

1. General Information

1a. Submitted by the College of: MEDICINE

Date Submitted: 5/16/2013

1b. Department/Division: Integrated Biomedical Sciences

1c. Contact Person

Name: Brett T. Spear

Email: bspear@uky.edu

Phone: 257-5167

Responsible Faculty ID (if different from Contact)

Name:

Email:

Phone:

1d. Requested Effective Date: Specific Term/Year ¹ Fall 2013

1e. Should this course be a UK Core Course? No

2. Designation and Description of Proposed Course

2a. Will this course also be offered through Distance Learning?: No

2b. Prefix and Number: IBS 611

2c. Full Title: Practical Statistics

2d. Transcript Title:

2e. Cross-listing:

2f. Meeting Patterns

LECTURE: 10

OTHER: 5

2g. Grading System: Letter (A, B, C, etc.)

2h. Number of credit hours: 1

2i. Is this course repeatable for additional credit? No

If Yes: Maximum number of credit hours:

If Yes: Will this course allow multiple registrations during the same semester?

2j. Course Description for Bulletin: Practical Statistics will introduce students to basic statistical concepts and applications that are used in a majority of biomedical and translational research studies. The emphasis will be on "how" and "why" certain basic statistical applications are used rather than the theory behind various statistical methods. Students will cover materials using didactic lectures, examples of data from the primary literature, and homework problems.

2k. Prerequisites, if any: A strong background in molecular biology, biochemistry and chemistry (including organic chemistry) is highly recommended. It is also highly recommended that students have taken IBS601 and IBS602 or are taking IBS601 and IBS 602 concurrently with this course.

2l. Supplementary Teaching Component:

3. Will this course taught off campus? No

If YES, enter the off campus address:

4. Frequency of Course Offering: Fall,

Will the course be offered every year?: Yes

If No, explain:

5. Are facilities and personnel necessary for the proposed new course available?: Yes

If No, explain:

6. What enrollment (per section per semester) may reasonably be expected?: 25

7. Anticipated Student Demand

Will this course serve students primarily within the degree program?: Yes

Will it be of interest to a significant number of students outside the degree pgm?: Yes

If Yes, explain: [var7InterestExplain]

8. Check the category most applicable to this course: Relatively New – Now Being Widely Established,

If No, explain:

9. Course Relationship to Program(s).

a. Is this course part of a proposed new program?: No

If YES, name the proposed new program:

b. Will this course be a new requirement for ANY program?: Yes

If YES, list affected programs: Integrated Biomedical Sciences Graduate Program

10. Information to be Placed on Syllabus.

a. Is the course 400G or 500?: No

b. The syllabus, including course description, student learning outcomes, and grading policies (and 400G-/500-level grading differentiation if applicable, from 10.a above) are attached: 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_NEW IBS 611|20130225

SIGNATURE|JDLIND2|Jim D Lindsay|HCCC approval for ZCOURSE_NEW IBS 611|20130308

SIGNATURE|ZNNIKO0|Roshan N Nikou|Graduate Council approval for ZCOURSE_NEW IBS 611|20130326

SIGNATURE|WF-BATCH|Batch User|Reminder for minor course work item|20130502

SIGNATURE|MRWH224|Melissa R Wilkeson|IBS 611 NEW College Review|20130403

SIGNATURE|MRWH224|Melissa R Wilkeson|IBS 611 NEW College Review|20130403

IBS 611
Practical Statistics
SYLLABUS
Fall 2013

A. PARTICIPATING FACULTY

Course Director:

Heidi L. Weiss, Ph.D.
Professor
Dept. of Biostatistics, Division of Cancer Biostatistics
CC448 Roach Building
Markey Cancer Center
800 Rose Street
(859) 323-0577
heidi.weiss@uky.edu

Course Co-Director

Bin Huang, Dr.Ph.
Assistant Professor
Dept. of Biostatistics; Division of Cancer Biostatistics
Suite A230, 2365 Harrodsburg Road
Markey Cancer Center
(859) 219-0773 (X280)
bhuang@kcr.uky.edu

Additional faculty with expertise in biostatistics and statistical applications may participate.

B. OFFICE HOURS

The Course Director and participating faculty will be available for consultation. Students are encouraged to consult with all participating faculty as needed. Students are strongly encouraged to schedule an appointment with faculty by email or phone to set up an appointment since specific office hours are not always established

C. COURSE DESCRIPTION

IBS 611 (Practical Statistics) is a 1-credit hour Fall semester course that is targeted to first-year PhD students in Integrated Biomedical Sciences (IBS) program. This course will introduce students to basic statistical concepts and applications that are used in a majority of biomedical and translational research studies. The emphasis will be on “how” and “why” certain basic statistical applications are used rather than the theory behind various statistical methods [many of the students enrolled in this course will take more in-depth statistical courses (i.e., STA570) during their second year of graduate school]. Students will meet for one hour each week. Materials will be covered using didactic lectures, examples of data from the primary literature, and homework problems. Since many of the students in this course will also be taking IBS610 (Critical Scientific Readings), data figures from IBS610 papers will be used as examples of statistical analysis when possible in IBS611 in order to reinforce concepts. Grading will be based on attendance/participation, homework assignments and final exam.

D. OBJECTIVES/STUDENT LEARNING OUTCOMES

The primary objectives of this course are to help students: (1) develop an understanding of basic statistical methodologies used in biomedical research; (2) determine which statistical tests are most appropriate for certain applications, and (3) gain experience in use of statistical methods by using homework problem sets.

E. COURSE SCHEDULE

Classes will meet on Wednesdays from 2:00 – 2:50 PM.

F. CLASS ATTENDANCE

Attendance is mandatory. While students will be excused for justifiable reasons (i.e., illness, death in family, religious holidays as defined in Senate Rule 5.2.4.2), the student is expected to alert his/her faculty mentor and the Course Director of any absence prior to the missed class. Attendance will be monitored and unexcused absences may result in a lower final grade (See I below).

G. COURSE MATERIALS

The textbook for this course is “Primer of Biostatistics, 7th Edition, by Stanton A. Glantz. Papers, problem sets and other materials will be provided via Blackboard (see <https://elearning.uky.edu/>).

H. PREREQUISITES

It is also highly recommended that students have taken IBS601 and IBS602 (which are taught every fall semester) or are taking IBS601 and IBS 602 concurrently with this course. A strong background in molecular biology, biochemistry and chemistry (including organic chemistry) is highly recommended. Students are encouraged to talk with the course director if they have any questions about taking this course.

I. GRADING AND ATTENDANCE POLICIES

Grades in this course will be based on the following:

Attendance and Class Participation:	20%
Homework Assignments:	50%
Final Exam/Project:	30%

Students who do not turn in assignments on time or do not complete the final exam due to an unexcused absence will receive a “0” grade for the missed work. Students who miss work due to an excused absence will be expected to make-up the assignment or exam as soon as possible and as allowed under University regulations.

The grading standards employed are listed below and students who perform in these ranges will be guaranteed to receive the indicated grades:

A:	90-100%
B:	80-89%
C:	70-79%
E:	below 70%

Depending on the performance of the class as a whole, some adjustments (curving) **may** take place on the final cumulative semester grade. Graduate students will not receive a grade of "D" but instead will receive a failing "E" mark for an average under 70%.

Incompletes: An incomplete grade due to illness or other emergencies may be arranged. A request for an incomplete due to illness must be accompanied by a letter from your doctor, the Student Health Service, or a hospital. Lack of time to complete assigned work, or other reasons not relating to unavoidable excused absences, will not be accepted as a valid reason for petitioning for an incomplete. No incompletes will be given unless you have a prior written agreement with the instructor BEFORE the end of classes. An "I" grade will not be assigned to students who simply miss assignments and/or the final examination.

J. ACADEMIC HONESTY and INTEGRITY

Cheating, plagiarism, falsification or misuse of data are not allowed by the University of Kentucky, and exceptions to this policy will not be tolerated. It is the student's responsibility to become familiar with the rules of academic dishonesty as outlined in the Code of Student Rights and Responsibilities (<http://www.uky.edu/Ombud>). The course director reserves the right to assign a zero for assignment when cheating occurs, and ignorance of these guidelines is not a defensible position against these rules.

Part II of *Student Rights and Responsibilities* (<http://www.uky.edu/StudentAffairs/Code/part2.html>) states that all academic work, written or otherwise, submitted by students to their instructors or other academic supervisors, is expected to be the result of their own thought, research, or self-expression. In cases where students feel unsure about the question of plagiarism involving their own work, they are obliged to consult their instructors on the matter before submission.

K. ACCOMODATIONS

Any student with a documented disability that requires academic accommodations should see the Course Director as soon as possible during scheduled office hours. In order to receive accommodations in this course, a Letter of Accommodation must be provided from the Disability Resource Center (Room 2, Alumni Gym, 257-2754, email address: jkarnes@email.uky.edu) for coordination of campus disability services available to students with disabilities.

L. INCLEMENT WEATHER

The University of Kentucky has a detailed policy for decisions to close in inclement weather. The snow policy is described in detail at http://www.uky.edu/PR/News/severe_weather.htm or you can call (859) 257-5684. In general, the University is not closed for severe weather, but the instructor may decide to cancel the class, in which case, s/he will post this information on Blackboard at <https://elearning.uky.edu/webapps/portal/frameset.jsp>

M. GENERAL OUTLINE FOR IBS611 SCHEDULE

The goal for each class is primarily to present the statistical concept (what it is about, when it is used) and then discuss its application to actual papers or actual experiments derived from laboratory experiments, papers, etc.

#	Date	Topic
1	Aug 28	Introduction to Statistics for Basic Science and Translational Research
2	Sept 4	Descriptive Statistics
3	11	Analysis of Variance
4	18	Two-sample t-test
5	25	Multiple Comparisons
6	Oct 2	Bioinformatics I
7	9	Bioinformatics II
8	16	Rates and Proportions
9	23	Sample Size and Statistical Power
10	30	Confidence Intervals
11	Nov 6	Regression I
12	13	Regression II
13	20	Nonparametric Statistics
14	27	<i>No Class – Thanksgiving Break</i>
14	Dec 4	Survival Analysis
15	11	Overview, discussion and handing out of Final Exam
	18	<i>Final Exam Due</i>