BSE 2105 – Introduction to Biological Systems Engineering
Fall 2010

Instructors:

Dr. Tess Wynn
Office: 302 Seitz Hall
Office Hours: M 9:00 am – 10:00 am
Tu 3:00 pm – 5:00 pm
Wed 10:00 am – 11:30 am
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Dr. Mike Zhang
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Teaching Assistants: Matt Gloe (mgloe@vt.edu) and Andrew Fulton (fultona@vt.edu)

Course Meetings: Lecture: Tuesday 2:00-2:50 pm, 105 Seitz Hall
Lab: Thursday 9:30-12:15 am or 2:00-4:45 pm, 105 Seitz Hall

Course Pre- and Co-requisites: Pre: ENGE 1016 or ENGE 1104 or ENGE 1114 Co: BIOL 1105

Required Text: Eide, AR, RD Jenison, LH Mashaw, and LL Northup. 1998. Introduction to Engineering Design and Problem Solving, 2nd Edition. McGraw-Hill: Boston, MA. 229 pp.

Additional Resources: Handouts

Class Website Scholar (scholar.vt.edu). Check the course website daily for course announcements, updates, and reminders.

Required Equipment: Laptop Computer

Learning Objectives: Having successfully completed this course, the student will be able to:

- Apply the engineering code of ethics to resolve ethical dilemmas;
- Apply engineering principles and concepts to biological systems;
- Apply the engineering design procedure to solve problems in biological systems;
- Demonstrate effective teamwork skills; and,
- Demonstrate improved technical communication skills.

Grading and Evaluation: Each student's grade in the course will be determined as follows:

Homework assignments	20%
Laboratory assignments	30%
Two tests	30%
Final exam	20%

Course Policies:

All assignments must be completed to receive credit for this course. An overall grade of C- is required. It is expected that students will not disturb or distract others or in any way interfere with the ability of other students to learn the course material. Individuals whose actions create a distraction or disturb other students will be asked to cease the disrupting activity or leave the classroom.

Submitted Homework and Laboratory Assignments:

Homework and laboratory reports must be prepared and presented in a professional manner. *Homework and laboratory reports that do not follow the writing guide will be returned ungraded.* Due dates will be given on each assignment. Grades on late homework will be reduced by 10% of the total available points for that assignment, each day (24-hour period) that the assignment is late for a maximum of 50% of the final grades. Please refer to the lab report guidelines for preparing lab reports.

Disability Statement:

Reasonable accommodations are available for students who have a disability. Students should contact the Services for Students with Disabilities (SSD), 150 Henderson Hall, 231-3788 (V), 231-1740 (TTY); Susan P. Angle, spangle@vt.edu, www.ssd.vt.edu. "Students with disabilities are responsible for self-identification....To be eligible for services, documentation of the disability from a qualified professional must be presented to SSD upon request. Academic adjustments may include, but are not limited to: priority registration, auxiliary aids, program and course adjustment, exam modifications, oral or sign language interpreters, cassette taping of text/materials, notetakers/readers, or assistive technology."

Honor Code Statement:

The Honor Code will be strictly enforced in this course. All assignments submitted shall be considered graded work, unless otherwise noted. All aspects of your coursework are covered by the Honor System. Any suspected violations of the Honor Code will be promptly reported to the Honor System (see http://www.honorsystem.vt.edu/). The following is the Honor Code written verbatim from the VT Honor System Constitution:

The Honor Code is the University policy that expressly forbids the following academic violations:

1. Cheating -- Cheating includes the actual giving or receiving of any unauthorized aid or assistance or the actual giving or receiving of any unfair advantage on any form of academic work, or attempts thereof.
2. Plagiarism -- Plagiarism includes the copying of the language, structure, ideas and/or thoughts of another and passing off same as one's own, original work, or attempts thereof.
3. Falsification -- Falsification includes the statement of any untruth, either verbally or in writing, with respect to any circumstances relevant to one's academic work, or attempts thereof. Such acts include, but are not limited to, the forgery of official signatures, tampering with official records, fraudulently adding or deleting information on academic documents such as add/drop requests, or fraudulently changing an examination or other academic work after the testing period or due date of the assignment.

While group work on homework and lab assignments is encouraged to facilitate cooperative learning, each student is expected to complete each assignment him/herself and to turn in his/her own work. Copying of another student's work (currently or previously enrolled students) is not allowed. Copying (either direct cut and paste or slight rewording) of written material, such as from the internet or another student's work, is strictly forbidden. All exams should be solely and completely the work of the individual student. ***Violations of the Honor Code will be turned over to the Honor Court.***

Virginia Tech's Principles of Community:

Virginia Tech is a public land-grant university, committed to teaching and learning, research, and outreach to the Commonwealth of Virginia, the nation, and the world community. Learning from the experiences that shape Virginia Tech as an institution, we acknowledge those aspects of our legacy that reflected bias and exclusion. Therefore, we adopt and practice the following principles as fundamental to our on-going efforts to increase access and inclusion and to create a community that nurtures learning and growth for all of its members:

- We affirm the inherent dignity and value of every person and strive to maintain a climate for work and learning based on mutual respect and understanding.
- We affirm the right of each person to express thoughts and opinions freely. We encourage open expression within a climate of civility, sensitivity, and mutual respect.
- We affirm the value of human diversity because it enriches our lives and the University. We acknowledge and respect our differences while affirming our common humanity.
- We reject all forms of prejudice and discrimination, including those based on age, color, disability, gender, national origin, political affiliation, race, religion, sexual orientation, and veteran status. We take individual and collective responsibility for helping to eliminate bias and discrimination and for increasing our own understanding of these issues through education, training, and interaction with others.
- We pledge our collective commitment to these principles in the spirit of the Virginia Tech motto of Ut Prosim (That I May Serve).

BSE 2105 – Fall 2010 Course Schedule (The schedule of topics listed below is subject to change; L=lab)

Monday	Tuesday	Wednesday	Thursday	Friday
23 **August**	24 Introduction to BSE – Dr. Wolfe Intro to course; Writing guide	25	26 L1: Lab safety training session; meet BSE advisors	27
30	31 Introduction to course/career opportunities in BSE	1 **September**	2 L2: Engineering ethics (Dilbert game)	3
6	7 Statistics and data analysis	8	9 L3: Statistics and data analysis	10
13	14 Instrumentation, error, data presentation	15	16 L4: Basic measurements	17
20	21 Basic water mass balance	22	23 L5: ET lab (Tess)	24
27	28 Intro to BSE faculty and research	29	30 L6: Library writing assignment on systems (team of 3)	1 **October**
4	5 **Exam 1**	6	7 L7: Tracer lab	8 Fall Break
11	12 Mass and energy balance (Dr. Barone?)	13	14 L8: Mass and energy balances (Dr. Barone?)	15
18	19 Introduction to protein separation	20	21 L9: Protein separation lab (Mike)	22
25	26 Leigh-Anne and Scotty	27	28 L10: Leigh-Anne and Scotty	29
1 **November**	2 Enzyme Kinetics (Dr. Senger)	3	4 L11: Enzyme kinetics (Dr. Senger)	5
8	9 Engineering design	10	11 L12: Engineering design	12
15	16 **Exam 2**	17	18 L13: Engineering design	19

Monday	Tuesday	Wednesday	Thursday	Friday
22 Thanksgiving	23	24	25	26
29	30 Engineering design	1 **December**	2 L14: Design presentations	3
6	7 Review/recap	8 Classes end	9 *Reading Day*	10
13	14	15 ********** ***Final Exam 2:05-4:05 AM***	16	17