

Course Information

Date Submitted: 5/2/2013

Current Prefix and Number: IBS - Integrated Biomedical Sciences , IBS 606 - INTEGRATED BIOMED SCI

Other Course:

Proposed Prefix and Number: IBS 606

What type of change is being proposed?

Major Change

Should this course be a UK Core Course? No

1. General Information

a. Submitted by the College of: College of Medicine

b. Department/Division: Integrated Biomedical Sciences

c. Is there a change in 'ownership' of the course? No

If YES, what college/department will offer the course instead: Select...

e. Contact Person

Name: Brett T. Spear

Email: bspear@uky.edu

Phone: 257-5167

Responsible Faculty ID (if different from Contact)

Name:

Email:

Phone:

f. Requested Effective Date

Semester Following Approval: No OR Effective Semester: Spring 2014

2. Designation and Description of Proposed Course

a. Current Distance Learning (DL) Status: N/A

b. Full Title: INTEGRATED BIOMEDICAL SCIENCES

Proposed Title: Physiological Communication

c. Current Transcript Title: INTEGRATED BIOMED SCI

Proposed Transcript Title:

d. Current Cross-listing: none

Proposed – ADD Cross-listing :

Proposed – REMOVE Cross-listing:

e. Current Meeting Patterns

LECTURE: 57

Proposed Meeting Patterns

LECTURE: 40

DISCUSSION: 3

f. Current Grading System: Graduate School Grade Scale

Proposed Grading System: PropGradingSys

g. Current number of credit hours: 4

Proposed number of credit hours: 3

h. Currently, is this course repeatable for additional credit? No

Proposed to be repeatable for additional credit? No

If Yes: Maximum number of credit hours:

If Yes: Will this course allow multiple registrations during the same semester? No

2i. Current Course Description for Bulletin: Consideration of the function of the mammalian organism from a perspective ranging from the cellular/ sub-cellular to the organ system and whole organ designed to allow students in the IBS curriculum to develop a truly integrative appreciation of biologic function.

Proposed Course Description for Bulletin: This course will consider the function of the mammalian organism from a perspective ranging from cells to organs, with an emphasis on physiological communication between organ systems. It will build upon the Integrated Biomedical Sciences (IBS) series of courses to allow the student to develop a truly integrative appreciation of biologic function.

2j. Current Prerequisites, if any: Prereq: IBS 601, 603 and 605.

Proposed Prerequisites, if any: Prereq: IBS 601 and IBS 602.

2k. Current Supplementary Teaching Component:

Proposed Supplementary Teaching Component:

3. Currently, is this course taught off campus? No

Proposed to be taught off campus? No

If YES, enter the off campus address:

4. Are significant changes in content/student learning outcomes of the course being proposed? Yes

If YES, explain and offer brief rationale: The curriculum for Integrated Biomedical Sciences (IBS) is currently being revised, which involves a number of different changes that includes the reduction of didactic coursework and an increase in teaching in small group format. The content of IBS 606 is being reduced such that the course is changing from 4 to 3 credit hours. Furthermore, the emphasis is being slightly changed to emphasize the importance of communication between different cells and organs in order for physiological homeostasis to be maintained. While the number of exams will be reduced from 4 to 3, the method of grading or type of exams will not change.

5a. Are there other depts. and/or pgms that could be affected by the proposed change? Yes

If YES, identify the depts. and/or pgms: This course is required for students in the PhD program in Nutritional Sciences, and is an elective in other programs including Toxicology and M.S. in Medical Sciences. The DGS of these programs are aware of these changes. The reduction from 4 to 3 credit hours should not affect students in other programs, and they will be able to continue to take this course.

5b. Will modifying this course result in a new requirement of ANY program? No

If YES, list the program(s) here:

6. Check box if changed to 400G or 500: No

Distance Learning Form

Instructor Name:

Instructor Email:

Internet/Web-based: No

Interactive Video: No

Hybrid: No

1. How does this course provide for timely and appropriate interaction between students and faculty and among students? Does the course syllabus conform to University Senate Syllabus Guidelines, specifically the Distance Learning Considerations?

2. How do you ensure that the experience for a DL student is comparable to that of a classroom-based student's experience? Aspects to explore: textbooks, course goals, assessment of student learning outcomes, etc.

3. How is the integrity of student work ensured? Please speak to aspects such as password-protected course portals, proctors for exams at interactive video sites; academic offense policy; etc.

4. Will offering this course via DL result in at least 25% or at least 50% (based on total credit hours required for completion) of a degree program being offered via any form of DL, as defined above?

If yes, which percentage, and which program(s)?

5. How are students taking the course via DL assured of equivalent access to student services, similar to that of a student taking the class in a traditional classroom setting?

6. How do course requirements ensure that students make appropriate use of learning resources?

7. Please explain specifically how access is provided to laboratories, facilities, and equipment appropriate to the course or program.

8. How are students informed of procedures for resolving technical complaints? Does the syllabus list the entities available to offer technical help with the delivery and/or receipt of the course, such as the Information Technology Customer Service Center (<http://www.uky.edu/UKIT/>)?

9. Will the course be delivered via services available through the Distance Learning Program (DLP) and the Academic Technology Group (ATL)? NO

If no, explain how student enrolled in DL courses are able to use the technology employed, as well as how students will be provided with assistance in using said technology.

10. Does the syllabus contain all the required components? NO

11. I, the instructor of record, have read and understood all of the university-level statements regarding DL.

Instructor Name:

SIGNATURE|MRWH224|Melissa R Wilkeson|College approval for ZCOURSE_CHANGE IBS 606|20130225

SIGNATURE|JDLIND2|Jim D Lindsay|HCCC approval for ZCOURSE_CHANGE IBS 606|20130308

SIGNATURE|ZNNIKO0|Roshan N Nikou|Graduate Council approval for ZCOURSE_CHANGE IBS 606|20130326

SIGNATURE|WF-BATCH|Batch User|Reminder for minor course work item|20130417

IBS 606
PHYSIOLOGICAL COMMUNICATION
SYLLABUS
SPRING 2014

| <i>Course Director</i> | <i>Department</i> | <i>Office</i> | <i>Phone</i> | <i>Email</i> |
|------------------------|-------------------|---------------|--------------|------------------------|
| Wilson, Melinda | Physiology | MS609a UMKC | 323-9618 | melinda.wilson@uky.edu |

Core Course Faculty

| | | | | |
|-------------------|--------------|-------------------|---------------|--|
| Bondada, Subbarao | Microbiology | 303 Combs | 323-4705 | bondada@uky.edu |
| Bueler, Hans | Anatomy | 425 HSRB | 323-0307 | hansruedi.bueler@uky.edu |
| Delisle, Brian | Physiology | MS577 UKMC | 323-2797 | brian.delisle@uky.edu |
| Estus, Steven | Physiology | 332 Sanders-Brown | 257-1412 x264 | steve.estus@uky.edu |
| High, Karin | Physiology | MS609 UKMC | 323-3668 | karin.high@uky.edu |
| Legan, Sandra | Physiology | MS601 UKMC | 323-6277 | sandra.legan@uky.edu |
| Wilcock, Donna | Physiology | 204 Sanders-Brown | 257-1412 x290 | donna.wilcock@uky.edu |
| Woodward, Jerold | Microbiology | MN426 UKMC | 323-5538 | jwood1@uky.edu |

A. COURSE DESCRIPTION

IBS 606 (Physiological Communications) is a 3-credit hour Spring semester course that will consider the function of the mammalian organism from a perspective ranging from cells to organs, with an emphasis on physiological communication between organ systems. It will build upon the Integrated Biomedical Sciences (IBS) series of courses to allow the student to develop a truly integrative appreciation of biologic function.

The course is organized into three sections that include: (a) overview of basic physiological mechanisms maintaining homeostasis and mechanisms of endocrine communication via the bloodstream, (b) mechanisms of cell to cell communication by the immune system, and (c) mechanisms of neural communication. Exams will take place after each of the three sections; the final exam is not cumulative.

B. COURSE OBJECTIVES AND STUDENT LEARNING OUTCOMES

- To introduce and explore the function of the body's major communication systems which are primarily responsible for maintaining homeostasis in the face of external and internal challenges.
- To allow the student to apply his/her broad knowledge of cellular function to understand the function of the body at the whole animal level.
- To understand how the different organ systems are affected by a disruption in homeostasis.

C. FORMAT

1. Lecture

The majority of course content will be presented by didactic lectures supplemented with discussion sessions. In some blocks, however, the class sessions will be more interactive. Students will be expected to complete reading assignments in preparation for class and may be quizzed in class on the reading material (See section D. below, Clickers). Faculty will provide lecture outlines or notes on Blackboard prior to their lectures, or as handouts at the lectures.

2. Discussion Sessions

There will be one discussion or review session/journal club at the end of each block. The format for this class period is variable and will be determined by the instructors. For example, it may entail discussion of questions assigned prior to the class and/or of papers chosen by the faculty or students. Assignments will be determined by the block instructors and will be announced in class and posted on

Blackboard near the beginning of the block. If questions are assigned, the answers must be turned in to the Instructor prior to the discussion session. Questions will be graded and returned to the students (See section G below, Grading and Exams). If an assignment is turned in later than the indicated time, points may be deducted or the assignment may not be accepted. During the discussion session, students may be asked to present their answers to the questions or to discuss the paper(s). Students are expected to attend these sessions. Attendance will be taken and counted towards the final grade (See section G). All written assignments must be proof-read to ensure that they are clearly written, with correct grammar and spelling throughout, and completely legible if handwritten. References must be provided and must be referenced in the format of any peer-reviewed journal.

1. Academic Integrity

Submitted materials must represent the work of the student. The University has a policy that neither condones nor allows cheating, plagiarism, falsification or misuse of data. No exception to this policy will be tolerated. It is the responsibility of the student to become familiar with the rules of academic dishonesty as written in the Code of Student Rights and Responsibilities (<http://www.uky.edu//Ombud>). Ignorance of these guidelines is not a defensible position against these rules. **Plagiarism is a cause for dismissal from the program.**

D. CLICKERS AND BLACKBOARD

Clickers will be used in class and students are required to bring them to each class session.

Course materials will be provided during the semester via Blackboard (see <https://elearning.uky.edu/>). Students are encouraged to check the IBS Blackboard website on a daily basis for course information.

E. TEXTBOOK

Silverthorn's Human Physiology 5th edition, 2010 (ISBN: 978-0-321-55980-7) is the recommended textbook for IBS 606. Several copies of the textbook will be on reserve in the Medical Library. The content of the lectures will be strongly reinforced not only with appropriate readings from the course textbook, but also from other textbooks, the original literature and other appropriate sources.

F. PREREQUISITES

IBS 601 AND IBS602. Students are encouraged to talk with the course director if they are not sure whether they have the appropriate prerequisites.

G. GRADING AND EXAMS

Students will be evaluated on the basis of three written examinations (90%), discussion assignments (5%) and attendance at discussion sessions (5%). The exams will occur after each block, and will be weighted based on the number of lectures covered for that exam. The weighting for each exam is indicated in the Lecture Schedule (see Section K). In-semester examinations will be given during evening sessions for a duration of two hours. The final exam will be given during finals week at a time determined by the IBS office. All examinations must be taken at the scheduled time except when legitimate medical or personal reasons make it impossible to do so.

In addition, discussion session questions and assignments will be graded and account for 5% of the total grade. If an assignment is turned in late, points may be deducted or the assignment may not be accepted. Completion of course evaluations may also be a component of the Discussion grade. Attendance at the discussion sessions is expected, and will count for 5% of the course grade.

The grading standards are as follows:

- A: $\geq 90\%$**
- B: 80-89%**
- C: 70-79%**
- D: 60-69% (does not apply to graduate students, see below)**
- E: $< 60\%$**

Students who perform in these ranges will be guaranteed to receive the indicated grades. Depending on the performance of the class as a whole, some adjustments may take place on the final cumulative semester grade. Note that a B grade in this course is not determined by the mean and standard deviation, but on a total score between 80 and 89%.

Graduate students will not receive a grade of "D" but instead will receive a failing mark (E) for an average under 70%.

All examinations must be taken at the scheduled time except when legitimate medical or personal reasons (e.g., death in the immediate family) make it impossible to do so. Prior notification of your absence to the course director as soon as you know of a problem is required. In these cases, either an oral or written make-up examination will be given. An "I" grade will not be assigned to students who simply miss an examination.

Examinations can be submitted to the Course Director for a re-evaluation if it is deemed that a mistake has been made in the original grading. Resubmissions must be accompanied by a written explanation of the perceived mistake. Examinations for re-grade must be submitted within one week (7 days) of the date that the graded exam was made available to the class.

H. UNDERGRADUATE ENROLLMENT

Undergraduate students may enroll in the course with the permission of the Course Director.

I. OFFICE HOURS

Course directors and faculty will be available for consultation. Students are encouraged to consult with all participating faculty; in general, email is the most effective means of scheduling a meeting.

J. DAYS, DATES, TIMES

IBS 606 meets in MN 463 for one hour on Mondays, Wednesdays and Fridays, 10-10:50 a.m. Exams during the semester are from 6-8 p.m. on Feb. 20th, and March 28th. The final exam will be held on May 5th at a time will be determined. Exam locations are listed on the schedule. Please refer to the Table in Section K below for all scheduling information. Student attendance at lectures and discussion sessions is expected and may be confirmed by sign-in sheet.

K. LECTURE SCHEDULE

(see next page)

IBS 606 Physiological Communication Spring 2014

MWF classes are from 10:00 – 10:50 AM IN MN463

| # | Day | Date | Lecture Topics | Instructor |
|----|-------------|--------------|--|------------|
| 1 | Wed. | Jan 15 | Homeostasis and Feedback | Wilson |
| | | | Neurohumoral Communication | |
| 2 | Fri. | 17 | Membrane Transport and Excitability | Delisle |
| | Mon. | 20 | Martin Luther King Day - no class | |
| 3 | Wed. | 22 | General Endocrine Communication | Legan |
| 4 | Fri. | 24 | Neuroendocrinology | Legan |
| 5 | Mon. | 27 | The Adrenal Gland | Legan |
| 6 | Wed. | 29 | Stress and the Adrenal Medulla | Legan |
| 7 | Fri. | 31 | Insulin and Glucose Homeostasis | Legan |
| 8 | Mon. | Feb 3 | Autonomic Nervous System: Overview, Receptors, Neurotransmitters | Estus |
| 9 | Wed. | 5 | Autonomic Nervous System: Sympathetic tone, local axon reflex, baroreceptor reflex | Estus |
| 10 | Fri. | 7 | General Circulatory Communication | Delisle |
| 11 | Mon. | 10 | Neurohumoral Regulation of Cardiac Output | Delisle |
| 12 | Wed. | 12 | Neurohumoral Regulation of the Vasculature | Delisle |
| 13 | Fri. | 14 | Homeostatic Regulation of Blood Pressure | Delisle |
| 14 | Mon. | 17 | Cardiovascular Stress (Fight or Flight and Disease) | Delisle |
| 15 | Wed. | 19 | Discussion/Review | |
| | Thur | 20 | EXAM I (Lectures 1-15) - Location TBD | |
| | | | Cell to Cell Communication-The Immune System | |
| 16 | Fri. | 21 | Physiology and Anatomy of the Immune System | Woodward |
| 17 | Mon. | 24 | Inflammation and Innate Immunity | Woodward |
| 18 | Wed. | 26 | Cell to Cell Communication: MHC-1 | Woodward |
| 19 | Fri. | 28 | Cell to Cell Communication: MHC-2 | Woodward |
| 20 | Mon. | Mar 3 | T Cell Recognition-1 | Woodward |
| 21 | Wed. | 5 | T Cell Recognition-2 | Woodward |
| 22 | Fri. | 7 | B-Cell Recognition-1 | Bondada |
| | | 10-14 | Spring Break – no class | |
| 23 | Mon | 17 | B-Cell Recognition-2 | Bondada |
| 24 | Wed. | 19 | Cell-Cell Communication: Induction of Immune Responses | Bondada |
| 25 | Fri. | 21 | Mechanisms of Immune Damage | Bondada |
| 26 | Mon. | 24 | Regulation of the Immune Response | Bondada |
| 27 | Wed | 26 | Viral Infection and AIDS | Bondada |
| 28 | Fri. | 28 | Discussion/Review | |
| | Fri. | 28 | EXAM II (Lectures 16-28) - Location TBD | |
| | | | Neural Communication | |
| 29 | Mon. | 31 | The Brain and Action Potentials | Bueler |

| | | | | |
|----|------------|------------|---|---------|
| 30 | Wed. | April 2 | Learning and Memory-Long Term Potentiation | Bueler |
| 31 | Fri. | 4 | Cognitive Systems-Alzheimer's Disease | Bueler |
| 32 | Mon. | 7 | Central Regulation of Feeding | Bueler |
| 33 | Wed. | 9 | Motor Systems-Genetics of Parkinson's Disease | Bueler |
| 34 | Fri. | 11 | Motor Syndromes: ALS and Huntington's Disease | Estus |
| 35 | Mon. | 14 | Visual System and Diabetic Retinopathy | Estus |
| 36 | Wed. | 16 | Pain Signaling-1 | High |
| 37 | Fri. | 18 | Pain Signaling-2 and Diabetic Neuropathy | High |
| 38 | Mon. | 21 | Neuroinflammation-1 | Wilcock |
| 39 | Wed. | 23 | Neuroinflammation-2 | Wilcock |
| 40 | Fri. | 25 | Mechanisms of Neural Development- Cell to Cell Communication-1 | Wilson |
| 41 | Mon. | 28 | Mechanisms of Neural Development-Cell to Cell Communication-2 | Wilson |
| 42 | Wed. | 30 | Stress and the Aging Brain | Wilson |
| 43 | Fri. | May 2 | Discussion/Review | |
| | Mon | 5 | FINAL EXAM III (Lectures 29-43) - Location TBD | |