

Nikou, Roshan

From: Graduate.Council.Web.Site@www.uky.edu
Sent: Wednesday, December 03, 2008 10:25 AM
To: Nikou, Roshan
Cc: Price, Cleo
Subject: Investigator Report

AnyForm User: www.uky.edu
AnyForm Document: <http://www.research.uky.edu/gc/GCInvestigatorReport.html>
AnyForm Server: www.uky.edu (/www/htdocs/AnyFormTurbo/AnyForm.php)
Client Address: 76.177.13.44

College/Department/Unit: = BST766
Category: = New
Date_for_Council_Review: = 12/4/2008
Recommendation_is: = Approve
Investigator: = Kert Viele
E-mail_Address = viele@uky.edu
1__Modifications: =
2__Considerations: = None, no major issues. Course is straightforward discussion of time series methods in public health.
3__Contacts: = Marta Mendiondo general discussion
4__Additional_Information: =

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AnyForm/PHP3 0.1

AnyFormRandomSeqNo: 51521251

APPLICATION FOR NEW COURSE

1. Submitted by the College of Public Health Date: January 15, 2008

Department/Division proposing course: Biostatistics

2. Proposed designation and Bulletin description of this course:

a. Prefix and Number BST 766

b. Title Analysis of Temporal Data in Public Health

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

Temporal Data Analysis

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 (3) LECTURE
() INDEPEND. STUDY () PRACTICUM () RECITATION () RESEARCH () RESIDENCY
() SEMINAR () STUDIO () OTHER – Please explain: _____

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

e. Number of credit hours: 3

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

g. Course description:

This course surveys methods for analyzing public health data collected over time. Methods covered include smoothing time series data, the modeling of stationary time series for Gaussian, dichotomous, and case count responses, methods for detecting the clustering of disease over time, and methods for the surveillance of infectious diseases in real time

h. Prerequisite(s), if any:

BST 675 (Biometrics II) and BST 760 (Advanced Regression)

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

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: NA or Community-Based Experience Service Learning Component Both

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

APPLICATION FOR NEW COURSE

5. Requested effective date (term/year): Fall / 2010
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: This course will be an elective in the proposed Ph.D. EpidemiologyBiostatistics program. We anticipate offering it perhaps every third semester (i.e., twice every three years).
8. Why is this course needed?
This course will be an elective in the proposed Ph.D. EpidemiologyBiostatistics program. 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 Kryscio
- 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 offering
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 an elective for the proposed Ph.D. in EpidemiologyBiostatistics. 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. EpidemiologyBiostatistics
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:

APPLICATION FOR NEW COURSE

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

- 17. [X] 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:

4-1-08
DATE of Approval by Department Faculty

Richard Kryscio / Richard Kryscio
printed name Reported by Department Chair signature

6-26-08
DATE of Approval by College Faculty

Linda Alexander / Linda Alexander
printed name Reported by College Dean signature

* DATE of Approval by Undergraduate Council

printed name Reported by Undergraduate Council Chair signature

* DATE of Approval by Graduate Council

Ben A. Drake / Ben A. Drake
printed name Reported by Graduate Council Chair signature

8/19/09
* DATE of Approval by Health Care Colleges Council (HCCC)

Heidi Anderson / Heidi Anderson
printed name Reported by Health Care Colleges Council Chair signature

* DATE of Approval by Senate Council

Reported by Office of the Senate Council

* DATE of Approval by University Senate

Reported by Office of the Senate Council

*If applicable, as provided by the University Senate Rules. (http://www.uky.edu/USC/New/RulesandRegulationsMain.htm)

BST 766: Analysis of Temporal Data in Public Health

Course Description: This course surveys methods for analyzing public health data collected over time. Methods covered include smoothing time series data, the modeling of stationary time series for Gaussian, dichotomous, and case count responses, methods for detecting the clustering of disease over time, and methods for the surveillance of infectious diseases in real time

Course Structure: 3 credit hours (3 hours of lecture, 0 hours of laboratory)

Prerequisites: BST 676 (Biometrics II) and BST 760 (Advanced Regression)

Initial Offering: Fall 2010

Instructors: Any faculty member in the Department of Biostatistics

Philosophical Statement: Public health data is routinely collected serially over time. In some cases time series models are used to describe the dependence of the response on predictor variables including covariates and possibly previous values in the series. In other cases there is interest to know if disease cases are clustering in time and if so how to model this clustering. Since public health officials often monitor cases counts for various infectious diseases over time, there is interest in detecting as early as possible an outbreak of the disease that could threaten the populace at risk. For non-infectious diseases there is interest in forecasting the number of cases to be expected in the future for health planning purposes. Specialized methodology focuses on these important problems. In all cases examples of real time series from public health will be used to motivate the methodology covered. Statistical software for implementing the methodology will be covered as well. Doctoral students may also find that the course provides ideas for dissertation topics.

Objectives: Students completing BST 766 will be able to:

1. Apply simple smoothing techniques to serially collected data in public health.
2. Apply simple time series models for Gaussian, dichotomous, and case count responses.
3. Apply standard statistical tests to detect clustering of diseases in time
4. Apply techniques for identifying disease outbreaks
5. Apply simple forecasting techniques for the expected number of cases of a non-infectious disease

References:

1. Brookmeyer and Stroup (2004) *Monitoring the Health of Populations*. New York: Oxford University Press
2. Diggle (1990) *Time Series: A Biomedical Introduction*. New York: Oxford University Press
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5. Zeger (1988) Regression model for time series of counts *Biometrika* 75: 621-630.

Detailed Outline:

1. Descriptive methods
 - a. Time trends
 - b. Seasonality
 - c. Moving averages
 - d. Fourier transforms
 - e. Smoothing techniques kernel estimators, splines, and wavelets
2. Stationary processes – Gaussian case
 - a. Correlograms
 - b. ARMA (autoregressive moving average) models
 - c. Model diagnostics
3. Stationary processes – dichotomous outcomes
 - a. Lorelograms
 - b. Marginal models
 - c. Conditional models
 - d. Extensions to count data – loglinear models
 - e. Extensions to ordinal data
4. Disease clustering in Time
 - a. Ederer-Myers statistic
 - b. Scan Statistic
 - c. Tango statistic
 - d. Introduction to spatio-temporal analyses
5. Surveillance Data
 - a. Sources for public health surveillance data
 - b. Outbreak detection in infectious diseases
 - c. Role of the incubation period
 - d. Joint analysis of cohort and time series data
 - e. Forecasting using back calculation method

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

Assessment: There will be regular homework assignments (60%) and a final project (40%).

Grading Scale:

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

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

C: **UK UNIVERSITY OF KENTUCKY**
The Graduate School

D: **GRADUATE COUNCIL** Log Number: (0506 -)
S: **PROPOSAL TITLE:**

BST 766

PROGRAM

COURSE

New Change DROP

nda A; Kryscio, Richard

Date Received: _____ **Scanned:** YES NO

Date to Roshan: _____ **Post to Web:** YES NO
Date emailed Mary: _____

COMMENTS:

*OK to assign
to subcommittee*

the following proposal and is now

Date Approved For Agenda: _____
 Regular Consent

Approved by Graduate Council on: _____
Follow-up action by council, IF ANY:

Date Transmitted to Senate: _____

Update grid with GC approval date YES Date emailed Mary:

Approved by Senate on: _____
Update grid with Senate approval date: YES Date emailed Mary:

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Linda Alexander / Linda Alexander
printed name Reported by College Dean signature

* DATE of Approval by Undergraduate Council

printed name Reported by Undergraduate Council Chair signature

* DATE of Approval by Graduate Council

printed name Reported by Graduate Council Chair signature

8/19/09
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Heidi Anderson / Heidi Anderson
printed name Reported by Health Care Colleges Council Chair signature

* DATE of Approval by Senate Council

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