

1. General Information

1a. Submitted by the College of: PUBLIC HEALTH

Date Submitted: 11/20/2014

1b. Department/Division: Dept Of Biostatistics

1c. Contact Person

Name: Andrea Perkins

Email: andrea.perkins@uky.edu

Phone: 218-2021

Responsible Faculty ID (if different from Contact)

Name: Heather Bush

Email: heather.bush@uky.edu

Phone: 218-2080

1d. Requested Effective Date: Semester following approval

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: BST 693

2c. Full Title: Statistical Practice in Public Health

2d. Transcript Title:

2e. Cross-listing:

2f. Meeting Patterns

LECTURE: 15

LABORATORY: 60

2g. Grading System: Graduate School Grade Scale

2h. Number of credit hours: 3

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?

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SENATE COUNCIL

2j. **Course Description for Bulletin:** To provide an introduction to statistical practice in public health including improved statistical communication (how to ask good questions in a consulting session, writing analysis plans, and how to express results both orally and in writing), programming for reproducibility and data ethics, and utilizing statistical methodology for problem solving in public health research.

2k. **Prerequisites, if any:** CPH 630/STA 681 or equivalent and CPH 535 or equivalent.

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?:** 15

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: This course would serve as meeting the quantitative requirements for other graduate programs

8. **Check the category most applicable to this course:** Traditional – Offered in Corresponding Departments at Universities Elsewhere,

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?:** No

If YES, list affected programs:

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:** Yes

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|ALHAYS0|Andrea L Perkins|BST 693 NEW College Review|20141120

SIGNATURE|ZNNIKO0|Roshan N Nikou|BST 693 NEW Graduate Council Review|20141209

Courses Request Tracking

New Course Form

<https://myuk.uky.edu/sap/bc/soap/rfc?services=>

Open in full window to print or save

Generate R

Attachments:

Upload File

	ID	Attachment
Delete	4093	BST 693_001_2014Fall_syllabus revised 11-20-14.pdf

1

Select saved project to retrieve...

(*denotes required fields)

1. General Information

a. * Submitted by the College of: Submission Date:

b. * Department/Division:

c.

* Contact Person Name: Email: Phone:

* Responsible Faculty ID (if different from Contact): Email: Phone:

d. * Requested Effective Date: Semester following approval OR Specific Term/Year

e.

Should this course be a UK Core Course? Yes No

If YES, check the areas that apply:

Inquiry - Arts & Creativity Composition & Communications - II

Inquiry - Humanities Quantitative Foundations

Inquiry - Nat/Math/Phys Sci Statistical Inferential Reasoning

Inquiry - Social Sciences U.S. Citizenship, Community, Diversity

Composition & Communications - I Global Dynamics

2. Designation and Description of Proposed Course.

a. * Will this course also be offered through Distance Learning? Yes No

b. * Prefix and Number:

c. * Full Title:

d. Transcript Title (if full title is more than 40 characters):

e. To be Cross-Listed ² with (Prefix and Number):

f. * Courses must be described by at least one of the meeting patterns below. Include number of actual contact hours³ for each meeting pattern type.

<input type="text" value="15"/> Lecture	<input type="text" value="60"/> Laboratory ¹	<input type="text"/> Recitation	<input type="text"/> Discussion
<input type="text"/> Indep. Study	<input type="text"/> Clinical	<input type="text"/> Colloquium	<input type="text"/> Practicum
<input type="text"/> Research	<input type="text"/> Residency	<input type="text"/> Seminar	<input type="text"/> Studio

Other If Other, Please explain:

g. * Identify a grading system:

Letter (A, B, C, etc.)

Pass/Fail

Medicine Numeric Grade (Non-medical students will receive a letter grade)

Graduate School Grade Scale

h. * Number of credits:

i. * Is this course repeatable for additional credit? Yes No

If YES: Maximum number of credit hours:

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

j. * Course Description for Bulletin:

To provide an introduction to statistical practice in public health including improved statistical communication (how to ask good questions in a consulting session, writing analysis plans, and how to express results both orally and in writing), programming for reproducibility and data ethics, and utilizing statistical methodology for problem solving in public health research.

k. Prerequisites, if any:

CPH 630/STA 681 or equivalent and CPH 535 or equivalent.

l. Supplementary teaching component, if any: Community-Based Experience Service Learning Both3. * Will this course be taught off campus? Yes No

If YES, enter the off campus address: _____

4. Frequency of Course Offering.

a. * Course will be offered (check all that apply): Fall Spring Summer Winter

b. * Will the course be offered every year? Yes No

If No, explain: _____

5. * Are facilities and personnel necessary for the proposed new course available? Yes No

If No, explain: _____

6. * What enrollment (per section per semester) may reasonably be expected? 15

7. Anticipated Student Demand.

a. * Will this course serve students primarily within the degree program? Yes No

b. * Will it be of interest to a significant number of students outside the degree pgm? Yes No

If YES, explain: _____

This course would serve as meeting the quantitative requirements for other graduate programs

8. * Check the category most applicable to this course:

Traditional – Offered in Corresponding Departments at Universities Elsewhere

Relatively New – Now Being Widely Established

Not Yet Found in Many (or Any) Other Universities

9. Course Relationship to Program(s).

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

If YES, name the proposed new program: _____

b. * Will this course be a new requirement[§] for ANY program? Yes No

If YES[§], list affected programs: _____

10. Information to be Placed on Syllabus.

a. * Is the course 400G or 500? Yes No

If YES, the *differentiation for undergraduate and graduate students must be included* in the information required in 10.b. You must include: (i) identify additional assignments by the graduate students; and/or (ii) establishment of different grading criteria in the course for graduate students. (See SR

b. * The syllabus, including course description, student learning outcomes, and grading policies (and 400G-/500-level grading differentiation if applicable above) are attached.

^{§§} Courses are typically made effective for the semester following approval. No course will be made effective until all approvals are received.
^{§§§} The chair of the cross-listing department must sign off on the Signature Routing Log.

In general, undergraduate courses are developed on the principle that one semester hour of credit represents one hour of classroom meeting per week for a semester, exclusive of any laboratory meeting. Laboratory meeting, generally, require two hours per week for a semester for one credit hour. (from SR 5.2.1)

You must also submit the Distance Learning Form in order for the proposed course to be considered for DL delivery.

In order to change a program, a program change form must also be submitted.

Rev 8/09

[Submit as New Proposal](#) [Save Current Changes](#)

**UNIVERSITY OF KENTUCKY
COLLEGE OF PUBLIC HEALTH**

**Course Syllabus
BST 693-001 Statistical Practice in Public Health**

**Location: MDS301
Lecture Time: Thursday 12-1
Lab Time: 4 hours scheduled within the ASL**

Contact information

Instructor: Heather M Bush
Applied Statistics Lab
725 Rose Street
Telephone: 859-218-2080
E-mail: (Preferred) heather.bush@uky.edu
Office Hours: By Appointment

Course description

BST 693 provides an introduction to statistical practice in public health including improved statistical communication (how to ask good questions in a consulting session, writing analysis plans, and how to express results both orally and in writing), programming for reproducibility and data ethics, and utilizing statistical methodology for problem solving in public health research.

Course Rationale

Although most graduate coursework in statistics and biostatistics focuses on introducing and applying statistical methods, less time is spent on the practical issues encountered by the analytical public health researcher. This course will provide students with the culminating opportunity to assimilate methods from multiple courses in the context of real-world analytical issues and projects.

Course prerequisites

CPH630/STA681 or equivalent and CPH535 or equivalent.

Learning objectives:

To introduce students to the practice of statistics. Specific learning objectives include:

- . how to become better problem solvers
- . how to communicate better: both verbally and in writing
- . how to use routine statistical procedures in practice
- . how to research nontraditional statistics
- . how to program effectively and with reproducibility, and
- . how to do elementary database management

Course goals:

To provide new and diverse opportunities for active learning and engagement in the statistical consulting environment

To provide students with an opportunity for statistical applications in public health and other clinical fields

To engage students in research opportunities requiring routine statistical analysis, basic data management strategies, and more advanced statistical programming.

To provide students with structured feedback on the application of statistical methods, verbal and written communication, and presentation of information

Tentative Schedule

The outline of topics listed below are a tentative list of material to be covered in the course. The nature of consulting is dynamic, where the consultations for the week may direct class discussion. It is expected that students will present their consulting experiences in the classroom setting as well as official meetings of the Applied Statistics Lab. It is possible that the topics discussed as well as the schedule of topics could vary from offering to offering. At a minimum, every consulting course will have classroom discussions on the following topics: structuring a consulting session, presenting information, SAS programming/macros, developing an analysis plan, and study design.

Date	Lecture	Lab Work
28-Aug	Introduction: Talking to Investigators via Analogies	CITI training
4-Sep	Constructing Table Shells	Green Dot Example
11-Sep	Critical Thinking in Statistical Practice	Green Dot Example
18-Sep	Data Ethics: Documentation	Consulting Form Review
25-Sep	Data Ethics: Reproducibility	SAS Macros
2-Oct	Data Ethics: Reproducibility	Dynamic Documents
9-Oct	Analysis Planning: Methods and Statistical Analysis	Plan Writing
16-Oct	Analysis Planning: Methods and Statistical Analysis	Grant Reviews
23-Oct	Examples: Anesthesiology/Tylenol Problem	Analysis Problem
30-Oct	Anesthesiology/Tylenol Presentations	
6-Nov	Examples: ANOVAs and Variability	Analysis Problem
13-Nov	Examples: ANOVAs and Variability Presentations	
20-Nov	Examples: What about Independence?	Analysis Problem
27-Nov	No Class: Happy Thanksgiving	
4-Dec	Presentations	
11-Dec	Presentations	
18-Dec	Portfolio Due by 3:30pm	

Textbooks (Optional)

J. Derr Statistical Consulting: A Guide to effective Communication. Brooks/Cole, 2000.

J. Cabrera &, A. McDougall Statistical Consulting. Springer, New York, 2002.

G. van Belle Statistical Rules of Thumb. 2nd Ed. Wiley, New York, 2008.

N. B. Robbins Creating More Effective Graphs. Wiley, New York, 2005

P. I. Good, & J.W. Hardin Common Errors in Statistics (and How to Avoid Them) 3rd ed. Wiley, New York, 2009.

Course requirements and evaluation

This course is divided into two parts: lecture and lab. Students are expected to attend each weekly lecture. The lab component of this course will primarily occur within the ASL (Applied Statistics Lab). Students will be given consulting, study design, analysis, statistical programming, and data management assignments to be completed within the ASL. Students will be expected to follow the rules, complete documentation, and adhere to the SOPs (Standard Operating Procedures) of the ASL. Students will be required to

complete assignments within the ASL; data security requires that NO DATA are to be removed from secure servers. Students will be given the opportunity to identify approximately 4 hours each week to work in the lab.

Course grades will be based upon evaluation of the following activities:

Lab Work (30%) Students will complete lab work as assigned. Lab assignments will generally require SAS programming, some database management, and a written summary of results.

Critical Thinking Forms (10%) Students will be asked to complete Critical Thinking Forms for all analytical and data management assignments.

Consulting Portfolio (20%) The consulting portfolio (electronic) will consist of all meeting notes, reports, analyses, and programming code or syntax. The portfolio should provide a complete description of each consulting project and should be easy to navigate; complete documentation (with file structure descriptions) for all projects must be included. This serves as the final exam for the course.

Consultations and Professionalism (10%) Students will be evaluated by faculty mentors on consulting sessions, work provided to clients, and interactions with ASL faculty, staff, and students. Students are expected to be professional, timely, and prepared for these sessions. Feedback from the client will also be considered in the evaluation.

In-class Presentations (30%) Students will be asked to present work in class. Presentations should be clear and concise. Students will be evaluated based on their ability to present statistical information and respond to questions.

Grading Scale

100% – 90% = A

89% – 80% = B

79% – 70% = C

0 – 69% = E

Instructor expectations

1. I expect you to present yourself in consulting sessions in a professional (timeliness, dress, demeanor) manner.
2. I expect you to actively participate in the discussions. This is not the type of class where you can “sit back and listen.”
3. I expect you to submit papers using proper English grammar, syntax, and spelling. You are encouraged to use spell check and grammar check prior to submitting your written work. The Writing Laboratory is available to anyone who may need assistance. Grammar, syntax, and spelling will account for 10% of the grade for written work.
4. I expect that written and oral communications with the consulting client will be conducted as instructed.
5. I expect that you will track your time and submit tracking information as well as status updates to the ASL administrator.
6. I expect you to share in the responsibility for making this course an enjoyable and beneficial learning experience.

Academic Integrity

Per university policy, students shall not plagiarize, cheat, or falsify or misuse academic records. Students are expected to adhere to University policy on cheating and plagiarism in all courses. The minimum penalty for a first offense is a zero on the assignment on which the offense occurred. If the offense is considered severe or the student has other academic offenses on their record, more serious penalties, up to suspension from the university may be imposed.

Plagiarism and cheating are serious breaches of academic conduct. Each student is advised to become familiar with the various forms of academic dishonesty as explained in the Code of Student Rights and Responsibilities. Complete information can be found at the following

website: <http://www.uky.edu/Ombud>. A plea of ignorance is not acceptable as a defense against the charge of academic dishonesty. It is important that you review this information as all ideas borrowed from others need to be properly credited.

Part II of *Student Rights and Responsibilities* (available online <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.

When students submit work purporting to be their own, but which in any way borrows ideas, organization, wording or anything else from another source without appropriate acknowledgement of the fact, the students are guilty of plagiarism. Plagiarism includes reproducing someone else's work, whether it be a published article, chapter of a book, a paper from a friend or some file, or something similar to this. Plagiarism also includes the practice of employing or allowing another person to alter or revise the work which a student submits as his/her own, whoever that other person may be.

Students may discuss assignments among themselves or with an instructor or tutor, but when the actual work is done, it must be done by the student, and the student alone. When a student's assignment involves research in outside sources of information, the student must carefully acknowledge exactly what, where and how he/she employed them. If the words of someone else are used, the student must put quotation marks around the passage in question and add an appropriate indication of its origin. Making simple changes while leaving the organization, content and phraseology intact is plagiaristic. However, nothing in these Rules shall apply to those ideas which are so generally and freely circulated as to be a part of the public domain (Section 6.3.1).

Please note: Any assignment you turn in may be submitted to an electronic database to check for plagiarism.

Accommodations due to disability

If you have a documented disability that requires academic accommodations, please see me as soon as possible during scheduled office hours. In order to receive accommodations in this course, you must provide me with a Letter of Accommodation 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.

Religious Observances

Students will be given the opportunity to make up work (typically, exams or assignments) when students notify their instructor that religious observances prevent the student from completing assignments according to deadlines stated in this syllabus. Students must notify the course instructor **at least two weeks prior to such an absence** and propose how to make up the missed academic work.

Inclement weather

The University of Kentucky has a detailed policy for decisions to close in inclement weather. This policy is described in detail at http://www.uky.edu/PR/News/severe_weather.htm or you can call (859) 257-1754.

Late work policy

Only students with university or instructor excused absences will be allowed to submit late work without penalty. Late work is defined as any work handed in after the scheduled due date and time. Work in this case refers to any assignment submitted to the instructor. It is the student's

responsibility to make arrangements for determining and handing in missed work, preferably in advance, but no later than one week after the absence.

Attendance policies

Attendance in lectures and lab sessions is required. A student will not be penalized for an excused absence. However, students with excused absences in excess of one-fifth of the class contact hours for that course will be required to petition for a W.

Make-ups will only be offered for University-excused absences as defined in the University of Kentucky Bulletin or www.uky.edu/Ombud/policies.php.

Missed Class due to Common Hour Exams: Per University Policy if a student has a common hour exam it is his/her responsibility to reschedule the exam. Class missed due to an exam will not be excused. "It is your responsibility to notify the instructor giving the exam that you are enrolled in a course that conflicts with the exam. This notification must be in writing and must be presented to the exam instructor at least two weeks prior to each exam. Under the University Senate Rules, the instructor giving the exam must provide an alternate exam time."

Please see: <http://www.uky.edu/registrar/content/fall-common-hour-exams>

Excused absences policy

Students need to notify the professor of absences prior to class when possible. S.R. 5.2.4.2 defines the following as acceptable reasons for excused absences: (a) serious illness, (b) illness or death of family member, (c) University-related trips, (d) major religious holidays, and (e) other circumstances found to fit "reasonable cause for nonattendance" by the professor.

Students anticipating an absence for a major religious holiday are responsible for notifying the instructor in writing of anticipated absences due to their observance of such holidays no later than the last day in the semester to add a class. Information regarding dates of major religious holidays may be obtained through the religious liaison, Mr. Jake Karnes (859-257-2754).

Students are expected to withdraw from the class if more than 20% of the classes scheduled for the semester are missed (excused or unexcused) per university policy.

Verification of Absences

Students may be asked to verify their absences in order for them to be considered excused. Senate Rule 5.2.4.2 states that faculty have the right to request "appropriate verification" when students claim an excused absence because of illness or death in the family. Appropriate notification of absences due to university-related trips is required prior to the absence.

Make-up Policies

The assignments in this course are designed to promote active learning, often requiring class participation. Late or make-up (unexcused) work will not be accepted. Students will not be penalized for an excused absence. Students missing any graded work due to an excused absence bear the responsibility of informing the instructor about their excused absence within one week following the period of the excused absence (except where prior notification is required), and of making up the missed work. Regardless of the type of graded work you miss, documentation MUST include the dates missed and these must match the interval of the time you were absent.

MPH Competencies

The MPH program faculty has identified competencies for the core curriculum instruction and related program assessment. All students are expected to have developed the following competencies upon completion of the MPH Program.

BOLDED competencies are appropriate for this course

Five Core courses

- 1. Assess population-based health problems from the perspective of multiple public health science disciplines.**
- 2. Propose potential solutions to public health problems based on an understanding of ecological approaches, essential public health services, and social, behavioral, environmental, and biological factors that contribute to the problem.**
3. Identify basic theories, concepts and models from a range of social and behavioral disciplines that are used in public health research and practice.
- 4. Identify the causes of social and behavioral factors that affect health of individuals and populations.**
5. Identify the main components and issues of the organization, financing, and delivery of health services and public health systems in the U.S.
6. Apply the principles of planning, staffing, managing and evaluation in organizational and community initiatives.
7. Apply quality and performance improvement concepts to organizational performance.
- 8. Explain the importance of epidemiology for informing scientific, ethical, economic and political discussion of health issues.**
- 9. Use basic terminology and definitions of epidemiology.**
- 10. Identify key sources of data for epidemiologic purposes.**
- 11. Calculate basic epidemiologic measures and draw appropriate inferences.**
12. Describe the federal and state regulatory programs, guidelines, and authorities that control public health.
13. Describe the genetic, physiologic, and psychosocial factors that affect susceptibility to adverse health outcomes following exposure to environmental hazards.
14. Explain approaches for assessing, preventing, and controlling environmental hazards that pose risks to human health and safety.
- 15. Describe basic concepts of probability, random variation, and commonly used statistical probability distributions.**
- 16. Recognize the assumptions and limitations of common statistical methods and choose appropriate approaches for analysis.**

Cross-Cutting Competencies

- 17. Organize and deliver effective written and verbal communications about public health activities using appropriate communication strategies to professionals, labor, industry, the general public and the media.**
- 18. Use evidence based principles and scientific knowledge effectively when involved in evaluation and decision-making in public health.**
19. Manage potential conflicts of interest encountered by practitioners, researchers, and organizations.
20. Collaborate in interprofessional partnerships to implement organizational initiatives at the individual, organizational, and community level.
21. Apply ethical principles to public health program planning, implementation and evaluation.

MPH Concentration-Specific Competencies

Departments offering concentrations in the MPH program have identified competencies that students concentrating in that area are expected to have developed by program completion. These competencies go beyond the core competencies identified above that all students are

expected to have attained. The concentration-specific competencies are the basis of both instruction and assessment.

Biostatistics

- 1. Apply the basic concepts of probability, random variation, and commonly used probability distributions.**
- 2. Apply and interpret common univariate and multivariate statistical methods for inference.**
- 3. Recognize the assumptions and limitations of common statistical methods and choose appropriate approaches for analysis.**
- 4. Develop written and oral presentations based on statistical analyses for both public health professionals and educated lay audiences.**