

January 31, 2013

Dr. Brett Spear, College of Medicine

Re: Proposed Change in the Graduate School IBS Curriculum

Dear Dr. Spear,

The Faculty Council has considered the proposed changes to the IBS graduate school educational program and voted unanimously to support the new educational policy.

Thank you for the opportunity to be involved in the development of this important aspect of our educational mission.

Sincerely,

A handwritten signature in black ink, appearing to read 'JAD', with a long horizontal flourish extending to the right.

John D'Orazio, M.D., Ph.D.

College of Medicine Faculty Council Chair, 2012-13

CHANGE DOCTORAL DEGREE PROGRAM FORM

GENERAL INFORMATION

College:	<u>Medicine</u>	Department:	<u>None</u>
Current Major Name:	<u>Integrated Biomedical Sciences</u>	Proposed Major Name:	<u>No Change</u>
Current Degree Title:	<u>Non-degree granting</u>	Proposed Degree Title:	<u>No Change</u>
Current Formal Option(s):	<u>N.A.</u>	Proposed Formal Option(s):	<u>No Change</u>
Current Specialty Fields w/in Formal Option:	<u>N.A.</u>	Proposed Specialty Fields w/in Formal Option:	<u>No Change</u>
Date of Contact with Associate Provost for Academic Administration ¹ :		<u>Jan 11, 2013</u>	
Bulletin (yr & pgs):	<u>2012: 226-227</u>	CIP Code ¹ :	<u>26.9999.03</u>
		Today's Date:	<u>Jan. 18, 2013</u>
Accrediting agency (if applicable):	<u>N.A.</u>		
Requested Effective Date:	<input checked="" type="checkbox"/> Semester following approval.	OR	<input type="checkbox"/> Specific Date ² : _____
Dept Contact Person:	<u>Brett T. Spear</u>	Phone:	<u>7-5167</u>
		Email:	<u>bspear@uky.edu</u>

CHANGE(S) IN PROGRAM REQUIREMENTS

	<u>Current</u>	<u>Proposed</u>
1. Number of transfer credits allowed:	<u>0</u>	<u>0</u>
<i>(Maximum is Graduate School limit of total of 9 hours (or 25% of the credit hours needed to fulfill the pre-qualifying residency requirement.)</i>		
2. Residence requirement:	<u>0</u>	<u>0</u>
<i>(Minimum of one year before and after Qualifying Exams.)</i>		
3. Language(s) and/or skill(s) required:	<u>English</u>	<u>No Change</u>
4. Provisions for monitoring progress and termination criteria:	<u>Laboratory evaluations, performance in IBS Courses at B Level or above. Students failing to perform at or above a 3.0GPA will be terminated.</u>	<u>No change</u>
5. Total credit hours required:	<u>22</u>	_____
6. Required courses:	<u>IBS 601, IBS 602, IBS 603, IBS 604, IBS 605, IBS 606, IBS 607, IBS 609</u>	<u>IBS 601, IBS 602, IBS 603, IBS 606, IBS 608, IBS 607, IBS 609, IBS 610, IBS 611</u>
7. Required distribution of courses within program:	<u>N.A.</u>	<u>No change</u>
8. Minor area or courses outside program required:	<u>None</u>	<u>No change</u>

¹ Prior to filling out this form, you MUST contact the Associate Provost for Academic Administration (APAA). If you do not know the CIP code, the APAA can provide you with that during the contact.

² Programs are typically made effective for the semester following approval. No program will be made effective until all approvals are received.

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9. Distribution of courses levels required (400G-500/600-700):	<u>All 600 level</u>	<u>No change</u>
10. Qualifying examination requirements:	<u>None</u>	<u>No change</u>
11. Explain whether the proposed changes to the program (as described in numbers 1 through 10) involve courses offered by another department/program. <u>Routing Signature Log must include approval by faculty of additional department(s).</u> <u>Changes do not involved classes offered by another program.</u>		
12. Other requirements not covered above: <u>None</u>		
13. What is the rationale for the proposed changes? If the rationale involves accreditation requirements, please include specific references to those requirements. <u>History of program, rationale for changes, process to develop changes, history of program, and description of changes are described below.</u>		

CHANGE DOCTORAL DEGREE PROGRAM FORM

Signature Routing Log

General Information:

Proposal Name: Change in Integrated Biomedical Sciences (IBS) Curriculum

Proposal Contact Person Name: Brett T. Spear Phone: 7-5167 Email: bspear@uky.edu

INSTRUCTIONS:

Identify the groups or individuals reviewing the proposal; note the date of approval; offer a contact person for each entry; and obtain signature of person authorized to report approval.

Internal College Approvals and Course Cross-listing Approvals:

Reviewing Group	Date Approved	Contact Person (name/phone/email)	Signature
COM Basic Science Chairs	Vetted on Nov. 14, 2012	Mike Reid / 3-6045 / michael.reid@uky.edu	
COM Faculty Council	Vetted on Dec. 18, 2012	John D'Orazio / 3-0239 / jdorazio@uky.edu	
		/ /	
		/ /	
		/ /	

External-to-College Approvals:

Council	Date Approved	Signature	Approval of Revision ³
Undergraduate Council			
Graduate Council			
Health Care Colleges Council	2/19/13	Cynthia Beeman	
Senate Council Approval		University Senate Approval	

Comments:

The proposed changes were vetted by the COM Basic Science Chairs and the COM Faculty council on the dates noted above. However, while both groups were supportive of the proposed changes, in both cases there was no official vote of approval.

³ Councils use this space to indicate approval of revisions made subsequent to that council's approval, if deemed necessary by the revising council.

The Integrated Biomedical Sciences Program (IBS) was established nearly 12 years ago through the efforts of the 5 basic science departments in the College of Medicine (Anatomy and Neurobiology; Biochemistry; Microbiology, Immunology and Molecular Genetics; Pharmacology; Physiology). The IBS program was developed to serve as a gateway into the PhD programs of these five departments. Since its inception, two additional PhD granting programs – the Graduate Program in Toxicology and Graduate Program in Nutritional Sciences – have moved into the College of Medicine and become IBS participants.

The primary goals of IBS were two-fold: to improve the quality and quantity of applicants and to provide a solid core curriculum for all students in biomedical research. The one-year IBS program was set up such that students would take six core courses (IBS601, IBS602, IBS603, IBS604, IBS605, IBS606), perform four laboratory rotations (two/semester; IBS609) with faculty from any of the participating departments, and attend seminars in the department where they are rotating (IBS608; Table I). At the end of the IBS year, students would identify a PhD research mentor and enter his/her lab. The student would then matriculate into the mentor's department and take second year graduate courses that were relevant to that department. Thus, IBS is not a PhD granting program.

Table I
Current IBS curriculum

Fall Semester

IBS601: Biomolecules & Metabolism (3*)
IBS603: Cell Biology (3)
IBS605: Experiment Genetics (3)
IBS607: Seminar in IBS (0)
IBS609: Research in IBS (1)

Spring Semester

IBS602: Biomolecules & Molecular Biology (3)
IBS604: Cell Signaling (3)
IBS606: Integrated Biomedical Sciences (4)
IBS607: Seminar in IBS (0)
IBS609: Research in IBS (1)

[*Credit hours]

The College of Medicine Basic Science Chairs are responsible for oversight of the IBS program. IBS operations (recruitment, compliance, etc) are managed by an Administrative Director (Jason Mitchell) and a Director of Graduate Studies (DGS). In the Fall of 2011, the Basic Science Chairs appointed Brett Spear as DGS of the IBS program. In discussing the IBS program with the chairs, Dr. Spear recommended that an evaluation of the IBS curriculum was needed, and the chairs agreed that he should go forward with this review. Dr. Spear appointed a task force consisting of Rolf Craven (Pharmacology) Matthew Gentry (Biochemistry), Karin High (Physiology), Jason Mitchell (Administrative Director, IBS) Tony Sinai (Microbiology), Brett Spear (IBS and Microbiology) and Nancy Webb (Nutritional Sciences) to carry out this review and recommend changes. This group was chosen with a goal of diversity in that it contained senior, mid-level, and junior faculty, representation across IBS departments, faculty with extensive or no participation in IBS courses, and faculty who had been at UK for long or short periods of time.

This group met regularly between October 2011 and January 2012. The group reviewed existing course syllabi, held discussions with former IBS students, and evaluated similar programs at other universities. Based on these efforts, the task force made the following conclusions regarding the current IBS curriculum:

1. There was excessive redundancy across the six core IBS courses.
2. Too much detailed information was being presented to students, to the extent that important facts and concepts were getting lost.
3. There was not enough critical/conceptual thinking.
4. There were too many exams (basically, one/week) so students were constantly rushing to study from one exam to the next.
5. There was insufficient time for students to fully engage in lab rotations (a major concern of both students and faculty).

Based on these concerns and ideas based on the analysis of curriculum at similar programs at other universities, the task force proposed curricular changes to better serve the needs of IBS students. The proposed revised curriculum is shown in Table II. This new curriculum addresses

Table II
Proposed IBS curriculum

Fall Semester

IBS601: Biomolecules and Metabolism (3*)
IBS602: Molecular Biology and Genetics (3)
IBS610: Critical Reading/Small Groups (2)
IBS611: Practical Statistical Applications (1)
IBS607: Seminar in IBS (0)
IBS609: Research in IBS (1)

Spring Semester

IBS603: Cell Biology and Cell Signaling (3)
IBS606: Physiological Communications (3)
IBS608: Special Topics in IBS (2)
IBS607: Seminar in IBS (0)
IBS609: Research in IBS (1)
TOX600: Ethics (1)

[*Credit hours]

a number of the concerns listed above. It provides less redundancy, better coordination of course content, and improved critical thinking skills through the reading of papers in a small group setting. Although the total credit hours remains the same, it reduces the number of exams and amount of didactic teaching; we are quite confident that this will increase the amount of time students can spend in lab rotations. Furthermore, the special topics course (IBS608) will enable students to explore areas of interest and provides flexibility and novel formats that should appeal to faculty and students. The new curriculum also introduces statistics and allows students time to take an ethics in their first year (this is required for all College of Medicine PhD students and normally taken during their second year). A brief summary of the courses in the new curriculum is as follows:

Fall Semester:

IBS601: This course, which covers basic biochemical principles of protein structure, enzyme kinetics and metabolism, would remain unchanged.

IBS602: This course would combine elements of Molecular Biology (IBS602 in old curriculum; DNA/RNA structure, DNA repair, Replication, Transcription, Translation) and Genetics (IBS605 in old curriculum; Mendelian principles, mouse genetics, genomics, bioinformatics)

IBS610: This is a new course in which IBS students, in groups of 5 or 6, would meet weekly with a faculty member for 2 hours for in-depth discussion of primary research articles. The students would be expected to read these papers prior to class and critically discuss the papers in detail. All groups (4-5 groups are anticipated) would read the same papers, and each group would meet with the same faculty member during the semester.

IBS611: This is a new course in which IBS students would be introduced to basic statistical applications in biomedical research. This course would emphasize applications rather than the theory behind the statistical methods. While many IBS students take a more extensive statistics course in their second year, it was felt that students would benefit greatly from an introductory statistics course in their first year.

Spring Semester:

IBS603: This course would combine elements of Cell Biology (IBS603 in old curriculum; cell structure, organelles, trafficking and export of molecules) and Cell Signaling (IBS604 in old curriculum; signaling pathways, intra- and inter-cellular communication).

IBS606: This is a substantial revision of the original IBS606 course (essentially an organ-based physiology format) that has been reduced from 4 to 3 credit hours. The revised course will emphasize communication that must occur between different cell types/organ systems to maintain normal physiological homeostasis.

IBS608: This new special topics course is an innovative aspect of the new curriculum. Each department will provide 1-2 special topics minicourses of their choosing. The topic can be broad-based or highly focused on a particular area. Content and topics can change yearly. Each minicourse will meet one hour/week for 7 weeks (1/2 of a semester and thus, 1/2 credit). It is expected that ~10 minicourses will be offered. Students will choose 4 minicourses that most appeal to them, and will thus have a total of 2 credit hours. This will allow students to begin to focus on his/her particular area of interest during the first year. This format is based roughly on a similar type of course offered at Vanderbilt, where it has become very popular with students.

TOX600: This course is offered by the Graduate Program in Toxicology. All College of Medicine graduate students are required to take an ethics course, and normally do so during their 2nd year. The restructured IBS curriculum will enable students to complete this course in their first year, which will provide more flexibility for research/other courses in their 2nd year.

Both Semesters:

IBS607 and IBS609: Laboratory research rotations (IBS609) and attendance at departmental seminars (IBS607) during both semesters would remain unchanged.

SUMMARY

As mentioned previously, this revised curriculum was proposed by a task force that is diverse and representative of IBS. Proposed changes have been presented to and approved by the Basic Science chairs. Faculty from the participating IBS departments are aware of the revised curriculum and there appears to be considerable enthusiasm for these proposed changes. We should note that a substantial number of non-IBS students take IBS courses. These students would still be able to take IBS601, IBS602, IBS603 and IBS606 as they have done in the past, so it should not impact other graduate programs; Dr. Spear has met with DGS from several other graduate programs that utilize IBS courses so they are aware of the proposed changes. The number of students who could register for IBS610 (critical reading) will be limited but can accommodate IBS students and perhaps 5-7 non-IBS students. This limitation is due to the fact that this course is taught in a small group setting and will require a large number of faculty.

Syllabi for the new courses and revised courses have been prepared and are ready for submission. Drs. Mellon and Spear (current Course Directors for IBS602 and IBS605, respectively) have worked together to assemble the revised IBS602 syllabus, for which Dr. Mellon will serve as course director. Drs. Kilgore and McClintock (current Course Directors for IBS603 and IBS604, respectively) have worked together to assemble the revised IBS603 syllabus, for which Dr. Kilgore will serve as course director. Dr. Melinda Wilson has led the revision of IBS606 and will serve as its new course director, replacing Dr. Sandra Legan. Dr. Spear will serve as course director of IBS608 and IBS610, and participating faculty for leading small groups have been identified. Dr. Heidi Weiss (Biostatistics) will serve as course director for IBS611. Departments will develop minicourses for Spring 2014 during the Spring 2013 semester. We anticipate that this new curriculum would take effect in the Fall 2013 semester. In addition to these new courses and course changes, IBS604 and IBS605 will be eliminated.

Dr. Spear met with the College of Medicine Faculty Council on December 18, 2012 to provide an overview of the proposed curriculum changes as described here. This group was supportive of these changes. Dr. Spear received approval from Dr. Heidi Anderson, Associate Provost for Academic Administration, on January 11, 2013.

An overview of the weekly schedule for IBS students is shown on the following page.

Weekly Schedule with new IBS Curriculum

Fall Semester					
	Monday	Tuesday	Wednesday	Thursday	Friday
9 - 10					
10 - 11					
11 - 12	IBS602		IBS602		IBS602
12 - 1	IBS601		IBS601		IBS601
1 - 2					
2 - 3	IBS610		IBS611		
3 - 4					
4 - 5					

Spring Semester					
	Monday	Tuesday	Wednesday	Thursday	Friday
9 - 10	IBS603		IBS603		IBS603
10 - 11	IBS606		IBS606		IBS606
11 - 12					
12 - 1					
1 - 2	IBS608 A F		IBS608 D I		
2 - 3	IBS608 B G		IBS608 E J		TOX600
3 - 4	IBS608 C H				
4 - 5					