

APPLICATION FOR NEW COURSE

1. Submitted by the College of Public Health Date: March 26, 2008

Department/Division proposing course: Biostatistics

2. Proposed designation and Bulletin description of this course:

a. Prefix and Number BST 675

b. Title* Biometrics I

*If title is longer than 24 characters, write a sensible title (24 characters or less) for use on transcripts:

c. Courses must be described by at least one of the categories below. Include the number of actual contact hours per week for each category, as applicable.

- () CLINICAL () COLLOQUIUM () DISCUSSION () LABORATORY (4) LECTURE () INDEPEND. STUDY () PRACTICUM () RECITATION () RESEARCH () RESIDENCY () SEMINAR () STUDIO () OTHER - Please explain:

d. Please choose a grading system: [X] Letter (A, B, C, etc.) [] Pass/Fail

e. Number of credit hours: 4

f. Is this course repeatable? YES [] NO [X] If YES, maximum number of credit hours:

g. Course description:

This course, the first of a two-semester sequence in biometrics, introduces probability, discrete random variables, continuous random variables, joint distributions, and sampling distributions.

h. Prerequisite(s), if any:

STA 580 (Introductory Statistical Methods) and CPH 608 (Public Health Capstone)

i. Will this course be offered through Distance Learning? YES [] NO [X]

If YES, please circle one of the methods below that reflects how the majority of the course content will be delivered:

- Internet/Web-based Interactive video Extended campus Kentucky Educational Television (KET/teleweb) Other

Please describe "Other":

3. Teaching method: [X] N/A or [] Community-Based Experience [] Service Learning Component [] Both

4. To be cross-listed as: Prefix and Number Signature of chair of cross-listing department

5. Requested effective date (term/year): Fall / 2009

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6. Course to be offered (please check all that apply): Fall Spring Summer
7. Will the course be offered every year? YES NO
If NO, please explain: _____
8. Why is this course needed?
This course will be a requirement in the proposed Ph.D. Epidemiology/Biostatistics programs. This course will also be
available as a selective for M.P.H. and Dr.P.H. students concentrating in Biostatistics who have the prerequisite noted above.
9. a. By whom will the course be taught? Richard Charnigo or Chong Wang
- b. Are facilities for teaching the course now available? YES NO
If NO, what plans have been made for providing them?

10. What yearly enrollment may be reasonably anticipated?
5-10 students per year
11. a. Will this course serve students primarily within the department? Yes No
- b. Will it be of interest to a significant number of students outside the department? YES NO
If YES, please explain.
The course will be a requirement for the proposed Ph.D. in Epidemiology/Biostatistics. Some of the students in that
program may consider Epidemiology their home department.
12. Will the course serve as a University Studies Program course[†]? YES NO
If YES, under what Area? _____
[†]AS OF SPRING 2007, THERE IS A MORATORIUM ON APPROVAL OF NEW COURSES FOR USP.
13. Check the category most applicable to this course:
- traditional – offered in corresponding departments at universities elsewhere
- relatively new – now being widely established
- not yet to be found in many (or any) other universities
14. Is this course applicable to the requirements for at least one degree or certificate at UK? Yes No
15. Is this course part of a proposed new program? YES NO
If YES, please name: Ph.D. Epidemiology/Biostatistics
16. Will adding this course change the degree requirements for ANY program on campus? YES NO
If YES[‡], list below the programs that will require this course:

[‡]In order to change the program(s), a program change form(s) must also be submitted.

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17. The major teaching objectives of the proposed course, syllabus and/or reference list to be used are attached.
18. Check box if course is 400G or 500. If the course is 400G- or 500-level, you must include a syllabus showing differentiation for undergraduate and graduate students by (i) requiring additional assignments by the graduate students; and/or (ii) the establishment of different grading criteria in the course for graduate students. (See SR 3.1.4)
19. Within the department, who should be contacted for further information about the proposed new course?

Name: Richard Kryscio Phone: 257-4064 Email: kryscio@email.uky.edu

20. Signatures to report approvals:

<p><u>4-1-08</u> DATE of Approval by Department Faculty</p> <p><u>6-26-08</u> DATE of Approval by College Faculty</p> <p>_____ * DATE of Approval by Undergraduate Council</p> <p><u>12/22/08</u> * DATE of Approval by Graduate Council</p> <p><u>8/19/08</u> * DATE of Approval by Health Care Colleges Council (HCCC)</p> <p>_____ * DATE of Approval by Senate Council</p> <p>_____ * DATE of Approval by University Senate</p>	<table border="0" style="width: 100%;"> <tr> <td style="width: 40%;"><u>Richard Kryscio</u> printed name</td> <td style="width: 20%;"><u>Richard Kryscio</u> Reported by Department Chair</td> <td style="width: 40%;"><u>Richard Kryscio</u> signature</td> </tr> <tr> <td><u>Linda Alexander</u> printed name</td> <td><u>Linda Alexander</u> Reported by College Dean</td> <td><u>Linda Alexander</u> signature</td> </tr> <tr> <td>_____ printed name</td> <td>_____ Reported by Undergraduate Council Chair</td> <td>_____ signature</td> </tr> <tr> <td><u>Pran A. Jaiswal</u> printed name</td> <td><u>Pran A. Jaiswal</u> Reported by Graduate Council Chair</td> <td><u>Pran A. Jaiswal</u> signature</td> </tr> <tr> <td><u>Heidi Anderson</u> printed name</td> <td><u>Heidi Anderson</u> Reported by Health Care Colleges Council Chair</td> <td><u>Heidi Anderson</u> signature</td> </tr> <tr> <td colspan="3" style="text-align: center;">_____ Reported by Office of the Senate Council</td> </tr> <tr> <td colspan="3" style="text-align: center;">_____ Reported by Office of the Senate Council</td> </tr> </table>	<u>Richard Kryscio</u> printed name	<u>Richard Kryscio</u> Reported by Department Chair	<u>Richard Kryscio</u> signature	<u>Linda Alexander</u> printed name	<u>Linda Alexander</u> Reported by College Dean	<u>Linda Alexander</u> signature	_____ printed name	_____ Reported by Undergraduate Council Chair	_____ signature	<u>Pran A. Jaiswal</u> printed name	<u>Pran A. Jaiswal</u> Reported by Graduate Council Chair	<u>Pran A. Jaiswal</u> signature	<u>Heidi Anderson</u> printed name	<u>Heidi Anderson</u> Reported by Health Care Colleges Council Chair	<u>Heidi Anderson</u> signature	_____ Reported by Office of the Senate Council			_____ Reported by Office of the Senate Council		
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*If applicable, as provided by the University Senate Rules. (<http://www.uky.edu/USC/New/RulesandRegulationsMain.htm>)

BST 675: Biometrics I

Course Description: This course, the first of a two-semester sequence in biometrics, introduces probability, discrete random variables, continuous random variables, sampling distributions, and some useful inferential techniques.

Course Structure: 4 credit hours (4 hours of lecture, 0 hours of laboratory)

Prerequisite: STA 580 (Biostatistics I) or equivalent introductory course in statistical methods, plus two semesters of calculus

Initial Offering: Fall 2009

Instructors: Any faculty member in the Department of Biostatistics

Philosophical Statement: Students pursuing a doctoral degree in epidemiology and/or biostatistics must be prepared to deal with issues in the collection, analysis, interpretation, and presentation of numerical data. Probability serves as the foundation for strategies in prediction and inference. This course is designed to enable students to obtain an in-depth understanding of the principles of probability so that these students can apply these principles in the practice of biostatistics. The course will emphasize probability principles as they relate to biostatistical methods and to applications in public health and allied fields; however, the course will be conducted with enough mathematical rigor to avoid repeatedly asking students to take on faith results that should be understood in some depth. A special feature of the course will be the motivating "case studies" incorporated into the various units. Each case study will either: demonstrate the application of probability theory in public health, pharmaceutical science, or medicine; or, illuminate the rationale for a commonly employed biostatistical method.

Objectives: Students completing BST 675 will be able to:

1. Use conditional and unconditional probability to solve biostatistical problems.
2. Formulate probabilistic models for random phenomena in public health and allied fields.
3. Describe the properties of a random sample.
4. Articulate connections between probabilistic principles and biostatistical methods.

Textbook: Larsen and Marx (2005). *Introduction to Mathematical Statistics and Its Applications*. Prentice Hall.

Detailed Outline:

I. Probability

- a. Motivating case study #1: For which diseases are diagnostic tests useful?
- b. Motivating case study #2: Infant mortality and Simpson's paradox
- c. Definition and axioms of probability
- d. Conditional probability and Bayes' Theorem
- e. Independence
- f. Counting
- g. Resolution of motivating case studies

II. Discrete Random Variables

- a. Motivating case study #1: Assessing the potential of a new pharmaceutical
- b. Motivating case study #2: Evaluating the adequacy of hospital resources
- c. Motivating case study #3: Is leukemia contagious?

- d. Probability mass functions and cumulative distribution functions
 - e. Expected values, means, and variances
 - f. Binomial family
 - g. Poisson family
 - h. Geometric and Negative Binomial families
 - i. Resolution of motivating case studies
- III. Continuous Random Variables
- a. Motivating case study #1: Describing a distribution of birthweights
 - b. Motivating case study #2: Modeling a distribution of times to smoking recidivism
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Assessment: There will be regular homework assignments (40%), a midterm examination (30%), and a final examination (30%).

Grading Scale:

Grade	%
A	90-100
B	80-89
C	70-79
E	60-69

Note: Motivating case studies may vary from year to year.

LaRoche, Adrea S.

From: Brothers, Sheila C
Sent: Monday, September 22, 2008 8:42 AM
To: LaRoche, Adrea S.
Subject: FW: HCCC Transmittal - Program Change: MS in Athletic Training
Attachments: PhD Epi Bio Final Signatures.pdf; FW: important-EPI 714; FW: regarding the New Program Proposal for the PhD in Epidemiology and Biostatistics

Follow Up Flag: Follow up
Flag Status: Flagged

Categories: Curricular Items

Don't let the subject line fool you – this is for a PhD in Epidemiology. ☺

Sheila

*Office of the Senate Council
Phone: (859) 257-5872*

From: Lindsay, Jim D.
Sent: Friday, September 19, 2008 2:20 PM
To: Nikou, Roshan; Jackson, Brian A
Cc: Brothers, Sheila C; Anderson, Heidi Milla; Flanagan, Rebecca; Alexander, Linda A; Kryscio, Richard
Subject: RE: HCCC Transmittal - Program Change: MS in Athletic Training

September 19th, 2008

TRANSMITTAL

TO: Brian Jackson, Roshan Nikou
Graduate Council
FROM: Jim Lindsay
Health Care Colleges Council

At its August 19th 2008 meeting, the Health Care Colleges Council approved the following proposal and is now forwarding it to the Graduate Council to approve:

College of Public Health
New Program: Ph.D. in Epidemiology

Attached are the materials to implement the requested action.

cc: Linda Alexander
Becki Flanagan
Richard Kryscio
Shelia Brothers
Heidi Anderson

Jim Lindsay
Health Care Colleges Council Coordinator
Associate Provost for Faculty Affairs Office
University of Kentucky, 205 Frazee Hall
Lexington, KY 40506-0031 Ph. (859) 323.6638
www.uky.edu/Provost/AcademicCouncil/council.php

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