

BME 4931 Biosignals and Systems

Spring, 2013

Course Description: This course covers basic theory and techniques for analyzing biosignals and systems.

Credits: 03

Prerequisites: Knowledge of calculus and linear algebra.

Instructor: Prof. Mingzhou Ding

Office: Room J285 BMS Building

Office Hours: Monday from 9 am to 10:30 am or by appointment

Email: mding@bme.ufl.edu

Class Meeting: Monday, Wednesday, Friday 4th Period (10:40 am to 11:30 am)

Required textbook: *Signal Processing for Neuroscientists* by Wim van Drongelen, Academic Press, 2011.

Recommended textbook: *Probability and statistical inference* by Hogg and Tanis (6th edition).
The analysis of time series: An introduction by Chatfield (6th edition).

Topics:

1. Acquisition of biosignals
2. Biological noise: theoretical considerations
3. Event-related response and signal averaging
4. Fourier analysis of deterministic and random biological signals
5. Models of biological signals
6. Filtering theory and applications to biological problems
7. Nonlinear models and methods

Grade Determination:

50% Homework

25% Midterm Exam

25% Final Exam

Final grades will be curved.

Undergraduate students, in order to graduate, must have an overall GPA and an upper-division GPA of 2.0 or better (C or better). Note: a C- average is equivalent to a GPA of 1.67, and therefore, it does not satisfy this graduation requirement. Graduate students, in order to graduate, must have an overall GPA of 3.0 or better (B or better). Note: a B- average is equivalent to a GPA of 2.67, and therefore, it does not satisfy this graduation requirement. For more information on grades and grading policies, please visit:
<http://www.registrar.ufl.edu/catalog/policies/regulationgrades.html>

Policies:

Late policy for homework: 20% deducted per day, unless prior arrangements were made with the instructor. Students are encouraged to work together on the homework, but the work that's handed in must be individual work.

Academic Honesty:

In adopting this Honor Code, the students of the University of Florida recognize that academic honesty and integrity are fundamental values of the University community. Students who enroll at the University commit to holding themselves and their peers to the high standard of honor required by the Honor Code. Any individual who becomes aware of a violation of the Honor Code is bound by honor to take corrective action. A student-run Honor Court and faculty support are crucial to the success of the Honor Code. The quality of a University of Florida education is dependent upon the community acceptance and enforcement of the Honor Code. We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity. 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."

Students with Disabilities:

Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.