

AUD940 /SPLH 764

SEMINAR IN IMAGING (1 CREDIT)

Spring 2009

Class Meetings: Friday 10-12 KUMC 3001 Miller

Class Instructor: Ed Auer; auer@ku.edu; 864-1460, 864-1461

Office Hours: Monday, Wed. 11:00 –12:00 Haworth 4115

Additional times available by appointment

Course Description

This course provides an introduction to imaging in cognitive neuroscience of human communication. The main focus will be on Magnetic Resonance Imaging and functional MRI experimentation. Relevant cortical anatomy will also be reviewed.

Course Objectives

At the end of this course it is anticipated that students will be able to:

1. Identify basic cortical anatomy relevant to human communication.
 - What cortical structures are we linking behavior to?
2. Describe currently used research techniques in cognitive neuroscience, including relative advantages and disadvantages.
 - How are data acquired? What are the assumptions underlying its acquisition? How is it analyzed?
3. Have a basic understanding of fMRI experimentation.

ASHA Certification Standards

This course is designed to cover the following KASA categories required for certification in audiology: B4, B6, B11, B15.

Course Materials

Readings associated with lectures and other course materials will be made available on the Blackboard course website <http://courseware.ku.edu>

Suggested text to accompany the course: *Functional Magnetic Resonance Imaging*, by Huettel, Song, and McCarthy

Requirements

Students will attend class sessions and complete assigned readings prior to class. Grades will be assigned on the basis of student performance on either a take home final or a written critique of an imaging paper related to their field of study.

Academic Misconduct

Students are expected to observe all University guidelines pertaining to academic misconduct. As stated in the University Senate Rules and Regulations (2.6.1):

“Academic misconduct by a student shall include, but not be limited to, disruption of classes; threatening an instructor or fellow student in an academic setting; giving or receiving of unauthorized aid on examinations or in the preparation of notebooks, themes, reports or other assignments; knowingly misrepresenting the source of any academic work; unauthorized changing of grades; unauthorized use of University approvals or forging of signatures; falsification of research results; plagiarizing of another's work; violation of regulations or ethical codes for the treatment of human and animal subjects; or otherwise acting dishonestly in research.”

Academic misconduct will not be tolerated and will be dealt with in accordance with University rules and regulations.

Accommodations

The staff of Services for Students with Disabilities (SSD), 135 Strong, 785-864-2620 (v/tty), coordinates accommodations and services for KU courses. If you have a disability for which you may request accommodation in KU classes and have not contacted them, please do so as soon as possible. Please also notify the instructor in writing (e-mail is acceptable) within one week of receiving this syllabus so that appropriate accommodations for this course can be discussed.

If a scheduled exam or assignment due date is in conflict with a mandated religious observance, you must notify the instructor in writing (e-mail is acceptable) within one week of receiving this syllabus so that an alternative arrangement can be made in advance of the scheduled requirement.

Grading

The University has prescribed definitions for grades. The University Senate Rules and Regulations define grades in the following way:

- 1.2.1.1 The grade of A will be reported for achievement of outstanding quality.
- 1.2.1.2 The grade of B will be reported for achievement of high quality.
- 1.2.1.3 The grade of C will be reported for achievement of acceptable quality.
- 1.2.1.4 The grade of D will be reported for achievement of minimally passing but less than acceptable quality.

If your level of achievement during this course is falling short of your goal, you are strongly encouraged to consult with the instructor during office hours or by appointment to improve the quality of your learning of course material.

SCHEDULE

- **1/23 Overview of Functional Imaging Methods in Cognitive Neuroscience**
- **2/6 History and Basic Physics of Magnetic Resonance Imaging, Safety issues and the MRI**
- **2/20 Cortical Neuroanatomy review and the Blood Oxygen Level Dependent response**
- **3/6 Experimental Design and Image Preprocessing in functional MRI**
- **3/13 Statistical analysis of fMRI data and other MRI methods (Diffusion Tensor Imaging, anatomical scans)**
- **4/3 MRS Imaging**
- **TBA Practical session collecting an fMRI dataset and analyzing the data.**
- **5/1 Magnetoencephalography (MEG) Imaging**