Clinical Correlations in BME
BME 6018 Section 2536
Class Periods: Tuesdays Period 7 (1:55-2:45pm) and Thursdays (1:55-3:50pm)
Location: HPNP 1101
Academic Term: Fall 2025

Instructor:
Blanka Sharma
blanka.sharma@bme.ufl.edu
352-273-9329
Office Hours: Tuesdays 3-4pm and Thursdays 4-5pm (BMS J387 or via zoom)

Teaching Assistant/Peer Mentor/Supervised Teaching Student:
N/A

Course Description
Biomedical engineers are called on to develop practical solutions to various problems encountered in healthcare and clinical practice. In this course, students will be exposed to clinical problems, learn how to identify unmet needs and will devise engineering solutions to address clinical needs. Topics related to clinical translation of biomedical innovations and medical device commercialization will be covered. ***3 credit hours.***

Course Pre-Requisites / Co-Requisites
Pre-Requisite: BME 5401 or waiver

Course Objectives
a) Understand various clinical problems and identify significant medical needs.
The best way to learn about clinical problems is directly from the clinicians and healthcare providers that encounter them. Students will attend "BME Grand Rounds" seminars, where a clinician will describe one or more clinical problems that (s)he encounters on a regular basis. Students are also required to attend 10 grand rounds in clinical departments over the semester, to gain exposure to case studies and clinical problems beyond those covered in the BME Grand Rounds. The course will cover how to generate effective problem and needs statements.
b) Develop engineering solutions to unmet clinical needs.
After each of the BME Grand Rounds, students will work in teams over 3-4 weeks to develop an original solution to address the clinical need identified. Techniques for effective brainstorming will be covered.
c) Examine the commercialization potential for medical devices/technologies
Course lectures will cover topics related to medical device commercialization, intellectual property, regulatory pathways, and healthcare reimbursement, which are critical to the clinical translation of biomedical engineering technologies. Students will be expected to consider these factors in the development of their solutions and develop a commercialization plan.
d) Communicate ideas to a broad audience in written and verbal formats.
The ideas generated by the teams will be presented orally to the class and clinicians, and written as an NIH SBIR/STTR-style proposal.

Materials and Supply Fees
N/A

Required Textbooks and Software

There are no specific required textbooks.

Recommended Materials

Biodesign: The Process of Innovating Medical Technologie
Stefanos Zenios, Josh Makower, Paul Yock
Cambridge University Press
ISBN 978-0-521-51742-3

This book is available (free) online with UF Libraries:
https://ufl-flvc.primo.exlibrisgroup.com/permalink/01FALSC_UFL/6ad6fc/alma99384924509606597

The book is also available in print at Marston Library. BME's Librarian, Amy Buhler (abuhler@ufl.edu), can assist with library resources as needed.

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 Topics and Schedule

*****Note this is subject to change at instructor's discretion or to accommodate changes in speakers'/clinicians' schedules** More details on course schedule will be available in Canvas.***

Week 1:	Course Overview and Clinical Overview
Week 2:	Needs Identification, Problem and Needs Statements
Week 3:	BME Grand Rounds (Clinician Presentations)
Week 4:	BME Grand Rounds (Clinician Presentations)
Week 5:	Design Resources
	Professional Communication
Week 6:	Proposal Writing/Review and Specific Aims
Week 7:	Intellectual Property
Week 8:	Feedback on Specific Aims
Week 9:	Group Presentations
Week 10:	Regulatory Pathways
Week 11:	Healthcare Reimbursement
Week 12:	Business Models and Fundraising
Week 13:	Medical Device Commercialization
Week 14:	Final Team Presentations
Week 15:	Thanksgiving
Week 16:	Feedback and Final Written Proposals

Important Dates

October 7:	Interim Report (i.e. Draft Specific Aims Page Due)
October 16:	Interim Group Presentations
Nov 18th and Nov 20th:	Final Presentations
December 2nd:	Final Report Deadline

Clinical Grand Rounds/Clinical Reports:
Students are required to attend a clinical grand round every week and submit a clinical report at the end of each week (by Friday, 11:59 pm). An approved list of grand rounds across the various clinical departments will be available in Canvas. For each clinical grand rounds, students will write a one page "clinical report" that summarizes the clinical rounds attended and will include the student's impressions and thoughts about how engineers may contribute to solving the clinical problems discussed. Note that attendance of grand rounds should be distributed across the semester, as no more than two reports can be submitted in one week.

The highest professional conduct is expected, particularly in the clinical setting and at grand rounds. When attending clinical grand rounds, please abide by the College of Medicine dress code (no jeans, shorts, sneakers, flip-flops, etc.).

Team Project:
A team project will be assigned, based on clinical problems posed in BME Grand Rounds, with more details to come. To understand and propose solutions to clinical problems, students are expected to independently conduct the necessary background research and review of the literature. This includes anatomy, physiology, state-of-the-art therapies, etc. The project will require an interim written document (draft specific aims page) and interim oral project presentations to the class, a final written report (NIH SBIR/STTR Phase I proposal style), and a final oral presentation to the class and clinicians. ***Extra credit*** on the final team oral presentation grade will be provided to teams that participate, as a team, in a Public Speaking Lab session outside of class; 5 points will be provided per documented session, up to a maximum of 10 total extra credit points.

Working in groups is an important component to this course and to the BME profession. Each student is expected to positively contribute to group assignments. Peer evaluations will be considered as part of the in-class participation grade and team project grades.

Laptops and devices are encouraged for in-class group exercises to look up information needed to complete the assigned task. Cell phones are not to be used during lectures.

Evaluation of Grades

Assignment	**Percentage of Final Grade**
Quizzes	15%
Clinical Reports	15%
Interim Report	10%
Interim Presentation	10%
Final Report	20%
Final Presentation	20%
Participation	10%
	100%

Grading Policy

Percent	Grade
90.0 - 100	A
86 – 89.9	B+
80 – 85.9	B
76-79.9	C+
70-75.9	C
66-69.9	D+
60-65.9	D
50-59.9	E
<50	F

Attendance Policy, Class Expectations, and Make-Up Policy
Excused absences must be consistent with university policies in the graduate catalog (http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#attendance) and require appropriate documentation.

Students are expected to attend course lectures, BME Grand Rounds, and clinical grand rounds, as well as participate in group exercises. If you are unable to attend class, will be coming late or leaving early, then you are expected to inform the instructor or the TA. Students are expected to be in class, prepared to learn, engaged, and overall contributors to the learning environment. Poor attendance in class or absence at BME Grand Rounds will affect your participation grade.

Students who miss class or assignment deadlines for reasons not covered under the UF attendance policy will have 15% deducted from coursework grade per day late and will receive 0 pts for quizzes.

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 by discrimination or harassment of any kind, please contact your instructor or any of the following:
• Your academic advisor or Graduate 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