

**fMRI Image Acquisition and Analyses Course**  
**June 15th-17th, 2009**

Course Faculty: Kent A. Kiehl, Ph.D.,  
The Mind Research Network and the University of New Mexico  
Vince D. Calhoun, Ph.D.,  
The Mind Research Network and the University of New Mexico  
Tor Wager, Ph.D., Columbia University

<b>Day 1: June 15th, 2009</b>				
	Start	Duration		
Lect 1.1	8:00 am	0:30	Course Introduction	Kiehl, Calhoun, Wager
	8:30 am	1:00	Tour of MRI + acquisition of data; stimulus presentation; behavioral monitoring; signal acquisition	Kiehl
	9:30 am	0:30	Coffee Break	
Lect 1.2	10:00 am	1:00	fMRI pulse sequences, reconstruction; basic physics	Calhoun
	11:00 am	1:00	SPM and Toolbox install – computer check	Wager
	12:00 pm	0:30	Lunch (provided)	
Lect 1.3	12:30 pm	1:00	Intro to SPM; Data checking; Reorienting data	Kiehl
Lect 1.4	1:30 pm	1:00	Spatial Preprocessing: Realignment/ Slice Timing/ Unwarp/	Kiehl
	2:30 pm	0:30	Coffee Break	
Lect 1.5	3:00 pm	1:00	Spatial Preprocessing: Coregistration/ Spatial Normalization	Kiehl
Lect 1.6	4:00 pm	0:30	Spatial Smoothing	Kiehl
Lect 1.7	4:30 pm	1:00	General Linear Model I- Principles and fMRI	Wager
	5:30 pm	0:30	Question/answer	Kiehl, Wager, Calhoun
	6:00 pm		Adjourn	
	<b>7:00 pm</b>		<b>Social Outing – Seasons Bar and Grill in Old Town near Hotel Albuquerque</b>	

**Day 2: June 16th, 2009**

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

**Day 3: June 17th, 2009**

	Start	Duration		
	8:00 am	0:30	Review of Days 1-2	Kiehl, Wager, Calhoun
Lect 3.1	8:30 am	1:00	Random effects; Group stats; Region of Interest Analysis	Wager and Kiehl
Lect 3.2	9:30 am	1:00	Statistical nonparametric Mapping (SnPM)	Wager
	10:30 am	0:30	Coffee Break	
Lect 3.3	11:00 am	1:00	SPM results – group subjects; plotting; display; small volume correction	Wager, Calhoun, Kiehl
	12:00 pm	:30	Lunch (provided)	
	12:30 pm	1:00	Review of Days 1-2	Kiehl, Calhoun
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
	5:00 pm	1:00	Review & Final Q and A	Calhoun, Kiehl
	6:00		Adjourn	