

**Bioengineering 521: Brain-Computer interfaces**

<b>Date</b>	<b>Lecture #</b>	<b>Topic</b>	<b>Lecturer</b>	<b>Homework</b>
Wed, 1/15	1	Welcome, Intro to BCI	Litt	<b>HW #0 - Matlab, Latex, and the IEEG Portal</b>
Fri, 1/17	Recitation 1	Intro to MATLAB and ieeg.org, LaTeX	Nicki and Brendan	
Mon 1/20	-	MLK Day, no classes		
Wed, 1/22	2	Intro to Neuro Signals: EEG and neuro time series	Litt	<b>HW #1: Process neuro signals</b>
Fri, 1/24	Recitation 2			
Mon, 1/27	3	Modeling and Talking to Neurons I: Basics of recording and stimulation	Litt	
Wed, 1/29	4	Talking to Neurons II:	Litt	<b>HW #2 Modeling neurosignals</b>
Fri, 1/31	Recitation 3	DSP in MATLAB		
Mon, 2/3	5	Feature extraction I	Litt	
Wed, 2/5	6	Feature extraction II	Litt/ and friends	<b>HW #3 Feature extraction</b>
Fri 2/7	Recitation 4			
Mon 2/10	7	Cloud computing, big neural data: Hadoop, GWT	Zachary Ives	
Wed 2/12	8	Machine learning I	Preya/ Hoameng Ung/ Lohith	
Fri 2/14	Recitation 5			<b>HW #4 HFO classification</b>
Mon 2/17	9	Machine Learning II	Preya/ Hoameng Ung/ Lohith	
Wed 2/19	10	Auditory Prostheses	Litt	
Fri 2/21	Recitation 6			
Mon 2/24	11	Visual prostheses	Litt	
Wed 2/26	12	Functional localization (imaging)	Litt	<b>HW #5 Vision</b>
Fri 2/28	Recitation 7			
Mon 3/2	13	Haptics and BCI/sensory prosthesis	Litt	
Wed 3/4	14	Unit detection, clustering, classifying	Joost or Drew	<b>HW #6 Analyzing Units</b>
Fri 3/6	Recitation 8			
3/7 - 3/15	-	Spring break		
Mon 3/16	15	Neuromotor Prosthetics	Litt/ Misha	
Wed 3/18	16	Sensorimotor control, myoelectric control of prosthetic limbs	Litt	<b>HW #7 Sensorimotor Control Contest</b>
Fri 3/20	Recitation 9			
Mon 3/23	17	Deep Brain stimulation	Litt	
Wed 3/25	18	Epilepsy	Litt	
Fri 3/27	Recitation 10			
Mon 3/30	19	Schalk Speech, P300	Gerwin Schalk, PhD Wadsworth Center	<b>HW #8 P-300 speech Decoder</b>
Wed 4/1	20	Biocompatibility	Litt or Flavia	
Fri 4/3	Recitation 11			

Mon 4/6	21	Ethics and BCI or Tissue engineered regenerative strategies	Litt	
Wed 4/8	22	Cognitive neuroprosthesis	Litt	<b>HW #9 Sz Detection Contest</b>
Fri 4/10	Recitation 12			
Mon 4/13	23	BCI and hardware design part I	FV or Litt	
Wed 4/15	24	BCI and hardware design part II	FV	
Fri 4/17	Recitation 13			
Mon 4/20	25	Robotics and Rehab devices	Michelle Johnson or Litt	<b>HW #10 Sz Prediction Contest</b>
Wed 4/22	26	New generation BCI: optogenetics, magnetogenetics, calcium imaging	Litt	
Fri 4/24	Recitation 14			
Mon 4/27	27	Data Sharing, Start-ups and Next Steps or Medtronic	Litt	
Wed 4/29	28	New Things Since Course Started - LAST DAY OF CLASS	Litt	
Finals Wk 5/4-5/12	Final	Meet in class for recap, winners and runners up discuss methods	all - Pizza and Prizes	<b>Contest submissions due at midnight 5/1/18</b>