



DEPARTMENT OF BIOMEDICAL ENGINEERING

BME 386 – Course Syllabus Biosensor and Data Acquisition Laboratory - Fall 2024

Instructor:

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Fenster Hall, Room 617
Office Hours: 2-hour period after class on Wednesdays
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Course Description:

The main objective of this course is to equip the students with further hands-on experience in Biomedical Instrumentation before taking the Capstone projects. The studio experiments involve sensors analog circuits designed for practical applications of biomedical measurement systems commonly used in bioinstrumentation. The topics will cover the application of transducers, and electrodes for recordings of physiological signals, building circuits for signal conditioning, and acquiring these signals onto a computer and further processing on the computer in MATLAB.

Studio format involves the integration of lectures and labs into one highly participatory structure. A report will be due on each studio the following week.

Studio sessions will be conducted in 2 or 3-person groups. **Studio Reports** should be **typed** and submitted **as a group** on the date that is due. A template will be provided for the studio reports. There will be a penalty for late submissions (**5 points** per day, out of 100).

Attendance: Students need to come to each class to keep up with the material since this is a studio style class. **The lab report grade (70% of the final grade) will be calculated as the average of all the reports excluding the one with the lowest grade. Each student will be allowed to miss a maximum of 1 studio (1 week), in which case the missing studio will be considered the one with the lowest grade. There will be no make-up sessions for the missed studios.** Finally, the best way to reach the instructor outside the office hours is via e-mail. Also, check your email a few times a week for messages from the instructor as a part of this class.

“Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at [University Policy on Academic Integrity](#).

Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu”.

Class Grading:

Midterm:	10%
Final Exam:	20%
Lab Reports:	70%

Course Objectives:

1. Develop skills to design and conduct experiments and analyze data
2. Gain hands-on experience with sensors and analog circuits commonly used in biomedical Instrumentation
3. Acquire practical experience about interfacing with the living systems for collection of biological signals

4. Apply modern engineering hardware and software to collect, analyze and interpret biological signals
5. Work in groups and develop written communication skills