

BioE 332A – Large-Scale Neural Modeling

Modeling neurons to understand how they network.

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Winter 2010
Gates 100, Weds & Fri 12:50-2:05pm

Wk	Date	Topics	Reading & Assignments
1		Overview and Synapse	
	Wed 1/6	Course Overview	
	Fri 1/8	Synapse Models	Lab1: Synapse
2		Neuron Models	
	Wed 1/13	Integrate-and-Fire	
	Fri 1/15	Positive Feedback	Lab2: Neuron
3		Neuron Behaviors	
	Wed 1/20	Frequency Adaptation	
	Fri 1/22	Bursting	Lab3: Adaptation & Bursting
		Neural Interactions	
4	Wed 1/27	Phase Response	
	Fri 1/29	Phase Locking	Lab4: Phase Response
5		Synchrony	
	Wed 2/3	Inhibitory Networks	
	Fri 2/5	Role of Delay	Lab5: Synchrony
6		Attention	
	Wed 2/10	Excitatory-Inhibitory Networks	
	Fri 2/12	Synchronous Inputs	Lab6: Attention
7		Synaptic Plasticity	
	Wed 2/17	Spike-Timing Dependence	
	Fri 2/19	Limitations	Lab7: Synaptic Plasticity
8		Plasticity and Synchrony	
	Wed 2/24	Recurrent Synapses	
	Fri 2/26	Feedforward Synapses	Lab8: Plasticity & Synchrony
9		Associative Memory	
	Wed 3/3	Storing Patterns	
	Fri 3/5	Recalling Patterns	Lab9: Memory
10		To Be Determined	
	Wed 3/10		
	Fri 3/12		Lab10: TBD
