

August 22, 2003

MEMORANDUM

TO: David S. Watt, Ph.D.
Associate Provost for Academic Affairs
Chair, Academic Council for the Medical Center
Deans, Department Chairs and Members of the University Senate

FROM: Emery A. Wilson, M.D.
Dean and Associate Vice President for Clinical Services

RE: New Course Application(s)

The Faculty Council of the College of Medicine has approved and submits for your consideration and approval the following new course application(s):

ANA 625 Introduction to Functional MRI

Description: Hands-on course for practioneers interested in acquiring functional MRI technique(s) as a research tool

Justification: No other course like this exists at UK and individuals have expressed a need for it.

TO: C. Darrell Jennings, M. D.
Associate Dean, Academic Affairs

FROM: Jane E. Joseph, Ph.D
Department of Anatomy and Neurobiology
308 Davis-Mills Building
0098

SUBJECT: Revised Proposal for ANA625 Introduction to Functional MRI

DATE: July 2, 2003

Attached is a copy of a revised proposal for ANA625 Introduction to Functional MRI. I greatly appreciate the suggestions and feedback of the Curriculum Committee concerning this course and have incorporated these changes, as outlined below:

1. *Clarify the IRB timing issue.*

I have spoken with Ada Sue Selwitz in the Office of Research Integrity about the issue of collecting fMRI data for the purposes of instruction. According to her definitions, as long as the data were not to be used for publication (which they are not intended to be) and as long as no federal funds were to be used to collect the data (the director of the MRISC, Don Gash, has stated that the MRISC would donate the hours needed for MRI scanning as part of this course), then the collection of data does not qualify as “research” and would not require IRB approval. Based on my conversation with her and her recommendations, I have decided to prepare a “permission form” (modeled after a consent form) that outlines the risks of MRI scanning to a human volunteer but clearly states that the purpose of this data collection is for instructional purposes only – the data will not be used for publication or as pilot data for subsequent research studies. Accordingly, the pre-requisite for human subjects certification for this course has been removed.

2. *Clarify the group grading.*

The group project portion of the course has now been changed to be an individual-student project instead. I agree that group grading can pose a problem in terms of equitable assessment of effort by each student. In addition, each student will likely gain more from the course if the data analysis project is conducted on his or her own.

Other changes have been made to reflect the replacement of a group project with an individual project. These changes include: (1) modified schedule under “Tentative Schedule” section, (2) modified percentages for lectures versus project under “Course Format” section, (3) re-adjusted percentages for different aspects of class participation and assignments under “Grading” section.

3. *Address the issue of the number of credit hours versus the amount of work involved.*

After having communicated with other professors, a reasonable guideline as to the number of hours spent outside of class per credit hour is 2 hours of work per week per credit hour. This would translate into 36 hours spent on the course in addition to the lecture and lab hours over the course of a semester. Given that in the present proposal, (1) there are no exams in the course, (2) the written reports are short – 5 to 10 double-spaced pages, and (3) Four of the lecture hours are devoted to working on individual projects, it seems reasonable to offer this course as a 1-credit hour course.

4. *Clarify a back-up plan of using the existing database.*

The National fMRI Data Center at Dartmouth College maintains a database of fMRI data that can be accessed free of charge. This database is often used at other institutions for instruction in fMRI data analysis. This resource will be used in the present course. Each individual student will choose one of the datasets available in the database and will analyze the data using skills they are learning in the course. Each student will write reports based on the dataset they have chosen to analyze. Although the present course still includes a data collection component on-site here at UK, this smaller scale dataset will be used to demonstrate data analysis techniques as part of class instruction.

5. *Clarify statistical requirements.*

Sample courses that would qualify as pre-requisites are now listed on the proposal sheet.

Please let me know if you need any additional information.

Sincerely,

Jane E. Joseph, Ph.D

APPLICATION FOR NEW COURSE

1. Submitted by College of _____ Date _____
Department/Division offering course _____

2. Proposed designation and Bulletin description of this course

a. Prefix and Number _____ b. Title* _____

*NOTE: If the title is longer than 24 characters (including spaces), write
A sensible title (not exceeding 24 characters) for use on transcripts _____

c. Lecture/Discussion hours per week _____ d. Laboratory hours per week _____

e. Studio hours per week _____ f. Credits _____

g. Course description

h. Prerequisites (if any)

i. May be repeated to a maximum of _____ (if applicable)

4. To be cross-listed as

Prefix and Number

Signature, Chairman, cross-listing department

5. Effective Date _____ (semester and year)

6. Course to be offered Fall Spring Summer

7. Will the course be offered each year? Yes No
(Explain if not annually)

8. Why is this course needed?

9. a. By whom will the course be taught? _____

b. Are facilities for teaching the course now available? Yes No
If not, what plans have been made for providing them?

APPLICATION FOR NEW COURSE

10. What enrollment may be reasonably anticipated? _____
11. Will this course serve students in the Department primarily? Yes No
- Will it be of service to a significant number of students outside the Department?
If so, explain. Yes No
-
- Will the course serve as a University Studies Program course? Yes No
- If yes, under what Area? _____
12. Check the category most applicable to this course
- traditional; offered in corresponding departments elsewhere;
 - relatively new, now being widely established
 - not yet to be found in many (or any) other universities
13. Is this course applicable to the requirements for at least one degree or certificate at the University of Kentucky? Yes No
14. Is this course part of a proposed new program:
If yes, which? Yes No
-
15. Will adding this course change the degree requirements in one or more programs? *
If yes, explain the change(s) below Yes No
-
16. Attach a list of the major teaching objectives of the proposed course and outline and/or reference list to be used.
17. If the course is a 100-200 level course, please submit evidence (e.g., correspondence) that the Community College System has been consulted.
18. Within the Department, who should be contacted for further information about the proposed course?
- Name _____ Phone Extension _____

*NOTE: Approval of this course will constitute approval of the program change unless other program modifications are proposed.

APPLICATION FOR NEW COURSE

Signatures of Approval:

Department Chair	Date
Dean of the College	Date
	Date of Notice to the Faculty
*Undergraduate Council	Date
*University Studies	Date
*Graduate Council	Date
*Academic Council for the Medical Center	Date
*Senate Council (Chair)	Date of Notice to University Senate

*If applicable, as provided by the Rules of the University Senate

ACTION OTHER THAN APPROVAL

Anatomy 625

Introduction to Functional Magnetic Resonance Imaging

Jane E. Joseph, Ph.D, course director
Other faculty to be determined

Tentative Schedule

<u>Class Meeting Date</u>	<u>Topics</u>
Week 1	Physical Principles of MRI - Lecture
Week 2	Physical Principles of MRI – Lab
Week 3	Physiological Basis of fMRI – Lecture
Week 4	Physiological Basis of fMRI – Discussion of journal articles
Week 5	MRI Environment & Equipment – Lecture & Lab Human Subjects Issues – Lecture
Week 6	Experimental Design – Lecture
Week 7	Experimental Design – Planning Session for Class Project
Week 8	Data Collection for Class Project - Lab
Week 9	Data Processing, Analysis and Interpretation – Lecture
Week 10	Data Processing, Analysis and Interpretation – Lab ** Demonstration with Class Project dataset **
Week 11	Data Analysis and Introduction to fMRI-DC Database - Lab
Weeks 12-15	Data Analysis and Interpretation for Class Project II ** No class meetings ** ** Week 12 – Individual Project Proposals Due ** ** Week 14 – Individual Project Progress Reports Due **
Week 16	Advanced Data Analysis Techniques - Lecture
Week 17	Emerging Techniques – Diffusion Tensor Imaging - Lecture
Finals Week	** Individual Project Written Final Report Due **

1. Course Description

“Introduction to Functional Magnetic Resonance Imaging” is designed to provide hands-on practical experience to students, scientific staff or faculty interested in learning to use this brain imaging technique as a research tool. The lectures, labs and projects in this course will focus on the mechanics of designing, executing, analyzing and interpreting fMRI studies. Brief theoretical background of the technique is also provided.

2. Course Format

Approximately 50% of the ANA625 course consists of lectures, laboratories and in-class discussions. All components will run for 50 minutes. Approximately 40% of the ANA625 course consists of an individual data analysis project, which will require additional hours outside of lecture times (however, several lecture periods will be devoted to working on individual projects). The remaining 10% of the course will consist of reading articles for in-class discussions and preparing written reports. There are no exams as part of this course.

3. Individual Projects

Because this is a hands-on course that teaches practical skills needed to conduct functional MRI studies, individual projects are the primary means for evaluating mastery of the material. The individual projects will consist of analyzing a large set of data from a previously conducted study by means of a public use database maintained at the National fMRI Data Center (fMRI-DC) at Dartmouth College (<http://www.cogneurosociety.org/>) and write reports associated with these projects (described below). Students will receive the necessary training during the present course to analyze a dataset of their own choosing from the fMRI-DC database. There will also be on-site data collection here at UK on a smaller scale as part of this course. This smaller dataset will be analyzed as a demonstration of data analysis steps needed for the larger-scale individual projects.

Three written assignments are associated with the individual project: (1) A proposal for the project, which describes the selected dataset in terms of experimental design and methods, analyses to be used, predicted outcomes, and potential pitfalls. (2) A progress report, which includes the progress on the project to date as well as preliminary quality control reports. (3) A final report, which extends the original proposal by adding results and discussion sections.

4. Grading

The final grade will be assigned as: A (90% or better) B (80 – 89.5%), C (70 to 79.5%), or Fail (below 70%), based on the weighted average of individual assignments:

Attendance	5%
Class Participation	20%
Individual Project:	
Written Proposal:	20%
Progress Report:	20%
Final Report:	35%

5. Class Materials

No textbooks are required for this course, but some books will be available on reserve for students to reference. The course director will provide copies of journal articles to be discussed in class. The powerpoint lectures will be made available to the students for reference.

6. Office Hours

To be determined.