New Course Request

Indiana University

Check Appropriate Boxes: Undergraduate credit □ Graduate credit [X] Professional credit □

1. School/Division Graduate 2. Academic Subject Code GRAD
3. Course Number G718 (must be cleared with University Enrollment Services) 4. Instructor Simon Rhodes
5. Course Title Research in Biomedical Science
   Recommended Abbreviation (Optional) Res Biomed
   (Limited to 32 Characters including spaces)

6. First time this course is to be offered (Semester/Year): Fall 2007
7. Credit Hours: Fixed at ______ or Variable from ______ to ______
8. Is this course to be graded S-F (only)? Yes ____ No [X]
9. Is variable title approval being requested? Yes ____ No [X]
10. Course description (not to exceed 50 words) for Bulletin publication: A laboratory research rotation course. Allows incoming basic science doctoral graduate students in the School of Medicine programs to take research rotations in laboratories affiliated with all of the School graduate programs. Permission of instructor required.

11. Lecture Contact Hours: Fixed at ______ or Variable from ______ to ______
12. Non-Lecture Contact Hours: Fixed at ______ or Variable from ______ to ______
13. Estimated enrollment: ______ of which ______ percent are expected to be graduate students.
14. Frequency of scheduling: Annually Will this course be required for majors? Yes
15. Justification for new course: Restructuring of graduate program requirements.
16. Are the necessary reading materials currently available in the appropriate library? Yes
17. Please append a complete outline of the proposed course, and indicate instructor (if known), textbooks, and other materials. Attached
18. If this course overlaps with existing courses, please explain with which courses it overlaps and whether this overlap is necessary, desirable, or unimportant. None
19. A copy of every new course proposal must be submitted to departments, schools, or divisions in which there may be overlap of the new course with existing courses or areas of strong concern, with instructions that they send comments directly to the originating Curriculum Committee. Please append a list of departments, schools, or divisions thus consulted. Attached

Submitted by [Signature] Date 11/9/06
Department Chairman/Division Director

[Signature] Date 11/9/06
Dean of Graduate School (when required)

Approved by:

[Signature] Date
Dean

[Signature] Date
Chancellor/Vice-President

[Signature] Date
University Enrollment Services

After School/Division approval, forward the last copy (without attachments) to University Enrollment Services for initial processing, and the remaining four copies and attachments to the Campus Chancellor or Vice-President.
Dear Dr. Queener,

Please find enclosed a request for a laboratory rotation course in biomedical sciences for graduate students in the School of Medicine doctoral programs. Using this course, students will be able to register for research rotations in any faculty laboratory that holds graduate status in one of the ten IUSM PhD programs. These will be mostly faculty labs from the IUSM, but faculty from the School of Science and the School of Engineering & Technology that are part of the two interdisciplinary programs (Medical Neuroscience and Medical Biophysics & Biomolecular Imaging), or who hold adjunct appointments, will also be able to take rotation students under this mechanism (as they have done in the past).

Rationale for proposed course
In the past, the 10 School of Medicine biomedical science Ph.D. programs have recruited and admitted students separately. However, beginning in fall 2007 the School will begin a new “open enrollment/gateway/umbrella” system (named IBMG, for IU School of Medicine Biomedical Gateway) that will provide a common first year experience for all School of Medicine biomedical science predoctoral students. This first year community of students will take a shared curriculum with common first semester components in basic biomedical science topics. Later, the curriculum will also include modules for the development of professional skills, career development, ethics, and community engagement. A strong sense of community will be built among the students through the curriculum and through social events. In the first part of the year, students also will learn about the research opportunities available at the School of Medicine through interactions with the Program Directors and research faculty in classes, laboratory visits, and research retreats. First year students will have the freedom to choose laboratories from any School of Medicine Department/program for three half-semester research rotations (to begin in the middle of the first semester). The enclosed new course request is for a school-wide research rotation course. This will allow students to register for research rotations with any graduate faculty that are associated with IUSM Ph.D. programs. At the moment, we have many such courses already but they are specific to individual units (e.g. research in Genetics). The new course would be a more general school-wide course number intended for use by the incoming graduate student class that has not yet identified their final degree path. At the end of the first year, students will be free to “differentiate” and join any of the School of Medicine biomedical science Ph.D. degree programs from which they will ultimately receive their degree.
There are many reasons comprising the rationale for switching to an open enrollment system. Importantly, it has been the experience of other medical school graduate programs that have made a similar change that this approach results in a happier community of graduate students and in a higher overall quality of student. Further, the open enrollment system will make School of Medicine graduate education better reflect the interdisciplinary nature of modern biomedical research. For example, incoming students will be able to consider a focus on a research area, such as diabetes-related research or cancer-related research for example, and will have the freedom to rotate in and consider joining labs with different Ph.D. program affiliations who work on those topics. It is also expected that the open enrollment system will promote research collaborations between School research laboratories because there will be an increased sense of community and an improved contact network within the graduate student population. In addition, the sharing of resources will allow the School to strengthen and improve its graduate student recruiting efforts (including hiring staff dedicated to recruiting and program management) with a goal of improving admitted student numbers, diversity, and quality. The system will improve the attractiveness of graduate study at the School of Medicine by offering potential students more choice and flexibility in their degree programs.

Review for Overlap with Current Courses at IUSM and IUPUI
The proposed course has been designed by a curriculum committee with representatives from all 10 PhD programs/Departments of the School of Medicine. The courses therefore have been approved by all relevant units of the School.

The course description has also been sent to the chairs of the IUPUI Biology and Chemistry & Chemical Biology Departments for review. Letters confirming that no conflict exists are included.

Thank you for your consideration,

[Signature]

Simon J. Rhodes, Ph.D.
Associate Dean for Graduate Studies
Indiana University School of Medicine
srhodes@iupui.edu
New Course Request

I. Title: Research in Biomedical Science
   Course number: G718
   Instructors: Simon Rhodes
   Prerequisites: none

II. COURSE DESCRIPTION AND RATIONALE
    A laboratory research rotation course allowing incoming basic science doctoral
    graduate students in the School of Medicine (IUSM) to take research rotations in
    laboratories affiliated with any of the ten IUSM PhD programs. Permission of instructor
    required. Student may register up to 6 times for this course.

    Rationale: beginning in fall 2007, students will enter the doctoral programs of the IUSM
    as one community (the Indiana University School of Medicine BioMedical Gateway
    (IBMG) program). They will take a common curriculum and will have the freedom to do
    research rotations in laboratories from any IUSM degree-granting program. At the end
    of the first year, students will choose a laboratory and a degree program. This course
    allows registration for school-wide research rotations.

III. EDUCATIONAL OBJECTIVES

    Overall Objective
    • Provide opportunities for students to experience different research environments and
      participate in the ongoing research in that laboratory.

    Specific Objectives for student
    • Understand the research topics under investigation in the laboratory.
    • Understand the research methods in use in the laboratory.
    • Begin to develop critical thinking skills, the ability to meaningfully design biomedical
      studies, a work ethic consistent with those of a professional scientist, and to learn
      appropriate time management skills.
    • Understand the typical expectations and the curriculum of the relevant biomedical
      science graduate program.

IV. COURSE CONTENT:

    A typical research rotation will be 2 credits and will involve the student spending 15
    hours total per week in the prospective mentor's laboratory. On two days per week, it is
    expected that 6 hours per day should be spent in the laboratory. Each rotation will be
    seven weeks. The student is expected to design and perform experiments, attend any
    laboratory research meetings, attend any laboratory journal clubs, discuss ongoing
    projects with laboratory members, etc. The student should also attend research
    seminars and other activities relevant to the mentor's laboratory and the graduate
    training program under consideration.
Faculty interviews:
- To begin identifying appropriate labs for rotations, students should consult with both their assigned advisors in the IUSM Graduate Division and their tentative graduate program soon after they arrive on campus.
- To identify appropriate labs for rotations, students should attend presentations given by the IUSM graduate program directors and any program events such as open days, poster sessions, research retreats, etc.
- To identify appropriate labs for rotations, students should interview faculty members whose research is interesting to them during their first few weeks after arrival for the fall semester. The purpose of these interviews is to meet as many faculty as practical on a one-on-one basis and to discuss research interests and possibilities for research rotations.
- Following these interviews, students will identify faculty members who agree to serve as lab rotation mentors during the first year and then discuss these possible laboratory rotations and dissertation mentors with their advisors.

Possible topic areas during the interview with a faculty member:
- What projects are available for the student to work on?
- What are the expectations of the student?
- What graduate program is under consideration (many faculty are affiliated with >1 program)?
- The roles and expectations of the mentor and other members of the rotation laboratory (i.e. who – mentor, postdoc, graduate students, technicians – will teach techniques, help with experiments, etc.).
- The amount of time the student is expected to devote to the project and the number of hours per week the student is expected to work in the lab.

Rotation schedules:
- If the student and faculty mentor both agree that the student will rotate in this lab, both the student and the mentor need to complete and sign the IBMG rotation form.
- It is the student’s responsibility to file this form with the Graduate Division Office by the due date.
- Students should prioritize their lab rotation choices in the IBMG Rotation Form. The IBMG program will attempt to meet their rotation requests as schedules permit.

Duration:
- Each rotation will be seven weeks.
- The first rotation will be the last seven-week period of the first fall semester.
- The second rotation period will be the first seven-week period of the following spring semester.
- The third rotation period will be the last seven-week period of the spring semester.
Time management/expectations:
- It is helpful at the outset of a rotation to develop a tentative work schedule and a schedule to regularly meet with the faculty mentor. The nature of the experiments will help in deciding the schedule.
- If at any time the student finds that she/he cannot maintain the agreed-upon rotation schedule, due to the demands of their academic coursework or any other reason, they need to inform their faculty mentor of this situation and discuss how they will complete the rotation.
- At or toward the end of each rotation (~final week), students will prepare a short oral presentation on their work presented during the laboratory group meeting - and a two page written report of their work with topic background information on their work. The exact format for this requirement will be determined by each faculty mentor.
- The rotation will be deemed “complete” at the conclusion of the 7-week period only upon completion of the oral/written rotation report requirement.

V. REQUIRED AND RECOMMENDED TEXTS:


VI. EVALUATION AND GRADING:
- Toward the end of the rotation the faculty mentor will provide a written evaluation of each student’s accomplishments and development using the “Faculty Evaluation of an Indiana University School of Medicine BioMedical Gateway (IBMG) Lab Rotation” form (copy attached).
- A copy of the evaluation will be given to the student and the original filed in the student’s record in the Graduate Division.
- The grade for the rotation will be based on performance in the official 7-week period.
- The grade will be assigned by the faculty member in whose laboratory the student performed the rotation.
- In assigning the grade, the faculty member will consider the overall performance of the student during this rotation. Factors to be weighted will include:
  - the level of commitment of the student (e.g. time devoted [match to agree schedule?], reliability and conscientiousness, punctuality).
  - impressions of the student’s abilities (self-reliance and independence, intellectual curiosity, communication skills).
  - the ability of this student to master the concepts of the research (scientific comprehension, intellectual involvement).
the ability of this student to conduct independent research (laboratory skills, ability to organize scientific data, record keeping, accuracy).

Grade Assignment Guidelines:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+ or A</td>
<td>Student performed excellently in all four of the above areas.</td>
</tr>
<tr>
<td>A-</td>
<td>Overall, an excellent performance but with a minor concern in one area.</td>
</tr>
<tr>
<td>B+ or B or B-</td>
<td>A satisfactory performance in the laboratory rotation but faculty member has a significant concern in one area or minor concerns in &gt;1 area.</td>
</tr>
<tr>
<td>C</td>
<td>An unsatisfactory performance due to significant concerns in at least 2 areas.</td>
</tr>
<tr>
<td>D or F</td>
<td>An unsatisfactory performance with significant concerns in several or all areas.</td>
</tr>
</tbody>
</table>

Note - grades of C and lower are not passing grades in graduate level courses.

- The student will also complete a confidential evaluation form (Student Evaluation of an Indiana University School of Medicine BioMedical Gateway (IBMG) Lab Rotation) - copy attached.

VII. BIBLIOGRAPHY:


In addition, students should familiarize themselves with recent publications from the laboratory in which the rotation experience is being held.
VIII. CHEATING AND PLAGIARISM:

Students are instructed to make themselves aware of University regulations concerning plagiarism, the maintenance of academic honesty and the definitions of unacceptable behavior and cheating. Academic misconduct of any sort will not be tolerated and will be dealt with as outlined in the IU/IUPUI Code of Student Rights, Responsibilities, and Conduct, which can be viewed at:

http://www.life.iupui.edu/help/docs/Part_3all.html

Examples of misconduct include but are not limited to:

1. Cheating
A student must not use or attempt to use unauthorized assistance, materials, information, or study aids in any academic exercise

2. Fabrication
A student must not falsify or invent any information or data in an academic exercise including, but not limited to, records or reports, laboratory results, and citations to the sources of information.

3. Plagiarism
A student must not adopt or reproduce ideas, words, or statements of another person without appropriate acknowledgment. A student must give credit to the originality of others and acknowledge an indebtedness whenever he or she does any of the following:
   a. Quotes another person's actual words, either oral or written
   b. Paraphrases another person's words, either oral or written
   c. Uses another person's idea, opinion, or theory; or
   d. Borrows facts, statistics, or other illustrative material, unless the information is common knowledge.

4. Interference
   a. A student must not steal, change, destroy, or impede another student's work.
   b. A student must not give or offer a bribe, promise favors, or make threats with the intention of affecting a grade or the evaluation of academic performance.

Potential consequences for academic misconduct:

If the instructor has information that one of his/her students committed an act of academic misconduct, the faculty member will hold an informal conference with the student. The conference will be prompt and private. If the faculty member concludes that the student is responsible for the misconduct, then the faculty member will impose an appropriate academic sanction (i.e., lower or failing grade on the assignment, assessing a lower or failing grade for the course).

IX. AMERICANS WITH DISABILITIES ACT:

If you need any special accommodations due to a disability, please contact Adaptive Educational Services at (317)-274-3241. The office is located in CA 001E.
Faculty Evaluation of an Indiana University School of Medicine BioMedical Gateway (IBMG) Lab Rotation

Faculty member: Please fill out the following rotation evaluation for the named student and return to the Graduate Division.

Name of student: __________________________
Name of lab rotation mentor: __________________________
Name of PhD program: __________________________
Semester/Dates __________________________

Briefly describe the research project assigned for this rotation:

Approximate number of hours per week in lab: ________

Describe the level of commitment of the student (e.g. time devoted, reliability and conscientiousness, punctuality):

Describe the student’s abilities (self-reliance and independence, intellectual curiosity, communication skills):

How well did the student master the concepts of the research (scientific comprehension, intellectual involvement)?

How well did the student conduct independent research (laboratory skills, ability to organize scientific data, record keeping, accuracy)?

Achievements of note/Areas for improvement/Additional comments (use back of page if necessary)

Assigned grade for this rotation: ________ Credit Hours: ________

Faculty Signature: __________________________ Date: ________

Student Signature: __________________________ Date: ________
(signifies that the faculty member has discussed this report with the student).
Student Evaluation of an Indiana University School of Medicine BioMedical Gateway (IBMG) Lab Rotation

Student: Please fill out the following rotation evaluation for the named student and return to Dr. Rhodes in the Graduate Division.

Name of student: ____________________________
Name of lab rotation mentor: ____________________________
Name of PhD program: ____________________________
Semester/Dates ____________________________

Briefly describe the research project assigned for this rotation:

Describe what you believe the goals and duties were for this rotation:

Approximate number of hours you spent per week in lab: ______

Was the mentor available when you needed help?

Were you involved in day-to-day lab tasks?

Were you involved in Department/program activities, such as seminars? Briefly describe.

Did you meet with the mentor on a regular basis?

Additional comments (use back of page if necessary)

This form is confidential – it will not be shown to the faculty member unless you agree to disclosure.

☐ Yes, the contents of this form can be disclosed
☐ No, the contents of this form should remain confidential in the Graduate Division files

Signature: ____________________________ Date: ____________________________
Letter from IUPUI Biology

From: Lees, Norman D  
Sent: Monday, November 06, 2006 11:59 AM  
To: Rhodes, Simon J  
Subject: Re: research rotation course

Simon,

There are no conflicts with courses designed for graduate student rotations.

Doug

Dear Doug and Frank,

As part of revising and consolidating the graduate curriculum of the IUSM, we are submitting a new course request for a school-wide research rotation course. This will allow students to register for research rotations with any graduate faculty that are associated with IUSM Ph.D. programs. At the moment, we have many such courses already but they are specific to individual units (e.g., research in Genetics). The new course would be a more general school-wide course number intended for use by the incoming graduate student class that has not yet identified their final degree path.

Most of the faculty involved with the rotations will be from the IUSM, but some of your faculty that are part of the two interdisciplinary programs (Medical Neuroscience and Medical Biophysics & Biomolecular Imaging) will also be able to take rotation students under this mechanism as they have done in the past. As we have discussed before with other course requests, part of the IUPUI course submission and approval process is to ensure that new course applications do not conflict with the plans of other units. I do not think that this course conflicts with your offerings. I would therefore like to include a note from you with the application that confirms there is no overlap.

Please let me know if you have any questions.

A reply by e-mail would be fine.

Thanks very much,

Simon

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Simon J. Rhodes, Ph.D.
Associate Dean for Graduate Studies
Indiana University School of Medicine
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Letter from IUPUI Chemistry and Chemical Biology

No answer yet for this course