

# **ACCN 2010 – Preliminary Schedule**

(August 5, 2010)

## **WEEK ONE: John Rinzel**

<b><u>Monday 2nd August</u></b>		
9:30 – 11:00	Alex Thomson	Introduction to synaptic mechanisms and synaptic circuitry
11:30 – 13:00	John Rinzel	Hodgkin-Huxley and the nonlinear dynamics of neuronal excitability
15:00 – 16:00		Software previews and introduction of tutors
16:00 – 18:00		Discussions between students and tutors
Evening		Discussions between tutors and director

<b><u>Tuesday 3rd August</u></b>		
9:30 – 11:00	Alex Thomson	Diversity and specificity in cortical circuits
11:30 – 13:00	Dieter Jaeger	Biophysical models of neuronal excitability and synaptic integration
15:00 – 16:00	Sukbin Lim	XPP tutorial
16:00 – 17:00	Farzad Farkhooi	PYTHON tutorial
17:00 – 18:30 + evening		Computational exercises

<b><u>Wednesday 4th August</u></b>		
9:30 – 11:00	Idan Segev	Dendritic integration and cable theory
11:30 – 13:00	Dieter Jaeger	Dynamic clamping: virtual currents and synapses
15:00 – 16:00	Shaul Druckmann	NEURON tutorial
16:00 – 17:00	Thomas Fucke	NEST tutorial
17:00 – 18:30		Computational exercises
19:00 – 20:00	Idan Segev	Emerging Ethical Issues in Modern Brain Research (Neuroethics)

<b><u>Thursday 5th August</u></b>		
9:30 – 11:00	Erik De Schutter	Modeling biochemical reactions and diffusion: from simple to detailed
11:30 – 13:00	Magnus Richardson	From Hodgkin-Huxley to integrate-and-fire models
Afternoon	Shaul Druckmann	MATLAB tutorial
		Preparation of project presentation

<b><u>Friday 6th August</u></b>		
9:30 – 11:00	Mark van Rossum	Synaptic plasticity
11:30 – 13:00	Erik De Schutter	Data-driven modeling of dendritic bifurcations and growth
Afternoon	All students	Short (2 minute) presentation of all projects
Evening		Party organized by the students

## **WEEK TWO: Carl van Vreeswijk**

<b><u>Monday 9th August</u></b>		
9:30 – 11:00	Mark van Rossum	Short-term synaptic plasticity and cortical processing.
11:30 – 13:00	John Rinzel	Firing rate models for slow network rhythms
15:00 – 16:00	Shaul Druckmann	NEURON tutorial # 2

<b><u>Tuesday 10th August</u></b>		
9:30 – 11:00	Carl van Vreeswijk	Introduction to Network Dynamics
11:30 – 13:00	Ad Aertsen	Spiking dynamics in cortical network models
15:00 – 16:30	Carl van Vreeswijk	Tutorial on the Fokker-Planck Equation

<b><u>Wednesday 11th August</u></b>		
9:30 – 11:00	Gianluigi Mongillo	Noisy Network States in the Balanced Regime
11:30 – 13:00	Fred Wolf	Modeling orientation maps
15:00 – 17:00 (sharp!)	<i>Lab Visit</i> (please sign up)	Boucsein lab, Biology Institute II/III, Schänzle Street 1

<b><u>Thursday 12th August</u></b>		
9:30 – 11:00	Ad Aertsen	Brain Machine Interface
11:30 – 13:00	Abigail Morrison	T.B.A.
15:00 – 16:30	Carl van Vreeswijk	Tutorial on Stochastic Point-Processes

<b><u>Friday 13th August</u></b>		
9:30 – 11:00	Fred Wolf	The effect of spike initiation on cortical dynamics
11:30 – 13:00	Gianluigi Mongillo	Multi-stability in Balanced Networks
Evening		Party organized by the students

### **WEEK THREE: Peter Latham**

<b><u>Monday 16th August</u></b>		
9:30 – 11:00	Peter Latham	Intro / Overview of Computational Neuroscience
11:30 – 13:00	Kenji Doya	Reinforcement learning and the basal ganglia

<b><u>Tuesday 17th August</u></b>		
9:30 – 11:00	Kenji Doya	Meta-parameters and neuromodulators
11:30 – 13:00	Jonathan Pillow	Encoding and decoding of neural population activity using generalized linear models

<b><u>Wednesday 18th August</u></b>		
9:30 – 11:00	Jonathan Pillow	Neural encoding models and likelihood-based methods for spike trains
11:30 – 13:00	Jeff Beck	Population Coding I

<b><u>Thursday 19th August</u></b>		
9:30 – 11:00	Jeff Beck	Population Coding II
11:30 – 13:00	Zhaoping Li	Efficient coding to explain the visual receptive fields of the retina and V1

<b><u>Friday 20th August</u></b>		
9:30 – 11:00	Zhaoping Li	Bottom-up saliency map as a role for the primary visual cortex
11:30 – 13:00	Peter Latham	Requiem for the spike
Evening		Party organized by the students

#### **WEEK FOUR: Yifat Prut**

<b><u>Monday 23rd August</u></b>		
9:30 – 11:00	Matthew Tresch	Distributed control of movement
11:30 – 13:00	Yifat Prut	Descending control of movement

<b><u>Tuesday 24th August</u></b>		
9:30 – 11:00	Ranulfo Romo Trujillo	Neural correlates of subjective sensory experience
11:30 – 13:00	Matthew Tresch	Simplifying control strategies for the control of movement

<b><u>Wednesday 25th August</u></b>		
9:30 – 11:00	Carl van Vreeswijk	T.B.A.
11:30 – 13:00	Ranulfo Romo Trujillo	Decoding decision making across cortex
Afternoon		Project work

<b><u>Thursday 26th August</u></b>		
		Project work

<b><u>Friday 27th August</u></b>		
		Project presentations
Evening		Party organized by the students