

BME 354L – Biomedical Measurements – Spring 2015

Instructor: Dr. Robert Malkin

Class: T/Th 10:05-11:20

Lab Times: 3 hours starting at: Tu 1:25/ Tu 4:40 (Teer Basement)

Office Hours: Tues from 8:30-9:30 AM or by appointment (e-mail: ramalkin@duke.edu)

Class Policies:

Lecture: Attendance is not taken in lecture. However, there are quizzes during every other lecture (approximately) and exams during lecture time. Quizzes and exams may contain material which is only covered in the lecture.

This course will use Piazza for most questions. The Piazza system is highly catered to getting you help fast and efficiently from classmates, the TA, and myself on your computer or smart phone. Rather than emailing questions to the teaching staff, I encourage you to post your questions on Piazza. Piazza is integrated with Sakai. If you have not already done so, **please create a Piazza account by clicking on Piazza on our Sakai website.**

Labs: Attendance is required for all labs, with make-ups only permitted with an online excuse. One unexcused lab will result in 50% loss of lab grade. Two unexcused labs will result in **automatic failure of the course**. Preparation prior to each lab includes: (1) download from Sakai and complete pre-lab exercise with pre-lab write-up due at start of lab period (2) download from Sakai and read lab procedure. Your TA may also inspect your lab notebook. Consult with your TA for the format he or she requires. Lab reports are due at the beginning of the next lab period to be turned into your TA. Late reports are penalized 50% up to one day late. No credit is given for lab reports more than 1 day late. Any requests for regrading of lab materials must be submitted directly to the instructor no more than 24 hours after the assignment has been returned.

Exams: There will be one mid-semester exam and a final exam. Make-up exams are only permitted with an online excuse. Request for exam regrading must be submitted by 5 PM on the day after the test is returned. NOTE: Turn regrade requests into Malkin's mail box in the BME office (Hudson 136, not the homework or lab boxes).

Homework: None

Quizzes: Every Tuesday there will be a quiz (except during exam week). The topics covered for the quiz are always the material covered (on the syllabus) the previous week but **quizzes are cumulative** (there may be material from previous weeks). The quiz questions or questions very similar to the quiz questions are posted on Sakai. No makeup quizzes are permitted. However, you can drop your lowest 2 quiz grades.

Grading: 1 mid-semester exam @15%, 1 final exam @35%, 20% lab reports and 30% Quizzes

Academic Honor: Collaboration is encouraged on lab reports. However, the work you turn in must be the result of your own effort and reflect your own understanding. All exams and quizzes must be individual effort. You are expected to adhere to the principles of the Duke Community Standard.

This course requires a significant amount of learning of medical instrumentation tools, including written material, hardware and software

REQUIRED PURCHASES:

Hardware:

Starter Pack for Arduino:

<http://www.adafruit.com/products/68>

LCD Shield Kit w/ 16x2 Character Display:

<http://www.adafruit.com/products/772>

The websites provided are only suggestions. You can purchase these products from any source you like, including the Duke Bookstore.

SUGGESTED PURCHASES:

TEXTBOOK: Webster, J.G., *Medical Instrumentation: Application and Design*, 4th ed.
New York: Wiley, 2010.

Please note that there is no assigned homework from this textbook. The lectures and materials posted on our website are sufficient for most students. However, the book does contain most of the material covered in lecture and is found to be helpful for most students who read the book.

OPTIONAL REFERENCES and BACKGROUND:

TEXTBOOK: Figliola, R.S. and Beasley, D. E., *Theory and Design for Mechanical Measurements*, 4th Edition, New York: Wiley, 2000.

Excerpts from the 3rd edition will be on Sakai. These excerpts will be sufficient for this class.

TEXTBOOK: ECE110 Textbook: Ybarra, *Fundamentals of Electrical and Computer Engineering*.

The entire textbook is posted on our Sakai Site

TEXTBOOKL: *Lessons in Electric Circuits*, Tony R. Kuphaldt

This is a free on-line textbook:

<http://www.ibiblio.org/kuphaldt/electricCircuits/>