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UWUCC App 2/11/03
Senate App 2/25/03

CURRICULUM PROPOSAL COVER SHEET
University-Wide Undergraduate Curriculum Committee

I. CONTACT

Contact Person Dr. Amadu Ayebo Phone 357-5988

Department BIOLOGY

II. PROPOSAL TYPE (Check All Appropriate Lines)

☒ **COURSE** Environ Epidemiology
Suggested 20 character title

☒ New Course* BIOL460/560 Fundamentals of Environmental Epidemiology
Course Number and Full Title

☐ Course Revision _____
Course Number and Full Title

☐ Liberal Studies Approval + _____
for new or existing course Course Number and Full Title

☐ Course Deletion _____
Course Number and Full Title

☐ Number and/or Title Change _____
Old Number and/or Full Old Title

_____ New Number and/or Full New Title

☐ Course or Catalog Description Change _____
Course Number and Full Title

PROGRAM: _____ Major _____ Minor _____ Track

☐ New Program* _____
Program Name

☐ Program Revision* _____
Program Name

☐ Program Deletion* _____
Program Name

☐ Title Change _____
Old Program Name

_____ New Program Name

III. Approvals (signatures and date)

Rev. Arthur Z. Hahn 10-24-02
Department Curriculum Committee

[Signature] 11/25/02
College Curriculum Committee

[Signature] 10/24/02
Department Chair

[Signature] 11/25/02
College Dean

+ Director of Liberal Studies (where applicable)

*Provost (where applicable)

Syllabus of Record

I. Catalog Descriptions

BIOL 460 Fundamentals of Environmental Epidemiology

3 lecture hours
0 lab hours
3 credit hours
(3c-0l-3cr)

Prerequisites: MATH 216 or 217; BIOL 104 or 112; or permission of instructor

Study of the health consequences of involuntary exposure to harmful chemical and biological agents in the general environment. Disease etiology, occurrence, and intervention in human populations will be examined through epidemiologic study using analytical methods and applications.

II. Course Objectives

Upon satisfactory completion of the course students will be able to:

- i) know and apply the general concepts, principles and theories of environmental epidemiology;
- ii) describe the role of epidemiology in Public Health and Environmental Science;
- iii) identify the agent, host and environmental factors that determine the distribution of disease in human populations.

III. Detailed Course Outline

- a) Introduction and History of Epidemiology (2 hours)
- b) Descriptive Statistics (2 hours)
- c) Epidemiological Study Design (5 hours)
- d) Analysis of Studies in Environmental Epidemiology (5 hours)
- e) EXAM I (1 hour)
- f) Selection and Sampling of Study Populations (3 hours)
- g) Risk Assessment (3 hours)
- h) Exposure Information (3 hours)
- i) Assessing Exposure in Epidemiological Studies (3 hours)
- j) Biological and Molecular Markers in Environmental Epidemiology (3 hours)
- k) EXAM II (1 hour)
- l) Analyzing and Interpreting Data (5 hours)

- m) Developing Environmental Interventions (4 hours)
- n) Communicating Epidemiologic Findings (2 hours)
- o) FINAL (III) EXAM (during final examination period)

IV. Evaluation Methods

The final grade for the course will be determined by using the following evaluation methods: (May vary according to instructor)

- a) Exams: 80%
There will be two one-hour written examinations and a final that will consist of a combination of essay, multiple choice, true/false, matching and completion questions
- b) Quizzes: 10%
Periodic unannounced quizzes will be given on course content and assigned readings.
- c) Group Activity: 10%
Students will be assigned three activities requiring a collaborative effort with one another to investigate or develop epidemiological profiles. Group activity is graded (points assigned); individual members of the group are responsible for distributing those points among the members of the group based on individual contributions to the group activity .
- d) Grading Scale: The letter grading scale will be based on the following:
 - A 90-100%
 - B 80-89%
 - C 70-79%
 - D 60-69%
 - F less than 60%

V. Attendance Policy (sample – policy will vary according to individual instructor)

Attendance is strongly encouraged; performance in this class is correlated with regular class attendance.

VI. Required Textbook(s), Supplemental Books and Readings

Timmreck, T. C. (2002) An Introduction to Epidemiology. (3rd ed.) Boston: Jones and Bartlett Publishers Inc. pp505

VII. Special Resource Requirements

3x5 Index cards
Scientific calculator (basic)

VIII. Bibliography

A. Books - This is an active recommended text list of supporting material. This list will be revised as new texts become available in epidemiology:

Draper W.M., (ed.). Environmental Epidemiology: Effects of Environmental Chemicals on Human Health. 1994. Washington, DC: American Chemical Society.

Gregg, M.B., (ed). Field Epidemiology. 1966. New York: Oxford University Press

Gordis, L. Epidemiology. (2nd ed.), 2000. Philadelphia: WB Saunders Company. 308 pp

Norell S.E. Workbook of Epidemiology. 1995. New York: Oxford University Press.

Rosner, B. Fundamentals of Biostatistics. 5th edition, 2000. New York: Duxbury Press.

Steenland K., and Savitz D.A., (eds.). Topics in Environmental Epidemiology. 1997. New York: Oxford University Press.

Talbott E.O., and Craun F.C., (eds). Introduction to Environmental Epidemiology. 1995. Baton Rouge: Lewis Publishers.

B. Journals and Government Documents

Journal of Epidemiology

Morbidity and Mortality Weekly Report (MMWR), CDC

Journal of Food Technology

Environmental Health Perspectives (Journal of the National Institutes of Environmental Health Sciences)

Journal of Environmental Health (National Environmental Health Association)

Course Analysis Questionnaire

Section A: Details of the Course

- A1 The Fundamentals of Environmental Epidemiology will be a core requirement for the revised B.S. in Environmental Health Science degree, a requirement for the newly proposed Minor in Environmental Health Science degree, a biology elective for Biology majors, and an introductory graduate level course.
- A2 None. This course is a new course that strengthens the Environmental Health Science degree program.
- A3 Fundamentals of Environmental Epidemiology has been offered as BIOL 481/581 (Special Topics) for three spring semesters (Spring 1999, Spring 2000 and Spring 2001).
- A4 Fundamentals of Environmental Epidemiology will be offered as a dual-level course (BIOL 460/560).
- A5 This course may not be taken for variable credit.
- A6 All accredited Environmental Health programs must offer a separate epidemiology course.
List of institutions include:
Eastern Kentucky University (EHS 370 Risk Assessment & Environmental Epidemiology)
East Carolina University (EH 3003 Environmental Epidemiology)
University of Georgia (MMB 480 Environmental Epidemiology)
California State University, Northridge (HS 488 Epidemiology)
Bowling Green State University (ENVH 306 Epidemiology & Biostatistics)
California State University, Fresno (HS 109 Epidemiology of Disease)
Illinois State University (HSC 258 Epidemiology)
Boise State University (H 480 Epidemiology)
Old Dominion University (ENVH 448 Biostatistics & Epidemiology)
Colorado State University (EH 332 Principles of Epidemiology)
University of Washington (EPI 420 Introduction to Epidemiology)
Wright State University (EH 462 Epidemiology & Community Health)
Ohio University (MICR 418 Epidemiology)
East Tennessee State University (ENVH ENVH 3080 Principles of Epidemiology)
Ferris State University (CAHS 410 Introduction to Epidemiology & Statistics)
University of Wisconsin, Eau-Claire (ALLH 450 Epidemiology)
Oregon State University (H 425 Principles of Epidemiology)
Oklahoma State University (EHS 3114 Epidemiology)
- A7 Epidemiology is mandatory core course for program accreditation by the National Environmental Health Science and Protection Accreditation Council. The proposed course will be cross-listed as ENVH 460 in a revised environmental health curriculum proposal that is being written for accreditation purposes. BIOL 460 is being submitted separately from the environmental health curriculum proposal to expedite its approval for offering.

Section B: Interdisciplinary Implications

- B1 The course will be taught by one professor.
- B2 Epidemiology does not overlap with other courses presently taught in the Biology Department.
- B3 Seats in this course will be made available to students in the School of Continuing Education provided they meet the prerequisites.

Section C: Implementation

- C1 Faculty resources are adequate to teach this course.
- C2 The course offering currently relies on computer generated data bases for assignments. It will be necessary to purchase software for data analysis.

Other current resources:

Space - Adequate.

Equipment - Adequate.

Library Materials - Adequate.

- C3 Resources for this course are not funded by a grant
- C4 This course is offered every year during the fall semester.
- C5 One section of this course will be offered every year.
- C6 Student enrollment for this course will be limited by the size of the room where the class is offered.
- C7 The National Environmental Health Science and Protection Accreditation Council does not address enrollment limits in their guidelines for courses in epidemiology.

Section D: Miscellaneous

- D1 This course has become a popular course for students in other majors. The course offers them basic research protocols for investigations they do not get from other courses. The applied nature of the course is most important. As our Environmental Health Program works towards accreditation, offering a strong epidemiology course is an essential requirement for accreditation.

Appendix Graduate Level BIOL 560

Additional Goals and Objective:

In addition to the goals outlined in the undergraduate description, graduate students, upon completion of the course will be in a position to:

- i) analyze epidemiological data bases to determine causation
- ii) interpret epidemiological profiles

Different Expectations on Assignments and Additional assignments:

Graduate students will be assigned project work to review CDC Health Risk Assessment and Disease Prevention Guidelines and Strategies (Data bases available on-line) and case studies for which they'll apply the principles of epidemiology to investigate or develop epidemiological profiles. Project work is scored on individual performance. Final reports will be evaluated and will contribute 15% of the final grade. Approximately 10-15% of the course time will be scheduled in the Department of Biology, ITC for data and program analysis.

Additional Required Text for Graduate Students:

Rosner, B. Fundamentals of Biostatistics. 5th edition, 2000. New York: Duxbury Press.

Criteria for Evaluation:

The final grade for the course will be determined by using the following evaluation methods:

- a) Written Exams - 75%
- b) Project Work - 15%
- c) Quizzes - 10%

Exams: There will be two one-hour written examinations (100 points each) and one cumulative final exam (150 points). The format of graduate exams will differ from undergraduate exams and the rigor will reflect the course expectation. The three examinations will contribute 75% of the final grade.

Grading Scale: The letter grading scale will be based on the following:

- A - 90-100%
- B - 80-89%
- C - 70-79%
- F - less than 70%