

1. Catalog 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, including the basic knowledge of biological functions of human at the organ, tissue, cellular and molecular level.
2. Pre-requisites and Co-requisites – There are no pre-requisites and co-requisites for this course.
3. Course Objectives – This course aims to enable students to use an engineer’s point of view to understand basic biological concepts.
4. Contribution of course to meeting the professional component – 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.
5. Relationship of course to program outcomes – 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.
6. Instructor: Yiider Tseng, PhD, Associate Professor of Chemical Engineering
  - a. Office location: 223 CHE (Chemical Engineering Building)
  - b. Telephone: (352) 392-0862
  - c. E-mail address: ytseng@ufl.edu
  - d. Web site: <http://www.che.ufl.edu/faculty/tseng/index.html>
  - e. Office hours: TR Period 7 (2:00 pm – 2:50 pm), or special appointment by email
7. Teaching Assistant: Qiao Zhang, PhD graduate student of Chemical Engineering
  - a. Office location: 241C Nuclear Science Building
  - b. E-mail address: qzhang02@ufl.edu
  - c. Office hours: MW 5 - 6 pm
8. Meeting Times – This class will meet three times a week.
9. Class schedule – MWF at Period 2 (8:30 am - 9:20 am).
10. Meeting Location – 0303 MAEA.
11. Material and Supply Fees – Not applicable
12. Textbooks and Software Required –
  - a. Title: *Campbell Biology* (Pearson/Benjamin Cummings Publisher)
  - b. Authors: Reece, Urry, Cain, Wasserman, Minorsky and Jackson
  - c. Publication date and edition: Nov. 10, 2013 as 10th Edition
  - d. ISBN number: ISBN-13: 978-0321775658 or ISBN-10: 0321775651
13. Recommended Reading – Students are encouraged to actively acquire information from the Internet for related materials taught in the classes.

## 14. Course Outline (TENTATIVE):

SCHEDULE AND CONTENTS		
Wk	Date	Topics
1	Aug. 24	<b>Introduction</b>
	Aug. 26	<b>Scales and Physical Components: Chapter 6</b>
	Aug. 28	<b>Cells and Biomolecules: Chapter 2 and 3</b>
2	Aug. 31	<b>Chapter 4</b>
	Sept. 02	<b>Chapter 5</b>
	Sept. 04	<b>Membrane and Transport: Chapter 7</b>
3	Sept. 07	<b>Labor Day Holiday</b>
	Sept. 09	<b>Materials Balance: Chapter 40</b>
	Sept. 11	<b>Chapter 41</b>
4	Sept. 14	<b>Chapter 42(I)</b>
	Sept. 16	<b>Chapter 42(II)</b>
	Sept. 18	<b>EXAM I (Chapters 2-7, 40 and 41)</b>
5	Sept. 21	<b>Chapter 44</b>
	Sept. 23	<b>Energy Balances: Chapter 8</b>
	Sept. 25	<b>Chapter 9</b>
6	Sept. 28	<b>Chapter 10</b>
	Sept. 30	<b>Career Showcase</b>
	Oct. 02	<b>Communication and Response: Chapter 11</b>
7	Oct. 05	<b>Chapter 45</b>
	Oct. 07	<b>Chapter 43</b>
	Oct. 09	<b>Chapter 48</b>
8	Oct. 12	<b>Chapter 49</b>
	Oct. 14	<b>Chapter 50(I)</b>
	Oct. 16	<b>EXAM II (Chapters 42-45 and 8-11)</b>
9	Oct. 19	<b>Chapter 50(II)</b>
	Oct. 21	<b>Chapter 50(III)</b>
	Oct. 23	<b>Genetics: Chapter 12</b>
10	Oct. 26	<b>Chapter 13</b>
	Oct. 28	<b>Chapter 14</b>
	Oct. 30	<b>Chapter 15</b>
11	Nov. 02	<b>Chapter 16</b>
	Nov. 04	<b>Chapter 17</b>
	Nov. 06	<b>UF Homecoming</b>
12	Nov. 09	<b>AICHE Annual Meeting</b>
	Nov. 11	<b>Veterans Day Holiday</b>
	Nov. 13	<b>EXAM III (Chapters 48-50 and 12-16)</b>
13	Nov. 16	<b>Disease and Biomedical Research: Chapter 47</b>
	Nov. 18	<b>Chapter 18 (I)</b>
	Nov. 20	<b>Chapter 18 (II)</b>
14	Nov. 23	<b>Chapter 19</b>
	Nov. 25	<b>Thanksgiving Holiday</b>
	Nov. 27	<b>Thanksgiving Holiday</b>
15	Nov. 30	<b>Chapter 20</b>
	Dec. 02	<b>Chapter 20</b>
	Dec. 04	<b>Exam IV (Chapters 17-20 and 47);</b>
16	Dec. 07	<b>Project Studies</b>
	Dec. 09	<b>Project Studies</b>

15. Attendance and Expectations – Students are expected to attend the classes. Absence from the lectures may lead to poorer performance in exam scores. A student is required to report a special event that causes his/her absence prior the class by email. Students are also expected to memorize some course materials; in particular when the instructor will make his best effort to reduce the memorization load from this course.
16. 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  $\sigma$  represents the test score, the averaged test score, and the standard deviation for the  $i^{th}$  exam, respectively. In addition, if necessary, opportunities of bonus *PI* will offer (such as term paper) to burst students' overall *PI*.
17. Grading Scale – The student's final score (presented as *PI*) determines his/her final grade. In general, a student *PI* value locates in the region,  $>3$ ,  $[1, 3]$ ,  $[0.4, 1]$ ,  $[-0.8, 0.4]$ ,  $[-2, -0.8]$ ,  $[-3, -2]$ ,  $[-5, -3]$ , or  $<-5$ , will obtain an A, A-, B+, B, B-, C+, C, or F, respectively.  
 “A C- will not be a qualifying grade for critical tracking courses. In order to graduate, students must have an overall GPA and an upper-division GPA of 2.0 or better (C or better). Note: a C- average is equivalent to a GPA of 1.67, and therefore, it does not satisfy this graduation requirement. For more information on grades and grading policies, please visit: <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>”
18. Requirements for class attendance and make-up exams, assignments, and other work are consistent with university policies that can be found at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>
19. Honesty Policy – All students admitted to the University of Florida have signed a statement of academic honesty committing themselves to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a UF student and to be honest in all work submitted and exams taken in this course and all others.
20. Accommodation for Students with Disabilities – Students Requesting classroom accommodation must first register with the Dean of Students Office. That office will provide the student with documentation that he/she must provide to the course instructor when requesting accommodation.
21. UF Counseling Services –Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:
  - UF Counseling & Wellness Center, 3190 Radio Rd, 392-1575, psychological and psychiatric services.
  - Career Resource Center, Reitz Union, 392-1601, career and job search services.
22. Software Use – All faculty, staff and student 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.