Syllabus

BEE 102, Ecological Engineering: Applying Engineering to Ecosystems, Spring 2014

Instructor: Dr. Desiree Tullos
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Lectures: 2:00-3:20 Tuesday, Thursday
Office Hours: Wednesdays, 3-5pm; 233 Gilmore Hall

Course Description from catalog: The purpose of this course is to introduce students to common problems and solutions in Ecological Engineering, emphasizing the multiplicity of approaches to constraining, analyzing, and resolving challenges of ecosystem management. The objectives of the course are to (1) introduce students to approaches in systems analysis for application within Ecological Engineering and (2) foster critical thinking skills through in-class, homework, and group assignments on real-world problems in Ecological Engineering. Further, students will be required to study an assigned ecological practice, identify and verify resources, and synthesize and critique common solutions in a written and oral presentation formats.

Course Credits (3 Credits): This course will meet three hours per week as lecture.

Prerequisites, Co-requisites and Enforced Prerequisites: NA

Learning Resources: No textbook is required but students will be required to access materials that are made available via Blackboard.

Instructional objectives and student learning outcomes of the course. In accordance with ABET’s a-k learning outcomes, students completing this course will possess:

1. Ability to function on multi-disciplinary teams [ABET OUTCOME D]
2. An ability to effectively communicate in writing and speaking [ABET OUTCOME G]
3. Understanding of Professional & Ethical Responsibility [ABET OUTCOME F]

Assignments relevant to these three outcomes will be copied and shared with ABET evaluators.

Additional instructor objectives are for students to:

1. Gain experience preparing and receive feedback on professional engineering documents.
2. Develop familiarity with applying engineering logic to analysis of complex systems.

3. Gain experience defining, comparing, and making design recommendations for ecological engineering practices using multiple analytical approaches.

4. Apply materials/knowledge from class to a specific problem (term project).

5. See energy and water, everywhere.

-Evaluation of Student Performance

Grades will be assigned according to the following scheme:

1. Assignments – 30%; You will have four assignments – Project synthesis oral presentation (group), temperature analysis (individual), LCA analysis (individual and group), ERA analysis (individual and group).

2. Mid-term exam - 30%. The midterm will be based on lectures and in class examples, homework assignments, and reading discussions. The exam will require students to interpret graphs discussed in class, discuss and justify engineering alternatives, and apply concepts to unfamiliar problems. Format for the exam will include short answer, calculation, and discussion questions used to test students’ knowledge on vocabulary, concepts, and cause-effect relationships.

3. Final project 30%. Appropriateness of motivation, data collection, methods, project analysis of alternatives, design details, justification and defense of assumptions, recommendations. Students will present for approximately 10 minutes on their analysis on the ecological engineering practice. Presentations will be evaluated based on the grading rubric provided. Grade includes evaluation by peers.

4. Reading quizzes (10%): Since there is no textbook for Ecological Engineering, the assigned readings are an important part of this class. Reading the papers in advance of class and contributing to discussions is essential. Students will be directly graded via nine quizzes posted on Blackboard, which must be submitted before class begins. Students will also see questions from the reading quizzes on the midterm exam.

Due dates and times: 10% (one letter grade) will be deducted for every day an assignment is submitted late. Assignments will not be accepted after the solution has been posted or discussed.

University and Departmental Policies.

Students with Disabilities: "Students with documented disabilities who may need accommodations, who have any emergency medical information the instructor should know, or who need special arrangements in the event of evacuation, should make an appointment with the instructor as early as possible, no later that the first week of the term. In order to arrange alternative testing, the student should make the request at least one week in advance of the
test. Students seeking accommodations should be registered with the Office of Services for Students with Disabilities."

**Rules on Civility and Honesty:** The Biological and Ecological Engineering Department follows the university rules on civility and honesty. These can be found at: www.osu.orst.edu/instruct/cssa556/CIVHON556.

Cheating or plagiarism by students is subject to the disciplinary process outlined in the Student Conduct Regulations. Students are expected to be honest and ethical in their academic work. Academic dishonesty is defined as an intentional act of deception in one of the following areas:
* cheating- use or attempted use of unauthorized materials, information or study aids
* fabrication- falsification or invention of any information
* assisting- helping another commit an act of academic dishonesty
* tampering- altering or interfering with evaluation instruments and documents
* plagiarism- representing the words or ideas of another person as one's own

Behaviors disruptive to the learning environment will not be tolerated and will be referred to the Office of Student Conduct for disciplinary action.

“The goal of Oregon State University is to provide students with the knowledge, skill and wisdom they need to contribute to society. Our rules are formulated to guarantee each student’s freedom to learn and to protect the fundamental rights of others. People must treat each other with dignity and respect in order for scholarship to thrive. Behaviors that are disruptive to teaching and learning will not be tolerated, and will be referred to the Student Conduct Program for disciplinary action. Behaviors that create a hostile, offensive or intimidating environment based on gender, race, ethnicity, color, religion, age, disability, marital status or sexual orientation will be referred to the Affirmative Action Office.”