fMRI Image Acquisition and Analyses Course with SPM and ICA

August 3 – 5, 2017

Course Faculty:

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The Mind Research Network (MRN) &
The University of New Mexico
&
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University of Colorado, Boulder

Location:

The Mind Research Network
Large Conference Room
1101 Yale Blvd. NE
Albuquerque, New Mexico 87106

For more information please visit:
http://www.mrn.org/education-outreach/courses-and-events/
http://mialab.mrn.org/courses/index.html

Day 1: **Thursday, August 3rd**				
Lecture	**Start**	**Duration**	**Description**	**Instructor(s)**
	7:15am	0:15	Participant Pick Up	
	7:30am	0:30	Light Breakfast Provided	
1.1	8:00am	0:30	Course Introduction	Kiehl, Calhoun, Wager
	8:30am	1:00	Virtual tours of MRI and acquisition of data, stimulus presentation, behavioral monitoring	Kiehl
	9:30am	0:30	Coffee Break	
1.2	10:00am	1:00	fMRI pulse sequences: Reconstruction, Basic physics	Calhoun
	11:00am	1:00	Program Installation: SPM and Toolbox & Computer check	Wager
	12:00pm	0:30	Lunch (provided)	
1.3	12:30pm	1:00	Intro to SPM: Data checking, Reorienting data	Kiehl
1.4	1:30pm	1:00	Spatial Preprocessing: Realignment, Slice Timing, Unwarp	Kiehl
	2:30pm	0:30	Coffee Break	
1.5	3:00pm	1:00	Spatial Preprocessing: Co-registration, Spatial normalization	Kiehl
1.6	4:00pm	0:30	Spatial Smoothing	Kiehl
1.7	4:30pm	1:00	General Linear Model I: Principles and fMRI	Wager
	5:30pm	0:30	Question & Answer Session	Kiehl, Wager, Calhoun
	6:00pm		Adjourn	
	7:00pm		Social Outing	Kiehl, Wager, Calhoun

Day 2: **Friday, August 4th**				
Lecture	**Start**	**Duration**	**Description**	**Instructor(s)**
	7:15am	0:15	Participant Pick Up	
	7:30am	0:30	Light Breakfast Provided	
	8:00am	1:00	Review from Day 1: Question and Answer	Kiehl, Calhoun, Wager
2.1	9:00am	1:00	General Linear Model II: Basis sets, Autocorrelation, and Filtering for fMRI	Wager
	10:00am	0:30	Coffee	
2.2	10:30am	1:00	SPM GUI for Single Subject stats: Explore Design and Scaling	Kiehl
	11:30pm	0:30	Lunch (provided)	
2.3	12:00pm	1:00	General Linear Model III: Contrasts	Wager
2.4	1:00pm	1:00	SPM Results: Single subjects, Plotting, Display	Kiehl
	2:00pm	0:30	Coffee Break	
2.5	2:30pm	1:00	Intro to connectivity and mediation	Wager
2.6	3:30pm	1:30	Introduction to ICA: Independent Component Analysis	Calhoun
	5:00pm	1:00	Question & Answer Session	Kiehl, Calhoun, Wager
	6:00pm		Adjourn	

Day 3: **Saturday, August 5th**				
Lecture	**Start**	**Duration**	**Description**	**Instructor(s)**
	7:15am	0:15	Participant Pick Up	
	7:30am	0:30	Light Breakfast Provided	
	8:00am	0:30	Review of Days 1-2	Kiehl, Calhoun, Wager
3.1	8:30am	1:00	Experimental Design: Blocked and Event-related designs, Efficiency	Wager
3.2	9:30am	1:00	Group analysis: Fixed, Random, and Mixed effects	Wager
	10:30am	0:30	Coffee Break	
3.3	11:00am	1:00	SPM results: Group subjects, Plotting, Display, small volume correction	Kiehl
	12:00pm	0:30	Lunch (provided)	
	12:30pm	1:00	Group analysis: Thresholding and Inference	Wager
3.4	1:30pm	1:00	ICA II: fMRI	Calhoun
	2:30pm	0:30	Coffee Break	
3.5	3:00pm	2:00	ICA of fMRI: implementation	Calhoun, Kiehl
	5:00pm	1:00	Review: Final Question & Answer Session	Kiehl, Calhoun, Wager
	6:00pm		Adjourn	