MCN course schedule

Subject to change; see course wiki for schedule changes - mcn2014.wikispaces.com

Week 1: (Thursday Jul 31 – Friday Aug. 1)

Lectures	Lecturer	Date	Start	End	Location
Day 0 – Welcome!					
Welcome Dinner @ 46 Millfield St.		Wed 30-Jul	6:00 PM	10:00 PM	Meet in Swope lobby @ 6pm
Day 1 – Introduction					
Course introductions	M. Fee M. Goldman	Thu 31-Jul	9:00 AM	9:30 AM	Candle House 104-105
Biophysics bootcamp	M. Fee	Thu 31-Jul	10:15 AM	12:15 PM	Candle House 104-105
Linear Algebra & Diff Eq & SVD Bootcamp	M. Goldman	Thu 31-Jul	2:00 PM	4:00 PM	Candle House 105
MATLAB tutorial (optional)	TAs	Thu 31-Jul	8:30 PM	9:30 PM	Loeb 260
Day 2 – Math/Biophysics					
Nonlinear dynamics & bifurcations	B. Ermentrout	Fri 1-Aug	9:00 AM	10:25 AM	Candle House 104-105
Ion channels, conductance-based models	J. Rinzel	Fri 1-Aug	10:50 AM	12:15 PM	Candle House 104-105
NEURON intro	M. Hines	Fri 1-Aug	2:00 PM	3:00 PM	Loeb 260
XPP simulator, channel	B. Ermentrout	Fri 1-Aug	4:00 PM	5:30 PM	Loeb 260
Backyard Brains	G. Gage	Fri 1-Aug	7:30 PM	9:30 PM	Loeb 260

Week 2: (Monday August 4 – Friday August 8)

Lectures	Lecturer	Date	Start	End	Location
Day 3 – Biophysics					
Dendrites	B. Mel	Mon 4-Aug	9:00 AM	11:00 AM	Candle House 104-105
Intro to Coding	A. Fairhall	Mon 4-Aug	11:25 AM	12:25 PM	Candle House 104-105
Probability intro	J. Pillow	Mon 4-Aug	2:00 PM	3:00 PM	Candle House 105
Day 4 – Coding					
Coding, adaptation & biophysics	A. Fairhall	Tue 5-Aug	9:00 AM	10:25 AM	Candle House 104-105
Generalized Linear Models	J. Pillow	Tue 5-Aug	10:50 AM	12:15 PM	Candle House 104-105
Higher Cognitive Coding	J. Gallant	Tue 5-Aug	2:00 PM	3:30 PM	Candle House 105
PS#1 Presentation		Tue 5-Aug	8:00 PM	9:00 PM	Loeb 260
Day 5 – Early Visual Coding, Circuits					
Retinal Circuitry	S. Baccus	Wed 6-Aug	9:00 AM	10:25 AM	Candle House 104-105
Population coding & information measures	P. Latham	Wed 6-Aug	10:50 AM	12:15 PM	Candle House 104-105
Fly visual motion detection connectomics	D. Chklovskii	Wed 6-Aug	2:00 PM	3:30 PM	Candle House 105
Group activity		Wed 6-Aug	4:00 PM	6:00 PM	TBD
Day 6 – Higher coding & circuits					
Bayesian coding circuits	P. Latham	Thu 7-Aug	9:00 AM	10:25 AM	Candle House 104-105
Compressed sensing	S. Ganguli	Thu 7-Aug	10:50 AM	12:15 PM	Candle House 104-105
Linear network theory & integration	M. Goldman	Thu 7-Aug	2:00 PM	3:30 PM	Candle House 105
Group activity		Thu 7-Aug	4:00 PM	6:00 PM	TBD

Day 7 – Decision-making coding & circuits					
Decision-making & Winner-take-all	C. Brody	Fri 8-Aug	9:00 AM	10:25 AM	Candle House 104-105
Sequential dynamics in decision-making	D. Tank	Fri 8-Aug	10:50 AM	12:15 PM	Candle House 104-105
Linear network theory & integration	M. Goldman	Fri 8-Aug	2:00 PM	3:30 PM	Candle House 105
Evening Lecture	B. Bialek	Fri 8-Aug	8:00 PM	9:00 PM	Candle House 104-105

Week 3: (Aug. 11-15)

Lectures	**Lecturer**	**Date**	**Start**	**End**	**Location**
Day 8 – Hippocampal coding & circuits					
Hippocampal / EC circuitry	L. Frank	Mon 11-Aug	9:00 AM	10:25 AM	Candle House 104-105
Error-correcting codes	I. Fiete	Mon 11-Aug	10:50 AM	12:15 PM	Candle House 104-105
PS#2 Presentation		Mon 11-Aug	8:00 PM	9:00 PM	Loeb 260
Day 9 – Oscillations					
Central pattern generation	E. Marder	Tue 12-Aug	9:00 AM	10:25 AM	Candle House 104-105
Oscillators & phase oscillators	T. Lewis	Tue 12-Aug	10:50 AM	12:15 PM	Candle House 104-105
Multitaper / Chronux	D. Kleinfeld	Tue 12-Aug	2:00 PM	4:00 PM	Candle House 105
Day 10 – Cortical circuits; learning					
Unknown	H. Sompolinsky	Wed 13-Aug	9:00 AM	10:25 AM	Candle House 104-105
Chaotic networks	H. Sompolinsky	Wed 13-Aug	10:50 AM	12:15 PM	Candle House 104-105
Group activity		Wed 13-Aug	2:00 PM	4:00 PM	TBD
Day 11 – Plasticity & Learning					
Intro to Learning Theory	S. Solla	Thu 14-Aug	9:00 AM	10:25 AM	Candle House 104-105
STDP & Electric fish learning	N. Sawtell	Thu 14-Aug	10:50 AM	12:15 PM	Candle House 104-105
Group activity		Thu 14-Aug	2:00 PM	4:00 PM	TBD
Day 12 – Reinforcement learning					
FORCE learning	L. Abbott	Fri 15-Aug	9:00 AM	10:25 AM	Candle House 104-105
FORCE learning	L. Abbott	Fri 15-Aug	10:50 AM	12:15 PM	Candle House 104-105
Project proposal presentations		Fri 15-Aug	2:00 PM	5:00 PM	Loeb 263

Week 4: August 18-22

Lectures	**Lecturer**	**Date**	**Start**	**End**	**Location**
Day 13 – Motor/Reinforcement Learning					
Reinforcement Learning	N. Daw	Mon 18-Aug	9:00 AM	10:25 AM	Candle House 104-105
Predictive coding	D. Chklovskii	Mon 18-Aug	10:50 AM	12:15 PM	Candle House 104-105
Group activity		Mon 18-Aug	2:00 PM	4:00 PM	TBD
Day 14 – Basal ganglia learning, reinforcement					
Birdsong dynamics & learning	M. Fee	Tue 19-Aug	9:00 AM	10:25 AM	Candle House 104-105
Birdsong dynamics & learning	M. Fee	Tue 19-Aug	10:50 AM	12:15 PM	Candle House 104-105

Day 15 – Approaches to disease					
Motor Control	M. Smith	Wed 20-Aug	9:00 AM	10:25 AM	Candle House 104-105
Parkinson's & DBS	J. Rubin	Wed 20-Aug	10:50 AM	12:15 PM	Candle House 104-105
Group activity		Wed 20-Aug	2:00 PM	4:00 PM	TBD
Day 16 – Approaches to disease					
Schizophrenia	J. Lisman	Thu 21-Aug	9:00 AM	10:25 AM	Candle House 104-105
Computational approaches to addiction	D. Redish	Thu 21-Aug	10:50 AM	12:15 PM	Candle House 104-105
Day 17 – Cognitive Models					
Free & cued recall of word lists	M. Tsodyks	Fri 22-Aug	9:00 AM	10:25 AM	Candle House 104-105
Schizophrenia, oscillations & memory	T. Sejnowski	Fri 22-Aug	10:50 AM	12:15 PM	Candle House 104-105
Scientific ethics panel		Fri 22-Aug	12:15 PM	2:00 PM	Lunch room

Week 5: (Aug. 25 & 26)

Lectures	**Lecturer**	**Date**	**Start**	**End**	**Location**
Day 18					
Work on projects		Mon 25-Aug	All day		Loeb 260
Day 19					
Final presentations		Tue 26-Aug	9:00 AM	10:25 AM	Candle House 104-105
Final presentations		Tue 26-Aug	10:50 AM	12:15 PM	Candle House 104-105
Banquet dinner		Tue 26-Aug	TBD	TBD	TBD