

BME 6018: Clinical Correlations

Spring 2025 Course Syllabus

University of Florida

Days, Times, and Locations:

T, periods 9 & 10, 4:05 pm – 6:00 pm, Communicore C2-033

Th, period 9, 4:05 pm – 4:55 pm, Communicore C2-033

Clinical Grand Rounds accounts for 1 credit hour of instruction. Therefore, Thursday class is not mandatory UNLESS it is a BME Grand Rounds Lecture or a Guest Lecture (or otherwise noted or announced by the professor). Dr. Schmidt will offer optional virtual work periods on unscheduled Thursdays for students and teams to discuss projects or other class materials.



Instructor and Office Hours:

Dr. Christine E. Schmidt (schmidt@bme.ufl.edu)

Office Hours: Wednesdays, 1:30 pm - 2:30 pm (via Zoom), or in person by appointment.

Other days/times by appointment. Any changes will be announced in class and/or via Canvas.

Prerequisites and Target Audience:

Prerequisite: BME 5401 Biomedical Engineering and Physiology I.

This is a core graduate level BME course. This course is designed to meet the needs of individuals wanting to pursue advanced careers in biomedical research, industry, and/or entrepreneurship.

Course Description and Objectives:

Biomedical engineers develop practical solutions to various problems encountered in healthcare and clinical practice. Students are 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.

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. Students are also required to attend 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 the BME Grand Rounds, students will work in teams 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 design development, intellectual property, patent protection and patent searches, regulatory pathways, and commercialization considerations, which are critical for clinical translation of biomedical engineering technologies. Students will be expected to consider these factors in the development of their team project solutions and commercialization plan.

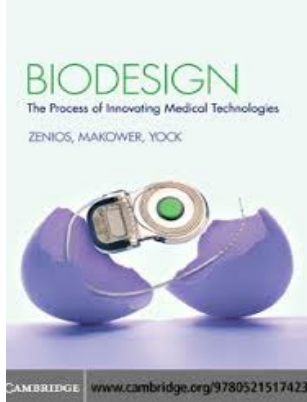
d) Communicate ideas to a broad audience in written and verbal formats

The ideas generated by the teams will be presented orally to the class and clinicians and written as an NIH SBIR/STTR-style proposal.

Course Learning Resources:

The course website is found through the University of Florida Canvas (<http://elearning.ufl.edu>). All necessary materials and communications will occur via Canvas.

Text/Materials:



The following book is *optional*:

“Biodesign: The Process of Innovating Medical Technologies”

Stefanos Zenios, Josh Makower, Paul Yock

Cambridge University Press

ISBN 978-0-521-51742-3

The optional text is available to provide additional context to supplement the course lectures and project. 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.

Grading Criteria:

In-Class Participation*	10%
Quizzes (lowest grade dropped)	20%
Clinical Reports (lowest grade dropped)	20%
Interim Team Project Presentations (2)	10%
Final Team Project Written Report	20%
Final Team Project Oral Report	20%
	100%

*Participation grade includes class attendance, in-class contribution, group contribution/peer evaluations.

Grading Scale:

Grade	Percentage
A	90.00-100%
B+	87.50-89.99%
B	80.00-87.49%
C+	77.50-79.99%
C	70.00-77.49%
D+	67.50-69.99%
D	60.00-67.49%
F	< 60.00%

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.

Quizzes:

Short 10-minute quizzes will be given each Tuesday (unless otherwise indicated) at the beginning of class, before the lecture, guest speaker, or class activities. Quizzes will cover the material discussed in lectures since the prior quiz, or as otherwise noted by professor. Students must be in attendance to take quizzes. No make-up quizzes are given. If a student has an excused absence (notification in advance and as covered by UF attendance policy), then that quiz grade will be dropped. The lowest quiz grade will also be dropped to calculate final course grade.

Extra Credit (Optional):

Students can earn up to 5 extra credit points per quiz by submitting sample quiz problems with solutions by 12 noon the day before the quiz. Points awarded depend on originality, relevance, detail, and accuracy. Submitted problems may even appear in the quiz, making it easier! Multiple question submissions are allowed and encouraged, but total extra credit is capped at 5 points.

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 lowest report grade will be dropped to calculate the final course grade.

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 (small groups) 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 two in-class 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. The final oral presentation will be graded based on presentation skills, quality of slides (content choice, layout), and ability to answer questions. Input from the clinicians will be factored into the final oral presentation grade. Additionally, 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. 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.

Class Attendance and Excused Absences Policy:

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 or will be coming late or leaving early, then you are expected to inform the instructor. Students are expected to be in class, prepared to learn, engaged, and overall contributors to the learning environment. In-class attendance and participation are factored into final course grade. Excused absences must be consistent with UF policies: <https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies> and approval needs to be obtained prior to missed class (except for documented emergencies). Students are responsible for content covered during a missed class (i.e., responsible for securing notes from classmates and any documents from Canvas).

Grading Disputes:

Requests for regrading must be submitted to the professor within 1 week after the graded assignment has been returned. If regrading is desired, then the entire assignment is subject to regrading. If your work is not clear or the specific question involves subjectivity, then there is no justification for regrading.

In-Class Recording:

Students are allowed to record video or audio of class lectures provided by the professor; however, guest speakers cannot be recorded unless students seek explicit permission from the guest in advance. Also, the purposes for which any recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. A "class lecture" is an educational presentation intended to inform or teach enrolled students about a particular subject, including any

instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a course. A class lecture does not include student presentations, academic exercises involving solely student participation, assessments (quizzes), private conversations between students or between a student and the faculty or lecturer during class.

Publication without written permission of the instructor or guest speaker is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third-party note/tutoring services. Unauthorized publication may result in disciplinary action under UF Regulation 4.040 or legal consequences.

Use of ChatGPT or Other AI Tools:

AI tools can be used as a resource; if they are used, then the tool must be cited as a reference. In addition to citing the tool as a resource, students are required to provide a short description as to how the tool was used and how you validated accuracy of the information secured from the AI resource.

Software Use:

All faculty, staff, and students at 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 UF 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: <https://registrar.ufl.edu/ferpa.html>.

Students Requiring Accommodations:

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

Course Evaluations:

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>.

University Honesty Policy:

UF students are bound by The Honor Pledge. 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://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code>) specifies a number of behaviors that are in violation of this code and 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.

Commitment to a Safe and Inclusive Learning Environment:

The Herbert Wertheim College of Engineering (HWCOE) values broad diversity within our community and is committed to individual and group empowerment, inclusion, and elimination of discrimination. It is expected that every person in this class will treat each other with dignity and respect regardless of gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture. If you feel like your class performance is being impacted by discrimination or harassment of any kind, please contact your instructor or any of the following:

- Your academic advisor or Graduate Program Coordinator
- Dr. Pamela Dickrell, HWCOE Associate Dean for Student Affairs, 352-392-4524, pld@ufl.edu
- Dr. Toshikazu Nishida, HWCOE Associate Dean for Academic Affairs, 352-392-0943, nishida@eng.ufl.edu

Counseling and Wellness:

U Matter, We Care:

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

Counseling and Wellness Center: <https://counseling.ufl.edu> and 392-1575.

Sexual Discrimination, Harassment, Assault, or Violence:

If you or a friend has been subjected to sexual discrimination, sexual harassment, sexual assault, or violence contact the **Office of Title IX Compliance**, located at Yon Hall Room 427, 1908 Stadium Road, (352) 273-1094, titleix@ufl.edu

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://elearning.ufl.edu/student-help/>.

Career Connections Center, Reitz Union, 392-1601. Career assistance and counseling; <https://career.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://sccr.dso.ufl.edu/policies/student-honor-code-student-conductcode/>;
<https://care.dso.ufl.edu>.

On-Line Students Complaints: <https://distance.ufl.edu/getting-help>; <https://distance.ufl.edu/state-authorizationstatus/#student-complaint>.