UNIVERSITY OF KENTUCKY

New Course Report

1/14/2013 10:58:57 AM

1. General Information

1a. Submitted by the College of: ENGINEERING

Date Submitted: 1/14/2013

1b. Department/Division: Biosystems &Agr Engineering

1c. Contact Person

Name: Michael D Montross

Email: michael.montross@uky.edu

Phone: 7-3000 x106

Responsible Faculty ID (if different from Contact)

Name:

Email:

Phone:

1d. Requested Effective Date: Semester following approval

1e. Should this course be a UK Core Course? No

2. Designation and Description of Proposed Course

2a. Will this course also be offered through Distance Learning?: No

2b. Prefix and Number: BAE 506

2c. Full Title: Life Cycle Assessments for Bioresource Engineering

2d. Transcript Title: Life Cycle Assessment Biores Engr

2e. Cross-listing:

2f. Meeting Patterns

LECTURE: 3

2g. Grading System: Letter (A, B, C, etc.)

2h. Number of credit hours: 3

2i. Is this course repeatable for additional credit? No

If Yes: Maximum number of credit hours:

If Yes: Will this course allow multiple registrations during the same semester?

2j. Course Description for Bulletin: Life Cycle Assessment (LCA) is a method in which the energy and raw material consumption, different types of emissions and other important factors related to a specific production or service are measured, analyzed and summarized over the entire life cycle. This course will cover the theory, practice and application of Life Cycle Assessment. Life Cycle Assessment is one tool in a large tool box of methods, such as Life Cycle Costing (LCC), Substance Flow Analysis (SFA), and Risk Assessment (RA), used to evaluate goods, services and systems.

2k. Prerequisites, if any: Senior or graduate student standing

2l. Supplementary Teaching Component:

3. Will this course taught off campus? No

If YES, enter the off campus address:

4. Frequency of Course Offering: Spring,

Will the course be offered every year?: Yes

If No, explain:

5. Are facilities and personnel necessary for the proposed new course available?: Yes

If No, explain:

6. What enrollment (per section per semester) may reasonably be expected?: 20

7. Anticipated Student Demand

Will this course serve students primarily within the degree program?: No

Will it be of interest to a significant number of students outside the degree pgm?: Yes

If Yes, explain: [var7InterestExplain]

8. Check the category most applicable to this course: Relatively New – Now Being Widely Established,

If No, explain:

9. Course Relationship to Program(s).

a. Is this course part of a proposed new program?: No

If YES, name the proposed new program:

b. Will this course be a new requirement for ANY program?: No

If YES, list affected programs:

10. Information to be Placed on Syllabus.

a. Is the course 400G or 500?: Yes

b. The syllabus, including course description, student learning outcomes, and grading policies (and 400G-/500-level grading differentiation if applicable, from **10.a** above) are attached: Yes

Distance Learning Form

Instructor Name:

Instructor Email:

Internet/Web-based: No

Interactive Video: No

Hybrid: No

1.How does this course provide for timely and appropriate interaction between students and faculty and among students? Does the course syllabus conform to University Senate Syllabus Guidelines, specifically the Distance Learning Considerations?

2.How do you ensure that the experience for a DL student is comparable to that of a classroom-based student's experience? Aspects to explore: textbooks, course goals, assessment of student learning outcomes, etc.

3.How is the integrity of student work ensured? Please speak to aspects such as password-protected course portals, proctors for exams at interactive video sites; academic offense policy; etc.

4.Will offering this course via DL result in at least 25% or at least 50% (based on total credit hours required for completion) of a degree program being offered via any form of DL, as defined above?

If yes, which percentage, and which program(s)?

5.How are students taking the course via DL assured of equivalent access to student services, similar to that of a student taking the class in a traditional classroom setting?

6.How do course requirements ensure that students make appropriate use of learning resources?

7.Please explain specifically how access is provided to laboratories, facilities, and equipment appropriate to the course or program.

8.How are students informed of procedures for resolving technical complaints? Does the syllabus list the entities available to offer technical help with the delivery and/or receipt of the course, such as the Information Technology Customer Service Center (http://www.uky.edu/UKIT/)?

9.Will the course be delivered via services available through the Distance Learning Program (DLP) and the Academic Technology Group (ATL)? NO

If no, explain how student enrolled in DL courses are able to use the technology employed, as well as how students will be provided with assistance in using said technology.

10.Does the syllabus contain all the required components? NO

11.I, the instructor of record, have read and understood all of the university-level statements regarding DL.

Instructor Name:

SIGNATURE|KCROUCH|Kathryn F Crouch|Dept approval for ZCOURSE_NEW BAE 506|20121009

SIGNATURE|KCROUCH|Kathryn F Crouch|College approval for ZCOURSE_NEW BAE 506|20121009

SIGNATURE|JMETT2|Joanie Ett-Mims|Undergrad Council approval for ZCOURSE_NEW BAE 506|20121009

SIGNATURE|ZNNIKO0|Roshan N Nikou|Graduate Council approval for ZCOURSE_NEW BAE 506|20121012

BAE 506:
LIFE CYCLE ASSESSMENTS FOR BIORESOURCE ENGINEERING

INSTRUCTOR: Dr. Michael Montross
OFFICE: Room 106 C.E. Barnhart Building
OFFICE HOURS: MWF 11-12, Or by appointment
PHONE: 257-3000 x106
EMAIL: michael.montross@uky.edu

Class: MWF 9:00 am - 9:50 am

COURSE DESCRIPTION: Life Cycle Assessment (LCA) is a method in which the energy and raw material consumption, different types of emissions and other important factors related to a specific product or service are measured, analyzed and summarized over the entire life cycle. This course will cover the theory, practice and application of Life Cycle Assessment. Life Cycle Assessment is one tool in a large tool box of methods, such as Life Cycle Costing (LCC), Substance Flow Analysis (SFA), and Risk Assessment (RA), used to evaluate goods, services and systems.

PREREQUISITE: Senior or graduate standing.

COURSE OBJECTIVE: This course aims to teach students to think critically about the aspects of LCA from development, to modeling, to results interpretation and use of LCA results in consulting. By the end of the course, students should feel confident that they can apply LCA concepts to new systems and conduct their own LCA investigations.

Student LEARNING OUTCOMES: When you complete this course you should:
- Be able to summarize the theory behind LCA
- Analyze a problem, define appropriate boundary conditions, and apply apply the steps required for an LCA
- Classify the various allocation methods and be able to explain the difference between attributional and consequential LCA
- Be able to think critically about the application of LCA and interpretation of results in scientific publications and in the media
- Understand the use of statistical analysis in LCA
- Be able to perform an LCA and make recommendations on future improvements of a system

REFERENCE MATERIALS
TEXTBOOK (REQUIRED):
HORNE, R., T. GRANT, AND K. VERGHESE. 2009. LIFE CYCLE ASSESSMENT: PRINCIPLES, PRACTICE, AND PROSPECTS. CSIRO PUBLISHING, AUSTRALIA. ISBN: 978064094529.

We will also use ISO documents, many of which are available in print or electronic copy from the Library.
a. ISO 14020: Nine General Principles
b. ISO 14021: Self-declared environmental labeling (Type II)
c. ISO 14024: Type I environmental labeling —Principles and procedures
d. ISO 14025: Type III environmental declarations —Principles and procedures
e. ISO 14040: Environmental management -- Life cycle assessment -- Principles and framework
f. ISO 14044: Environmental management -- Life cycle assessment -- Requirements and guidelines

CLASS ORGANIZATION:
The course will be lecture/seminar based, with some computer lab work to develop LCA models.

Reading assignments will be from the textbook and supplemental reading and **you are responsible for the material in the text whether it is covered in class or not**. Questions on the reading will be part of the homework, as will questions from the lectures.

COURSE GRADING:
You should be spending 2 hours per week viewing lectures, and **at least** 3 hours working on this material **outside of class** for every hour you are "in class"; so at least 9 hours outside of class**.**

Graduate Students: You will be assigned more in-depth homework questions, and you will have an additional project during the semester.

Here is a breakdown of how you will be evaluated if you are an undergraduate student:

Category	**Percentage**
Weekly homework (problems)	15
Questions from reading/lecture	10
Class Participation	10
Midterm exam	15
Projects (2)	20
Comprehensive final exam	30
Total	**100**

Here is a breakdown of how you will be evaluated if you are a graduate student:

Category	**Percentage**
Weekly homework (problems)	20
Questions from reading/lecture	10
Class Participation	0
Midterm exam	20
Projects (2)	20
Comprehensive final exam	30
Total	**100**

Midterm Exam:
The midterm exam will be open book, and closed notes. Anything from the assigned readings, lectures, homework, or from class may be on the exam.

Class participation: Participation for Undergraduates will be graded based on in-class worksheets, handed in during class or participation in class discussions if no worksheets are used in a given class. Graduate students will not earn formal points for class participation, because it is expected you will participate without point incentives.

The **Final Exam** is cumulative, covering material from the entire semester. You must be able to demonstrate knowledge and comprehension of the material from the entire course, and apply the material to an actual problem or life event.

GRADING SCALE FOR UNDERGRADUATES:
The scale for grades is as shown in percentage of total points.
A=90-100%
B=80-89%
C=70-79%
D=60-69%
E= <60%

GRADING SCALE FOR GRADUATE STUDENTS:
The scale for grades is as shown in percentage of total points.
A=90-100%
B=80-89%
C=70-79%
E= <70%

Important Dates

Date	**Event**
March 3	Midterm
February 24	Project 1 due
April 14	Project 2 due
May 3	Final exam

Course Policies:

What if I need to be absent and miss an assignment or exam?

You are an adult, and as such I leave the decision about attending class up to you. However attendance in class is directly related to your success in the course.

You will not be allowed a make-up for missing in-class activities unless you are absent for a UK recognized reason:

- Serious illness
- Serious illness or death of a family member
- University-related trips
- Religious holiday

For UK events, you must provide a written notice signed by the instructor or coach to the professor IN ADVANCE of the event. For religious holidays, I must have, in writing, the days of the semester you will miss, no later than January 20th. For medical and family emergencies, you may have to present documentation of the event, proving your need to be absent. If you cannot document an excuse, it is not a legitimate absence. For illness or emergencies, I must receive documentation no later than one week after the absence.

What if I turn in an assignment late?

No late assignments are accepted unless you are turning it in late due to a University excused absence.

Academic integrity

Academic integrity is essentially honesty at all levels of learning. Forms of dishonesty include (but are not limited to) plagiarism (copying or using someone else's work as your own), use of unauthorized materials during exams (cheat sheets, cell phone, etc) and giving or receiving unauthorized assistance during evaluations (i.e. collaborating on a take-home exam). The penalty for academic misconduct depends on the severity of the offense, and ranges from a zero on the assignment in question to failing the course (with an XE on your transcript, indicating that you failed for academic misconduct reasons).

What if I need extra time on an exam or other accommodations?

If you have a documented learning disability that required academic accommodations, please see me as soon as possible during scheduled office hours (or by appointment) to discuss this. Be aware that you must provide me with a letter from the Disability Resource Center (room 2, Alumni Gym, 257-2754, jkarnes@uky.edu) stating the requested accommodations.