SOMI 276C: Advanced Topics in Functional MRI
Winter Quarter 2015

Organizer: Richard Buxton, rbuxton@ucsd.edu

Instructors: Richard Buxton, Anna Devor, Eric Halgren, Rebecca Theilmann, Frank Haist

Meetings: Tuesday and Thursday, 2-3:30 pm in the fMRI Conference Room
First class: Jan 6
Last class: March 12

Prerequisite: SOMI-276-A, or equivalent introduction to fMRI

Course Description: This course combines lectures and discussion of current papers on advanced topics related to fMRI. This year we'll explore several areas:

The biological basis of fMRI (Anna Devor): How are blood flow, energy metabolism, and neural activity related to each other?

EEG and MEG signals (Eric Halgren): What is the physiological basis of EEG and MEG signals, how are these methods used, and how does the information provided by these electrophysiological signals relate to the information provided by fMRI?

Anatomical brain connectivity (Rebecca Theilmann): How can we use MR diffusion imaging to probe brain connectivity, and how should these signals be interpreted?

Functional brain connectivity (Frank Haist): What can resting state correlations of activity in different brain regions tell us about connected networks?

Students taking the course for credit will lead the discussions of the papers, and the course is graded pass/fail, based on student participation. Other fMRI investigators are encouraged to attend and participate in the discussions.

Schedule

Week	Date	Topic
1	1/6	Buxton: Introduction to the course
	1/8	Devor: The biological basis of fMRI
2	1/13	"
	1/15	"
3	1/20	"
	1/22	"
4	1/27	"
	1/29	Buxton: From neurovascular coupling to electrophysiology
5	2/3	Halgren: EEG and MEG
	2/4	"

6	2/10	‘’
	2/12	‘’
7	2/17	‘’
	2/19	‘’
8	2/24	Theilmann: Diffusion and anatomical connectivity
	2/26	‘’
9	3/3	‘’
	3/5	Haist: Resting state connectivity
10	3/10	‘’
	3/12	‘’