

BME 687 – CLASS SCHEDULE – Spring 2019

Date	Week	
1/24	1	Introduction to Course Lecture A: Practical Review; Electronic Components, Lab Instruments and Standards Lecture B: Basic Sensors and Working Principles (Chapter 2 from Webster)
1/31	2	Studio #1 3D Acceleration Measurements and Integration in Matlab /Brain-Computer Interface
2/7	3	Lecture Part A: Basic Sensors and Working Principles (Cont.) (Chapter 2 from Webster) Lecture Part B: Biopotential Electrodes (Chapter 5 from Webster)
2/14	4	Studio #2 Measurement and Analysis of Finger Tremor (Force and Acceleration)
2/21	5	Lecture A: DC and AC Characteristics of Amplifiers: CMRR, Slew Rate, and Band Width (Chapter 3 from Webster) Lecture B: Aliasing, D/A and A/D Converters, Data Acquisition Cards
2/28	6	Studio #3 CMRR Measurement in an Instrumentation Amplifier
3/7	7	Lecture: Origin of Biopotentials (EEG, ENG, EMG, ECG, ERG, EOG) (Chapter 4 from Webster)
3/14	8	Studio#4 Blood Pressure Sensor Measurements and Instrumentation Amplifier Circuit
3/21		<i>Spring Recess</i>
3/28	9	Lecture: In Vivo Neural Recording with Micro-Electrodes (Types and Properties of micro-electrodes, Local field potentials, multiunit activity, single spikes)
4/4	10	Studio #5 EEG and Steady-State Visually Evoked Potentials
4/11	11	Lecture: Practical Considerations in Neurological Signal Amplifiers (Head Stage Amplifiers, Input Noise, Referencing, 60 Hz Contamination, Crosstalk, etc.) (Chapter 6 from Webster)
4/18	12	Studio #6 EOG Signals and Brain-Computer Interface
4/25	13	Lecture: Processing of Neural Signals in Matlab (filtering, removing the common-mode, spike-triggered averaging, spectrogram, coherence, spike-detection, PCA/ICA)
5/2	14	Studio #7 Processing of Neural Signals in Matlab

Final Exam dates and times are as scheduled by NJIT.