

Practical Introduction to MRI Applications,
Winter 2015, LCNI Conference room

Instructor info

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Course Overview

The goal of this course is to train individuals to carry out pilot experiments at the LCNI. LCNI is making this investment to grow the community of individuals who use the scanner in their research. This course is structured so that you bring a project from your lab, collect the data, and analyze it. We expect by the completion of the winter term that you will have collected, analyzed and prepared an abstract of your fMRI dataset for submission to a conference.

In its initial year, this course will only be offered to trainees who's PI has been pre-approved for pilot scans at the LCNI. Our hope is to open this up further in the future.

Required Readings/Software

- Readings will be made available to you electronically before the quarter starts based on outside papers from the field and an internally developed manual
- FSL software (free download)

Recommended Text for supplementary reading: Poldrack, R.A., Mumford, J.A., & Nichols, T.E. (2011). *Handbook of Functional MRI Data Analysis*. New York, NY: Cambridge University Press.

Course Organization and Requirements

Lectures

Once a week will be a lecture format and class discussion. These lectures will prepare you for your lab practicals. Attendance and participation is essential.

Lab

Other time will be smaller sections for more individualized training in the lab. This will be hands on learning the day to day execution of fMRI experiments. This will largely be done in groups of two individuals who will 'buddy' up and attend each

others scans/practicals, where one person is primary trainee for 1:1 interaction and the second is there to observe.

Grading

Grading is Pass/No pass based 60% on participation and 40% on final abstract write-up (1 page)

Lecture/Lab schedule

Week	Lecturer	Lecture		Lab	Practical
Pre	Sabb	Intro and beginning design		Sabb	Individual IRB prep
One	Sabb	Beginning design		Sabb	Experimental Design
Two	Smith	Physics & Sequence Parameters		Smith	Scan Parameters/Physics
Three	Sabb	Screening and consent		Watrous	Screening/Safety
Four	Smith	R&D		Watrous	R&D
Five	Sabb	Neuroanatomy		Watrous	Acquire Data
Six				Watrous	Acquire
Seven	Watrous	Examine Raw Data: Data QA		Watrous	Acquire
Eight	Smith	PreProcessing		Watrous	Acquire/Preprocess
Nine	Sabb	1 st level Modeling		Smith	Modeling
Ten	Sabb	Higher Level Modeling		Smith	Modeling