

Outline for fMRI Image Acquisition and Analyses Course

(www.nrc-iol.org/olin_fmri_course.htm)

March 30-April 1st, 2006

Course Faculty: Kent A. Kiehl, Ph.D., Olin Center and Yale University
 Vince D. Calhoun, Ph.D., Olin Center and Yale University
 Thomas E. Nichols, Ph.D., University of Michigan

Day 1: March 30, 2005				
	Start	Duration		
	8:00 am	0:30	Continental Breakfast	
Lect 1.1	8:30 am	0:30	Course Introduction	Kiehl, Calhoun, Nichols
	9:00 am	1:00	Tour of MRI + acquisition of data; stimulus presentation; behavioral monitoring; signal acquisition	Kiehl
	10:00 am	0:30	Coffee Break	
Lect 1.2	10:30 am	1:00	fMRI pulse sequences, reconstruction; basic physics	Calhoun
	11:30 am	1:00	SPM and Toolbox install – computer check	Nichols
	12:30 pm	0:30	Lunch (provided)	
Lect 1.3	1:00 pm	1:00	Intro to SPM; Data checking; Reorienting data	Kiehl
Lect 1.4	2:00 pm	1:00	Spatial Preprocessing: Realignment/ Slice Timing/ Unwarp/	Kiehl
	3:00 pm	0:30	Coffee Break	
Lect 1.5	3:30 pm	1:00	Spatial Preprocessing: Coregistration/ Spatial Normalization	Kiehl
Lect 1.6	4:30 pm	0:30	Spatial Smoothing	Kiehl
Lect 1.7	5:00 pm	1:00	General Linear Model I- Principles and fMRI	Nichols
	6:00 pm	0:30	Question/answer	Kiehl, Nichols, Calhoun
	6:30 pm		Adjourn	

Day 2: March 31st, 2006

	Start	Duration		
	8:00 am	0:30	Continental Breakfast	
	8:30 am	1:00	Review from Day 1 question and answer	Kiehl, Calhoun, Nichols
Lect 2.1	9:30 am	1:00	Experimental Design – Efficiency/Orthogonalization/ Event-related/ Block design	Nichols
	10:30 am	0:30	Coffee	
Lect 2.2	11:00 am	1:00	SPM GUI for Single Subject stats/explore design/scaling	Nichols and Kiehl
	12:00 pm	0:30	Lunch (provided)	
Lect 2.3	12:30 pm	1:00	General Linear Model II: Contrasts & Thresholding	Nichols and Kiehl
Lect 2.4	1:30 pm	1:00	SPM Results: Single subjects; plotting; display	Nichols and Kiehl
	2:30 pm	0:30	Break; Coffee	
Lect 2.5	3:00 pm	1:00	GLM assumptions (SPMd)	Nichols; Kiehl and Calhoun help
Lect 2.6	4:00 pm	1:30	Introduction to Independent Component Analysis	Calhoun
	5:30 pm	1:00	Question/answer	Kiehl, Nichols and Calhoun
	6:30 pm		Adjourn	
	7:00 pm	1:30	Social Event at City Steam Brewery, Downtown Hartford	

Day 3: April 1, 2006

	Start	Duration		
	8:00 am	0:30	Continental Breakfast	
	8:30 am	1:00	Review from Days 1 & 2 question and answer	Kiehl, Calhoun and Nichols
Lect 3.1	9:30 am	1:00	Random effects; Group stats; Region of Interest Analysis	Nichols and Kiehl
	10:30 am	0:30	Coffee Break	
Lect 3.2	11:00 am	1:00	Statistical nonparametric Mapping (SnPM)	Nichols
	12:00 pm	:30	Lunch (provided)	
Lect 3.3	12:30 pm	1:00	SPM results – group subjects; plotting; display; small volume correction	Nichols, Calhoun, Kiehl
Lect 3.4	1:30 pm	1:00	Independent Component Analyses II: fMRI	Calhoun
	2:30 pm	:30	Coffee Break	
Lect 3.5	3:00 pm	2:00	ICA of fMRI: Implementation	Calhoun, Kiehl, Nichols
	5:00 pm	1:00	Review & Final Q and A	Calhoun, Kiehl, Nichols
	6:00		Adjourn	