

Biology for Engineers
ABE 2062 Section 6949
Class Periods: MWF, period 2 (8:30 – 9:20 am)
Location: MAEA 0303
Academic Term: Fall 2016

Instructor:

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Teaching Assistant (Please contact through the Canvas website):

Yuan Li, email address: liyuan8856@ufl.edu, office location: NSC R241A, office hours: M 1:30 pm – 3:30 pm

Course Description

This is a 3-credit introductory course of biology for a student in the engineering discipline to develop their engineering career in a bio-related field. The contents of the course include the basic knowledge of biological functions of human at the organ, tissue, cellular, and molecular level.

Course Pre-Requisites / Co-Requisites

There are no pre-requisites and co-requisites for this course.

Course Objectives

This course aims to enable students to use an engineer's point of view to understand basic biological concepts.

Materials and Supply Fees

Not applicable.

Professional Component (ABET):

This is an era that an engineer can greatly apply their solid engineering training to much broader area, such as biomedical field. The course aims to give students an opportunity to expand their discipline to bio- and biomedical engineering field.

Relation to Program Outcomes (ABET):

When finishing this course, the students shall attain **1)** knowledge regarding contemporary biological issues, **2)** the broad education necessary to understand the impact of engineering solution in current biological and biomedical research; and **3)** an ability to involve biological knowledge to their career development.

Required Textbooks and Software

- Title: *Campbell Biology* (Pearson/Benjamin Cummings Publisher)
- Author: Reece, Urry, Cain, Wasserman, Minorsky and Jackson
- Publication date and edition: Nov. 10, 2013 as 10th Edition
- ISBN number: ISBN-13: 978-0321775658 or ISBN-10: 0321775651

Recommended Materials

There is no recommended material; however, the students are encouraged to search related course topics in the Internet.

Course Schedule

SCHEDULE AND CONTENTS		
Wk	Date	Topics
1	Aug. 22	Introduction/syllabus
	Aug. 24	Background knowledge: Chapter 6, 40.1
	Aug. 26	Proteins: Chapter 5
2	Aug. 29	Other Biomolecules and Cells: Chapter 4-6
	Aug. 31	Membrane and Transport: Chapter 7
	Sept. 02	EXAM I (Introduction; Chapters 2-7, 40.1)
3	Sept. 05	Labor Day Holiday
	Sept. 07	Materials Balance: Chapter 40, 41
	Sept. 09	Chapter 41, 42
4	Sept. 12	Chapter 42
	Sept. 14	Chapter 42, 44
	Sept. 16	Chapter 44
5	Sept. 19	EXAM II (Chapters 40-42 and 44)
	Sept. 21	Energy Balances: Chapter 8
	Sept. 23	Chapter 9
6	Sept. 26	Chapter 10
	Sept. 28	Career Showcase
	Sept. 30	Communication and Response: Chapter 11
7	Oct. 03	Chapter 43
	Oct. 05	Chapter 45
	Oct. 07	Chapter 48, 49
8	Oct. 10	Chapter 49, 50
	Oct. 12	Chapter 50
	Oct. 14	UF Homecoming
9	Oct. 17	Chapter 50(II)
	Oct. 19	EXAM III (Chapters 8-10, 43, 48-50)
	Oct. 21	Genetics: Chapter 12
10	Oct. 24	Chapter 13
	Oct. 26	Chapter 14, 15
	Oct. 28	Chapter 15, 16
11	Oct. 31	Chapter 16, 17
	Nov. 02	Chapter 17
	Nov. 04	Exam IV (Chapters 12-17);
12	Nov. 07	Disease and Biomedical Research: Chapter 18
	Nov. 09	Chapter 18, 47
	Nov. 11	Veterans Day Holiday
13	Nov. 14	AICHE Annual Meeting
	Nov. 16	AICHE Annual Meeting
	Nov. 18	AICHE Annual Meeting
14	Nov. 21	Chapter 47, 46
	Nov. 23	Thanksgiving Holiday
	Nov. 25	Thanksgiving Holiday
15	Nov. 28	Chapter 19
	Nov. 30	Chapter 20
	Dec. 02	Exam V (Chapters 18-20 and 46-47)
16	Dec. 05	Bonus report (no class)
	Dec. 07	Bonus report (no class)

Attendance Policy, Class Expectations, and Make-Up Policy

There is no specific policy regarding absence, tardiness, cell phone, and laptop policy. However, the students are advised to pay attention to the lectures. A strong positive correlation has been observed between the performance and attentiveness in class. Please note that the majority of your grade will be based on the test scores. A student is advised to report an excused absence that causes his/her absence prior the class by email. Without a prior report, the miss of an assignment due or a quiz/exam cannot be made up. [Excused absences are consistent with university policies in the undergraduate catalog \(https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx\)](https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx) and require appropriate documentation.

Evaluation of Grades

Assignment	Total Points	Percentage of Final Grade
Exam I	100 each	15% - 25%*
Exam II	100	15% - 25%*
Exam III	100	15% - 25%*
Exam IV	100	15% - 25%*
Exam V	100	15% - 25%*
		100%

See the grading policy.

Grading Policy

- Grading – The performance index (*PI*) is used as the scale system to determine the final grade. The summation of individual *PI*, determined by each exam using the following formula: $PI = (x_i - \bar{x})/\sigma$, where x_i , \bar{x} , and σ represents the test score, the averaged test score, and the standard deviation for the i^{th} exam, respectively. The best two *PI*s receive 25% of weight, the middle *PI* weighs 20%, and the least two *PI*s count as 15%.
- Grading Scale – The student’s final score (presented as *PI*) determines his/her final grade. In general, A: 85%, (A-): 85% - 70%, B+: 70% - 50%, B: 50% - 30%, B-: 30% - 20%, C+: 20% or lower. However, students who have the final *PI* lower than -3 might receive score lower than C+.

More information on UF grading policy may be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Students Requiring Accommodations

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://www.dso.ufl.edu/drc>) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Course Evaluation

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu/evals>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

University Honesty Policy

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code (<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see:

<http://registrar.ufl.edu/catalog0910/policies/regulationferpa.html>

Campus Resources:

Health and Wellness

U Matter, We Care:

If you or a friend is in distress, please contact umatter@ufl.edu or 352 392-1575 so that a team member can reach out to the student.

Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Assault Recovery Services (SARS)

Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/>.

Academic Resources

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu.
<https://lss.at.ufl.edu/help.shtml>.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling. <https://www.crc.ufl.edu/>.

Library Support, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring.
<https://teachingcenter.ufl.edu/>.

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers.
<https://writing.ufl.edu/writing-studio/>.

Student Complaints Campus: https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf.

On-Line Students Complaints: <http://www.distance.ufl.edu/student-complaint-process>.