  |              | Sem. |
| <b>Spring Semester</b> | COURSE  |              | hrs. | <b>Spring Semester</b> | COURSE   |              | hrs. |
| BAE 020                | Engineering Assembly                          | 0            |      | BAE 020                | Engineering Assembly                           | 0            |      |
| <del>BAE _____</del>   | <del>BAE Elective***</del>                    | <del>3</del> |      | <del>BAE 545</del>     | <del>Biological Process Engineering</del>      | <del>3</del> |      |
| BIOL 455               | General Microbiology                          | 4            |      | BIOL 455               | General Microbiology                           | 4            |      |
| STAT 510               | Introduction to Statistics I                  | 3            |      | STAT 510               | Introduction to Statistics I                   | 3            |      |
| _____                  | College of Engineering Elective***            | 3            |      | _____                  | Track Elective**                               | 3            |      |
| _____                  | Humanities or Social Science Elective*        | 3            |      | _____                  | Humanities or Social Science Elective*         | 3            |      |
|                        |   | 16           |      |                        |  | 16           |      |
| <b>Senior</b>          |   |              | Sem. | <b>Senior</b>          |  |              | Sem. |
| <b>Fall Semester</b>   | COURSE  |              | hrs. | <b>Fall Semester</b>   | COURSE   |              | hrs. |
| BAE 020                | Engineering Assembly                          | 0            |      | BAE 020                | Engineering Assembly                           | 0            |      |
| BAE 536                | Biological Systems Engg Senior Design         | 3            |      | BAE 536                | Biological Systems Engg Senior Design          | 3            |      |
| <del>BAE _____</del>   | <del>BAE Elective***</del>                    | <del>3</del> |      | _____                  | Track Elective**                               | 3            |      |
| ENGL 415               | Written Communication for Engineers****       | 3            |      | ENGL 415               | Written Communication for Engineers****        | 3            |      |
| IMSE 530               | Engineering Economic Analysis                 | 2            |      | IMSE 530               | Engineering Economic Analysis                  | 2            |      |
| _____                  | College of Engineering Elective***            | 3            |      | _____                  | Track Elective**                               | 3            |      |
| _____                  | Biology / Biochemistry / Chemistry Elective** | 3            |      | _____                  | Track Elective**                               | 3            |      |
|                        |   |              |      |                        |  |              | 17   |

|   |   |  |                  |
|---|---|--|------------------|
|   |   | 17                                       |                  |
| <b>Senior</b>   |   |  |                  |
| <b>Spring Semester</b>  | <b>COURSE</b>                                 | <b>Sem. hrs.</b>                         |                  |
| BAE 020   | Engineering Assembly                          | 0  |                  |
| BAE 640   | Instrumentation and Control for Biol Sys      | 3  |                  |
| _____   | College of Engineering Elective***            | 3  |                  |
| _____   | College of Engineering Elective***            | 3  |                  |
| _____   | Biology / Biochemistry / Chemistry Elective** | 3  |                  |
| _____   | Humanities or Social Science Elective*        | 3  |                  |
|   |   | 15                                       |                  |
| <b>Notes</b>  |   |  |                  |
| *Humanities and Social Science electives are to be selected from the approved list and need not be taken in order listed in the curriculum (2 courses must be 300-level or above).  |   |  |                  |
| **Biology, Biochemistry, and Chemistry electives are to be chosen from an approved departmental list of courses with the advice and approval of the faculty advisor and department head. Six of the 9 credit hours must be 400-level or higher.                 |   |  |                  |
| ***College of Engineering and BAE electives are to be chosen from an approved departmental list of courses with the advice and approval of the faculty advisor and department head.   |   |  |                  |
| ****Prerequisites for Written Communication for Engineers (ENGL 415) must be met from Expository Writing I or II. If both ENGL 100 and ENGL 200 must be taken, the additional 3 credit hours do not count towards the 127 credit hours required for graduation. |   |  |                  |
| <b>Total hours required for graduation (127)</b>  |   |  |                  |
|   |   |  |                  |
|   | <b>Senior</b>                                 |  | <b>Sem. hrs.</b> |
|   | <b>Spring Semester</b>                        | <b>COURSE</b>                            |                  |
|   | BAE 020                                       | Engineering Assembly                     | 0                |
|   | BAE 640                                       | Instrumentation and Control for Biol Sys | 3                |
|   | BIOCHM 521                                    | General Biochemistry                     | 3                |
|   | _____   | Track Elective**                         | 3                |
|   | _____   | Track Elective**                         | 3                |
|   | _____   | Humanities or Social Science Elective*   | 3                |
|   |   |  | 15               |
| <b>Notes</b>  |   |  |                  |
| *Humanities and Social Science electives are to be selected from the <u>list of courses approved by the College of Engineering. Students should select these courses as needed to complete the requirements of the K-State 8 General Education program.</u>     |   |  |                  |
| **Track electives are to be chosen from an approved departmental list of courses with the advice and approval of the faculty advisor and department head. <u>Fifteen of the 24 credit hours must be engineering courses.</u>                                    |   |  |                  |
| ***Prerequisites for Written Communication for Engineers (ENGL 415) must be met from Expository Writing I or II. If both ENGL 100 and ENGL 200 must be taken, the additional 3 hours do not count towards the 127 hours required for graduation.                |   |  |                  |
| <b>Total hours required for graduation (127)</b>  |   |  |                  |

# Biological and Agricultural Engineering (BAE)

## Biological Systems Engineering (BSE) – Environmental Option

**Effective term for requested action:** Term Fall Year 2014

**Rationale:** In order to improve the assessment process and ensure that the Biological Systems Engineering (BSE) degree program meets all the requirements for ABET accreditation, we have developed a 94 credit common core for all three options with the remaining credits focused on option specific required courses and career dependent electives (Track Electives). The common core includes all science, math, and basic engineering required for accreditation under the biological engineering criteria. The table below summarizes the proposed changes for the Environmental option. A new course (BAE 445 – Biological Engineering Fundamentals) is included in the common core to add more advanced biological topics in the BSE program in conjunction with ABET accreditation. STAT 510 is also included in the common core in order to improve students’ understanding of statistics. Electives (Biology, Science, Ecoengineering, Environmental) and BAE 535 (Structures & Environment) were consolidated into Track Electives, identified based on possible career options on water resources consulting, global sustainability, and air quality. With the addition of STAT 510, STAT 490 is being dropped as a required course. Three credits of Humanities/Social Science electives are also being dropped and added to the Track Electives to provide more flexibility, while providing sufficient Humanities/Social Sciences in the program, for ABET requirements of breadth, and for satisfying the K-State 8 requirements.

| To be dropped                           |           | To be added                          |           |
|---|-----------|--------------------------------------|-----------|
| STAT 490                                | 1         | STAT 510                             | 3         |
| Biology & Science Electives             | 6         | BAE 445 – Biol. Engg Fundamentals    | 3         |
| GEOG 508 – Geographic Info Systems I    | 3         | GEOG 508 – Geographic Info Systems 1 | 4         |
| BAE 535 – Structures & Environment Engg | 3         | Track Electives                      | 16        |
| Ecoengineering Elective                 | 3         |                                      |           |
| Environmental Technical Electives       | 7         |                                      |           |
| Humanities/Social Science Electives     | 3         |                                      |           |
| <b>Total Credits</b>                    | <b>26</b> |                                      | <b>26</b> |

**Impact (i.e. if this impacts another unit):** The Department of Statistics was contacted and did not express any concern regarding the additional 10-15 students who will take STAT 510 each year.

| <b>FROM:</b>           |   |      |      | <b>TO:</b>             |   |      |      |
|------------------------|---|------|------|------------------------|---|------|------|
| <b>Freshman</b>        |   | Sem. |      | <b>Freshman</b>        |   | Sem. |      |
| <b>Fall Semester</b>   | COURSE                                      |      | hrs. | <b>Fall Semester</b>   | COURSE                                      |      | hrs. |
| BAE 020                | Engineering Assembly                        |      | 0    | BAE 020                | Engineering Assembly                        |      | 0    |
| BAE 101                | Intro Biol and Agric Engg Tech              |      | 1    | BAE 101                | Intro Biol and Agric Engg Tech              |      | 1    |
| BAE 131                | Intro Design Biological and Agric Engineers |      | 1    | BAE 131                | Intro Design Biological and Agric Engineers |      | 1    |
| CHM 210                | Chemistry I                                 |      | 4    | CHM 210                | Chemistry I                                 |      | 4    |
| ECON 110               | Principles of Macroeconomics                |      | 3    | ECON 110               | Principles of Macroeconomics                |      | 3    |
| MATH 220               | Analytic Geometry and Calculus I            |      | 4    | MATH 220               | Analytic Geometry and Calculus I            |      | 4    |
| COMM 105               | Public Speaking 1A                          |      | 2    | COMM 105               | Public Speaking 1A                          |      | 2    |
|                        |   |      | 15   |                        |   |      | 15   |
| <b>Freshman</b>        |   | Sem. |      | <b>Freshman</b>        |   | Sem. |      |
| <b>Spring Semester</b> | COURSE                                      |      | hrs. | <b>Spring Semester</b> | COURSE                                      |      | hrs. |

|                        |  |      |                        |  |      |
|------------------------|--|------|------------------------|--|------|
| BAE 020                | Engineering Assembly                   | 0    | BAE 020                | Engineering Assembly                       | 0    |
| BAE 231                | Biological Systems Engg Project I      | 1    | BAE 231                | Biological Systems Engg Project I          | 1    |
| BIOL 198               | Principles of Biology                  | 4    | BIOL 198               | Principles of Biology                      | 4    |
| CHM 230                | Chemistry II                           | 4    | CHM 230                | Chemistry II                               | 4    |
| ENGL 100               | Expository Writing I                   | 3    | ENGL 100               | Expository Writing I                       | 3    |
| MATH 221               | Analytic Geometry and Calculus II      | 4    | MATH 221               | Analytic Geometry and Calculus II          | 4    |
|                        |  | 16   |                        |  | 16   |
| <b>Sophomore</b>       |  | Sem. | <b>Sophomore</b>       |  | Sem. |
| <b>Fall Semester</b>   | <b>COURSE</b>                          | hrs. | <b>Fall Semester</b>   | <b>COURSE</b>                              | hrs. |
| BAE 020                | Engineering Assembly                   | 0    | BAE 020                | Engineering Assembly                       | 0    |
| BAE 331                | Biological Systems Engg Project II     | 1    | BAE 331                | Biological Systems Engg Project II         | 1    |
| CHM 350                | General Organic Chemistry              | 3    | CHM 350                | General Organic Chemistry                  | 3    |
| MATH 222               | Analytic Geometry and Calculus III     | 4    | MATH 222               | Analytic Geometry and Calculus III         | 4    |
| PHYS 213               | Engineering Physics I                  | 5    | PHYS 213               | Engineering Physics I                      | 5    |
| STAT 490               | Statistics for Engineers               | 1    | STAT 510               | Introduction to Probability and Statistics | 3    |
| _____                  | Humanities or Social Science Elective* | 3    |                        |  | 16   |
|                        |  | 17   |                        |  |      |
| <b>Sophomore</b>       |  | Sem. | <b>Sophomore</b>       |  | Sem. |
| <b>Spring Semester</b> | <b>COURSE</b>                          | hrs. | <b>Spring Semester</b> | <b>COURSE</b>                              | hrs. |
| BAE 020                | Engineering Assembly                   | 0    | BAE 020                | Engineering Assembly                       | 0    |
| BAE 345                | Properties of Biological Materials     | 2    | BAE 345                | Properties of Biological Materials         | 2    |
| CE 530                 | Statics and Dynamics                   | 3    | CE 530                 | Statics and Dynamics                       | 3    |
| IMSE 530               | Engineering Economic Analysis          | 2    | IMSE 530               | Engineering Economic Analysis              | 2    |
| MATH 240               | Elementary Differential Equations      | 4    | MATH 240               | Elementary Differential Equations          | 4    |
| PHYS 214               | Engineering Physics II                 | 5    | PHYS 214               | Engineering Physics II                     | 5    |
|                        |  | 16   |                        |  | 16   |
| <b>Junior</b>          |  | Sem. | <b>Junior</b>          |  | Sem. |
| <b>Fall Semester</b>   | <b>COURSE</b>                          | hrs. | <b>Fall Semester</b>   | <b>COURSE</b>                              | hrs. |
| BAE 020                | Engineering Assembly                   | 0    | BAE 020                | Engineering Assembly                       | 0    |
| BAE 545                | Biological Process Engineering         | 3    | BAE 445                | Biological Engineering Fundamentals        | 3    |
| AGRON 305              | Soils                                  | 4    | AGRON 305              | Soils                                      | 4    |
| GEOG 508               | Geographic Information Systems I       | 3    | _____                  | Track Elective**                           | 3    |
| ME 513                 | Thermodynamics I                       | 3    | ME 513                 | Thermodynamics I                           | 3    |
| ME 571                 | Fluid Mechanics                        | 3    | ME 571                 | Fluid Mechanics                            | 3    |
|                        |  | 16   |                        |  | 16   |
| <b>Junior</b>          |  | Sem. | <b>Junior</b>          |  | Sem. |
| <b>Spring Semester</b> | <b>COURSE</b>                          | hrs. | <b>Spring Semester</b> | <b>COURSE</b>                              | hrs. |
| BAE 020                | Engineering Assembly                   | 0    | BAE 020                | Engineering Assembly                       | 0    |
| BAE 560                | Natural Resource Engineering I         | 3    | BAE 560                | Natural Resource Engineering I             | 3    |
| BAE 651                | Air Pollution Engineering              | 3    | BAE 651                | Air Pollution Engineering                  | 3    |
| EECE 519               | Electric Circuits and Control          | 4    | EECE 519               | Electric Circuits and Control              | 4    |
| ENGL 415               | Written Communication for Engineers*** | 3    | ENGL 415               | Written Communication for Engineers***     | 3    |
| _____                  | Biology Elective**                     | 3    | GEOG 508               | Geographic Information Systems I           | 4    |
|                        |  | 16   |                        |  | 17   |
| <b>Senior</b>          |  | Sem. | <b>Senior</b>          |  | Sem. |
| <b>Fall Semester</b>   | <b>COURSE</b>                          | hrs. | <b>Fall Semester</b>   | <b>COURSE</b>                              | hrs. |
| BAE 020                | Engineering Assembly                   | 0    | BAE 020                | Engineering Assembly                       | 0    |

|   |  |      |
|---|--|------|
| BAE 535   | Structures and Environ Engineering       | 3    |
| BAE 536   | Biological Systems Engg Senior Design    | 3    |
| BAE 660   | Natural Resource Engineering II          | 3    |
| _____   | Ecoengineering Elective**                | 3    |
| _____   | Environmental Technical Elective**       | 1    |
| _____   | Humanities or Social Science Elective*   | 3    |
|   |  | 16   |
| <b>Senior</b>   |  | Sem. |
| <b>Spring Semester COURSE</b>   |  | hrs. |
| BAE 020   | Engineering Assembly                     | 0    |
| BAE 640   | Instrumentation and Control for Biol Sys | 3    |
| _____   | Environmental Technical Elective**       | 3    |
| _____   | Environmental Technical Elective**       | 3    |
| _____   | Humanities or Social Science Elective*   | 3    |
| _____   | Science Elective**                       | 3    |
|   |  | 15   |
| Notes:  |  |      |
| *Humanities and Social Science electives are to be selected from the approved list and need not be taken in order listed in the curriculum (2 courses must be 300-level or above).  |  |      |
| ** Environmental Technical, Ecoengineering, Science and Biology electives are to be chosen from an approved departmental list of courses with the advice and approval of the faculty advisor and department head.   |  |      |
| *** Prerequisites for Written Communication for Engineers (ENGL 415) must be met from Expository Writing I or II. If both ENGL 100 and ENGL 200 must be taken, the additional 3 credit hours do not count towards the 127 credit hours required for graduation. |  |      |
| <b>Total hours required for graduation (127)</b>  |  |      |

|  |  |      |
|--|--|------|
|  | Track Elective**                         | 3    |
| BAE 536  | Biological Systems Engg Senior Design    | 3    |
| BAE 660  | Natural Resource Engineering II          | 3    |
| _____  | Track Elective**                         | 3    |
| _____  | Humanities or Social Science Elective*   | 3    |
|  |  | 15   |
| <b>Senior</b>  |  | Sem. |
| <b>Spring Semester COURSE</b>  |  | hrs. |
| BAE 020  | Engineering Assembly                     | 0    |
| BAE 640  | Instrumentation and Control for Biol Sys | 3    |
| BAE 545  | Biological Process Engineering           | 3    |
| _____  | Track Elective**                         | 3    |
| _____  | Humanities or Social Science Elective*   | 3    |
| _____  | Track Elective**                         | 4    |
|  |  | 16   |
| Notes  |  |      |
| *Humanities and Social Science electives are to be selected from the list of courses approved by the College of Engineering. Students should select these courses as needed to complete the requirements of the K-State 8 General Education program. |  |      |
| ** Track electives are to be chosen from an approved departmental list of courses with the advice and approval of the faculty advisor and department head. Six of the 16 credit hours must be engineering courses.                                   |  |      |
| *** Prerequisites for Written Communication for Engineers (ENGL 415) must be met from Expository Writing I or II. If both ENGL 100 and ENGL 200 must be taken, the additional 3 hours do not count towards the 127 hours required for graduation.    |  |      |
| <b>Total hours required for graduation (127)</b>   |  |      |

## Biological and Agricultural Engineering (BAE)

### Biological Systems Engineering (BSE) – Machine Systems Option

**Effective term for requested action:** Term Fall Year 2014

**Rationale:** In order to improve the assessment process and ensure that the Biological Systems Engineering (BSE) degree program meets all the requirements for ABET accreditation, we have developed a 94 credit common core for all three options with the remaining credits focused on option specific required courses and career dependent electives (“Track Electives”). The common core includes all science, math, and basic engineering required for accreditation under the biological engineering criteria. The table below summarizes the proposed changes. A new course (BAE 445 – Biological Engineering Fundamentals) is included in the common core to add more advanced biological topics in the BSE program in conjunction with ABET accreditation. STAT 510 is also included in the common core in order to improve students’ understanding of statistics. This allows dropping of STAT 490 (1 credit). Required courses specific to the Machine Systems Option are modified to include AGRON 305 (Soils) to provide a better understanding of soil as a growing media, new courses BAE 450 and BAE 550 for enhanced information related to the design of off-road equipment, and BAE 636 so that students would be involved in a comprehensive year long (2 semester) design project. Track Electives are also identified in accordance with possible career options on precision agriculture, product design, off-road power, industrial business, and control systems. With these new requirements, the following courses are being dropped from the required courses in the Machine Systems option: BAE 535 (Structures & Environment), BAE 560 (Natural Resource Engineering I), BAE 650 (Biofuels), CE 533 (Mechanics of Materials), and CE 522 (Soil Mechanics). Three credits of Humanities/Social Science electives are also being dropped and added to the Track Electives to provide more flexibility, while providing sufficient Humanities/Social Sciences in the program, for ABET requirements of breadth, and for satisfying the K-State 8 requirements.

| To be dropped                           |    | To be added                           |    |
|---|----|---------------------------------------|----|
| STAT 490                                | 1  | STAT 510                              | 3  |
| BAE 535 – Structures & Environment Engg | 3  | BAE 445 – Biol. Engg Fundamentals     | 3  |
| CE 533 – Mechanics of Materials         | 3  | AGRON 305 - Soils                     | 4  |
| BAE 560 – Natural Resource Engg I       | 3  | BAE 450 – Off-road Mach Power Comp    | 3  |
| CE 522 – Soil Mechanics                 | 3  | BAE 550 – Adv Mach Drive Comp         | 3  |
| BAE 650 - Biofuels                      | 3  | BAE 636 –Biol Sys Engg Design Project | 1  |
| Machine Systems Technical Electives     | 9  | Track Electives                       | 11 |
| Humanities/Social Science Electives     | 3  |                                       |    |
| Total Credits                           | 28 | Total Credits                         | 28 |

**Impact (i.e. if this impacts another unit):** The Statistics Department was contacted and did not express any concern regarding the additional 10-15 students who will take STAT510 each year. The Department of Agronomy was also contacted and did not express any concern regarding the additional 10-15 students who will take AGRON305.



|                        |   |              |                        |                                    |      |
|------------------------|---|--------------|------------------------|------------------------------------|------|
| <b>FROM:</b>           |   |              | <b>TO:</b>             |                                    |      |
| <b>Freshman</b>        |   | Sem.         | <b>Freshman</b>        |                                    | Sem. |
| <b>Fall Semester</b>   | <b>COURSE</b>                                 | hrs.         | <b>Fall Semester</b>   | <b>COURSE</b>                      | hrs. |
| BAE 020                | Engineering Assembly                          | 0            | BAE 020                | Engineering Assembly               | 0    |
| BAE 101                | Intro Biol and Agric Engg Tech                | 1            | BAE 101                | Intro Biol and Agric Engg Tech     | 1    |
| BAE 131                | Intro Design Biol and Agric Engg              | 1            | BAE 131                | Intro Design Biol and Agric Engg   | 1    |
| CHM 210                | Chemistry I                                   | 4            | CHM 210                | Chemistry I                        | 4    |
| ECON 110               | Principles of Macroeconomics                  | 3            | ECON 110               | Principles of Macroeconomics       | 3    |
| MATH 220               | Analytic Geometry and Calculus I              | 4            | MATH 220               | Analytic Geometry and Calculus I   | 4    |
| COMM 105               | Public Speaking 1A                            | 2            | COMM 105               | Public Speaking 1A                 | 2    |
|                        |   | 15           |                        |                                    | 15   |
| <b>Freshman</b>        |   | Sem.         | <b>Freshman</b>        |                                    | Sem. |
| <b>Spring Semester</b> | <b>COURSE</b>                                 | hrs.         | <b>Spring Semester</b> | <b>COURSE</b>                      | hrs. |
| BAE 020                | Engineering Assembly                          | 0            | BAE 020                | Engineering Assembly               | 0    |
| BAE 231                | Biological Systems Engg Project I             | 1            | BAE 231                | Biological Systems Engg Project I  | 1    |
| BIOL 198               | Principles of Biology                         | 4            | BIOL 198               | Principles of Biology              | 4    |
| CHM 230                | Chemistry II                                  | 4            | CHM 230                | Chemistry II                       | 4    |
| ENGL 100               | Expository Writing I                          | 3            | ENGL 100               | Expository Writing I               | 3    |
| MATH 221               | Analytic Geometry and Calculus II             | 4            | MATH 221               | Analytic Geometry and Calculus II  | 4    |
|                        |   | 16           |                        |                                    | 16   |
| <b>Sophomore</b>       |   | Sem.         | <b>Sophomore</b>       |                                    | Sem. |
| <b>Fall Semester</b>   | <b>COURSE</b>                                 | hrs.         | <b>Fall Semester</b>   | <b>COURSE</b>                      | hrs. |
| BAE 020                | Engineering Assembly                          | 0            | BAE 020                | Engineering Assembly               | 0    |
| BAE 331                | Biological Systems Engg Project II            | 1            | BAE 331                | Biological Systems Engg Project II | 1    |
| BAE 350                | Agricultural Machinery Systems                | 2            | BAE 350                | Off Road Machinery Systems         | 2    |
| BAE 351                | Agricultural Machinery Systems Lab            | 1            | BAE 351                | Machinery Systems Lab              | 1    |
| MATH 222               | Analytic Geometry and Calculus III            | 4            | MATH 222               | Analytic Geometry and Calculus III | 4    |
| PHYS 213               | Engineering Physics I                         | 5            | PHYS 213               | Engineering Physics I              | 5    |
| _____                  | Humanities or Social Sci Elective*            | 3            | _____                  | Humanities or Social Sci Elective* | 3    |
|                        |   | 16           |                        |                                    | 16   |
| <b>Sophomore</b>       |   | Sem.         | <b>Sophomore</b>       |                                    | Sem. |
| <b>Spring Semester</b> | <b>COURSE</b>                                 | hrs.         | <b>Spring Semester</b> | <b>COURSE</b>                      | hrs. |
| BAE 020                | Engineering Assembly                          | 0            | BAE 020                | Engineering Assembly               | 0    |
| <del>BAE 345</del>     | <del>Properties of Biological Materials</del> | <del>2</del> | BAE 450                | Off Road Machine Power Comp        | 3    |
| CE 333                 | Statics                                       | 3            | CE 333                 | Statics                            | 3    |
| MATH 240               | Elementary Differential Equations             | 4            | MATH 240               | Elementary Differential Equations  | 4    |
| ME 212                 | Engineering Graphics                          | 2            | ME 212                 | Engineering Graphics               | 2    |
| PHYS 214               | Engineering Physics II                        | 5            | PHYS 214               | Engineering Physics II             | 5    |
|                        |   | 16           |                        |                                    | 17   |
| <b>Junior</b>          |   | Sem.         | <b>Junior</b>          |                                    | Sem. |
| <b>Fall Semester</b>   | <b>COURSE</b>                                 | hrs.         | <b>Fall Semester</b>   | <b>COURSE</b>                      | hrs. |
| BAE 020                | Engineering Assembly                          | 0            | BAE 020                | Engineering Assembly               | 0    |
| <del>BAE 535</del>     | <del>Structures and Environ Engineering</del> | <del>3</del> | BAE 550                | Adv Machinery Drive Components     | 3    |
| <del>CE 533</del>      | <del>Mechanics of Materials</del>             | <del>3</del> | ME 571                 | Fluid Mechanics                    | 3    |
| CHM 350                | General Organic Chemistry                     | 3            | CHM 350                | General Organic Chemistry          | 3    |
| ME 512                 | Dynamics                                      | 3            | ME 512                 | Dynamics                           | 3    |
| ME 513                 | Thermodynamics I                              | 3            | ME 513                 | Thermodynamics I                   | 3    |
| <del>STAT 490</del>    | <del>Statistics for Engineers</del>           | <del>1</del> |                        |                                    | 15   |
|                        |   | 16           |                        |                                    |      |

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| <p><b>Junior</b> Sem. hrs.</p> <p><b>Spring Semester</b> COURSE</p> <p>BAE 020 Engineering Assembly 0</p> <p><del>BAE 560 Natural Resource Engineering I 3</del></p> <p><del>CE 522 Soil Mechanics I** 3</del></p> <p>EECE 519 Electric Circuits and Control 4</p> <p><del>ME 571 Fluid Mechanics 3</del></p> <p>ME 533 Machine Design I 3</p> <p>16</p>   | <p><b>Junior</b> Sem. hrs.</p> <p><b>Spring Semester</b> COURSE</p> <p>BAE 020 Engineering Assembly 0</p> <p><del>BAE 345 Properties of Biological Materials 2</del></p> <p>AGRON 305 Soils 4</p> <p>EECE 519 Electric Circuits and Control 4</p> <p><del>Track Elective*** 3</del></p> <p>ME 533 Machine Design I 3</p> <p>16</p>  |
| <p><b>Senior</b> Sem. hrs.</p> <p><b>Fall Semester</b> COURSE</p> <p>BAE 020 Engineering Assembly 0</p> <p>BAE 536 Biological Systems Engg Sr Design 3</p> <p><del>BAE 545 Biological Process Engineering 3</del></p> <p>ENGL 415 Written Comm for Engg*** 3</p> <p>IMSE 530 Engineering Economic Analysis 2</p> <p><del>Humanities or Social Science Elective* 3</del></p> <p><del>Machine Systems Technical Elective*** 3</del></p> <p>17</p>  | <p><b>Senior</b> Sem. hrs.</p> <p><b>Fall Semester</b> COURSE</p> <p>BAE 020 Engineering Assembly 0</p> <p>BAE 536 Biological Systems Engg Sr Design 3</p> <p><del>BAE 445 Biological Engineering Fundamentals 3</del></p> <p>ENGL 415 Written Comm for Enggs** 3</p> <p>IMSE 530 Engineering Economic Analysis 2</p> <p><del>Track Elective*** 3</del></p> <p><del>Track Elective*** 3</del></p> <p>17</p>   |
| <p><b>Senior</b> Sem. hrs.</p> <p><b>Spring Semester</b> COURSE</p> <p>BAE 020 Engineering Assembly 0</p> <p>BAE 640 Instrum &amp; Control for Biol Sys 3</p> <p><del>BAE 650 Energy and Biofuel Engineering 3</del></p> <p><del>Humanities or Social Science Elective* 3</del></p> <p><del>Machine Systems Technical Elective*** 3</del></p> <p><del>Machine Systems Technical Elective*** 3</del></p> <p>15</p>  | <p><b>Senior</b> Sem. hrs.</p> <p><b>Spring Semester</b> COURSE</p> <p>BAE 020 Engineering Assembly 0</p> <p>BAE 640 Instrumentation and Control for Biol Sys 3</p> <p><del>BAE 545 Biological Process Engineering 3</del></p> <p><del>Humanities or Social Science Elective* 3</del></p> <p><del>BAE 636 Biol Sys Engg Design Project 1</del></p> <p>STAT 510 Introduction to Probability and Statistic 3</p> <p><del>Track Elective*** 2</del></p> <p>15</p>  |
| <p>Notes</p> <p>*Humanities and Social Science electives are to be selected from the approved list and need not be taken in order listed in the curriculum (2 courses must be 300 level or above).</p> <p>**Students may take either CE 522 Credits: (3) or AGRON 305 Credits: (4).</p> <p>***Prerequisites for Written Communication for Engineers (ENGL 415) must be met from Expository Writing I or II. If both ENGL 100 and ENGL 200 must be taken, the additional 3 credit hours do not count towards the 127 credit hours required for graduation.</p> <p>****Machine Systems Technical Electives are to be chosen from an approved departmental list of courses with the advice and approval of the faculty advisor and department head.</p> <p><b>Total hours required for graduation (127)</b></p> | <p>Notes</p> <p>*Humanities and Social Science electives are to be selected from the list of courses approved by the College of Engineering. Students should select these courses as needed to complete the requirements of the K-State 8 General Education program.</p> <p>**Prerequisites for Written Communication for Engineers (ENGL 415) must be met from Expository Writing I or II. If both ENGL 100 and ENGL 200 must be taken, the additional 3 hours do not count towards the 127 hours required for graduation.</p> <p>***Track electives are to be chosen from an approved departmental list of courses with the advice and approval of the faculty advisor and department head.</p> <p><b>Total hours required for graduation (127)</b></p> |

## Chemical Engineering

**Effective term for requested action:** Term Fall Year 2014

**Rationale:** The motivation for this change in the curriculum presented below is based upon the department's desire to provide students with the ability to better tailor their program of study to their career goals. There are significant differences between the content of Physical Chemistry I and Physical Chemistry II. Our goal is that our students are better able to allow our students to make this course selection based upon their academic and career goals.

**Impact (i.e. if this impacts another unit):** This change does affect the Department of Chemistry as it will possibly cause a redistribution in the enrollments between Physical Chemistry I and II. The Department of Chemistry has been contacted about this change.

| <p><b>Bachelor degree requirements</b></p> <p>Freshman year</p> <hr/> <p>Fall semester (15 credit hours)</p> <hr/> <ul style="list-style-type: none"><li>• Humanities/social science elective Credits: (3)</li><li>• CHE 015 - Engineering Assembly Credits: (0)</li><li>• CHE 110 - Current Topics in Chemical Engineering Credits: (1)</li><li>• CHM 210 - Chemistry I Credits: (4)**</li><li>• ENGL 100 - Expository Writing I Credits: (3)</li><li>• MATH 220 - Analytic Geometry and Calculus I Credits: (4)</li></ul> <p>Spring semester (16 credit hours)</p> <hr/> <ul style="list-style-type: none"><li>• Humanities/social science elective Credits: (3)</li><li>• CHE 015 - Engineering Assembly Credits: (0)</li><li>• CHM 230 - Chemistry II Credits: (4)**</li><li>• COMM 105 - Public Speaking IA Credits: (2)</li><li>• ECON 110 - Principles of Macroeconomics Credits: (3)</li><li>• MATH 221 - Analytic Geometry and Calculus II Credits: (4)</li></ul> <p>Sophomore year</p> <hr/> <p>Fall semester (16 credit hours)</p> <hr/> <ul style="list-style-type: none"><li>• CHE 015 - Engineering Assembly Credits: (0)</li><li>• *CHE 320 - Chemical Process Analysis Credits: (3)</li><li>• CHM 371 - Chemical Analysis Credits: (4)†</li><li>• MATH 222 - Analytic Geometry and Calculus III Credits: (4)</li><li>• PHYS 213 - Engineering Physics I Credits: (5)</li></ul> | <p><b>Bachelor degree requirements</b></p> <p>Freshman year</p> <hr/> <p>Fall semester (15 credit hours)</p> <hr/> <ul style="list-style-type: none"><li>• Humanities/social science elective Credits: (3)</li><li>• CHE 015 - Engineering Assembly Credits: (0)</li><li>• CHE 110 - Current Topics in Chemical Engineering Credits: (1)</li><li>• CHM 210 - Chemistry I Credits: (4)**</li><li>• ENGL 100 - Expository Writing I Credits: (3)</li><li>• MATH 220 - Analytic Geometry and Calculus I Credits: (4)</li></ul> <p>Spring semester (16 credit hours)</p> <hr/> <ul style="list-style-type: none"><li>• Humanities/social science elective Credits: (3)</li><li>• CHE 015 - Engineering Assembly Credits: (0)</li><li>• CHM 230 - Chemistry II Credits: (4)**</li><li>• COMM 105 - Public Speaking IA Credits: (2)</li><li>• ECON 110 - Principles of Macroeconomics Credits: (3)</li><li>• MATH 221 - Analytic Geometry and Calculus II Credits: (4)</li></ul> <p>Sophomore year</p> <hr/> <p>Fall semester (16 credit hours)</p> <hr/> <ul style="list-style-type: none"><li>• CHE 015 - Engineering Assembly Credits: (0)</li><li>• *CHE 320 - Chemical Process Analysis Credits: (3)</li><li>• CHM 371 - Chemical Analysis Credits: (4)†</li><li>• MATH 222 - Analytic Geometry and Calculus III Credits: (4)</li><li>• PHYS 213 - Engineering Physics I Credits: (5)</li></ul> |
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| <p>Spring semester (17 credit hours)</p> <hr/> <ul style="list-style-type: none"> <li>CHE 015 - Engineering Assembly Credits: (0)</li> <li>*CHE 416 - Computational Techniques in Chemical Engineering Credits: (3)</li> <li>*CHE 520 - Chemical Engineering Thermodynamics I Credits: (2)</li> <li>CHM 531 - Organic Chemistry I Credits: (3)</li> <li>MATH 240 - Elementary Differential Equations Credits: (4)</li> <li>PHYS 214 - Engineering Physics II Credits: (5)</li> </ul>  | <p>Spring semester (17 credit hours)</p> <hr/> <ul style="list-style-type: none"> <li>CHE 015 - Engineering Assembly Credits: (0)</li> <li>*CHE 416 - Computational Techniques in Chemical Engineering Credits: (3)</li> <li>*CHE 520 - Chemical Engineering Thermodynamics I Credits: (2)</li> <li>CHM 531 - Organic Chemistry I Credits: (3)</li> <li>MATH 240 - Elementary Differential Equations Credits: (4)</li> <li>PHYS 214 - Engineering Physics II Credits: (5)</li> </ul>  |
| <p>Junior year</p>  | <p>Junior year</p>  |
| <p>Fall semester (17 credit hours)</p> <hr/> <ul style="list-style-type: none"> <li>Chemistry/biochemistry elective<sup>‡</sup> Credits: (3)</li> <li>Advanced laboratory experience<sup>§</sup> Credits: (2)</li> <li>Humanities/social science elective Credits: (3)</li> <li>CHE 015 - Engineering Assembly Credits: (0)</li> <li>*CHE 521 - Chemical Engineering Thermodynamics II Credits: (3)</li> <li>*CHE 530 - Transport Phenomena I Credits: (3)</li> <li>ENGL 415 - Written Communication for Engineers Credits: (3)</li> </ul>  | <p>Fall semester (17 credit hours)</p> <hr/> <ul style="list-style-type: none"> <li>Chemistry/biochemistry/<u>biology</u> elective<sup>‡</sup> Credits: (3)</li> <li>Advanced laboratory experience<sup>§</sup> Credits: (2)</li> <li>Humanities/social science elective Credits: (3)</li> <li>CHE 015 - Engineering Assembly Credits: (0)</li> <li>*CHE 521 - Chemical Engineering Thermodynamics II Credits: (3)</li> <li>*CHE 530 - Transport Phenomena I Credits: (3)</li> <li>ENGL 415 - Written Communication for Engineers Credits: (3)</li> </ul>   |
| <p>Spring semester (14 credit hours)</p> <hr/> <ul style="list-style-type: none"> <li>Technical elective Credits: (3)</li> <li>CHE 015 - Engineering Assembly Credits: (0)</li> <li>*CHE 531 - Transport Phenomena II Credits: (3)</li> <li>*CHE 535 - Transport Phenomena Laboratory Credits: (3)</li> <li>CHM 595 - Physical Chemistry II Credits: (3)</li> <li>CHE 354 – Basic Concepts in Materials and Engineering Credits: (1)</li> <li>CHE 355 – Fundamentals of Mechanical Properties Credits: (1)</li> </ul> <p>or</p> <p>CHE 356 – Fundamentals of Electrical Properties Credits: (1)</p> | <p>Spring semester (14 credit hours)</p> <hr/> <ul style="list-style-type: none"> <li><u>Chemistry/biochemistry/biology</u> elective<sup>‡</sup> Credits: (3)</li> <li>Technical elective Credits: (3)</li> <li>CHE 015 - Engineering Assembly Credits: (0)</li> <li>*CHE 531 - Transport Phenomena II Credits: (3)</li> <li>*CHE 535 - Transport Phenomena Laboratory Credits: (3)</li> <li><del>CHM 595 – Physical Chemistry II Credits: (3)</del></li> <li>CHE 354 – Basic Concepts in Materials and Engineering Credits: (1)</li> <li>CHE 355 – Fundamentals of Mechanical Properties Credits: (1)</li> </ul> <p>or</p> <p>CHE 356 – Fundamentals of Electrical Properties Credits: (1)</p> |
| <p>Senior year</p>  | <p>Senior year</p>  |
| <p>Fall semester (18 credit hours)</p> <hr/> <ul style="list-style-type: none"> <li>Technical elective Credits: (3)</li> <li>UGE ≥ 300 level humanities and social science elective Credits: (6)</li> <li>CHE 015 - Engineering Assembly Credits: (0)</li> </ul>  | <p>Fall semester (18 credit hours)</p> <hr/> <ul style="list-style-type: none"> <li>Technical elective Credits: (3)</li> <li>UGE ≥ 300 level humanities and social science elective Credits: (6)</li> <li>CHE 015 - Engineering Assembly Credits: (0)</li> </ul>  |

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| <ul style="list-style-type: none"> <li>• *CHE 550 - Chemical Reaction Engineering Credits: (3)</li> <li>• *CHE 560 - Separational Process Design Credits: (3)</li> <li>• *CHE 570 - Chemical Engineering Systems Design I Credits: (3)</li> </ul> <p>Spring semester (16 credit hours)</p> <hr/> <ul style="list-style-type: none"> <li>• Chemical engineering elective Credits: (3)</li> <li>• Unrestricted elective Credits: (3)</li> <li>• CHE 015 - Engineering Assembly Credits: (0)</li> <li>• *CHE 542 - Unit Operations Laboratory Credits: (3)</li> <li>• CHE 561 - Chemical Process Dynamics and Control Credits: (3)</li> <li>• *CHE 571 - Chemical Engineering Systems Design II Credits: (3)</li> <li>• CHE 565 – Health and Safety in Chemical Engineering Systems (1)</li> </ul> <p>Notes</p> <hr/>   | <ul style="list-style-type: none"> <li>• *CHE 550 - Chemical Reaction Engineering Credits: (3)</li> <li>• *CHE 560 - Separational Process Design Credits: (3)</li> <li>• *CHE 570 - Chemical Engineering Systems Design I Credits: (3)</li> </ul> <p>Spring semester (16 credit hours)</p> <hr/> <ul style="list-style-type: none"> <li>• Chemical engineering elective Credits: (3)</li> <li>• Unrestricted elective Credits: (3)</li> <li>• CHE 015 - Engineering Assembly Credits: (0)</li> <li>• *CHE 542 - Unit Operations Laboratory Credits: (3)</li> <li>• CHE 561 - Chemical Process Dynamics and Control Credits: (3)</li> <li>• *CHE 571 - Chemical Engineering Systems Design II Credits: (3)</li> <li>• CHE 565 – Health and Safety in Chemical Engineering Systems (1)</li> </ul> <p>Notes</p> <hr/>  |
| <p>*These courses form the chemical engineering core program.</p> <p>**Chemical Principles I (CHM 220) and Chemical Principles II (CHM 250) may be taken instead of CHM 210, CHM 230, and CHM 371. If this option is elected, two additional credit hours of technical electives are to be selected.</p> <p>‡Chemistry/biochemistry/biology electives: Chemistry: Possible selections include Organic Chemistry II (CHM 550), Instrumental Analysis (CHM 566), and Physical Chemistry I (CHM 585). Biochemistry: Possible selections include General Biochemistry (BIOCH 521), Physical Studies of Biomacromolecules (BIOCH 590), Biochemistry I (BIOCH 755), and Biochemistry II (BIOCH 765); Biology: BIOL 450 or above; some possible courses include Modern Genetics (BIOL 450), General Microbiology (BIOL 455), Plant Physiology (BIOL 500), Fundamentals of Ecology (BIOL 529) or Cell Biology (BIOL 541).</p> <p>§The advanced laboratory experience is to be a 2-credit-hour laboratory course selected from the following courses: Organic Chemistry Laboratory (CHM 532), Physical Methods Laboratory (CHM 596), General Biochemistry Laboratory (BIOCH 522), or Biochemistry I Laboratory (BIOCH 756).</p> <p>The departmental requirements below must be satisfied.</p> | <p>*These courses form the chemical engineering core program.</p> <p>**Chemical Principles I (CHM 220) and Chemical Principles II (CHM 250) may be taken instead of CHM 210, CHM 230, and CHM 371. If this option is elected, two additional credit hours of technical electives are to be selected.</p> <p>‡Chemistry/biochemistry/biology <u>electives must include either Physical Chemistry I (CHM 585) or Physical Chemistry II (CHM 595). In addition, possible selections in each department for electives include the following.</u> Chemistry: <del>Possible selections include</del> Organic Chemistry II (CHM 550), Instrumental Analysis (CHM 566), Physical Chemistry I (CHM 585) and <u>Physical Chemistry II (CHM 595)</u>. Biochemistry: <del>Possible selections include</del> General Biochemistry (BIOCH 521), Physical Studies of Biomacromolecules (BIOCH 590), Biochemistry I (BIOCH 755), and Biochemistry II (BIOCH 765); Biology: BIOL 450 or above; some possible courses include Modern Genetics (BIOL 450), General Microbiology (BIOL 455), Plant Physiology (BIOL 500), Fundamentals of Ecology (BIOL 529) or Cell Biology (BIOL 541).</p> <p>§The advanced laboratory experience is to be a 2-credit-hour laboratory course selected from the following courses: Organic Chemistry Laboratory (CHM 532), Physical Methods Laboratory (CHM 596), General Biochemistry Laboratory (BIOCH 522), or Biochemistry I Laboratory (BIOCH 756).</p> |

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| <p>32 credit hours of electives are required, and they are to be selected in consultation with the student's advisor. All electives must be on the lists approved by the department or have the approval of the department head and must support the program educational objectives and student outcomes of the chemical engineering program. A student's overall program of study must meet university general education (K-State 8) criteria; both the required and elective components can contribute to satisfying the K-State 8 criteria. 14 credit hours of technical electives are required. These electives must include one chemistry/biochemistry/biology (3 credit hours) course, an advanced laboratory experience (2 credit hours), and a chemical engineering elective (3 credit hours).</p> <p>The remaining 6 credit hours of technical electives are to be chosen from courses identified as engineering topics, with at least one course selected from either analytical mechanics (both statics and dynamics must be represented) or circuits, fields, and electronics.</p> <ul style="list-style-type: none"> <li>• 15 credit hours of social sciences and humanities electives are required. These courses are to be selected from the list approved by the College of Engineering. At least 6 credit hours of 300-level or higher courses must be included within these 15 credit hours. All courses must be taken for a letter grade.</li> <li>• Three (3) credit hours of unrestricted elective are to be selected from courses numbered 100 or higher, excluding courses listed as a prerequisite to a required course.</li> </ul> <p>A grade of C or higher in each course within the chemical engineering core program is required for graduation.</p> <p>Total hours required for graduation (129)</p> | <p>The departmental requirements below must be satisfied.</p> <p>32 credit hours of electives are required, and they are to be selected in consultation with the student's advisor. All electives must be on the lists approved by the department or have the approval of the department head and must support the program educational objectives and student outcomes of the chemical engineering program. A student's overall program of study must meet university general education (K-State 8) criteria; both the required and elective components can contribute to satisfying the K-State 8 criteria. 14 credit hours of technical electives are required. These electives must include one chemistry/biochemistry/biology (3 credit hours) course, an advanced laboratory experience (2 credit hours), and a chemical engineering elective (3 credit hours).</p> <p>The remaining 6 credit hours of technical electives are to be chosen from courses identified as engineering topics, with at least one course selected from either analytical mechanics (both statics and dynamics must be represented) or circuits, fields, and electronics.</p> <ul style="list-style-type: none"> <li>• 15 credit hours of social sciences and humanities electives are required. These courses are to be selected from the list approved by the College of Engineering. At least 6 credit hours of 300-level or higher courses must be included within these 15 credit hours. All courses must be taken for a letter grade.</li> <li>• Three (3) credit hours of unrestricted elective are to be selected from courses numbered 100 or higher, excluding courses listed as a prerequisite to a required course.</li> </ul> <p>A grade of C or higher in each course within the chemical engineering core program is required for graduation.</p> <p>Total hours required for graduation (129)</p> |
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# Department of Electrical and Computer Engineering

## Computer Engineering

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| <p><b>Computer Engineering (CMPEN) (B.S.)</b></p> <hr/> <p>The Computer Engineering program is accredited by the Engineering Accreditation Commission of ABET, <a href="http://www.abet.org">http://www.abet.org</a>.</p> <p><b>Bachelor's degree requirements</b></p> <p><b>Freshman year</b></p> <hr/> <p><b>Fall semester (16 credit hours)</b></p> <hr/> <ul style="list-style-type: none"> <li>• CHM 210 - Chemistry I <b>Credits: (4)</b></li> <li>• COMM 105 - Public Speaking IA <b>Credits: (2)</b></li> <li>• ECE 015 - New Student Assembly <b>Credits: (0)</b></li> <li>• ECE 241 - Introduction to Computer Engineering <b>Credits: (3)</b></li> <li>• * ENGL 100 - Expository Writing I <b>Credits: (3)</b></li> <li>• MATH 220 - Analytic Geometry and Calculus I <b>Credits: (4)</b></li> </ul> <p><b>Spring semester (<del>16 credit hours</del>)</b></p> <hr/> <ul style="list-style-type: none"> <li>• CIS 200 - Programming Fundamentals <b>Credits: (4)</b></li> <li>• <del>ECE 015 - New Student Assembly <b>Credits: (0)</b></del></li> <li>• ECE 210 - Introduction to Electrical Engineering <b>Credits: (3)</b></li> </ul> | <p><b>Computer Engineering (CMPEN) (B.S.)</b></p> <hr/> <p>The Computer Engineering program is accredited by the Engineering Accreditation Commission of ABET, <a href="http://www.abet.org">http://www.abet.org</a>.</p> <p><b>Bachelor's degree requirements</b></p> <p><b>Freshman year</b></p> <hr/> <p><b>Fall semester (16 credit hours)</b></p> <hr/> <ul style="list-style-type: none"> <li>• CHM 210 - Chemistry I <b>Credits: (4)</b></li> <li>• COMM 105 - Public Speaking IA <b>Credits: (2)</b></li> <li>• ECE 015 - New Student Assembly <b>Credits: (0)</b></li> <li>• ECE 241 - Introduction to Computer Engineering <b>Credits: (3)</b></li> <li>• * ENGL 100 - Expository Writing I <b>Credits: (3)</b></li> <li>• MATH 220 - Analytic Geometry and Calculus I <b>Credits: (4)</b></li> </ul> <p><b>Spring semester (<u>17 credit hours</u>)</b></p> <hr/> <ul style="list-style-type: none"> <li>• CIS 200 - Programming Fundamentals <b>Credits: (4)</b></li> <li>• <u>ECE 115 New Student Design Project <b>Credits: (1)</b></u></li> <li>• ECE 210 - Introduction to Electrical Engineering <b>Credits: (3)</b></li> </ul> |
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- MATH 221 - Analytic Geometry and Calculus II **Credits:** (4)
- PHYS 213 - Engineering Physics I **Credits:** (5)

### Sophomore year

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#### Fall semester (~~16 credit hours~~)

- CIS 300 - Data and Program Structures **Credits:** (3)
- ~~DEN 325 - Introduction to Personal and Professional Development **Credits:** (1)~~
- ECE 441 - Design of Digital Systems **Credits:** (3)
- MATH 240 - Elementary Differential Equations **Credits:** (4)
- PHYS 214 - Engineering Physics II **Credits:** (5)

#### Spring semester (17 credit hours)

- CIS 308 - C/C++ Language Laboratory **Credits:** (1)
- ECON 110 - Principles of Macroeconomics **Credits:** (3)
- ECE 410 - Circuit Theory I **Credits:** (3)
- ECE 431 - Microcontrollers **Credits:** (3)
- MATH 222 - Analytic Geometry and Calculus III **Credits:** (4)
- STAT 510 - Introductory Probability and Statistics I **Credits:** (3)

### Junior year

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#### Fall semester (18 credit hours)

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- MATH 221 - Analytic Geometry and Calculus II **Credits:** (4)
- PHYS 213 - Engineering Physics I **Credits:** (5)

### Sophomore year

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#### Fall semester (15 credit hours)

- CIS 300 - Data and Program Structures **Credits:** (3)
- ECE 441 - Design of Digital Systems **Credits:** (3)
- MATH 240 - Elementary Differential Equations **Credits:** (4)
- PHYS 214 - Engineering Physics II **Credits:** (5)

#### Spring semester (17 credit hours)

- CIS 308 - C/C++ Language Laboratory **Credits:** (1)
- ECON 110 - Principles of Macroeconomics **Credits:** (3)
- ECE 410 - Circuit Theory I **Credits:** (3)
- ECE 431 - Microcontrollers **Credits:** (3)
- MATH 222 - Analytic Geometry and Calculus III **Credits:** (4)
- STAT 510 - Introductory Probability and Statistics I **Credits:** (3)

### Junior year

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#### Fall semester (18 credit hours)

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| <ul style="list-style-type: none"> <li>• <b>**Humanities/Social Science Elective Credits:</b> (3)</li> <li>• CIS 501 - Software Architecture and Design <b>Credits:</b> (3)</li> <li>• ECE 511 - Circuit Theory II <b>Credits:</b> (3)</li> <li>• ECE 525 - Electronics I <b>Credits:</b> (3)</li> <li>• ECE 540 - Applied Scientific Computing for Engineers <b>Credits:</b> (3)</li> <li>• MATH 510 - Discrete Mathematics <b>Credits:</b> (3)</li> </ul> <p><b>Spring semester (15 credit hours)</b></p> | <hr/> <ul style="list-style-type: none"> <li>• <b>**Humanities/Social Science Elective Credits:</b> (3)</li> <li>• CIS 501 - Software Architecture and Design <b>Credits:</b> (3)</li> <li>• ECE 511 - Circuit Theory II <b>Credits:</b> (3)</li> <li>• ECE 525 - Electronics I <b>Credits:</b> (3)</li> <li>• ECE 540 - Applied Scientific Computing for Engineers <b>Credits:</b> (3)</li> <li>• MATH 510 - Discrete Mathematics <b>Credits:</b> (3)</li> </ul> <p><b>Spring semester (16 credit hours)</b></p> |
| <hr/> <ul style="list-style-type: none"> <li>• <del>***Technical electives Credits: (3)</del></li> <li>• <b>**Humanities/Social Science Elective Credits:</b> (3)</li> <li>• ECE 512 - Linear Systems <b>Credits:</b> (3)</li> <li>• <del>ECE 557 – Electromagnetic Theory I Credits: (3)</del></li> <li>• ECE 649 - Computer Design I <b>Credits:</b> (3)</li> </ul> <p><b>Senior year</b></p>   | <hr/> <ul style="list-style-type: none"> <li>• <b>**Humanities/Social Science Elective Credits:</b> (3)</li> <li>• ECE 512 - Linear Systems <b>Credits:</b> (3)</li> <li>• <u>ECE 557 - Electromagnetic Theory I Credits: (4)</u></li> <li>• ECE 649 - Computer Design I <b>Credits:</b> (3)</li> <li>• <u>ENGL 415 - Written Communication for Engineers Credits: (3)</u></li> </ul> <p><b>Senior year</b></p>   |
| <p><b>Fall semester (15 credit hours)</b></p>   | <hr/> <p><b>Fall semester (15 credit hours)</b></p>   |
| <hr/> <ul style="list-style-type: none"> <li>• <del>***Technical Electives Credits: (3)</del></li> <li>• <del>**Humanities/Social Science Elective Credits: (3)</del></li> <li>• <b>**** CIS 520 - Operating Systems I Credits:</b> (3)</li> <li>• ECE 643 - Computer Engineering Design Lab <b>Credits:</b> (3)</li> <li>• <del>ENGL 415 – Written Communication for Engineers Credits: (3)</del></li> </ul> <p><b>Spring semester (16 credit hours)</b></p>   | <hr/> <ul style="list-style-type: none"> <li>• <u>***Technical Electives Credits: (6)</u></li> <li>• <u>ECE 590 – Senior Design Experience Credits: (3)</u></li> <li>• <b>**** CIS 520 - Operating Systems I Credits:</b> (3)</li> <li>• ECE 643 - Computer Engineering Design Lab <b>Credits:</b> (3)</li> </ul>   |

- \*\*\*Technical electives **Credits:** (9)
- \*\*Humanities/Social Science Elective **Credits:** (3)
- ~~ECE 590 - Seminar **Credits:** (1)~~
- ECE 645 - Digital Electronics **Credits:** (3)

## Notes

\*Students must complete the appropriate prerequisite credits for [ENGL 415](#), but may apply only 3 credit hours of ENGL 415 prerequisite credits towards degree requirements.

For the good and benefit of the student and their future employer, the ECE department enforces a C-prerequisite policy for all courses listed by number in the curriculum and for any in-major technical elective course applied toward the degree. A grade of C or better must be earned in all prerequisites to such a course before enrolling in that course.

\*\*Humanities and Social Science electives are to be selected from the list of courses approved by the College of Engineering. Students should select these courses as needed to complete the requirements of the [K-State 8](#) General Education program.

\*\*\*Technical electives must be selected to complete one of the specialization areas.

\*\*\*\*Offered only semester shown in curriculum.

## Total credit hours required for graduation (129)

## NOTE: K-State 8 General Education Requirements

## Spring semester (**15 credit hours**)

- \*\*\*Technical electives **Credits:** (9)
- \*\*Humanities/Social Science Elective **Credits:** (3)
- ECE 645 - Digital Electronics **Credits:** (3)

## Notes

\*Students must complete the appropriate prerequisite credits for [ENGL 415](#), but may apply only 3 credit hours of ENGL 415 prerequisite credits towards degree requirements.

For the good and benefit of the student and their future employer, the ECE department enforces a C-prerequisite policy for all courses listed by number in the curriculum and for any in-major technical elective course applied toward the degree. A grade of C or better must be earned in all prerequisites to such a course before enrolling in that course.

\*\*Humanities and Social Science electives are to be selected from the list of courses approved by the College of Engineering. Students should select these courses as needed to complete the requirements of the [K-State 8](#) General Education program.

\*\*\*Technical electives must be selected to complete one of the specialization areas.

\*\*\*\*Offered only semester shown in curriculum.

## Total credit hours required for graduation (129)

## NOTE: K-State 8 General Education Requirements

|  |  |
|--|--|
| <p><b>IMPORTANT NOTES:</b> Students who first enroll in Summer 2011 or later must meet the requirements of the <a href="#">K-State 8</a> General Education Program.</p> <p>Students who began their programs of study in earlier terms under the University General Education (<a href="#">UGE</a>) program may complete their degrees with UGE requirements or may choose to move to the K-State 8. Students should check with their academic advisors to determine which choice would be better. To switch, students must consult with their academic advisors.</p> <p>Students who are readmitted in Summer 2011 and later will be designated as meeting the K-State 8 by the Office of Admissions. Deans' offices can make an exception for the readmitted student who has completed UGE or who would prefer to complete UGE requirements.</p> <p>For additional information about the University General Education program, check the requirements specified by the <a href="#">College of Engineering</a>.</p> <p><b>Total hours required for graduation (129)</b></p> <hr/> | <hr/> <p><b>IMPORTANT NOTES:</b> Students who first enroll in Summer 2011 or later must meet the requirements of the <a href="#">K-State 8</a> General Education Program.</p> <p>Students who began their programs of study in earlier terms under the University General Education (<a href="#">UGE</a>) program may complete their degrees with UGE requirements or may choose to move to the K-State 8. Students should check with their academic advisors to determine which choice would be better. To switch, students must consult with their academic advisors.</p> <p>Students who are readmitted in Summer 2011 and later will be designated as meeting the K-State 8 by the Office of Admissions. Deans' offices can make an exception for the readmitted student who has completed UGE or who would prefer to complete UGE requirements.</p> <p>For additional information about the University General Education program, check the requirements specified by the <a href="#">College of Engineering</a>.</p> <p><b>Total hours required for graduation (129)</b></p> <hr/> |
|--|--|

**Effective term for requested action:** Term Fall Year 2014  
**Rationale:**

**Summary of changes:**

- 1) Drop 3 hours from H&SS course requirements in ECE department
- 2) Apply 2 hours to expanded ECE 590 course with new name "Senior Design Experience"
- 3) Apply 1 hour to ECE 557 (Electromagnetics) to expand it from 3 to 4 credits

- 4) Drop DEN 325 (1 hour) which is no longer available
- 5) Apply that 1 hour to a new second-semester New Student Assembly (ECE 115) titled “New Student Design Project”
- 6) Modify placements of various courses in curriculum (see below for detailed rationale)

### **Detailed Rationale:**

- **Drop DEN325**

This course has been phased-out by the college. We will merge the necessary topics from this course into an expanded ECE590 course with a modified name. See next change below.

- **Modify ECE590 from one to three credits and change course name**

ECE590 is the department's current senior-seminar class which all ECE students take. The course covers some essential topics including communication skills, engineering ethics, and career topics/presentations.

DEN325 has been dropped. To take over additional topics including team project work previously covered in DEN325, ECE590 will be extended from one credit hour to three credit hours. In addition, a primary focus of the course will be to provide a consistent ABET culminating design experience for all ECE students. Student teams will define, schedule, synthesize/analyze, and present a significant electrical/computer engineering design using skills learned in their undergraduate courses.

While the course content and assigned project will be configured to satisfy the essential components of the ABET culminating design experience "based on knowledge and skills acquired in earlier course work and incorporating appropriate engineering standards and multiple realistic constraints", all students will still be required to take an additional design course within their chosen area of specialization - providing deeper knowledge in that area. To allow for the most flexibility and technical depth, specialization-area design courses will not necessarily be connected to the design carried out in ECE590, but will in all cases be based on knowledge and skills acquired in earlier courses, and incorporate engineering standards and realistic constraints where appropriate.

- **Expand the existing zero-credit second-semester new-student assembly ECE 015 course into a one-credit ECE 115 course (“New Student Design Project”)**

ECE015 is the department's new-student-assembly orientation course. It meets monthly during both semesters and currently has a small design experience in the form of robot competition in the second semester. While helpful to students, the sophistication of the second-semester designs is limited by the time available. Changing the second-semester zero-credit ECE015 to a required one-credit course during that semester will provide the opportunity and motivation for significantly more depth in the design project, including more programming and teamwork experience, better preparing new students for their later coursework and careers.

- **Expand ECE557 from three to four credits**

ECE557 (Electromagnetics) was reduced from 4 hours to 3 some time ago and transmission lines moved to a different course. The essential topic of transmission lines has not been incorporated as well as anticipated to other course(s) in the curriculum, and fits best in its original ECE557 location, so we are restoring the previous plan. The additional credit will also allow time to cover topics in more depth.

- **Drop three credit-hours of Humanities and Social Sciences**

The college dropped the requirement for H&SS course hours to a minimum of 6 during the transition to K-State 8. ECE currently has 12 hours of H&SS in both the EE and CmpE programs. We feel that deleting 3 hours of H&SS and applying those to expanded ECE 590 and ECE557 courses will improve those courses significantly while still providing enough H&SS in the program, for ABET requirements of breadth, and for completing university K-State 8 requirements.

- **Modify the semesters in which the following courses are taken for the reasons stated**

- 1) Move placement of ECE590 from second semester senior year to first semester senior year to allow students the opportunity for expanding on their ECE590 designs if desired
- 2) Move ENGL415 to second semester junior year, ahead of ECE590, since it is a pre-requisite for ECE590. (Swap its placement with the technical elective currently in 2<sup>nd</sup> semester junior year)

**Impact (i.e. if this impacts another unit):** No significant impacts outside the department are anticipated for any of these changes. Minor effects could be felt in ENGL due to moving ENGL 415 from first semester senior to 2<sup>nd</sup> semester junior.

## Electrical Engineering

| Electrical Engineering (EE) (B.S.)   | Electrical Engineering (EE) (B.S.)   |
|--|--|
| <p>The Electrical Engineering program is accredited by the Engineering Accreditation Commission of ABET, <a href="http://www.abet.org">http://www.abet.org</a>.</p>  | <p>The Electrical Engineering program is accredited by the Engineering Accreditation Commission of ABET, <a href="http://www.abet.org">http://www.abet.org</a>.</p>  |
| <p><b>Bachelor's degree requirements</b></p>   | <p><b>Bachelor's degree requirements</b></p>   |
| <p><b>Freshman year</b></p>  | <p><b>Freshman year</b></p>  |
| <p><b>Fall semester (16 credit hours)</b></p>  | <p><b>Fall semester (16 credit hours)</b></p>  |
| <ul style="list-style-type: none"> <li>• CHM 210 - Chemistry I <b>Credits:</b> (4)</li> <li>• COMM 105 - Public Speaking IA <b>Credits:</b> (2)</li> <li>• ECE 015 - New Student Assembly <b>Credits:</b> (0)</li> <li>• ECE 210 - Introduction to Electrical Engineering <b>Credits:</b> (3)</li> <li>• ENGL 100 - Expository Writing I <b>Credits:</b> (3)</li> <li>• MATH 220 - Analytic Geometry and Calculus I <b>Credits:</b> (4)</li> </ul> | <ul style="list-style-type: none"> <li>• CHM 210 - Chemistry I <b>Credits:</b> (4)</li> <li>• COMM 105 - Public Speaking IA <b>Credits:</b> (2)</li> <li>• ECE 015 - New Student Assembly <b>Credits:</b> (0)</li> <li>• ECE 210 - Introduction to Electrical Engineering <b>Credits:</b> (3)</li> <li>• ENGL 100 - Expository Writing I <b>Credits:</b> (3)</li> <li>• MATH 220 - Analytic Geometry and Calculus I <b>Credits:</b> (4)</li> </ul> |
| <p><b>Spring semester (<del>16 credit hours</del>)</b></p>   | <p><b>Spring semester (<u>17 credit hours</u>)</b></p>   |
| <ul style="list-style-type: none"> <li>• BIOL 198 - Principles of Biology <b>Credits:</b> (4)</li> <li>• or</li> <li>• CHM 230 - Chemistry II <b>Credits:</b> (4)</li> <li>• ECON 110 - Principles of Macroeconomics <b>Credits:</b> (3)</li> <li>• <del>ECE 015 - New Student Assembly <b>Credits:</b> (0)</del></li> </ul>   | <ul style="list-style-type: none"> <li>• BIOL 198 - Principles of Biology <b>Credits:</b> (4)</li> <li>• or</li> <li>• CHM 230 - Chemistry II <b>Credits:</b> (4)</li> <li>• ECON 110 - Principles of Macroeconomics <b>Credits:</b> (3)</li> </ul>  |

- MATH 221 - Analytic Geometry and Calculus II  
**Credits: (4)**
- PHYS 213 - Engineering Physics I **Credits: (5)**

## Sophomore year

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### Fall semester (~~16 credit hours~~)

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- ~~DEN 325 - Introduction to Personal and Professional Development **Credits: (1)**~~
- ECE 241 - Introduction to Computer Engineering **Credits: (3)**
- ECE 410 - Circuit Theory I **Credits: (3)**
- MATH 240 - Elementary Differential Equations **Credits: (4)**
- PHYS 214 - Engineering Physics II **Credits: (5)**

### Spring semester (16 credit hours)

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- CIS 209 - C Programming for Engineers **Credits: (3)**
- ECE 511 - Circuit Theory II **Credits: (3)**
- ECE 525 - Electronics I **Credits: (3)**
- MATH 222 - Analytic Geometry and Calculus III **Credits: (4)**
- STAT 510 - Introductory Probability and Statistics I **Credits: (3)**

## Junior year

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- ECE 115 - New Student Design Project **Credits: (1)**
- MATH 221 - Analytic Geometry and Calculus II **Credits: (4)**
- PHYS 213 - Engineering Physics I **Credits: (5)**

## Sophomore year

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### Fall semester (17 credit hours)

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- CHE 354 - Basic Concepts in Materials Science and Engineering **Credits: (1)**
- CHE 356 - Fundamentals of Electrical Properties **Credits: (1)**
- ECE 241 - Introduction to Computer Engineering **Credits: (3)**
- ECE 410 - Circuit Theory I **Credits: (3)**
- MATH 240 - Elementary Differential Equations **Credits: (4)**
- PHYS 214 - Engineering Physics II **Credits: (5)**

### Spring semester (16 credit hours)

---

- CIS 209 - C Programming for Engineers **Credits: (3)**
- ECE 511 - Circuit Theory II **Credits: (3)**
- ECE 525 - Electronics I **Credits: (3)**
- MATH 222 - Analytic Geometry and Calculus III **Credits: (4)**
- STAT 510 - Introductory Probability and Statistics I **Credits: (3)**

## Junior year

### Fall semester (15 credit hours)

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- **\*\*Humanities/Social Science Elective Credits:** (3)
- ECE Technical Electives **Credits:** (3)
- ECE 431 - Microcontrollers **Credits:** (3)
- ECE 526 - Electronics II **Credits:** (3)
- ECE 540 - Applied Scientific Computing for Engineers **Credits:** (3)

### Spring semester (~~17 credit hours~~)

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- **\*\*Humanities/Social Science Elective Credits:** (3)
- ECE 502 - Electronics Laboratory **Credits:** (2)
- ECE 512 - Linear Systems **Credits:** (3)
- ~~ECE 557 - Electromagnetic Theory I **Credits:** (3)~~
- ECE 581 - Energy Conversion I **Credits:** (3)
- ENGL 415 - Written Communication for Engineers **Credits:** (3)

### Senior year

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#### Fall semester (~~17 credit hours~~)

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- **\*\*\*Technical electives Credits:** (6)
- ~~**\*\*Humanities/Social Science Elective Credits:** (3)~~
- CE 530 - Statics and Dynamics **Credits:** (3)
- ~~CHE 354 - Basic Concepts in Materials Science and Engineering **Credits:** (1)~~

### Fall semester (15 credit hours)

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- **\*\*Humanities/Social Science Elective Credits:** (3)
- ECE Technical Electives **Credits:** (3)
- ECE 431 - Microcontrollers **Credits:** (3)
- ECE 526 - Electronics II **Credits:** (3)
- ECE 540 - Applied Scientific Computing for Engineers **Credits:** (3)

### Spring semester (18 credit hours)

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- **\*\*Humanities/Social Science Elective Credits:** (3)
- ECE 502 - Electronics Laboratory **Credits:** (2)
- ECE 512 - Linear Systems **Credits:** (3)
- ECE 557 - Electromagnetic Theory I **Credits:** (4)
- ECE 581 - Energy Conversion I **Credits:** (3)
- ENGL 415 - Written Communication for Engineers **Credits:** (3)

### Senior year

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#### Fall semester (15 credit hours)

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- **\*\*\*Technical electives Credits:** (6)



- ~~CHE 356 – Fundamentals of Electrical Properties Credits: (1)~~
- ECE 530 - Control Systems Design Credits: (3)

**Spring semester (16 credit hours)**

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- \*\*\*Technical electives Credits: (9)
- \*\*Humanities/Social Science Elective Credits: (3)
- ~~ECE 590 – Seminar Credits: (1)~~
- ME 513 - Thermodynamics I Credits: (3)

**Electrical engineering options**

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**General option**

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In the general option a set of specializations is possible. Students are expected to select a set of interrelated courses that fulfills an engineering design experience and allows for concentration in one area. Examples of such areas are communication systems and signal processing, digital electronics, integrated circuits and devices, and power systems.

**Bioengineering option**

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Bioengineering is the application of engineering principles to measurement, analysis, and design issues faced by the medical and life science communities. The health care industry is one of the fastest-growing business sectors in the United States. Through the bioengineering option, undergraduate students can obtain a BS degree in electrical engineering while

- ECE 590 – Senior Design Experience Credits: (3)
- CE 530 - Statics and Dynamics Credits: (3)
- ECE 530 - Control Systems Design Credits: (3)

**Spring semester (15 credit hours)**

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- \*\*\*Technical electives Credits: (9)
- \*\*Humanities/Social Science Elective Credits: (3)
- ME 513 - Thermodynamics I Credits: (3)

**Electrical engineering options**

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**General option**

---

In the general option a set of specializations is possible. Students are expected to select a set of interrelated courses that fulfills an engineering design experience and allows for concentration in one area. Examples of such areas are communication systems and signal processing, digital electronics, integrated circuits and devices, and power systems.

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---

Bioengineering is the application of engineering principles to measurement, analysis, and design issues faced by the medical and life science communities. The health care industry is one of the fastest-growing business sectors in the United States. Through the

acquiring a highly marketable biotechnology skill set. Areas of emphasis within this option are medical instrumentation (biosensors and data acquisition tools), biosignal analysis, and biomedical product design.

Candidates for this option include undergraduate electrical engineering and pre-medicine students who seek a multidisciplinary environment focused upon using technology to increase quality of life. Instructors from various colleges at K-State contribute to this curriculum.

The curriculum accommodates pre-medicine students through the acceptance of core premedicine courses as complementary electives. Students pursuing a [pre-medicine program](#) should contact the [dean's office in the College of Arts and Sciences](#) for additional information.

## Notes

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\*Students must complete the appropriate prerequisite credits for ENGL 415, but may apply only three hours of ENGL 415 prerequisite credits towards degree requirements.

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|--|---|

**Effective term for requested action:** Term Fall Year 2014

**Rationale:**

**Summary of changes:**

- 7) Drop 3 hours from H&SS course requirements in ECE department
- 8) Apply 2 hours to expanded ECE 590 course with new name "Senior Design Experience"
- 9) Apply 1 hour to ECE 557 (Electromagnetics) to expand it from 3 to 4 credits
- 10) Drop DEN 325 (1 hour) which is no longer available
- 11) Apply that 1 hour to a new second-semester New Student Assembly (ECE 115) titled "New Student Design Project"

12) Modify placements of various courses in curriculum (see below for detailed rationale)

**Detailed Rationale:**

- **Drop DEN325**

This course has been phased-out by the college. We will merge the necessary topics from this course into an expanded ECE590 course with a modified name. See next change below.

- **Modify ECE590 from one to three credits and change course name**

ECE590 is the department's current senior-seminar class which all ECE students take. The course covers some essential topics including communication skills, engineering ethics, and career topics/presentations.

DEN325 has been dropped. To take over additional topics including team project work previously covered in DEN325, ECE590 will be extended from one credit hour to three credit hours. In addition, a primary focus of the course will be to provide a consistent ABET culminating design experience for all ECE students. Student teams will define, schedule, synthesize/analyze, and present a significant electrical/computer engineering design using skills learned in their undergraduate courses.

While the course content and assigned project will be configured to satisfy the essential components of the ABET culminating design experience "based on knowledge and skills acquired in earlier course work and incorporating appropriate engineering standards and multiple realistic constraints", all students will still be required to take an additional design course within their chosen area of specialization - providing deeper knowledge in that area. To allow for the most flexibility and technical depth, specialization-area design courses will not necessarily be connected to the design carried out in ECE590, but will in all cases be based on knowledge and skills acquired in earlier courses, and incorporate engineering standards and realistic constraints where appropriate.

- **Expand the existing zero-credit second-semester new-student assembly ECE 015 course into a one-credit ECE 115 course ("New Student Design Project")**

ECE015 is the department's new-student-assembly orientation course. It meets monthly during both semesters and currently has a small design experience in the form of robot competition in the second semester. While helpful to students, the sophistication of the second-semester designs is limited by the time available. Changing the second-semester zero-credit ECE015 to a required one-credit course during that semester will provide the opportunity and motivation for significantly more depth in the design project, including more programming and teamwork experience, better preparing new students for their later coursework and careers.

- **Expand ECE557 from three to four credits**

ECE557 (Electromagnetics) was reduced from 4 hours to 3 some time ago and transmission lines moved to a different course. The essential topic of transmission lines has not been incorporated as well as anticipated to other course(s) in the curriculum, and fits best in its original ECE557 location, so we are restoring the previous plan. The additional credit will also allow time to cover topics in more depth.

- **Drop three credit-hours of Humanities and Social Sciences**

The college dropped the requirement for H&SS course hours to a minimum of 6 during the transition to K-State 8. ECE currently has 12 hours of H&SS in both the EE and CmpE programs. We feel that deleting 3 hours of H&SS and applying those to expanded ECE 590 and ECE557 courses will improve those courses significantly while still providing enough H&SS in the program, for ABET requirements of breadth, and for completing university K-State 8 requirements.

- **Modify the semesters in which the following courses are taken for the reasons stated**

- 3) Move CHE354/356 to 1<sup>st</sup> semester Sophomore year in EE flowcharts to provide better background entering ECE 525 Electronics I (NOTE: Computer Engineering majors don't have CHE35x, so this cannot be pre-req for ECE525)
- 4) Move placement of ECE590 from second semester senior year to first semester senior year to allow students the opportunity for expanding on their ECE590 designs if desired

**Impact (i.e. if this impacts another unit):** No significant impacts outside the department are anticipated for any of these changes. Minor effects could be felt in CHE from moving CHE354/356 from senior to junior year, but the only prerequisite shown is CHM210.

**College of Business Administration (11-19-13)**

**NON-EXPEDITED UNDERGRADUATE CURRICULUM CHANGES**

Business administration pre-professions

**FROM:**

**TO:**

**Bachelor's degree requirements  
Requirements for BAPP (54 credit hours)  
Communication Courses (11 credit hours)**

Note: Automatic course substitution for COMM 105 is COMM 106.  
COMM 105 - Public Speaking IA Credits: (2)

or

COMM 106 - Public Speaking I Credits: (3)  
ENGL 100 - Expository Writing I Credits: (3)  
ENGL 200 - Expository Writing II Credits: (3)  
ENGL 417 - Written Communication for the Workplace Credits: (3)

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**Quantitative Courses (18 credit hours)**

- ECON 110 - Principles of Macroeconomics **Credits: (3)**
- ECON 120 - Principles of Microeconomics **Credits: (3)**
- Note: Automatic course substitution for ECON 120 is AGECE 120.

**Bachelor's degree requirements  
Requirements for BAPP (54 credit hours)  
Communication Courses (11 credit hours \* See Requirement Below for Non-Native Speakers)**

Note: Automatic course substitution for COMM 105 is COMM 106.  
COMM 105 - Public Speaking IA Credits: (2)

or

COMM 106 - Public Speaking I Credits: (3)  
ENGL 100 - Expository Writing I Credits: (3)  
ENGL 200 - Expository Writing II Credits: (3)  
ENGL 417 - Written Communication for the Workplace Credits: (3)

\* Non-Native English Speakers who are required to take one or more English Language Program courses are **required** to also complete DAS 155- Business Communications for Non-Native Speakers (3 hrs) prior to beginning their business coursework. DAS 155 should be taken concurrent with achieving part time status in the English Language Program or immediately following completion of all English Language Program requirements. This course is **recommended** for non-native English speakers that do not take ELP courses but who are new to American culture.

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**Quantitative Courses (18 credit hours)**

- ECON 110 - Principles of Macroeconomics **Credits: (3)**
- ECON 120 - Principles of Microeconomics **Credits: (3)**
- Note: Automatic course substitution for ECON 120 is AGECE 120.

- \*\* MATH 100 - College Algebra **Credits:** (3)
- \*\* MATH 205 - General Calculus and Linear Algebra **Credits:** (3)
- Note: Automatic course substitution for MATH 205 is MATH 220.
- STAT 350 - Business and Economic Statistics I **Credits:** (3)
- Note: Automatic course substitutions for STAT 350 are STAT 325 or STAT 340 or STAT 510.
- STAT 351 - Business and Economic Statistics II **Credits:** (3)

**\*\*Mathematics Requirements:**

Students are eligible to take **MATH 100 - College Algebra** if they meet one of the following prerequisites:

1. **MATH 010 - Intermediate Algebra** with grade of B or better
2. Two years of high school algebra and a College Algebra PROB  $\geq$  C of 60 or more on the ACT assessment
3. A score of at least 18 on the mathematics placement test

*Note: Students who don't meet these prerequisites are encouraged to take **MATH 010 - Intermediate Algebra** before taking College Algebra. Credit received for Intermediate Algebra **does not apply** toward the hours required for graduation.*

Students are eligible to take **MATH 205 - General Calculus and Linear Algebra** if they meet one of the following prerequisites:

1. MATH 100 College Algebra with grade of C or better
2. Two units of high school algebra and one unit of high school trigonometry

Students are eligible to take **MATH 220 - Analytic Geometry and Calculus I** if they meet one of the following prerequisites:

1. MATH 100 - College Algebra with grade of B or better and MATH 150 - Plane Trigonometry with grade of C or better
2. Three years of college prep math (including trigonometry) and a Calculus I

- \*\* MATH 100 - College Algebra **Credits:** (3)
- \*\* MATH 205 - General Calculus and Linear Algebra **Credits:** (3)
- Note: Automatic course substitution for MATH 205 is MATH 220.
- STAT 350 - Business and Economic Statistics I **Credits:** (3)
- Note: Automatic course substitutions for STAT 350 are STAT 325 or STAT 340 or STAT 510.
- STAT 351 - Business and Economic Statistics II **Credits:** (3)

**\*\*Mathematics Requirements:**

Students are eligible to take **MATH 100 - College Algebra** if they meet one of the following prerequisites:

4. **MATH 010 - Intermediate Algebra** with grade of B or better
5. Two years of high school algebra and a College Algebra PROB  $\geq$  C of 60 or more on the ACT assessment
6. A score of at least 18 on the mathematics placement test

*Note: Students who don't meet these prerequisites are encouraged to take **MATH 010 - Intermediate Algebra** before taking College Algebra. Credit received for Intermediate Algebra **does not apply** toward the hours required for graduation.*

Students are eligible to take **MATH 205 - General Calculus and Linear Algebra** if they meet one of the following prerequisites:

3. MATH 100 College Algebra with grade of C or better
4. Two units of high school algebra and one unit of high school trigonometry

Students are eligible to take **MATH 220 - Analytic Geometry and Calculus I** if they meet one of the following prerequisites:

4. MATH 100 - College Algebra with grade of B or better and MATH 150 - Plane Trigonometry with grade of C or better
5. Three years of college prep math (including trigonometry) and a Calculus I

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| <p>PROB <math>\geq</math> C of 55 or more on the ACT assessment</p> <p>3. A score of at least 26 on the mathematics placement test</p> <p><i>Note: Students who test directly into MATH 205 or MATH 220 and complete the course will have the MATH 100 requirement waived, if they have not already taken MATH 100. Three credit hours/units will be added to the unrestricted electives requirement of the student's major/plan degree program in order to meet graduation requirements (126 credit hours/units).</i></p> <p><b>K-State 8 Requirement (16 credit hours)</b></p> <hr/> <p>All business students must fulfill the requirements of the university's K-State 8 General Education program and the following:</p> <ul style="list-style-type: none"> <li>• The Natural and Physical Sciences requirement must have a laboratory component</li> <li>• One additional course tagged under the Global Issues and Perspectives area</li> <li>• One additional K-State 8 tagged course of the student's choosing</li> </ul> <p>The above requirements will be fulfilled in the following manner.</p> <p>All business students must complete 16 credit hours of K-State 8 coursework outside the College of Business Administration which fulfill the following requirements:</p> <ul style="list-style-type: none"> <li>• Aesthetic Experience and Interpretive Understanding <b>Credits:</b> (3)</li> <li>• Global Issues and Perspectives <b>Credits:</b> (3)</li> <li>• Human Diversity within the U.S. <b>Credits:</b> (3)</li> <li>• Natural and Physical Sciences course with accompanying laboratory <b>Credits:</b> (4)</li> <li>• K-State 8 elective <b>Credits:</b> (3)</li> </ul> <p>Remaining K-State 8 requirements will be met through other general and business core requirements.</p> <ul style="list-style-type: none"> <li>• Empirical and Quantitative Reasoning - MATH 100 or MATH 205</li> <li>• Ethical Reasoning and Responsibility - MANGT 596</li> <li>• Global Issues and Perspectives - ECON 110</li> <li>• Historical Perspectives - MANGT 420</li> </ul> | <p>PROB <math>\geq</math> C of 55 or more on the ACT assessment</p> <p>6. A score of at least 26 on the mathematics placement test</p> <p><i>Note: Students who test directly into MATH 205 or MATH 220 and complete the course will have the MATH 100 requirement waived, if they have not already taken MATH 100. Three credit hours/units will be added to the unrestricted electives requirement of the student's major/plan degree program in order to meet graduation requirements (126 credit hours/units).</i></p> <p><b>K-State 8 Requirement (16 credit hours)</b></p> <hr/> <p>All business students must fulfill the requirements of the university's K-State 8 General Education program and the following:</p> <ul style="list-style-type: none"> <li>• The Natural and Physical Sciences requirement must have a laboratory component</li> <li>• One additional course tagged under the Global Issues and Perspectives area</li> <li>• One additional K-State 8 tagged course of the student's choosing</li> </ul> <p>The above requirements will be fulfilled in the following manner.</p> <p>All business students must complete 16 credit hours of K-State 8 coursework outside the College of Business Administration which fulfill the following requirements:</p> <ul style="list-style-type: none"> <li>• Aesthetic Experience and Interpretive Understanding <b>Credits:</b> (3)</li> <li>• Global Issues and Perspectives <b>Credits:</b> (3)</li> <li>• Human Diversity within the U.S. <b>Credits:</b> (3)</li> <li>• Natural and Physical Sciences course with accompanying laboratory <b>Credits:</b> (4)</li> <li>• K-State 8 elective <b>Credits:</b> (3)</li> </ul> <p>Remaining K-State 8 requirements will be met through other general and business core requirements.</p> <ul style="list-style-type: none"> <li>• Empirical and Quantitative Reasoning - MATH 100 or MATH 205</li> <li>• Ethical Reasoning and Responsibility - MANGT 596</li> <li>• Global Issues and Perspectives - ECON 110</li> <li>• Historical Perspectives - MANGT 420</li> </ul> |
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| <ul style="list-style-type: none"> <li>• Social Sciences - ECON 120</li> </ul> <p><b>Thematic Sequence (9 credit hours)</b></p> <p>Thematic sequences allow a student to obtain in-depth knowledge in a specialty area outside business. All business majors are required to complete an approved sequence of 9 credit hours of related courses in an area of interest outside of the College of Business Administration. These courses must be in addition to courses required by the University, K-State 8, and the College of Business Administration.</p> <p>The requirement can be met in several ways:</p> <ol style="list-style-type: none"> <li>1. Completion of a pre-packaged thematic sequence. A complete list of pre-packaged thematic sequences is available in 107 Calvin Hall, Office of Student Services.</li> <li>2. Completion of a major or secondary major outside of the College of Business Administration.</li> <li>3. Completion of a minor outside of the College of Business Administration, with at least 9 hours of non-business courses that are not a part of the requirements of the student's major.</li> <li>4. Completion of a certificate outside of the College of Business Administration.</li> <li>5. Completion of 9 hours of level 4 and higher courses in a single foreign language, (English Language Program courses cannot be used to fulfill the thematic sequence requirement.</li> </ol> <p>A student must declare a thematic sequence before completing 6 or more credit hours in the sequence.</p> <p><b>Business Core courses (30 credit hours)</b></p> <hr/> <p>Students must earn a minimum 2.5 grade point average in the business core courses in order to graduate.</p> <ul style="list-style-type: none"> <li>• * ACCTG 231 - Accounting for Business Operations <b>Credits:</b> (3)</li> <li>• * ACCTG 241 - Accounting for Investing and Financing <b>Credits:</b> (3)</li> <li>• FINAN 450 - Principles of Finance <b>Credits:</b> (3)</li> <li>• GENBA 110 - Business Foundations <b>Credits:</b> (3)</li> </ul> | <ul style="list-style-type: none"> <li>• Social Sciences - ECON 120</li> </ul> <p><b>Thematic Sequence (9 credit hours)</b></p> <p>Thematic sequences allow a student to obtain in-depth knowledge in a specialty area outside business. All business majors are required to complete an approved sequence of 9 credit hours of related courses in an area of interest outside of the College of Business Administration. These courses must be in addition to courses required by the University, K-State 8, and the College of Business Administration.</p> <p>The requirement can be met in several ways:</p> <ol style="list-style-type: none"> <li>6. Completion of a pre-packaged thematic sequence. A complete list of pre-packaged thematic sequences is available in 107 Calvin Hall, Office of Student Services.</li> <li>7. Completion of a major or secondary major outside of the College of Business Administration.</li> <li>8. Completion of a minor outside of the College of Business Administration, with at least 9 hours of non-business courses that are not a part of the requirements of the student's major.</li> <li>9. Completion of a certificate outside of the College of Business Administration.</li> <li>10. Completion of 9 hours of level 4 and higher courses in a single foreign language, (English Language Program courses cannot be used to fulfill the thematic sequence requirement.</li> </ol> <p>A student must declare a thematic sequence before completing 6 or more credit hours in the sequence.</p> <p><b>Business Core courses (30 credit hours)</b></p> <hr/> <p>Students must earn a minimum 2.5 grade point average in the business core courses in order to graduate.</p> <ul style="list-style-type: none"> <li>• * ACCTG 231 - Accounting for Business Operations <b>Credits:</b> (3)</li> <li>• * ACCTG 241 - Accounting for Investing and Financing <b>Credits:</b> (3)</li> <li>• FINAN 450 - Principles of Finance <b>Credits:</b> (3)</li> <li>• GENBA 110 - Business Foundations <b>Credits:</b> (3)</li> </ul> |
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| <ul style="list-style-type: none"> <li>• GENBA 166 - Business Information Technology Skills Proficiency <b>Credits: (0)</b></li> <li>• MANGT 366 - Information Technology for Business <b>Credits: (3)</b></li> <li>• MANGT 420 - Management Concepts <b>Credits: (3)</b></li> <li>• MANGT 421 - Introduction to Operations Management <b>Credits: (3)</b></li> <li>• MANGT 595 - Business Strategy <b>Credits: (3)</b></li> <li>• MANGT 596 - Business, Government, and Society <b>Credits: (3)</b></li> <li>• MKTG 400 - Introduction to Marketing <b>Credits: (3)</b></li> <li>• *Note: Both accounting courses must be taken at K-State or must be taken elsewhere to obtain credit. Consult with your academic advisor or check the K-State transfer equivalencies web page for complete information.</li> </ul> | <ul style="list-style-type: none"> <li>• GENBA 166 - Business Information Technology Skills Proficiency <b>Credits: (0)</b></li> <li>• MANGT 366 - Information Technology for Business <b>Credits: (3)</b></li> <li>• MANGT 420 - Management Concepts <b>Credits: (3)</b></li> <li>• MANGT 421 - Introduction to Operations Management <b>Credits: (3)</b></li> <li>• MANGT 595 - Business Strategy <b>Credits: (3)</b></li> <li>• MANGT 596 - Business, Government, and Society <b>Credits: (3)</b></li> <li>• MKTG 400 - Introduction to Marketing <b>Credits: (3)</b></li> <li>• *Note: Both accounting courses must be taken at K-State or must be taken elsewhere to obtain credit. Consult with your academic advisor or check the K-State transfer equivalencies web page for complete information.</li> </ul> |
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**Rationale**

A large number of non-native speaking students are entering the CBA curriculum. While the English Language Program prepares them well for general academic purposes, students often struggle with common business terminology and adjusting to business communication expectations and cultural norms. Consequently, they are unable to quickly engage in interactive classroom activities that involve written communication, oral communication and teamwork. Requiring this newly designed course (*\*DAS 155 Business Communications for Non-Native Speakers*) will help non-native speakers to more effectively prepare to excel in courses in the CBA by increasing knowledge of common business vocabulary, general expectations for business communications (both written and oral) and business culture in the US, including expectations for teamwork.

*\*DAS 155 – Business Communications for Non-Native Speakers. (3) I, III. Introduces non-native English speakers to key US business terminology, norms for written and oral communication, and business culture in the US. Note: Students in this course must be enrolled in a degree program in the College of Business Administration. They must be non-native English speakers. Students must have completed or achieved part-time status in the English Language Program.*

*K-State 8: Human Diversity within the US*

**Impact On Other Units**

This course has been developed and will be delivered by the English Language Program. The course has been approved by the College of Arts and Sciences at their college faculty meeting on November 7, 2013. No other units are impacted.

**Effective Date**

Fall 2014

## College of Human Ecology (12-5-13)

### Non-Expedited UNDERGRADUATE Course Change Proposals 599 and below

#### School of Family Studies and Human Services

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| <p><b>Course Add</b></p> <p><b>FSHS 375</b><br/><b>Introduction to Research Methods in Family Studies and Human Services</b></p> <p><b>Credits:</b> (3)</p> <p>This course provides an introduction to the methods of research most commonly employed by researchers and practitioners in the fields of family studies and human development. Specifically, the course will focus on the interaction between research and practice and the developing of the skills necessary to be a critical consumer of research.</p> <p><b>When Offered:</b> Fall</p> <p><b>Pre-Requisite:</b></p> <p><b>K-State 8 TAG:</b>            Empirical and Quantitative Reasoning<br/>   Social Sciences</p> <p><b>K-State 8 TAG Rationale:</b> Students will examine multiple methodologies to examine research questions in family and developmental science by investigating current research studies as well as studies historically relevant to the fields, and by applying knowledge of statistics and probability to analysis of data. Students will evaluate the relationship between the methodology, the limitations that inherently accompany particular methodologies and analyses, and the generalizability of results. Students will also examine the ethics of working with human subjects.</p> |
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**Rationale:** As a result of the assessment process and in accordance with the K-State 2025 Undergraduate Experience theme and goals for the School of Family Studies and Human Services to expose and immerse students in research, the faculty determined the need to offer a course focused on methodologies utilized in family and human developmental research. The proposed course provides undergraduates the opportunity to examine the scientific process relative to theory and multiple methodologies within the disciplines.

**IMPACT:** None

**Effective:** Fall 2014

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| <p><b>Course Add</b></p> <p><b>FSHS 500 International Experience in Family Studies and Human Services</b></p> <p><b>Credits:</b> (0-6 variable)</p> <p>Travel seminar course designed to prepare students before their international, study abroad experience and analyze, critique, and report about their faculty led study tours or short courses. The academic topics will vary with each international activity.</p> <p><b>When Offered:</b> Fall, Spring, Summer</p> |
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**Pre-Requisite:**

**K-State 8 TAG:** Global Issues and Perspectives

**K-State 8 TAG Rationale:** This class is focused on exposing students to other cultures' beliefs, values, perspectives, policies, customs, etc. through faculty-led international study trips.

**Rationale:** To provide a course for students and faculty to use when setting up study abroad and faculty led courses.

**Impact (i.e. if this impacts another unit):** It doesn't impact other units.

**Effective:** Fall 2014

**Department of Kinesiology**

**Course Add**

**KIN 597 Research Experience in Kinesiology**

**Credits:** (1-3 variable)

Exposure to and assisting with current research projects in a laboratory setting in Kinesiology. Maximum of 3 hours applicable toward a degree.

**When Offered:** Fall, Spring, Summer

**Pre-Requisite:** Consent of undergraduate coordinator

**K-State 8 TAG:** None

**Rationale:** Undergraduate research has a high priority at Kansas State University. Typically, 10-15 students each year assist current faculty with their research, including subject recruitment, literature review, collecting data, and data analysis and interpretation. Historically, students are required to enroll in KIN 599 Independent Study for this experience. Having a course specific for research experience will: a) enable our department to more accurately track undergraduates participating in research, b) potentially attract more students to a research lab, and c) allow students a class that will specifically expose them to the research experience.

**Impact:** None

**Effective:** Fall 2014

**Non-Expedited UNDERGRADUATE Curriculum Proposals**

**School of Family Studies and Human Services**

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| <p>B.S. in Family Studies and Human Services with emphasis in Personal and Financial Planning</p> <p>NOTE: the B.S. in Family Studies and Human Services will be retained; only the emphasis (subplan) in personal financial planning is being deleted.</p>   | <p>Delete “emphasis in Personal Financial Planning.”</p> <p>NOTE: the B.S. in Family Studies and Human Services will be retained; only the emphasis (subplan) in personal financial planning is being deleted.</p> |
| <p><u>Personal Financial Planning (B.S.)</u></p> <hr/> <p>The emphasis of this program is personal and family financial planning, which combines course work in personal finance, family relationships and decision making, consumer rights, insurance, investments, retirement and estate planning, economics, and accounting. Emphasis is placed on understanding financial products and how they work, as well as the role of family in financial decisions. The program offers financial planning courses that satisfy CFP® Board’s education requirement for the CFP®/CERTIFIED FINANCIAL PLANNER® certification.</p> <p>Kansas State University does not certify individuals to use the CFP®, CERTIFIED FINANCIAL PLANNER®, and CFP® (with flame logo)® certification marks. CFP® certification is solely granted by the Certified Financial Planner Board of Standards to individuals who, in addition to completing an education requirement such as this CFP Board Registered program, have met ethics, experience, and examination requirements.</p> <p>Admission to the personal financial planning program requires completion of FSHS 105 with a grade of B or better.</p> <p>Bachelor’s Degree Requirements</p> |  |

~~General Requirements (36-37 credit hours)~~

~~Communications (8-9 credit hours)~~

~~COMM 105 Public Speaking 1A Credits: (2)~~

~~Or~~

~~COMM 106 Public Speaking 1 Credits: (3)~~

~~ENGL 100 Expository Writing I Credits: (3)~~

~~ENGL 200 Expository Writing II Credits: (3)~~

~~Social Sciences (9 credit hours)~~

~~ECON 110 Principles of Macroeconomics  
Credits: (3)~~

~~PSYCH 110 General Psychology Credits: (3)~~

~~SOCIO 211 Introduction to Sociology  
Credits: (3)~~

~~Humanities (6 credit hours)~~

~~Natural Sciences (7 hours)~~

~~Life science elective and Physical science  
elective~~

~~(One course must be taken from each area;  
one course must include a laboratory.)~~

~~Quantitative Studies (6 credit hours)~~

~~STAT 350 Business and Economic Statistics I  
Credits: (3)~~

~~Choose one from the following:~~

~~A college level calculus course Credits: (3)~~

~~MATH 100 College Algebra Credits: (3)~~

~~Professional Studies (62 credit hours)~~

~~(Grades of C or higher required.)~~

~~Professional FSHS courses (32 hours)~~

~~FSHS 100 Family Financial Planning as a  
Career Credits: (1) *Must be taken twice.*~~

~~FSHS 105 Introduction to Personal and  
Family Finance Credits: (3)~~

~~FSHS 110 Introduction to Human  
Development Credits: (3)~~

~~FSHS 301 The Helping Relationship Credits:  
(3)~~

~~FSHS 405 Advanced Personal and Family Finance Credits: (3)~~  
~~FSHS 595 Professional Seminar in Family Financial Planning Credits: (3)~~  
~~FSHS 756 Financial Counseling Credits: (3)~~  
~~FSHS 760 Families, Employment Benefits, & Retirement Planning Credits: (3)~~  
~~FSHS 762 Investing for the Family's Future Credits: (3)~~  
~~FSHS 764 Estate Planning for Families Credits: (3)~~  
~~FSHS 772 Personal Income Taxation Credits: (3)~~

~~Integrative Studies (4 credit hour)~~  
~~GNHE 210 Foundations of Human Ecology Credits: (1)~~  
~~FSHS 350 Family Relations and Gender Roles Credits: (3)~~  
~~or~~  
~~GNHE 310 Human Needs Credits: (3)~~

~~Other Supporting Courses (26 credit hours)~~  
~~ACCTG 231 Accounting for Business Operations Credits: (3)~~  
~~ACCTG 241 Accounting for Investing and Financing Credits: (3)~~  
~~AGEC 490 Computer Applications in Agricultural Economics and Agribusiness Credits: (2)~~  
~~ECON 120 Principles of Microeconomics Credits: (3)~~  
~~ECON 530 Money and Banking Credits: (3)~~  
~~FINAN 460 Insurance Credits: (3)~~  
~~or~~  
~~FSHS 766 Insurance Planning for Families Credits: (3)~~  
~~MANGT 390 Business Law I Credits: (3)~~  
~~MKTG 400 Introduction to Marketing Credits: (3)~~

~~Choose one from the following:~~  
~~AGEC 513 Agricultural Finance Credits: (3)~~  
~~FINAN 450 Principles of Finance Credits: (3)~~

~~Electives (21-22 hours)~~

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| Total hours required for graduation (120) |  |
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**Rationale:** On October 15, 2013, the Kansas Board of Regents approved the new degree program, B.S. in Personal Financial Planning. The *emphasis in personal financial planning* offered as a subplan under the B.S. in Family Studies and Human Services no longer is needed because it has been replaced by the new B.S. in Personal Financial Planning.

**Impact (i.e. if this impacts another unit):** None. The B.S. in Family Studies and Human Services is being retained and will continue without the personal financial planning subplan. The deleted personal financial plan subplan is replaced by the B.S. in Personal Financial Planning.

**Effective:** Fall 2014



## College of Architecture, Planning and Design (12-20-13)

### Department of Architecture (Master of Architecture Program)

*New Course*

*Effective: Fall 2014*

*Impact on Other Units: None*

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|----------------------|---|
| Course:              | <b>ARCH 402-Accelerated Architectural Design Studio II</b>  |
| Catalog Description: | Further development of the ideas, skills and methodologies introduced in ARCH 401, and introduction to wider array of architectural concerns including social, functional, technical, contextual, and professional issues. The course will prepare students to enter the third-year architectural design studios.   |
| Credits:             | (5)   |
| Prerequisites:       | Completion of ARCH 401.   |
| K-State 8:           | None  |
| Rationale:           | <i>The course is the second of a two-course sequence designed to allow students in the post-baccalaureate track to master the material contained in the first two years of the non-baccalaureate track. It will deliver the material through more sophisticated and highly integrated project assignments appropriate to students with greater academic experience.</i> |

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### Office of the Dean (Environmental Design Studies Program)

*New Course*

*Effective: Spring 2014*

*Impact on Other Units: None*

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| Course:              | <b>ENVD 430-K-State APDesign: APDPro</b>   |
| Catalog Description: | This course indicates and tracks which College of Architecture, Planning & Design students complete the APDPro requirements for each year. Students cannot enroll in this class. |
| Credits:             | (0)  |
| Prerequisites:       | None   |
| When Offered:        | Fall, Spring, Summer   |
| K-State 8:           | None   |
| Rationale:           | <i>This course will be used to indicate and track which College of Architecture, Planning &amp; Design students complete the APDPro requirements each academic year.</i>         |

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## Graduate Council (12-3-13)

### Non-Expedited Course Changes

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| <p>FROM:</p> <p><del><b>GRAD 703—Practicum in Adult TESL: Oral Communication.</b> (3) I, II, S. Methods and techniques for teaching oral communication (listening comprehension, speaking, and pronunciation) provide a foundation for planning and teaching activities. Students demonstrate ability to communicate content to students at varying levels of English proficiency, control basic classroom management techniques, and use of a variety of techniques to assess student performance in their practice teaching. Small group discussions and ESL class observations aid students in development of a teaching portfolio. Pr.: Graduate Standing.</del></p> | <p>TO:</p> <p><b><u>MLANG 803 – Practicum in Adult TESL/TEFL: Oral Communication.</u></b> (3) I, II, S. <u>Provides both on an overview of current issues and methodology in TESL/TEFL and provides a foundation for further exploration of techniques used in skill specific areas of oral communication.</u> Pr.: Graduate Standing.</p> |
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RATIONALE: This course is part of our Modern Languages M.A. program, but the name and number was under “GRAD”. This is to make it more convenient for students to search and enroll in the necessary courses for their M.A. in Modern Languages.

IMPACT: None

EFFECTIVE DATE: Spring 2014

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| <p>FROM:</p> <p><del><b>GRAD 704 – Practicum in Adult TESL: Written Communication.</b> (3) I, II, S. Methods and techniques for teaching written communication (reading, vocabulary development, grammar, and writing) provide a foundation for planning and teaching activities. Students demonstrate ability to communicate content to students at varying levels of English proficiency, control of basic classroom management techniques, and use of a variety of techniques to assess student performance in their practice teaching. Small group discussions and ESL class observations aid students in the development of a teaching portfolio. Pr.: Graduate standing.</del></p> | <p>TO:</p> <p><b><u>MLANG 804 – Practicum in Adult TESL/TEFL: Written Communication.</u></b> (3) I, II, S. <u>Provides both on an overview of current issues and methodology in TESL/TEFL and provides a foundation for further exploration of techniques used in skill specific areas of written communication.</u> Pr.: Graduate Standing.</p> |
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RATIONALE: This course is part of our Modern Language M.A. program, but the name and number was under “GRAD”. This it to make it more convenient for students to search and enroll in the necessary courses for their M.A. in Modern Languages.

IMPACT: None

EFFECTIVE DATE: Spring 2014

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| <p>FROM:</p> <p><del>STAT 705 – <b>Regression and Correlation Analyses.</b> (2) I, II, S. <u>Multiple regression and correlation concepts and methods; curvilinear regression; applications including use of computers. Note: Meets four times a week during second half of semester.</u> Pr.: One previous statistics course.</del></p> | <p>TO:</p> <p><b>STAT 705 – <u>Regression and Analysis of Variance.</u></b> (3) I, II, S. <u>Simple and multiple linear regression, analysis of covariance, correlation analysis, one-, two- and three-way analysis of variance; multiple comparisons; applications including use of computers; blocking and random effects.</u> Pr.: One previous statistics course.</p> |
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RATIONALE: STAT 704(2cr) is being dropped and its content merged into STAT 705 which will increase from 2 to 3 credits. These courses share a considerable amount of underlying content. The fact that STAT 704 and STAT 705 are taught separately seems to be causing confusion amongst students, many of whom leave the course sequence with the misunderstanding that linear regression and analysis of variance are completely different statistical methods that are not related to each other. Much to the contrary, both linear regression and analysis of variance are inherently similar and share a common methodological framework. Gains in efficiencies when combining two courses with related underlying content will allow the material in two 2 credit courses be covered in one 3 credit course.

IMPACT: Departments were identified whose students had taken Stat 7054 or 705 during the previous two years and a memo notification was emailed to departmental contacts on February 18, 2013. A copy of this email is attached. The department/program list included: Agronomy, Food Science, IMSE, Animal Sciences and Industry, Civil Engineering, College of Education, Anatomy and Physiology, Diagnostic Medicine, Master in Public Health program, Agricultural and Biological Engineering, Mechanical and Nuclear Engineering, Architectural Engineering, Chemical Engineering, Electrical and Computer Engineering Chemistry, Geography, Biology, Plant Pathology, Grain Science and Industry, Agricultural Economics, Entomology, Horticulture forestry and Recreational Services, Landscape Architecture, Business Administration Dean’s office, Accounting, Human Ecology Dean’s office, Human Nutrition, Apparel textiles and Interior Design, Hospitality Management and Dietetics, Mathematics,

Sociology Anthropology and Social Work, English, Kinesiology, Journalism, Economics, Psychology. Positive feedback was received by Food Science, Agronomy, IMSE, Animal Sciences and Industry, and Civil Engineering. There were no replies from other programs which were interpreted as not objections. We did not receive any objections to the proposed change. Emails of replies are available upon request.

EFFECTIVE DATE:            Fall 2014

***Non-Expedited New Courses***

**ADD:**            **CS 780. Food Animal Reproduction. (2) I, II.** Students will get hands-on experience and become competent performing a complete Breeding Soundness Exam. Other reproductive topics will be covered. Pr.: Fourth-year standing in the College of Veterinary Medicine.

**RATIONALE:**      Proficiency at performing a Bull Soundness Exam is an extremely important skill for a new graduate to have. It makes them much more employable in a mixed or large animal practice. There is no way to gain proficiency other than to have experience performing large numbers of BSEs. It is our goal with this new course to create a way for senior veterinary students to become proficient at BSEs.

**Impact (i.e. if this impacts another college/unit):** None

EFFECTIVE DATE:            Fall 2014

**ADD:**            **CS 781. Shelter Medicine. (2) I, II, S.** The rotation will be a combination of in-class and laboratory exercises in Manhattan, and hands-on experiences at regional shelters. Topics include population medicine, infectious disease recognition and control, surgical sterilization, behavioral testing, and legal issues common to shelter settings. Pr.: Fourth-year standing in the College of Veterinary Medicine.

**RATIONALE:**      The Shelter Medicine Program will represent a service-learning course in which students engage in experiential education through an organized service activity in cooperation with a community-based organization. The delivery of community service provides academic course content in a way that enhances understanding of core learning objectives and strengthens student awareness of civic responsibility. After this experience, we anticipate KSU graduates will be proactive in addressing preventive medicine and spay/neuter issues with clients, will recognize their role as leaders in animal welfare, and will be prepared to participate as proficient advisors and advocates for shelters in their community.

**Impact (i.e. if this impacts another college/unit): None**

**EFFECTIVE DATE:** Summer 2014

**ADD:** **GEOL 650 – Geomicrobiology.** (3) II. Study of microorganisms in geological environments. Topics include: geochemical controls on microbial activity and impacts of microbial activity on geological environments. K-State 8: Natural and Physical Sciences; Empirical and Quantitative Reasoning. Pr.: CHM 210, CHM 230.

**RATIONALE:** We seek to add the course “Geomicrobiology” to our curriculum because the course will provide students with valuable training for future careers in geoscience that is currently unavailable on campus. In catalyzing most of the oxidation-reduction reactions that occur in near-surface geological environments (upper 3-5 km of Earth’s crust), microorganisms have a large impact on the physical and chemical properties of those environments. Geomicrobiology is a field of science that has emerged over the past few decades that examines these impacts as well as the role of geological environments in shaping microbial activity. The knowledge and skills gained from the course are in demand and will allow students to contribute to efforts in environmental and energy sectors, including work to improve water quality, store energy and energy by-products in the subsurface, understand soil-climate change feedbacks, improve the sustainability of natural gas production, and develop strategies to enhance oil recovery.

**IMPACT:** We do not believe that this course impacts any of the units. We discussed that possibility with two faculty members in the Division of Biology, Drs. Dodds and Blair, who do research in similar to this topic. Neither faculty member objected to our course proposal.

**EFFECTIVE DATE:** Spring 2014

**ADD:** **MLANG 805 – Second Language Assessment.** (3) I, II, S. Explores the basic concepts, principles, and methodology of second language assessment. Pr.: Graduate standing.

**RATIONALE:** This course is part of our TEFL Master’s program, to allow graduate students to discover and discuss a variety of issues both practical and controversial concerning assessment, explore principles and techniques in test development and analysis, discuss influential and seminal readings, and practice test development.

IMPACT: None

EFFECTIVE DATE: Spring 2014

**ADD: MUSIC 676 – Arranging Choral Music.** (2) S. Application of basic compositional issues, techniques, and possibilities inherent in scoring and arranging for various choral ensembles.

**RATIONALE:** We have offered this course as a MUSIC 799 course in the past but since it will be reoccurring, this will facilitate enrollment and graduate school program of study planning.

IMPACT: None

EFFECTIVE DATE: Summer 2014

**ADD: ANTH 692 – Human Growth and Development.** (3) I. Provides an anthropological examination of the process of growth and development in humans that emphasizes both the biological, evolutionary, and cultural aspects that have shaped them through time. Emphasis is given to the evolution of the life cycle, as well as the social and environmental conditions that affect human growth. Pr.: ANTH 280 or Instructor's permission. K-State 8: Natural and Physical Sciences.

**RATIONALE:** This course was offered as a topics course in the fall of 2011. The course examines the process of human growth and development from an anthropological perspective. The course expands our student's anthropological training, and the number of courses offered in Biological Anthropology.

**IMPACT:** The college of Human Ecology offers some classes that partially overlap with the content of this class, However, these classes are mostly concerned with aging and gerontology (e.g. GERON 630), or with physical, social and emotional needs (GNHE 210), or psychological awareness (FSHS 110). Dr. MacDonald and Dr. Welch (who teaches FSHS 110) have already reviewed the syllabus for this class, and agree that Growing Up Human is a distinct class. The class proposed here, Growing Up Human, addresses human growth and development, from an anthropological perspective, with an emphasis on evolutionary and Life-history theories.

EFFECTIVE DATE: Spring 2014

**ADD: ANTH 696 – Bioarchaeology.** (3) II. Explores how archaeologists and bioanthropologists approach the study of death, mortuary practices and skeletal remains, to reconstruct past lives and understand the associated behavior. Pr.:

ANTH 280 or instructor's consent. K-State 8: Social Science; Natural and Physical Sciences.

**RATIONALE:** This course has previously been offered as a topics course in Anthropology. This course emphasizes cross-cultural and multidisciplinary approaches, and students are required to examine the study of human remains and mortuary practices from these perspectives. By the end of the course, students will be able to understand how the bioarchaeological study of the body and mortuary practices is an important endeavor that furthers our understanding of past cultures. In addition, students will gain experience in conceiving and conduction research, as they cultivate critical reading and writing abilities.

**IMPACT:** None

**EFFECTIVE DATE:** Spring 2014

**ADD:** **ANTH 790 - Writing Cultures: Ethnographic Methods.** (3) II. An introduction to qualitative field methods and research ethics in cultural anthropology. Students will examine issues of truth, representation, and reflexivity in ethnographic writing. Pr.: ANTH 200, 204, or 210. K-State 8: Human Diversity within the US, Ethical Reasoning and Responsibility.

**RATIONALE:** This upper-level undergraduate course adds to the anthropology program's methods offerings. This course, which has been taught twice, previously as ANTH 522, teaches classic ethnographic methods in data-collection, interviewing and writing-up.

**EFFECTIVE DATE:** Spring 2014

**ADD:** **ART 614 – Italian Renaissance Architecture: Patronage and Construction.** (3) I, II, S. Renaissance architecture of central Italy. A case-study approach with a focus on aesthetics, construction, function, and patronage. Pr.: Art 195 or Art 196. K-State 8: Aesthetic Experience and Interpretive Understanding; Historical Perspectives.

**RATIONALE:** Increases art history course offerings; stabilizes topics course.

**IMPACT:** No impact. We checked with The College of Architecture and they support our desire to add this course to our course offerings in the Department of Art.

**EFFECTIVE DATE:** Fall 2014

**ADD:** **THRE 670 – Playback Theatre.** (3) I, II, S, Intersession. Improvisational theater forms in which actors listen to stories told by audience and

improvisationally act the story out. Students will learn playback acting forms and how to conduct a session. Playback is often used as a technique by drama therapists in performance and in therapy sessions. K-State 8: Aesthetic Interpretation.

**RATIONALE:** This course has been offered four times before as a topics number and it has been very valuable and popular class for the students who have taken it. Since we will want to offer it on an ongoing basis, I think it is time to make it a permanent course.

**IMPACT:** None

**EFFECTIVE DATE:** Fall 2014

**ADD:** **AGED 800. Research Methods in Agricultural Education and Communications.** (3) I, II, III. Great Plains Ag\*IDEA Course Delivery. This graduate-level course will focus on applying the principles, practices, and strategies for conducting research in the social sciences, particularly dealing with the interface of the human dimension in the agricultural and natural sciences.

**RATIONALE:** This is an AGIDEA course. This distance education course is taught and shared to other universities through the AGIDEA consortium.

**IMPACT:** No impact

**EFFECTIVE DATE:** Fall 2014

**ADD:** **AGED 820. History and Philosophy of Agricultural and Extension Education.** (3) I, II, III. Great Plains Ag\*IDEA Course Delivery. The primary purpose of this course is to provide the student with an examined grounding in the seminal events and people in the history of agricultural and extension education (history), principle divisions of thought (philosophies), and decisions made (policy), resulting in the current state of affairs in agricultural and extension education. The convergence of these factors has a notable impact on the current challenges and future direction of agriculture and extension education.

**RATIONALE:** This is an AGIDEA course. This distance education course is taught and shared to other universities through the AGIDEA consortium.

**IMPACT:** No impact

**EFFECTIVE DATE:** Fall 2014



**ADD:** **AGCOM 840. Diffusion of Innovations.** (3) I, II, III. Great Plains Ag\*IDEA Course Delivery. This course introduces a structured approach for dealing with the organizational and human aspects of technology transition, including the key concepts of resistance and change management, organizational change, communications, and processes by which professional change agents influence the introductions, adoption, and diffusion of technological change.

**RATIONALE:** This is an AGIDEA course. This distance education course is taught and shared to other universities through the AGIDEA consortium.

**IMPACT:** No impact

**EFFECTIVE DATE:** Fall 2014

**ADD:** **AGED 860. Program Evaluation in Agricultural and Extension Education.** (3) II. Great Plains Ag\*IDEA Course Delivery. Evaluation principles, models, and procedures used in developing and analyzing agricultural, vocational, technical, and extension education programs; role of comprehensive evaluation in needs assessments, program planning, program implementation, and the marketing of outcomes to major stakeholders; designs for evaluating agricultural and extension programs. Evaluation logic model is presented to identify and describe program inputs, activities, outputs, and outcomes.

**RATIONALE:** This is an AGIDEA course. This distance education course is taught and shared to other universities through the AGIDEA consortium.

**IMPACT:** No Impact

**EFFECTIVE DATE:** Fall 2014

**ADD:** **ASI 865. Analytical Techniques: mRNA and Protein Analysis.** 1 cr. Fall of even years. The course will provide an overview of techniques commonly used for analysis of mRNA and protein in animal physiology research. Topics will include RNA and protein isolation from tissue, use of sequence databases, polymerase chain reaction-based mRNA analyses, and Western blotting. Two hours lecture and eight hours lab a week for three weeks.

**RATIONALE:** Molecular biology tools are increasingly important in the animal sciences. Graduate students in this discipline need to understand animal processes from the population level down to the cell and molecular levels. A variety of cell signaling mechanisms are currently discussed in courses focused on

animal genetics, growth, reproduction, nutrition, and metabolism. However, instructors typically do not have time in these courses to fully explain how changes in gene transcription, mRNA translation, and post-translational modifications of proteins are measured. Most graduate students in ASI, furthermore, will not find adequate room in their program to take lengthy laboratory courses to fill this gap. This presents problems both in terms of students incorporating these techniques in their own research and in properly interpreting results in the literature.

Therefore, we propose to add a 1-credit course to help bring students up to speed on these techniques. The course incorporates 6 lectures during the 3 weeks to review the biochemical principles underlying the techniques and to discuss analysis and interpretation. In addition, 8 hours/week of lab provides students the opportunity to conduct their own real-time RT-PCR and Western blot analyses, including all steps required to do so in their own research.

The department currently offers 3 other 1-credit analytical courses that are taught as a series of 3-week courses throughout the fall semester, and offering this course in the same time slot for the final 3 weeks of the semester provides students an opportunity to add additional analytical methods to their toolkit without disrupting their schedule. This has been offered as an experimental course (ASI 902) for 2 semesters (Fall 2010 and 2012), with 10 and 7 students enrolled, respectively. Feedback on these offerings was good; the mean TEVAL rating for amount learned in the class was a 4.4 out of 5.

EFFECTIVE DATE: Fall 2014

IMPACT: No impact on other departments.

### Grain Science and Industry

**ADD:** **GRSC 600 Practicum in Bakery Technology I**  
**Credits:** (1)  
Lectures and hands-on laboratory experience with commercial production scale baking equipment for breads and rolls, cookies and crackers, and cakes and sweet doughs.  
**Requisites:** Prerequisite: Upper-class bakery science and management majors or permission of the instructor. Recommended prerequisite: GRSC 635 and 636.  
**When Offered:** One week intensive course at the American Institute of Baking (AIB) during the January intersession.  
**UGE course:** No

**K-State 8:** None

**RATIONALE:** GRSC 601 Practicum in Bakery Technology is a core requirement which has to be taken twice (in Junior and Senior year) by BSM majors. This has been creating confusion and causing some students to take it once. Assigning two separate course numbers and adding “I” and “II” to the course titles will solve this problem. Existing “GRSC 601 Practicum in Bakery Technology” is being changed to “GRSC 601 Practicum in Bakery Technology II”, while a new course (this course) is proposed as “GRSC 601 Practicum in Bakery Technology I”.

**IMPACT:** No impact on other departments

**EFFECTIVE DATE:** Fall 2014

**ADD:** **GRSC 780 - Particle Technology for Solids Handling and Processing**  
**Credits:** (3)  
This course is designed to provide students an overview of particle technology with an emphasis on practical applications in milling and grain based operations. Conveying, storage, size reduction and separation are the important unit operations of grain processing (food, feed, chemical, pharmaceutical) industries that involve particle sizes ranging from a fraction of a micron to a few millimeters. The particle characteristics as they relate to processing operations such as milling, sieving, mixing, pelleting, etc. will be covered in this course. Subjects include size and shape characterization, size distribution and measurement, characteristic dimensions, density, and their theories governing the behavior of the particles under different conditions.  
**Note:** Three hours lecture a week.  
**Requisites:** Prerequisite: Graduate student status, MATH 220, STAT 325, PHYS 213 or consent of instructor.  
**When Offered:** Spring.  
**UGE course:** No  
**K-State 8:** None

**RATIONALE:** Solids handling and processing that include food, feed, chemical and pharmaceutical particulate materials require the knowledge about properties of powder. This course will facilitate student learning towards in-depth understanding of properties of solids that influence their processing behavior.  
This course was approved as part of Fall 2012 C&C proposals with the course number of GRSC 786. However, it was not included in 2013-2014 course catalogs due the fact that GRSC 786 was used for a course that was

discontinued less than 5 years ago.  
The same course is now proposed with a course number of GRSC 780.

**IMPACT:** No impact on other departments.

**EFFECTIVE DATE** Fall 2014

**ADD:** **RRES 620. Human-Wildlife Conflicts.** (4). II. This course explores the theory and practice of assessing and controlling damage done by wild and feral vertebrate animals, especially mammals and birds. Content covers the philosophical, biological, and practical basis for conducting vertebrate pest control. It includes basic information on use of traps, toxicants, repellents, exclusion and other wildlife control methods. Emphasis is on protecting agricultural crops and livestock, forest resources, and property. K-State 8: Ethical Reasoning and Responsibility and Natural and Physical Sciences.

**RATIONALE:** The Wildlife and Outdoor Enterprise Management (WOEM) Program has grown too large for the Division of Biology to handle the additional student numbers with their current faculty and staff. This course will replace either BIOL 684 or BIOL 696 in our curriculum and better meet the needs of our WOEM students. This course will focus on preparing out students to effectively communicate and assist in management decisions on environmental and natural resources topics.

**IMPACT:** No impacts beyond the Division of Biology, which has approved.

**ADD:** **EDLEA 938.** Advanced Data Analysis in Qualitative Methods. (3) II. An overview and application of data analysis methods in qualitative inquiry. In addition representation of findings, documentation of methods, analytic frameworks, processes of analysis, ethical dilemmas, and human subject approval explored. Pre-requisite: EDLEA 838.

**IMPACT:** There is no negative impact to any college or audience.

**RATIONALE:** This course is a key research course elective in the College of Education and beyond. The course has been taught regularly for at least the last 10 years under the 986 seminar number with a minor title change. The course will continue to be offered with frequency to College and campus populations.

**EFFECTIVE DATE:** Summer 2014

**ADD:** **MANGT 670 – Social Media Analytics & Web Mining (3)** This course is an in-depth study of a broad range of topics and techniques in the areas of social media analytics, web mining and social network analysis. Emphasis is on fundamentals of data acquisition from the web and social media platforms, transformation of these unstructured data into structured format, advanced data processing techniques for analysis, business intelligence through web crawling, analysis of web and social media data using classification, clustering, and association techniques, sentiment analysis (or opinion mining) for business decisions, visualization of unstructured data, and social network analysis.  
**Requisites:** Prerequisite: MANGT 366 or an equivalent introductory computing course.

**When Offered**  
 On sufficient demand

**Rationale:** There is a growing demand for data (or business) analytics in the industry. Since 2011, the management department has offered MANGT665 (Business Analytics & Data Mining) every year to train students on how to acquire, manage, analyze and visualize structured data (e.g., numbers in database and spreadsheet). According to experts and reports in the industry, unstructured data account for over 80% of the data in the world. MANGT670 (Social Media Analytics & Web Mining) focuses on how to acquire, manage, analyze and visualize unstructured data (e.g., texts, relationships, opinions) in social media platforms (e.g., Twitter, Facebook), documents (e.g., news releases, financial reports), web pages (e.g., blogs, newspapers, online product reviews), among others. This course is recommended as an unrestricted elective for the undergraduate management information system major and can also be accepted as an elective/concentration 600-level (and above) course with the approval from the student’s advisory committee in the masters of business administration program.

**Impact on Other Units:** None.

**Effective Date:** Fall 2014

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| <p><b>Course Add</b></p> <p><b>FSHS 768 Introduction to Financial Therapy</b></p> <p><b>Credits:</b> (3)</p> <p>An applied financial psychology course that examines the intersection of financial planning, coaching, and therapy; the psychology of investing; money disorders frequently seen by financial professionals; advanced techniques to establish rapport; helping clients change problematic/destructive money-related behaviors; dealing with client resistance to change; working with couples and families; and integrating financial psychology tools into personal financial planning.</p> <p><b>When Offered:</b> Spring</p> |
|---|

**Rationale:** A DCE grant was obtained to offer this new course related to the area of financial therapy. This is a required course in the proposed financial therapy graduate certificate program. The course is also appropriate for students in the Personal Financial Planning doctoral specialization who need nine hours of electives. This course has generated a high interest from current students as a possible elective option.

**IMPACT:** None

**Effective:** Spring 2014

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| <b>Course Add</b>   |
| <b>FSHS 769 Money and Relationships</b>   |
| <b>Credits:</b> (3)   |
| This course will explore the connection between money and couple and family relationships. The objective of the course is to understand the factors that impact how individuals, couples, and families perceive and manage money. Students will gain in-depth knowledge of current literature, research, and theory in this area. Students will gain personal insight into their own relationship with money and how it impacts their relationships in order to enhance their ability to help and work with others to improve financial well-being. |
| <b>When Offered:</b> Spring   |

**Rationale:** This is a required course in the proposed financial therapy graduate certificate program. The course is also appropriate for students in the Personal Financial Planning doctoral specialization who need nine hours of electives. This course has generated a high interest from current students as a possible elective option.

**IMPACT:** None.

**Effective:** Spring 2015

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| <b>Course Add</b>  |
| <b>FSHS 770 Applied Behavioral Finance</b>   |
| <b>Credits:</b> (3)  |
| This course is an applied behavioral finance course that examines the intersection of behavioral finance and financial planning. It reviews the research on behavioral finance, neuroeconomics, and investor psychology, exploring the effects of human emotions and cognitive errors on financial decisions and the financial planning process. This course focuses on the application of behavioral finance theory and research to the practice of personal financial planning to help financial planners improve the financial health of their clients. |

**When Offered:** Summer

**Rationale:** A DCE grant was obtained to offer this new course related to the area of financial therapy. This is a required course in the proposed financial therapy graduate certificate program. The course is also appropriate for students in the Personal Financial Planning doctoral specialization who need nine hours of electives. This course has generated a high interest from current students as a possible elective option.

**IMPACT:** None

**Effective:** Spring 2014

**Course Add**

**FSHS 771 Financial Therapy Theory & Research**

**Credits:** Variable (1-3)

Survey of financial therapy and planning literature, conceptual models, and empirical research. Students will be expected to read empirical research related to financial therapy and write a short report on their findings on a weekly basis.

**When Offered:** Fall

**Rationale:** A DCE grant was obtained to offer this new course related to the area of financial therapy. This is a required course in the proposed financial therapy graduate certificate program. The course is also appropriate for students in the Personal Financial Planning doctoral specialization who need nine hours of electives. This course has generated a high interest from current students as a possible elective option.

**IMPACT:** NONE

**Effective:** Fall 2014

***Non-Expedited Course Drops***

**DROP:** **STAT 704 – Analysis of Variance.** (2) I, II, S. Computation and interpretation of two- and three-way analyses of variance; multiple comparisons; applications including use of computers. Note: Meets four times a week during first half of semester. PR.: One previous statistics course.

**RATIONALE:** The content of STAT 704 (2cr) will be merged into another current course, STAT 705 (2cr), but STAT 705 will become 3 credits. These courses share a considerable amount of underlying content. For instance, both courses cover basic concepts of hypothesis testing and confidence intervals, use of distribution tables, inference and interpretation of results. However, the fact that STAT 704 and STAT 705 are taught separately seems to be causing confusion amongst students, many of whom leave the

course sequence with the misunderstanding that linear regression and analysis of variance are completely different statistical methods that are not related to each other. Much to the contrary, both linear regression and analysis of variance are inherently similar and share a common methodological framework. Understanding these similarities is critical for students to be able to effectively apply linear regression, analysis of variance and/or their combination, analysis of covariance, onto their own real data problems. With this change, STAT 704 would no longer be needed.

**IMPACT:** Departments were identified whose students had taken Stat 7054 or 705 during the previous two years and a memo notification was emailed to departmental contacts on February 18, 2013. A copy of this email is attached. The department/program list included: Agronomy, Food Science, IMSE, Animal Sciences and Industry, Civil Engineering, College of Education, Anatomy and Physiology, Diagnostic Medicine, Master in Public Health program, Agricultural and Biological Engineering, Mechanical and Nuclear Engineering, Architectural Engineering, Chemical Engineering, Electrical and Computer Engineering Chemistry, Geography, Biology, Plant Pathology, Grain Science and Industry, Agricultural Economics, Entomology, Horticulture forestry and Recreational Services, Landscape Architecture, Business Administration Dean’s office, Accounting, Human Ecology Dean’s office, Human Nutrition, Apparel textiles and Interior Design, Hospitality Management and Dietetics, Mathematics, Sociology Anthropology and Social Work, English, Kinesiology, Journalism, Economics, Psychology,. Positive feedback was received by Food Science, Agronomy, IMSE, Animal Sciences and Industry, and Civil Engineering. There were no replies from other programs which was interpreted as not objections. We did not receive any objections to the proposed change. Emails of replies are available upon request.

**EFFECTIVE DATE:** Fall 2014

***Non-Expedited Curriculum Changes***  
**Graduate Certificate in Applied Statistics**

| <b>FROM:</b>  | <b>TO:</b>  |
|---|---|
| <p>A minimum of 15 credit hours with at least a 3.0 GPA in applied statistics courses at the 700 level and above. These courses may also be used for a student’s Program of Study in his/her chosen field if approved by the student’s Graduate Committee.</p> <p>Courses that can be used for the Graduate Certificate in Applied Statistics Program are:</p> <ul style="list-style-type: none"> <li>• STAT 701, 702, 703, or 706 (3 hrs)</li> <li>• STAT <del>704</del>, 705 or STAT 713 (4 hrs)</li> </ul> | <p>A minimum of 15 credit hours with at least a 3.0 GPA in applied statistics courses at the 700 level and above. These courses may also be used for a student’s Program of Study in his/her chosen field if approved by the student’s Graduate Committee.</p> <p>Courses that can be used for the Graduate Certificate in Applied Statistics Program are:</p> <ul style="list-style-type: none"> <li>• STAT 701, 702, 703, or 706 (3 hrs)</li> <li>• STAT 705 or STAT 713 (<del>4</del>3 hrs)</li> </ul> |



|   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• STAT 710 (<del>2 hrs</del>)</li> <li>• STAT 716 (<del>2 hrs</del>)</li> <li>• STAT 717 (3 hrs)</li> <li>• STAT 720 (3 hrs)</li> <li>• STAT 722 (3 hrs)</li> <li>• STAT 725 (1 hr)</li> <li>• STAT 726 (1 hr)</li> <li>• STAT 730 (3 hrs)</li> <li>• STAT 736 (2 hrs)</li> <li>• STAT 745 (3 hrs)</li> <li>• STAT 870 (3 hrs)</li> </ul> <p>Note: A maximum of three credit hours can be earned from coursework taken outside the Department of Statistics, either in another department on campus, or at another university. Persons wishing to apply such credits will gain approval from the director of the certificate program. Courses so approved must clearly be of an applied statistics nature, of a duration commensurate with the number of credit hours claimed on the certificate, and at a graduate level (under no circumstances will undergraduate courses be considered). The person asking for this exception will need to supply such information as deemed necessary by the director for such approval, possibly including syllabus and identification of textbook used.</p> | <ul style="list-style-type: none"> <li>• STAT 710 (<u>3 hrs</u>)</li> <li>• STAT 716 (<u>3 hrs</u>)</li> <li>• STAT 717 (3 hrs)</li> <li>• STAT 720 (3 hrs)</li> <li>• STAT 722 (3 hrs)</li> <li>• STAT 725 (1 hr)</li> <li>• STAT 726 (1 hr)</li> <li>• STAT 730 (3 hrs)</li> <li>• STAT 736 (2 hrs)</li> <li>• STAT 745 (3 hrs)</li> <li>• STAT 870 (3 hrs)</li> </ul> <p>(note: Stat 713 is already a 3 credit course)</p> <p>Note: A maximum of three credit hours can be earned from coursework taken outside the Department of Statistics, either in another department on campus, or at another university. Persons wishing to apply such credits will gain approval from the director of the certificate program. Courses so approved must clearly be of an applied statistics nature, of a duration commensurate with the number of credit hours claimed on the certificate, and at a graduate level (under no circumstances will undergraduate courses be considered). The person asking for this exception will need to supply such information as deemed necessary by the director for such approval, possibly including syllabus and identification of textbook used.</p> |
|---|--|

**RATIONALE:**

Faculty who have recently taught Stat 710 and 716 do not feel that 2 credits provides adequate time to cover material, thus we propose increasing the credits on each from 2 to 3.

STAT 704 (2cr) is being dropped and its content merged into Stat 705 which will increase from 2 to 3 credits. These courses share a considerable amount of underlying content. The fact that STAT 704 and STAT 705 are taught separately seems to be causing confusion amongst students, many of whom leave the course sequence with the misunderstanding that linear regression and analysis of variance are completely different statistical methods that are not related to each other. Much to the contrary, both linear regression and analysis of variance are inherently similar and share a common methodological framework. Gains in efficiencies when

combining two courses with related underlying content will allow the material in two 2 credit courses to be covered in one 3 credit course.

**IMPACT:** Departments were identified whose students had taken Stat 704 or 705 during the previous two years and a memo notification was emailed to departmental contacts on February 18, 2013. A copy of this email is attached. The department/program list included: Agronomy, Food Science, IMSE, Animal Sciences and Industry, Civil Engineering, College of Education, Anatomy and Physiology, Diagnostic Medicine, Master in Public Health program, Agricultural and Biological Engineering, Mechanical and Nuclear Engineering, Architectural Engineering, Chemical Engineering, Electrical and Computer Engineering, Chemistry, Geography, Biology, Plant Pathology, Grain Science and Industry, Agricultural Economics, Entomology, Horticulture Forestry and Recreational Services, Landscape Architecture, Business Administration Dean's office, Accounting, Human Ecology Dean's office, Human Nutrition, Apparel Textiles and Interior Design, Hospitality Management and Dietetics, Mathematics, Sociology Antropology and Social Work, English, Kinesiology, Journalism, Economics, Psychology. Positive feedback was received by Food Science, Agronomy, IMSE, Animal Sciences and Industry, and Civil Engineering. There were no replies from the other programs which was interpreted as no objections. We did not receive any objections to the proposed change. Emails of replies are available upon request.

**EFFECTIVE DATE:** Fall 2014

M.S. in Horticulture: Urban Food Systems Specialization

| FROM:   | TO:  |
|---|--|
| Required Courses  | 8  |
| HORT 951 Horticulture Graduate Seminar<br>2                                 | <b><u>Thesis Research or Report Track</u></b>                                    |
| Research Methods and/or Scientific Writing<br>700 level or above Statistics | 3  |
| Thesis Research or Report<br>HORT 898 Master's Report<br>2                  | 2-6  |
| Or  |  |
| HORT 899 Research – M.S.  | 6  |
| Additional Courses  | 9-13   |
|   | Required Courses 8   |
|   | HORT 951 Horticulture Graduate Seminar<br>2                                      |
|   | Research Methods and/or Scientific Writing <u>at or above the 600 level</u><br>3 |
|   | 700 level or above Statistics 3  |
|   | Thesis Research or Report<br>HORT 898 Master's Report<br>2                       |
|   | 2-6  |

|  |                               |   |                               |
|--|-------------------------------|---|-------------------------------|
| To be determined with Advisory Committee |                               | Or  |                               |
| Specialization                           | 7                             | HORT 899  | Research – M.S. 6             |
| HORT 790                                 | Sustainable Agriculture       | Additional Courses                              | 9-13                          |
| 2  |                               | To be determined with Advisory Committee        |                               |
| HORT 791                                 | Urban Agriculture             | Specialization                                  | 7                             |
| HORT 792                                 | Urban Food Production Pract.2 | HORT 790  | Sustainable Agriculture       |
| Total Credit Hours Required              | 30                            | 2   |                               |
|  |                               | HORT 791  | Urban Agriculture 3           |
|  |                               | HORT 792  | Urban Food Production Pract.2 |
|  |                               | Total Credit Hours Required                     | 30                            |
|  |                               | <b><u>Professional Track</u></b>                |                               |
|  |                               | Required Courses                                | 8                             |
|  |                               | HORT 951  | Horticulture Graduate Seminar |
|  |                               | 2   |                               |
|  |                               | <u>A Professional/Scientific Writing course</u> | <u>at or</u>                  |
|  |                               | <u>above the 600 level</u>                      | <u>3</u>                      |
|  |                               | 700 level or above Statistics                   | 3                             |
|  |                               | <b>Additional Courses</b>                       | <u>21</u>                     |
|  |                               | To be determined with Advisory Committee        |                               |
|  |                               | Specialization                                  | 7                             |
|  |                               | HORT 790  | Sustainable Agriculture       |
|  |                               | 2   |                               |
|  |                               | HORT 791  | Urban Agriculture 3           |
|  |                               | HORT 792  | Urban Food Production Pract.2 |
|  |                               | Total Credit Hours Required                     | <u>36</u>                     |

**RATIONALE:**

Urban Food Systems is a new specialization under the Master of Science in Horticulture program in the Department of Horticulture, Forestry, and Recreation Resources that is offered at both our Manhattan and Olathe campuses. Working professionals are a likely student audience for the K-State Olathe campus. We believe a professional track will best suit their needs to obtain the knowledge and skills in this new discipline rather than the research skills of our current program.

**IMPACT:** The professional track increases the number of elective credits students can take. Since student interests may vary, the elective courses will vary, thus we do not expect an impact on other units.

**EFFECTIVE DATE:** Fall 2014

**Master of Science: Food Science Program Non-Thesis (course-work only) option**

| FROM:   | TO:   |
|---|---|
| Core Courses:<br><del>ENGL 604 Expository Writing Workshop (3)</del><br>FDSCI 600 Food Microbiology (2)<br>FDSCI 690 Principles of HACCP (2)<br>FDSCI 695 Quality Assurance of Food Products (3)<br>FDSCI 725 Food Analysis (3)<br>FDSCI 815 Advanced Food Chemistry (3)<br>FDSCI 850 Food Science Graduate Seminar (1)<br><del>STAT 703 Introduction to Statistical Methods for the Sciences (3)</del> | Core Courses:<br><u>ENGL 758 Scientific Communication (3)</u><br><u>OR</u><br><u>AGCOM 810 Scientific Communication (3)</u><br>FDSCI 600 Food Microbiology (2)<br>FDSCI 690 Principles of HACCP (2)<br>FDSCI 695 Quality Assurance of Food Products (3)<br>FDSCI 725 Food Analysis (3)<br>FDSCI 815 Advanced Food Chemistry (3)<br>FDSCI 850 Food Science Graduate Seminar (1)<br><u>STAT 705 Regression and Analysis of Variance (3)</u> |

**RATIONALE:**

ENGL 604 to ENGL 758. This is essentially a bookkeeping modification. ENGL 604 “Expository Writ Wksp - Top/Writing Food Science” was initially offered for the MS distance students about six years ago. In the summer of 2012 the course was dropped and ENGL 758 Scientific Communication Scientific Communication was initiated. Since 2012 students have substituted the equivalent course, ENGL 758, as part of the program requirements.

ADD AGCOM 810 Scientific Communication (3). Adding AGCOM 810 provides another option for students to meet the program communications requirement.

STAT 703 to STAT 705. Due to changes in statistics curriculum STAT 703 is now an introduction course for graduate students that have not taken statistics during their undergraduate studies. Since all students admitted to the food science graduate program must have a statistics course as part of the program prerequisites STAT 703 is redundant. STAT 705 will provide a more thorough background needed to understand data evaluation in research publications. Student with a weak background in statistics will still be able to take STAT 703 and use it on the program of study.

**EFFECTIVE DATE:** Fall 2014

## ***Non-Expedited Curriculum Drop*** **Occupational Health Psychology Graduate Certificate**

This certificate program is offered through the Psychological Sciences graduate program. The four three-credit hour courses that are required for the completion of the certificate are offered on-line in a distance format. Students can enroll for each class at their convenience and will be granted the certificate upon completion of the four course sequence. This involves a pro-seminar survey of the field, a seminar on key topics, a review of relevant research methods, and a practicum/internship in OHP. Students with prior course work in social science research methods may be granted credit for that requirement. The program has been designed for individuals from a wide variety of social science, psychology, and health related academic backgrounds. Students must have completed a bachelor degree to enroll in the certificate program. All four courses have been approved by the American Psychological Association for continuing education credits (45 credits for each course). Students who meet the requirements can enroll in any OHP course without enrolling in the certificate program.

### **Required Courses:**

- 
- Proseminar in Occupational Health (3 credits)
  - Occupational Health Methodology (3 credits)
  - Occupational Health Behaviors (3 credits)
  - Practicum in Occupational Health Psychology (3 credits)

**RATIONALE:** The OHP Certificate was created in 2000 using a grant from the American Psychological Association and has been directed by Dr. Ron Downey. Since its inception, the program has typically enrolled one to two students in any particular year and no more than five students in any one year (2005). The certificate-specific courses have been taught by Dr. Downey, who retired in spring, 2013, or adjunct faculty whose only teaching responsibility is to the courses supporting the program. As a result, in fall, 2012, the Head of Psychological Sciences initiated a discussion regarding the viability of the program. Discussions with DCE were not promising, there was little support in the department for the program's continuation, and the faculty member recently hired to replace the retiring Dr. Downey is not interested in taking on the burden of running the program for so few students. Therefore, the Department of Psychological Sciences is recommending discontinuation of this graduate certificate.

**IMPACT:** There is not foreseeable impact on other units.

**EFFECTIVE DATE:** Spring 2014

**School of Family Studies and Human Services (FSHS)  
New Curriculum Proposal**

**Non-Expedited Proposal**

Financial Therapy Graduate Certificate

To be considered for approval by the  
Family Studies and Human Services (FSHS) Core Graduate Faculty

Review and Comment Period:

Contact Person(s):

Kristy Archuleta

FSHS

532-1474

[kristy@ksu.edu](mailto:kristy@ksu.edu)

Units impacted by these changes are:

None

**Appendix D: Curriculum Form**  
**Kansas State University**  
 (This includes additions, deletions, and changes)

|   |       |
|---|-------|
| Department: Family Studies and Human Services         |       |
| Dept Head Signature:                                  | Date: |
| Contact person(s) for this proposal: Kristy Archuleta |       |
| Program name: Financial Therapy Graduate Certificate  |       |

**Effective term for requested action:**            Term Fall            Year 2014

Please note the following deadlines:

| <u>Curriculum Changes effective for:</u> | <u>Must be submitted to Faculty Senate Academic Affairs prior to:</u> | <u>Must be approved by Faculty Senate by:</u> |
|--|---|---|
| Fall                                     | 2 <sup>nd</sup> April meeting   | May meeting                                   |
| Spring                                   | 2 <sup>nd</sup> September meeting                                     | October meeting                               |
| Summer                                   | 2 <sup>nd</sup> January meeting                                       | February meeting                              |

*Please see guidelines in the complete manual regarding format of new degree program proposals that require BOR approval (including new majors, secondary majors, and minors not within an existing degree program, etc.)*

**Rationale:**

The relational, behavioral, cognitive, and emotional elements of personal financial planning are receiving increasing attention in professional and academic settings. Financial Therapy is an emerging discipline that integrates aspects of mental health (e.g., psychology, marriage and family therapy, counseling, social work) and personal financial planning. Financial therapy practitioners include financial planners who utilize financial coaching and counseling skills with their clients and therapists who work with clients facing money issues and around their relationship with money. In the wake of recent economic turmoil, a growing number of mental health and financial planning professionals have been looking for training in these areas. Kansas State University’s Institute of Personal Financial Planning in the School of Family Studies and Human Services is in a unique position to secure its place at the forefront in the development of these emerging fields, with the ultimate goal of establishing a Graduate Certificate in Financial Therapy. A Financial Therapy Graduate Certificate would be the first of its kind and help meet the needs of practitioners who are looking to provide comprehensive and holistic services to their clients to improve their financial well being. This certificate does not lead to licensure as a therapist or counselor.

To complete the certificate, 15 credits of coursework are required. Courses include FSHS 624: Fundamentals of Family Financial Planning, FSHS 768: Introduction to Financial Therapy, FSHS 769: Money and Relationships, FSHS 770: Applied Behavioral Finance, FSHS 771: Financial Therapy Theory & Research. Fundamentals of Family Financial Planning, Introduction to Financial Therapy, Applied Behavioral Finance, and Financial Therapy Theory & Research are currently offered by Personal Financial Planning faculty. Money and Relationships will be offered for the first time in Spring 2015. Courses will be offered in 8 week blocks one time per year.

**Impact (i.e. if this impacts another unit):** None



**FROM:** (Current list of courses for the curriculum, curriculum description, and admission criteria.)

**TO:** To: (Proposed list of courses for the curriculum, curriculum description, and admission criteria.)

|  |   |
|--|---|
|  | <p><u>The Financial Therapy graduate certificate is offered through the School of Family Studies and Human Services. The program is completely on-line, combining self-study with a mentoring classroom-type experience. Students will develop skills to help clients improve financial well-being from a holistic perspective where psychological, emotional, relational, and economic aspects of financial health are considered and addressed.</u></p> <p><u>Fifteen hours of core content are required to complete the certificate.</u></p> <p><u>Required:</u><br/><u>FSHS 624: Fundamentals of Family Financial Planning (3)</u><br/><u>FSHS 768: Introduction to Financial Therapy (3)</u><br/><u>FSHS 769: Money and Relationships (3)</u><br/><u>FSHS 770: Applied Behavioral Finance (3)</u><br/><u>FSHS 771: Financial Therapy Theory &amp; Research (3)</u></p> |
|--|---|

Please attach additional page(s) if needed.

**For Office Use**

- Date approved by Department Faculty:
- Date approved by College Course and Curriculum committee:
- Date approved by College Faculty (if needed):
- Date approved by Graduate Council (if needed):
- Date approved by Faculty Senate (if needed):
- Date approved by Board of Regents (if needed):

## **Financial Therapy Graduate Certificate New Certificate Program Application**

### **A. Educational Objectives of the Certificate Program**

#### **Rationale:**

The relational, behavioral, cognitive, and emotional elements of personal financial planning are receiving increasing attention in professional and academic settings. Financial Therapy is an emerging discipline that integrates aspects of mental health (e.g., psychology, marriage and family therapy, counseling, social work) and personal financial planning. Financial therapy practitioners include financial planners who utilize financial coaching and counseling skills with their clients and therapists who work with clients facing money issues and around their relationship with money. In the wake of recent economic turmoil, a growing number of mental health and financial planning professionals have been looking for training in these areas. A growing number of financial practitioners are recognizing the need to pay attention to the relational, psychological, and emotional dynamics of their clients. When practitioners are able to integrate these components into their practice effectively, their clients tend to be more satisfied with the services they received and their portfolio performance. Likewise, mental health practitioners recognize that finances play a critical role in an individual's overall well-being, including relationship satisfaction and stress. However, mental health professionals generally have very little training in finances. Clearly, there is a need for training in which the two fields intersect.

In 2010, the Financial Therapy Association was established to provide a forum for financial and mental health practitioners, researchers, and educators who wanted to share and develop knowledge and skill related to the interpersonal and intrapersonal aspects of financial well-being. In its inaugural year, the FTA launched their scholarly journal, the *Journal of Financial Therapy*. Articles published in the *Journal of Financial Therapy* have been read by thousands of people, demonstrating a desire among professionals to access scholarly work. A recent survey of the Financial Therapy Association membership showed that 86% of respondents thought that professional should receive at least a bachelor's degree or higher to be appropriately trained to provide financial therapy. Another survey of financial and mental health practitioners found that 65% would be willing to enroll in a graduate certificate program. A graduate certificate would not lead to licensure as a counselor or therapist. However, a graduate certificate in financial therapy would enhance the knowledge and skills of these professionals in order to apply them effectively in their practices.

Kansas State University's Institute of Personal Financial Planning in the School of Family Studies and Human Services is in a unique position to secure its place at the forefront in the development of these emerging fields, with the ultimate goal of establishing a Graduate Certificate in Financial Therapy. The Institute of Personal Financial Planning's graduate faculty members have been instrumental in the establishment and development of the field of financial therapy. For example, three members of the graduate faculty hold graduate degrees and/or certificates in both mental health and personal financial planning. Faculty members have also spearheaded the establishment of the Financial Therapy Association, as founding Board Members, hosting the 1<sup>st</sup> Annual Financial Therapy Conference at Kansas State University, and establishing and editing the *Journal of Financial Therapy*. A Financial Therapy Graduate

Certificate would be the first of its kind to meet the growing educational needs of financial planners and mental health professionals who aspire to develop an expertise in financial therapy and enable these professionals more effectively improve the financial health of their clients.

## **B. Courses Required for Each Student in the Certificate:**

### **Coursework:**

There will be 15 credits of required coursework. All Financial Therapy coursework will be available to the PhD students in Personal Financial Planning as options for their 15 credits of required electives. The required courses include the following:

FSHS 624: Fundamental of Family Financial Planning (3 credits)\*

FSHS 768: Introduction to Financial Therapy (3 credits)

FSHS 769: Money and Relationships (3 credits)

FSHS 770: Applied Behavioral Finance (3 credits)

FSHS 771: Financial Therapy Theory & Research (3 credits)

\*Students with an established financial planning background will be allowed to substitute a course for the fundamentals of family financial planning course with advisor permission.

## **Financial Therapy Graduate Course Descriptions**

**FSHS 624: Fundamentals of Family Financial Planning:** This course provides an overview of family financial planning by integrating concepts and issues with planning and counseling applications. Students will be introduced to the key concepts of family financial planning, including: insurance, tax, investments, retirement, and estate planning. The family financial planning process is introduced with an emphasis on the integration and application of concepts in meeting individual and family financial goals and objectives. Other topics presented include an ethics overview, compensation trends within the industry, and regulatory frameworks

**FSHS 768: Introduction to Financial Therapy:** An applied financial psychology course that examines the intersection of financial planning, coaching, and therapy; money disorders frequently seen by financial professionals; advanced techniques to establish rapport; helping clients change problematic/destructive money-related behaviors; dealing with client resistance to change; working with couples and families; and integrating financial psychology tools into personal financial planning.

**FSHS 769: Money and Relationships:** This course will explore the connection between money and couple and family relationships. The objective of the course is to understand the factors that impact how individuals, couples, and families perceive and manage money. Students will gain in-depth knowledge of current literature, research, and theory in this area. Students will gain personal insight into their own relationship with money and how it impacts their relationships in order to enhance their ability to help and work with others to improve financial well-being.

**FSHS 770: Applied Behavioral Finance:** This course is an applied behavioral finance course that examines the intersection of behavioral finance and financial planning. It reviews the research on behavioral finance, neuroeconomics, and investor psychology, exploring the effects of human emotions and cognitive errors on financial decisions and the financial planning process. This course focuses on the application of behavioral finance theory and research to the

practice of personal financial planning to help financial planners improve the financial health of their clients.

**FSHS 771: Financial Therapy Theory & Research:** Survey of financial therapy and planning literature, conceptual models, and empirical research. Students will be expected to read empirical research related to financial therapy and write a short report on their findings on a weekly basis.

### **C. HOW COURSES MEET STATED OBJECTIVES**

The courses offered address topics not typically covered in financial planning, financial counseling, or mental health curriculum. The courses provide an empirical and theoretical foundation for financial and mental health professionals to more effectively work with clients to improve financial well-being. Many financial planners practice in a specialized area, meaning that the general fundamentals course could still provide valuable content information for them on all areas of financial planning.

### **D. STATEMENT OF NEED**

In 2010, the Financial Therapy Association was established, comprising of financial planners, mental health clinicians, researchers, and educators who shared the common vision of integrating relational, cognitive, emotional, psychological, and economic aspects of financial well-being. This particular organization grew from 0 to over 250 members within one year, demonstrating the need for financial planning and mental health practitioners as well as scholars and educators to learn more about aspects of financial therapy. For practitioners this knowledge is to be applied directly to clients, for educators this knowledge is to be used with students and the public, and for scholars the objective is to empirically test financial therapy approaches and practices, develop theoretical models, and conduct applied research. Currently, there is no such formal program in the nation that integrates these concepts to help practitioners and educators be most effective.

In a recent survey of 50 financial planning and mental health practitioners and students, 65% said they would be likely to enroll in a Certificate of Financial Therapy program and nearly 70% said they would be likely to complete such a program. The Certificate of Financial Therapy would meet the educational needs of financial planners and mental health professionals who aspire to develop an expertise in financial therapy.

### **E. CERTIFICATE PROGRAM'S ADMINISTRATION**

#### **Admissions**

Prospective students are admitted to the program through the Kansas State University Graduate School and must follow the proper admission procedures set forth by the Graduate School. Prospective students must meet the requirements set forth by the Graduate School. Financial Therapy Graduate Certificate prospective students should hold a bachelor's degree from an accredited university.

Entrance requirements for United States college or university graduates include:

1. A bachelor's degree from a college or university accredited by the cognizant regional accrediting agency,
2. Undergraduate preparation in the proposed major field equivalent to that acquired by a graduate of Kansas State University, or evidence of an appropriate background for undertaking an advanced degree program, and
3. Cumulative grade point average (GPA) of 3.0 or higher on a 4.0 scale or GPA of 3.0 in the last 60 hours of coursework. This GPA is based only on courses graded on a multi-level scale, usually A, B, C, D, F.

### **International Students**

All students who graduate from foreign colleges or universities demonstrate the same level of achievement as U.S. students. That is, they must hold a degree from an established institution comparable to a college or university in the United States, have an outstanding undergraduate record, have the demonstrated ability to do graduate work, and provide evidence of language proficiency sufficient for the pursuit of a graduate degree. Admission may be denied to students from technical schools, which may provide excellent training in special areas, but do not offer degrees equivalent to those of colleges and universities. As a rule, students from abroad are not admitted to nondegree status (that is, as special students). Questions about the qualifications of international students should be directed to the Graduate School.

Students who graduate from foreign colleges and universities must also meet the English proficiency requirements. The Graduate School requires each international applicant whose native language is not English to demonstrate competence in the English language by achieving a satisfactory score (defined below) on the Test of English as a Foreign Language (TOEFL), the International English Language Testing System (IELTS) and Pearson Test of English (PTE). The TOEFL, IELTS or PTE is required to ensure that the student's progress toward a degree is not jeopardized by language barriers. The exception to this rule is a student who has received a degree in the last two years from a United States college or university. English proficiency entrance requirements are outlined in the Graduate School Handbook.

### **Status and Enrollment**

All new graduate students, domestic or foreign, are assigned to one of four categories upon admissions as determined by the graduate school. These categories include: full standing, provisional, probationary, or special.

Students who have been admitted to the Graduate School must register and pay their fees during the regular registration periods. Changes in enrollment must be approved by an advisor and the Dean of the Graduate School.

All graduate students who have matriculated at Kansas State University and are using faculty time or University facilities for research or other academic pursuits must be enrolled. The enrollment should reflect, as accurately as possible, the demands made on faculty time and the

use made of University facilities. Further, a graduate degree candidate must be enrolled during the semester in which the degree requirements are completed.

### **Verification of Program Completion**

When applying to the Financial Therapy Graduate Certificate program, the Faculty Program Coordinator will assist the students in documenting program requirements and completion of those requirements.

### **Advising**

Adequate advising for each student enrolled in the program will be provided by the Faculty Program Coordinator and/or core financial therapy faculty.

### **Program Personnel**

#### **Faculty Program Coordinator**

Kristy Archuleta will serve as the program coordinator. She is a member of the program faculty and is responsible for leading the faculty in the development of curriculum development, course titles, and schedule of offerings. The program coordinator is the person of “first contact” at the institution for students interested in the financial therapy program. The coordinator should be knowledgeable about the website, the courses offered at the institution and at other institutions, the application for admission procedures and other frequently asked questions regarding the programs’ policies and procedures.

- Responsibilities of the Faculty Program Coordinator include:
- Facilitate curriculum development and changes.
- Manage course rotations.
- Schedule faculty meetings as determined in this manual.
- Prepare agendas for faculty meetings.
- Coordinate faculty work related to student learning outcomes and assessments of student satisfaction.
- Website maintenance.
- Recruitment and communication with prospective students.
- Assist admitted students
- Student and course data management.
- Budget and accounting
- Report preparation
- Work with faculty, appropriate university administrators (i.e., graduate school, continuing education, registrar’s office, information systems office, computer center, college-level administrators, department head/chair, etc.)
- Recommend changes and improvements.

#### **Program Faculty**

Program faculty are those teaching any one of the required financial therapy courses. Faculty must be approved as graduate faculty members at Kansas State University. Adjunct faculty may serve as teaching faculty if they have the qualifications to be approved to teach graduate courses at their home institution (degree status, experience, etc.) Responsibilities of program faculty include the following:

- Develop, edit, amend, and review the curriculum.

**Meetings**

Faculty meetings will occur regularly to review curriculum, student progress, and administrative duties. The program coordinator will schedule and organize the meeting in conjunction with program faculty. Special meetings may be called by any of the program faculty in conjunction with the program coordinator.

**F. ESTIMATED BUDGET TO SUPPORT THE CERTIFICATE PROGRAM**

Expenses will be covered by PFP DRA for the first two years. Tuition generated by the certificate will be used to pay expenses in subsequent years.

|                                    |  |
|------------------------------------|--|
| K-State Faculty member/Coordinator | Two summers of salary with benefits totaling \$11,000 - \$13,000 |
| K-State Faculty Members            | \$0 (Faculty are paid in-load)                                   |
| Supplies/Equipment                 | \$1,000  |
| Marketing                          | \$2,500  |
| Total                              | \$14,500-16,500  |

**G. NAMES OF THE FACULTY ASSOCIATED WITH OR CONTRIBUTING TO THE CERTIFICATE PROGRAM EITHER BY TEACHING ONE OR MORE OF THE COURSES ASSOICATED WITH THE PROGRAM OR PARTICIPATING IN THE DESIGN OF THE CURRICULUM**

|                         |                      |
|-------------------------|----------------------|
| Kansas State University | Dr. Sonya Britt      |
| Kansas State University | Dr. Kristy Archuleta |
| Kansas State University | Dr. Brad Klontz      |
| Kansas State University | Dr. Ann Coulson      |

**H. THE NAME AND ADDRESS OF THE FACULTY MEMBER DESIGNATED AS THE COORDINATOR OF THE PROGRAM:**

Dr. Kristy Archuleta  
School of Family Studies & Human Services  
316 Justin Hall  
Manhattan, KS 66506  
785-532-1474

**I. STUDENT LEARNING OUTCOMES AND ASSESSMENT PLAN FOR THE PROGRAM:**

**Student Learning Outcomes**

**Knowledge**

Financial therapy certificate students will demonstrate an understanding and competency in:

**SLO 1.** The key concepts of family financial planning, including: time value of money, insurance, tax planning, investments, retirement, estate planning and the ethical practice of personal financial planning.

**SLO 2.** The factors that impact how individuals, couples, and families perceive and manage money.

**Skills**

Financial therapy certificate students will demonstrate the ability to apply knowledge through critical thinking, inquiry, analysis and communicate to solve problems by:

**SLO3.** Critically reviewing and evaluating evidence-based financial therapy practices and research in financial therapy

**Attitudes and Professional Conduct**

Financial therapy students will exhibit awareness of their responsibilities and engage in professional conduct by:

**SLO 4.** Considering the ethical application of financial therapy interventions and the differences between financial therapy, financial planning, financial counseling, and financial coaching.

**Assessment Plan**

Four SLO’s will be evaluated each year based on program needs, prior assessments, and faculty and student feedback. Table 1 identifies each SLO for the program, the university-wide SLO associated with the program SLO, the course in which the SLO will be evaluated, how the SLO will be measured, and the expected performance level for each SLO.

**Table 1: SLO Assessment Plan**

| SLO Students will:   | University-wide SLO for Graduate Programs | Course(s) Evaluated | Measure   | Expected Level of Performance   |
|--|---|---------------------|---|---|
| 1. Demonstrate an understanding of the key concepts of family financial planning, including: time value of money, insurance, tax planning, investments, retirement, estate planning and the ethical practice of personal financial | Knowledge                                 | FSHS 624            | Direct Measure: Students will be tested on key concepts of personal financial planning.<br><br>Indirect Measure: In class observation | It is expected that 70% of students will receive a score of 80% or better on exams. |



|  |                                    |          |   |   |
|--|------------------------------------|----------|---|---|
| planning.  |                                    |          |   |   |
| 2. Demonstrate an understanding of the factors that impact how individuals, couples, and families perceive and manage money.   | Knowledge                          | FSHS 769 | <p>Direct Measure: Students will submit a topics paper in FSHS 769.</p> <p>Indirect Measure: In class observation</p>   | It is expected that 70% of students will score 80% or higher on the paper.                    |
| 3. Critically review and evaluate evidence-based financial therapy practices and research in financial therapy.  | Skills                             | FSHS 771 | <p>Direct Measure: Students will read and review one empirical study related to evidence-based financial therapy practices and write a short report summarizing their findings.</p> <p>Indirect Measure: In class observation</p> | It is expected that 70% of students will receive a score of 80% or better on written reports. |
| 4. Exhibit professional conduct by considering ethical application of financial therapy interventions and the differences between financial therapy, financial planning, financial counseling, and financial coaching. | Attitudes and Professional Conduct | FSHS 768 | <p>Direct Measure: Students will be tested on one or more aspects of ethics as they relate to financial therapy theory, practice, and/or research.</p> <p>Indirect Measure: In class observation</p>                              | It is expected that 70% of students will score 80% or higher on the test.                     |

**Quiz to test SLO 1:** Demonstrate an understanding of the key concepts of family financial planning, including: time value of money, insurance, tax planning, investments, retirement, estate planning and the ethical practice of personal financial planning.

1. Six years ago, Mark and Ava deposited \$15,000 in an account on which interest was compounded quarterly. If the account holds \$26,000 now, and no additional deposits or withdrawals were made to the account, what has been Mark and Ava's annual return on the investment?
2. Jan is in the process of purchasing a home. What will be Jan's monthly payment if the initial mortgage that she obtains to purchase the home is for \$120,000 with an annual interest rate of 9%, compounded monthly, and the mortgage is payable over the next 30 years?
3. What is Jan's balance after five years?
4. Which of the following steps in the personal financial planning process comes last?
  - a. Implement.
  - b. Monitor and review.
  - c. Compile and analyze data.
  - d. Establish scope of activity.
  - e. Develop solutions and present the plan.
5. Approximately how long will it take for an investment to double in value if the interest rate is 10.5%? (Use the Rule of 72)
6. Mary would like to know how her investments will actually perform after being adjusted for inflation. She expects to earn a 9% rate of return, while inflation is expected to average 3%. What real rate of return will she be earning?
7. In order to qualify for the CFP designation,
  - a. a person has been educated in all major facets of financial planning including course material on investments, risk management, retirement and employee benefits, estate planning, and taxation.
  - b. a person must pass a comprehensive examination and must have at least three years of practical financial experience.
  - c. a. and b. are both requirements.
8. A perpetual annuity is a stream of payments that is assumed to go on forever.
  - a. True
  - b. False
9. Which is better—borrowing using a home equity loan or credit card?
  - a. Home equity loan
  - b. Credit card
  - c. They are the same

10. Jerry purchased a stock for \$24 that paid \$2.00 at the end of each year in dividends (dividends remained level over time). He sold the stock four years later for \$28 at the time of the last dividend payment. What was his rate of return on the investment?

**Rubric to measure SLOs 2 and 3: Demonstrate an understanding of the factors that impact how individuals, couples, and families perceive and manage money.**

|   | <b>Unacceptable</b><br><b>1</b>   | <b>Meets Minimum Standards</b><br><b>2</b>   | <b>Acceptable</b><br><b>3</b>  | <b>Good</b><br><b>4</b>   | <b>Excellent</b><br><b>5</b>   |
|---|---|--|--|---|--|
| <b>Knowledge</b>                                    | Lacks ability to explain any concepts   | Demonstrates ability to explain concepts but not clearly.  | Demonstrates mastery of key concepts   | Demonstrates mastery of most concepts.  | Demonstrates mastery of all concepts.  |
| <b>Critical Thinking</b>                            | Lacks ability to address key components of assignment.  | Exhibits limited ability to respond clearly to all components of assignment.   | Demonstrates emerging ability to fully explain material.   | Demonstrates ability fully explain material.  | Demonstrates advanced ability to fully explain material.   |
| <b>Synthesis and Application of Course Material</b> | Lacks ability to apply or integrate information from course into assignment.  | Exhibits limited ability to apply and integrate information from course.   | Demonstrates some ability to apply and integrate information from course.  | Demonstrates ability to apply and integrate information from course.  | Demonstrates outstanding ability to thoughtfully apply & integrate information from course.                            |
| <b>Coherency</b>                                    | Lacks ability to clearly articulate thoughts and explanations.  | Exhibits limited capability to clearly articulate thoughts and explanations.   | Demonstrates some capability to clearly articulate thoughts and explanations.                                    | Demonstrates ability to clearly articulate thoughts and explanations.   | Demonstrates outstanding ability to clearly articulate thoughts and explanations.                                      |
| <b>Mechanics</b>                                    | Many grammar, spelling, punctuation and APA errors. No references cited and listed in reference sheet.                                    | Many grammar, spelling, punctuation and APA errors. Some references cited and listed in reference sheet.                                     | Some grammar spelling, punctuation, and APA errors. A few references are not cited or listed in reference sheet. | A few grammar spelling, punctuation, and APA errors. All references are cited and listed in reference sheet.              | No grammar, spelling, punctuation, and APA errors. All references are cited and listed correctly in reference sheet.   |
| <b>Organization</b>                                 | Disorganized review. Ideas and/or wording unclear and reflect lack of understanding of the topic; overall, incomplete summary and review. | Paper was not well organized and some ideas were unclear and reflect lack of understanding of topic. Somewhat incomplete summary and review. | Paper displayed organization that was easy to follow, but was too wordy, too brief or wrong focus applied.       | Paper was mostly organized and easy to follow. The level of writing and scientific vocabulary was appropriate and formal. | Paper clearly organized and easy to follow. The level of writing and scientific vocabulary was appropriate and formal. |
| <b>Total</b><br>____/100%                           |   |  |  |   |  |

**Quiz to Test SLO 4:** Exhibit professional conduct by considering ethical application of financial therapy interventions and the differences between financial therapy, financial planning, financial counseling, and financial coaching

1. According to Klontz, Kahler, and Klontz (2008), the American Psychological Association Code of Ethics and the Code of Ethics and Professional Responsibility of the Certified Financial Planner Board of Standards overlap in their adherence to the following ideals:

- A. Protecting clients
- B. Professional competence
- C. Trust and Integrity
- D. All the above

2. The Principle of Fairness requires behaving with dignity and courtesy to clients, fellow professionals, and others in business-related activities.

- A. True
- B. False

3. Which of the following is not true of the CFP Board's Rules of Conduct:

- A. establish the high standards expected of certificants
- B. are binding on all certificants regardless of position
- C. are general statements expressing ethical and professional ideals
- D. are not designed to be a basis for legal liability to any third party

4. According to Gale, Goetz & Britt (2012), financial planners and therapists have very similar standards of practice and ethic constraints on what is acceptable with regard to professional boundaries.

- A. True
- B. False

5. According to Klontz, Kahler & Klontz (2008) coaching is based on a solution-focused advisory model and therapy is:

- A. Based on a change model
- B. Based on a medical model
- C. Focused on assessment, diagnosis, and treatment of mental disorders
- D. Focused on goal attainment and improving behavior patterns
- E. All the above
- F. B & C
- G. A, C & D

6. Which of the following is not a step to the financial planning process, as identified by the CFP Board:

- A. Gathering client data
- B. Analyzing and evaluating the client's financial status
- C. Reviewing the financial planning recommendations
- D. Implementing the financial planning recommendations

7. CFP(R) professionals are required to abide by a fiduciary standard of care when engaged in financial planning for a client.

- A. True
- B. False

8. According to Robinson (2007), with regard to financial advisor compensation models:

- A. fee-only models are the fairest
- B. all models have limitations
- C. cost is a potential advantage of the flat-fee model
- D. commission models best allow planners to be compensated for financial planning advice

9. According to Finke & Langdon (2012) the suitability standard allows brokers to recommend products that are not necessarily in the best interest of the client but may be considered potentially suitable given the customer's characteristics and needs.

- A. True
- B. False

10. According to Klontz, Kahler, and Klontz (2008), it would be unethical to both provide financial therapy to a client and also manage his or her money.

- A. True
- B. False

**J. ENDORSEMENTS FROM THOSE ACADEMIC UNITS (INCLUDING EXTENSION) WHOSE STUDENTS, COURSES, OR PROGRAMS COULD BE IMPACTED BY THE CREATION OF THE NEW GRADUATE CERTIFICATE.**

Currently, there exists a great demand from financial planners and therapists for professional education and training in financial therapy. There is an equal or even greater need from society for more professionals to provide effective interventions designed to help individuals, couples, and families address the money-emotion-behavior connection and improve financial well-being.

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2013 President, Financial Therapy Association