Introduction to Biomedical Engineering

BME 1008 Class Number 10939
Class Periods: Thursday | Period 6 (12:50PM – 1:40PM EST)
Location: Turlington (TUR) L011
Academic Term: Fall 2025

Instructors:
Sarah Furtney, PhD | sfurtney@eng.ufl.edu
Office Hours: TBD, and by appointment please request via email

Teaching Team:
Grading questions should be directed to Dr. Furtney, NOT the other teaching team members

- Grading Assistant: Mr. Daniel Rivera

Course Description
Introduction to and overview of biomedical engineering. Lectures are given by faculty experts in an area of biomedical engineering. 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.

Course Pre-Requisites / Co-Requisites
Not applicable

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

Materials and Supply Fees
None

Relation to Program Outcomes (ABET):
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

Outcome	**Coverage***
1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	Low / Introduced
3. An ability to communicate effectively with a range of audiences	Low / Introduced
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the	Medium / Introduced

impact of engineering solutions in global, economic, environmental, and societal contexts	
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative environment, establish goals, plan tasks, and meet objectives	
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies	High / introduced

Coverage is given as high, medium, or low. An empty box indicates that this outcome is not covered or assessed in the course.

Required Textbooks and Software

Canvas access via website and/or smartphone application

Recommended Materials

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

- http://bme.ufl.edu/ (Information on our faculty, research, and laboratories)
- http://bme.ufl.edu/academics/undergraduate (Information on the undergraduate UF BME curriculum)
- http://www.bmes.org/ (Check out the undergraduate research section for career connections, news and press, and other resources)
- https://www.nibib.nih.gov/ (Information on recent advances in Biomedical Engineering and government funding in BME).
- https://www.embs.org/ (Information on the IEEE Engineering in Medicine and Biology Society)
- https://career.ufl.edu/ (UF Career Connection Center resources and events)

Required Computer

Recommended Computer Specifications: https://it.ufl.edu/get-help/student-computer-recommendations/
HWCOE Computer Requirements: https://www.eng.ufl.edu/students/advising/fall-semester-checklist/computer-requirements/

Course Schedule

August 21: Course Introduction
August 28: Biomaterials and Regenerative Medicine
September 4: Neural Engineering
September 11: Biomedical Imaging and Applications
September 18: Biomechanics and Bionics
September 25: Biomedical Data Science and Modeling
October 2: Cellular and Molecular Engineering
October 9: BME Design (junior design, senior design, design competitions)
October 16: BME Perspectives with Clinician
October 23: BME Industry Overview
October 30: BME Learning Assistant Program
November 6: Inclusive Engineering in BME; Global Health, Entrepreneurship
November 13: Course Conclusion, BME Upper Division and Admissions Process
November 20: NO CLASS
November 27: University Holiday, NO CLASS
December 3: UF Last Day of Classes
Dec 4-5: Reading Days
Dec 6-12: Final Exams, BME 1008 DOES NOT have a final exam scheduled during the assigned exam block, but DOES have Canvas quiz that you will complete at a time and place of your choosing

Attendance Policy, Class Expectations, and Make-Up Policy

- In-person attendance is required.
- *Engagement with the course materials (in-person lectures & activities, and Canvas asynchronous homework) is required and will make up a substantial part of your final grade*. Every class session will have a unique assignment submission in which you will provide your solutions and information demonstrating that you engaged with your peers in the course content.
- Charged laptops are required for each class session.
- Follow common professional standards of being engaged and not disruptive in the classroom.
- 20% will be deducted for coursework submitted late. The instructor can waive this penalty for accommodations and extenuating circumstances. Please communicate with your instructor! Deadline extensions can also be granted for accommodations and extenuating circumstances.
- Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies. Click here to read the university attendance policies:
    - https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/

Evaluation of Grades

Assignment	Percentage of Final Grade
Module Activities	35%
Quizzes	25%
Assignments	30%
Project	10%
	100%

Grading Policy

The following is given as an example only.

Percent	Grade	Grade Points
93.4 - 100	A	4.00
90.0 - 93.3	A-	3.67
86.7 - 89.9	B+	3.33
83.4 - 86.6	B	3.00
80.0 - 83.3	B-	2.67
76.7 - 79.9	C+	2.33
73.4 - 76.6	C	2.00
70.0 - 73.3	C-	1.67
66.7 - 69.9	D+	1.33
63.4 - 66.6	D	1.00
60.0 - 63.3	D-	0.67
0 - 59.9	E	0.00

Academic Policies & Resources

To support consistent and accessible communication of university-wide student resources, instructors must include this link to academic policies and campus resources: https://go.ufl.edu/syllabuspolicies. Instructor-specific guidelines for courses must accommodate these policies.

Commitment to a Positive Learning Environment
The Herbert Wertheim College of Engineering values varied perspectives and lived experiences within our community and is committed to supporting the University's core values.

If you feel like your performance in class is being impacted, please contact your instructor or any of the following:
• Your academic advisor or Undergraduate Coordinator
• HWCOE Human Resources, 352-392-0904, student-support-hr@eng.ufl.edu
• Pam Dickrell, Associate Dean of Student Affairs, 352-392-2177, pld@ufl.edu