

BME 1008 Introduction to Biomedical Engineering

1. **Catalog Description** (1 credit hour) – Introduction to and overview of biomedical engineering. Lectures are given by faculty experts in a range of biomedical engineering fields. The goal is to give beginning students an appreciation for the breadth of the field and to guide them in making curriculum, major and career choices.
2. **Pre-requisites and Co-requisites** – None
3. **Course Objectives**
  - a. Provide students with a broad overview of the Biomedical Engineering field
  - b. Guide students in making early curriculum, major, and education choices regarding biomedical engineering
  - c. Provide an overview of common areas available to BME graduates
  - d. Provide students with knowledge of contemporary issues in BME
4. **Contribution of course to meeting the professional component**
  - a. The student will learn about professional and ethical responsibility
  - b. The student will learn to communicate effectively
  - c. The student will learn about contemporary BME research
  - d. The student will learn to use the techniques, skills, and modern biomedical engineering tools necessary for biomedical engineering practice
5. **Relationship of course to program outcomes**
  - (j) a knowledge of contemporary issues
6. **Instructor** – Dr. Stephen Hugo Arce
  - Office location: NSC 410
  - Telephone: 352-392-0228
  - E-mail address: sarce@bme.ufl.edu
  - Class Web site: <https://elearning.ufl.edu>
  - Office hours: By appointment
7. **Meeting Times** – Fridays, Period 6 (12:50 – 1:45 PM)
8. **Class/laboratory schedule** – One 50-minute lecture each week.
9. **Meeting Location** – McCarty C 100
10. **Material and Supply Fees** – None
11. **Textbooks and Software Required** – None

## 12. Recommended Reading

*The following websites provide a nice overview of the BME field and current events:*

- i. [bme.ufl.edu](http://bme.ufl.edu) (Information on our faculty, research, and laboratories)
- ii. [undergraduate.bme.ufl.edu](http://undergraduate.bme.ufl.edu) (Information on the undergraduate UF BME curriculum)
- iii. <http://www.bmes.org> (Check out the undergraduate research section for career connections, news and press, and other resources)
- iv. [www.whitaker.org](http://www.whitaker.org) (Check out undergraduate research programs and summer programs)
- v. [www.nibib.nih.gov](http://www.nibib.nih.gov) (Information on recent advances in Biomedical Engineering and government funding in BME).
- vi. [www.embs.org](http://www.embs.org) (Information on the IEEE Engineering in Medicine and Biology Society)
- vii. [http://www.crc.ufl.edu/assets/files/events/UFCRC\\_SpringEvents2016.pdf](http://www.crc.ufl.edu/assets/files/events/UFCRC_SpringEvents2016.pdf) (Career Resource Center Event Schedule)

## 13. Course Outline - **\*\*LECTURE SCHEDULE SUBJECT TO CHANGE\*\***

Aug 26	Dr. Christine Schmidt (Regenerative Medicine)
Sept 2	Dr. Christopher Hess (Neurology)
Sept 9	Dr. Parisa Rashidi (Machine Learning, Data Science)
Sept 16	Dr. Kevin Otto (Neural Engineering)
Sept 23	Dr. Hugh Fan (Biomedical MicroElectroMechanical Systems)
Sept 30	Dr. Jonathan Shutes (Neural Engineering PhD Student)
Oct 7	Career Resource Center Guest
Oct 21	[ <b>Design Day</b> ] Dr. Stephen Hugo Arce
Oct 28	Dr. Walter O'Dell (Radiation Oncology)
Nov 4	Dr. David Gilland (BME Undergraduate Coordinator)
Nov 18	Dr. Panos Pardalos (Data Mining for Seizure Control)
Dec 2	Dr. Tommy Angelini (Soft Tissue Engineering)

## 14. Attendance and Expectations

Attendance is required and will make up a substantial part of your final grade. Every lecture will have a sign-in sheet that you must sign with your initials. Don't forget to sign the sheet because you will not receive credit without signing the sheet. If you are disruptive to the class, fall asleep, use your computer or phone or do crossword puzzles during class, attendance credit will be deducted.

*Common Issues:*

- Do not sign in for your friends. Your handwriting will be checked.
- Valid reasons for missing class include: sickness (requires doctor's certificate); death in the family.

- From the registrar’s office - Final exams are determined by course meeting times, except for certain large courses. No student is required to take more than three final exams in one day. If two exams are scheduled at the same time, assembly exams take priority over time-of-class exams. When two assembly exams or two time-of-class exams conflict, the course with the higher number will take priority. Instructors giving make-up exams will make the necessary adjustments.

**15. Grading**

- Attendance: 35% (sign-in each class)
- Design Problem: 25% (1 in-class session)
- Assignments: 40% (2 homework assignments, 20% each)

**16. Grading Scale**

A	A-	B+	B	B-	C+
92.5-100	90.0-92.4	87.5-89.9	82.5-87.5	80.0-82.4	77.5-79.9
C	C-	D+	D	D-	F
72.5-77.5	70.0-72.4	67.5-69.9	62.5-67.5	60.0-62.4	0-59.9

\* Grades will be rounded to the nearest tenth of a point; then, your letter grade will be assigned based on the above table.

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>

17. 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>

18. **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 (<http://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.

Note that failure to comply with this commitment will result in disciplinary action compliant with the UF Student Honor Code Procedures.

See <http://www.dso.ufl.edu/sccr/procedures/honorcode.php>

19. **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.
20. **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, <http://www.counseling.ufl.edu/cwc/Default.aspx>, counseling services and mental health services.
  - Career Resource Center, Reitz Union, 392-1601, career and job search services.  
University Police Department 392-1111
21. **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.
22. Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. 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/>.

### 23. **Homework Assignments:**

#### **Assignment #1**

Due: 10/12/16, 11:55 PM

How: Use Canvas

Create a 1 or 2-page CV/resume and write a 1-page cover letter targeted to a real job or internship posting (provide a copy or link). Using resources at the CRC is suggested.

Logistics: Use the template on the CRC website found here: [https://www.crc.ufl.edu/wp-content/uploads/2016/05/CRC\\_ResumePreparation.pdf](https://www.crc.ufl.edu/wp-content/uploads/2016/05/CRC_ResumePreparation.pdf)

#### **Assignment #2**

Due: 11/18/16, 11:55 PM

How: Use Canvas

Pick 1 of the following options and write a 1-page essay on the topic.

*Option #1* – BME Application Essay: The BME online application consists of basic information submitted online and a one page essay. The essay should contain the reasons you want to study BME, which BME subjects interest you, what do you want to do with your BME BS degree, and which BME Program Track are you interested in and why.

*Option #2* – Write a short summary of a company/researcher that works in the field of Biomedical Engineering. Explain the courses that you might take in order to become eligible to work for that company/person in the future. What else could you get involved with while at UF to prepare for that career?

Logistics: The essay should be one 8.5 in x 11 in page with 1 inch margins, 11 point Times New Roman font, with no graphics. Line spacing is at the student's discretion, but the suggestions spacing is 1.5. Properly cite all references.

**Design Problem**

Due: 11/04/16 11:55 PM

How: In-class then a Canvas turn-in

Design a small part using SolidWorks and submit it as an STL file. The part should fit within 1 cubic inch and must have your initials or name in the design.