APPLICATION FOR NEW COURSE

1. Submitted by College of HEALTH SCIENCE
Department/Division offering course HEALTH SCIENCES EDUCATION AND RESEARCH
Date 3-24-05

2. Proposed designation and Bulletin description of this course
   a. Prefix and Number CLM 505
   b. Title* EPIDEMIOLOGY AND BIOSTATISTICS
      *NOTE: If the title is longer than 24 characters (including spaces), write EPI AND BIOSTATS
      A sensible title (not exceeding 24 characters) for use on transcripts
   c. Lecture/Discussion hours per week 3
   d. Laboratory hours per week 0
   e. Studio hours per week 0
   f. Credits 3
   g. Course description: CSC 505 is an introductory course in the foundational principles and methods of epidemiology and biostatistics. Epidemiological investigations of infectious and non-infectious diseases and their distribution and dynamic behaviors in populations will be examined. The course will cover statistical methods for health care studies and how to analyze data, with strong emphases on the interpretation and health implications of published results. Etiologic factors of disease, morbidity and mortality rates, modes of transmission, and pathogenesis will be examined. Other subjects include correlation and regression, relative risk and odds ratios, prediction intervals, nonparametric tests, survival curves, multiple comparisons, clinical trial designs, and common statistical tests used in epidemiologic studies.
   h. Prerequisites (if any) Admission to the Clinical Leadership and Management Program or consent of instructor

4. To be cross-listed as
   Prefix and Number
   Signature, Chairman, cross-listing department
5. Effective Date SPRING 2006
   (semester and year)

6. Course to be offered
   □ Fall     X Spring     □ Summer

7. Will the course be offered each year? Yes
   (Explain if not annually)

8. Why is this course needed? CSC 505 will be a core course in the BHS Degree Program in Clinical Leadership and Management. A foundation in epidemiology and biostatistics will enable health care professionals to understand disease behavior and interpret results of empirical health studies. This information will aid students in their clinical work experiences.

9. a. By whom will the course be taught? Elizabeth D Schulman, PhD, Associate Professor
   b. Are facilities for teaching the course now available? Yes
      If not, what plans have been made for providing them?

10. What enrollment may be reasonably anticipated? 20

11. Will this course serve students in the Department primarily? Yes
    Will it be of service to a significant number of students outside the Department? Yes
    If so, explain. It may serve as an upper division health care elective.
    Will the course serve as a University Studies Program course? No

12. Check the category most applicable to this course
    X traditional; offered in corresponding departments elsewhere;
    □ relatively new, now being widely established
    □ not yet to be found in many (or any) other universities

13. Is this course applicable to the requirements for at least one degree or certificate at the University of Kentucky? Yes

14. Is this course part of a proposed new program: Yes
    If yes, which? This course is part of a program revision – i.e., revising the BHS Degree Program in Health Services Management to a BHS in Clinical Leadership and Management
13. Is this course applicable to the requirements for at least one degree or certificate at the University of Kentucky?  
X Yes ☐ No

14. Is this course part of a proposed new program? If yes, which?  
This course is part of a program revision – revising the BHS in Health Services Management to a BHS in Clinical Leadership and Management  
X Yes ☐ No

15. Will adding this course change the degree requirements in one or more programs?*  
If yes, explain the change(s) below  
☐ Yes ☒ No

16. Attach a list of the major teaching objectives of the proposed course and outline and/or reference list to be used.

17. If the course is a 100-200 level course, please submit evidence (e.g., correspondence) that the Community College System has been consulted. ☐ Check here if 100-200.

18. If the course is 400G or 500 level, include syllabi or course statement showing differentiation for undergraduate and graduate students in assignments, grading criteria, and grading scales. X Check here if 400G-500.

19. Within the Department, who should be contacted for further information about the proposed course?

Name: Elizabeth D. Schulman, PhD  
Phone Extension: 323-1100, x80565

*NOTE: Approval of this course will constitute approval of the program change unless other program modifications are proposed.

Signatures of Approval:

[Signature]  
Department Chair  
Date: 9/20/04

[Signature]  
Dean of the College  
Date: 9/30/04

*Undergraduate Council

*University Studies

*Graduate Council  
[Signature]  
Date: 10/19/04

*Academic Council for the Medical Center

*Senate Council (Chair)  
Date: Date of Notice to University Senate  
Date of Notice to the Faculty

*If applicable, as provided by the Rules of the University Senate

[Signature]  
Date
CLM 505  
Date: 3/04

ACTION OTHER THAN APPROVAL

Rev 3/04
APPLICATION FOR NEW COURSE
COURSE OUTLINE
CLM 505: EPIDEMIOLOGY AND BIOSTATISTICS

MAJOR OBJECTIVES

Upon completion of this course, the student will be able to:

1. Through examinations and class discussion, demonstrate comprehension of the foundational principles and methods of the epidemiological investigation
2. Demonstrate an understanding of etiologic factors of disease, morbidity and mortality rates, modes of transmission, and pathogenesis
3. Explain the distribution and dynamics of behaviors of infectious and non-infectious diseases in populations
4. Through examinations and class discussion, demonstrate comprehension of the foundational principles and methods of biostatistics
5. Demonstrate an understanding of correlation and regression, relative risk and odds ratios, prediction intervals, nonparametric tests, survival curves, multiple comparisons, clinical trial designs (e.g., randomized studies, cohort analysis, case-control studies), and common statistical tests used in epidemiologic research
6. Demonstrate comprehension of research study concepts and parameters, including measures of disease effect, validity and reliability, sampling methods, bias, interaction and adjustment, sample size and power
7. Interpret empirical study results
8. Use computer programs to analyze data from laboratory, clinical, observational, and experimental clinical studies
9. Design a randomized comparative study or other epidemiological study, using appropriate quantitative design, parameters, and statistical techniques, and evaluate that design and analysis

OUTLINE

I Disease in a Population
   Primary Cause
   Contributing Factors

II Etiologic Factors, Modes of Transmission and Spread of Infectious Disease
   Infectious Agents
   Agent-Host Interaction Contributing Factors Immunizations
   Human Behavior
   Environmental Factors Patterns of Disease Occurrence

III Vital Statistics
   Morbidity and mortality rates
   Fertility Rates
   Death Rates
   Incidence
   Prevalence

IV Epidemiological Studies
   Types of Studies
   Study designs
   Sampling Methods
   Validity
   Reliability
   Sensitivity
   Specificity
   Predictive Values
   Other Measures of Disease Effect

V Statistical Analysis
   Descriptive Statistics
   Inferential Statistics
   Estimation
COURSE EXPECTATIONS FOR UNDERGRADUATES

- Assigned readings
- 2 exams
- Critique and oral presentation of a scholarly article concerning an epidemiological study — detailing the study design and the potential pitfalls associated with that study design, methodology, principle findings, and a critical analysis of the author(s) conclusions and implications
- A written descriptive study and oral presentation of a current health problem — including the disease distribution in the population, causes, treatment, preventive strategies, major issues (data sources required)

COURSE EXPECTATIONS FOR GRADUATES

- Assigned readings
- 2 exams
- TWO critiques and oral presentations of two scholarly articles concerning epidemiological studies — detailing the study design and the potential pitfalls associated with that study design, methodology, principle findings, and a critical analysis of the author(s) conclusions and implications
- A written descriptive study and oral presentation of a current health problem — including its distribution in the population, causes, treatment, preventive strategies, major implications (data sources required)

GRADING SCALE

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<thead>
<tr>
<th>Grade</th>
<th>Description</th>
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<tbody>
<tr>
<td>90 – 100</td>
<td>A</td>
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<tr>
<td>80 – 89</td>
<td>B</td>
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<tr>
<td>70 – 79</td>
<td>C</td>
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<tr>
<td>60 -69</td>
<td>D (undergraduate)</td>
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<tr>
<td>&gt;60</td>
<td>E</td>
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GRADING WEIGHTS FOR UNDERGRADUATES

2 Exams (exam #1 – 20%, exam #2 – 25%) 45%
Journal Critique (10%) and oral presentation (10%) 20%
Current Health Concern Term Paper (25%) and oral presentation (10%) 35%

GRADING WEIGHTS FOR GRADUATES

2 Exams (exam #1 – 20%, exam #2 – 25%) 45%
2 Journal Critiques (5% each) and oral presentations (5% each) 20%
Current Health Concern Term Paper (25%) and oral presentation (10%) 35%