

BE 3290 Professionalism for Biological Engineers (2 credit hours)

What do you expect to receive/learn from this course?

- Fundamental information to help with the ethics portion of the FE exam
- An understanding of codes of conduct for engineers and professionals
- An understanding of your own moral and ethical obligations and responsibilities as engineers and professionals
- An understanding of professionalism issues that are designed to help you in seeking career objectives and being successful in your career
- Evaluation of case studies illustrating ethical and professional principles and dilemmas
- Design and Proposal Development: Understanding and working through group dynamics
- Defining a problem, Information Collection, Proposal preparation
- Improved technical writing skills
- This class addresses significant components of ABET Program Outcomes D, F, G, and H and part of the expectations for Outcomes C, I, and J. Outcomes are addressed through specific homework assignments and the two exams (indicated below and attached).

Primary Instructor:

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This course was developed with the help of other faculty in the Department of Biological and Agricultural Engineering, and especially input from Dr. Marybeth Lima, PE, and Dr. Malcolm Wright, PE, Professor Emeritus

Ethics Reading List and Source Materials:

Martin, M. W. and R. Schinzinger. 2005. Ethics in Engineering. McGraw Hill Publishers, New York, NY. *(Primary source of information used in class)*

*Lindeburg, M. R. 2000. FE Review Manual. Professional Publications, Inc., Belmont, CA.
www.ppi2pass.com, 1st and 2nd Editions.

*Potter, M. C., Editor. 2000. Fundamentals of Engineering Review. Great Lakes Press, Grover, MO.
www.glpbooks.com

*Newnan, D. G. 1998. Engineer-in-training license review (new for the Branch specific FE/EIT Closed-book exam). 15th edition. Engineering Press. P.O. Box 200129, Austin, TX 78720-0129

*Dieter, G. E. and L. C. Schmidt. 2009. Engineering Design, Fourth Edition. McGraw-Hill Co., Inc.

Lima, M. and W. Oaks. 2006. Service-Learning, Engineering in your Community. Great Lakes Press, PO Box 550, Wildwood, MO 63040-6086.

Numerous Articles and Presentations on ethics, professionalism, and proposal development.

**Sources for many of the mid-term and final exam questions*

Preliminary Expectations:

Homework/Papers:		70%
Tests/exams:	Mid term	15%
	<u>Final</u>	<u>15%</u>
	Total	100%

Grading Scale:

A.	90-100
B.	80-89
C.	70-79
D.	60-69
F.	Below 60

Homework:

All homework assignments are due at the beginning of the next class period, unless otherwise specified by the instructor. Late homework assignments will lose points each day that the assignment is late. It is your responsibility to make sure homework is turned in on time. Homework assignments can be turned in ahead of time by sliding them under the office door of the instructor (room 155 E. B. Doran, facing the hallway).

Papers:

Writing assignments are to be a 12-point standard font, double-spaced between lines, with 1 inch margins on 8 ½ by 11 inch paper unless otherwise indicated. References must be provided when used and cited completely: name (s), date, title, location/source and access date (if web location). Page limits or word length will be provided for individual assignments. Papers will be graded on the achievement of the topic objectives, support of the position being presented from reliable outside sources (technical content), ability to relay technical information in a concise and succinct manner, and grammar. Technical writing characteristics will be assessed: ability to relate information in a succinct manner, supported by references, and minimized personal opinions. In some cases, students may be allowed to gain back some points on papers by resubmitting a revised version. The Senior Design Project Proposal will be edited, revised, and resubmitted to the instructor and the funding program. *This course has been certified as "Communication Intensive" and will count toward the LSU Distinguished Communicator Award.*

Academic Honesty:

Academic misconduct will not be tolerated in this course. This is a course on professionalism and ethics! "Academic Misconduct" includes, but is not limited to, cheating, plagiarism, collusion, falsifying academic records, and any act designed to give an unfair academic advantage to the student (such as, but not limited to, submission of essentially the same written assignment for two courses without the prior permission of the instructors, providing false or misleading information in an effort to receive a postponement or an extension on a test, quiz, or other assignment), or the attempt to commit such an act. Please refer to the Code of Student Conduct at the web site for the Office of the Dean of Students at LSU.

FE Exam Information:

Registration deadlines: January 24, for repeats, check with Engr Dean's office

See: http://www.els-examreg.org/state_info.php?state=Louisiana

Next Exam: April 25, 2009, 7:15 am
Locations: Gonzales, Lafayette, New Orleans, Ruston

Final Exam: Currently scheduled for May 7, 2009, 5:30 to 7:30 pm

Office Hours: No specific hours listed, but by appointment within each week

BE 3290 Professionalism for Biological Engineers

Proposed Outline of Classes

Spring, 2009, based on two hours per week

- Week 1 Introduction to the Course, what we expect to achieve this semester. What do I look for in a resume? Do others understand what a biological engineer is? Broad vs tailored information? Introduction to professional ethics. Definitions. Current status of ethical development, opinions from different authors.” What do you know about your own ethical and moral responsibilities? Assignment: Cover letter and up to a 2-page resume for application to a job of student’s choice (may be ideal or expected job). Document resources used.
- Week 2 What do you know about current Codes and Rules. Discussion of Codes of Ethics, positives, negatives, what they are designed to do, what they are not designed to do. Assignment: One of three ethical dilemmas
- Week 3 Evaluation of your resume characteristics. Interview techniques. Do’s and don’ts. What is expected? Could include some role playing. May include an outside speaker?
- Week 4 Example ethical reasoning exercises. Industrial Standards. The Challenger, Columbia, and Discovery Incidents.
- Week 5 Incident at Morales: Assignment prior to start of video: names of players in the video are randomly distributed across the class for ethical consideration: Potential Writing assignment associated with individual ethical considerations of particular individuals within the video.
- Week 6 Mid-term exam
- Proposal and Project Core**
- Week 7 Defining a problem, Effective Group/team dynamics. Project assignment: 2 min. ethical dilemma video accompanied by a three-page report describing roles and issue.
- Week 8 Effective Team Dynamics continued, Gathering Information
- Week 9 Gathering Information continued, Concept/Idea Generation. Assignment: Develop Proposal for a Senior Design Project – expected to be less than 10 pages.
- Week 10 Packaging a Proposal: what makes a good proposal, what makes a poor proposal? Presentation of previously-generated project ideas.
- Week 11 Teamwork activity and individual team member assignments, presentation of ethical videos
- Week 12 Guest Speakers: Industry (engineering), government, and/or medical; status of proposals
- Week 13 Confidentiality, conflicts of interest, whistleblowing, Discussion of Safety and Risk, global environmental ethics
- Week 14 Guest Speakers: Industry (engineering), government, and/or medical
- Week 15 Evaluation of Course, information not covered previously, Review for final exam
- Final Exam