

## APPLICATION FOR NEW COURSE

1. Submitted by College of Lexington Community College Date 2/20/04

Department/Division offering course  
Biological Sciences & Nursing

2. Proposed designation and Bulletin description of this course:

(a) EST 225 (b) Freshwater Invertebrates  
Prefix and Number Title\*

(c) 3 (d) 0  
Lecture/Discussion hours per week Laboratory hours per week

(e) 0 (f) 3  
Studio hours per week Credits

- (g) Course description:

An overview of the morphology, life history and ecology of freshwater invertebrates and their habitats as well as their importance and role in stream protection and restoration. Students will learn how to collect, preserve and identify freshwater invertebrates. Students will learn how to calculate and analyze biometrics used to infer stream quality.

- (h) Prerequisites (if any):  
EST 150

- (i) May be repeated to a maximum of \_\_\_\_\_ (if applicable)

3. To be cross-listed as: \_\_\_\_\_  
Prefix and Number Signature, Chair, cross-listing department

4. Effective Date: Fall 2004 (semester and year)

5. Course to be offered (a) X (b) \_\_\_\_\_ (c) \_\_\_\_\_  
Fall Spring Summer

6. Will the course be offered each year? NO, less frequently Yes  
(Explain if not annually):

- 
- Note: If the title is longer than 24 characters (including spaces), write a sensible title (not exceeding 24 characters) for use on transcripts:

This course will be one of several courses that Environmental Science Technology (EST) students can choose from to fulfill 6 credit hours of technical electives. Offering this course once every other year should supply the demand.

7. Why is this course needed:

The EST Program is trying to provide students with specialized technical elective courses that will allow them to develop a focus in the EST Program. This course will provide a level of information and skills concerning freshwater invertebrates that can be used in government and private sector work.

8. (a) By whom will the course be taught? adjunct faculty

(b) Are facilities for teaching the course now available?  No  Yes

If not, what plans have been made for providing them?

\_\_\_\_\_

9. What enrollment may be reasonably anticipated? 12

10. Will this course serve students in the Department primarily?  No  Yes

Will it be of service to a significant number of students outside the Department?  
 No  Yes If so, explain

This course is of interest to biology majors as well as students interested in bachelors degrees such as in Natural Resources & Conservation Management.

Will the course serve as a University Studies Program course?  No  Yes

If yes, under what Area?

11. Check the category most applicable to this course:

traditional; offered in corresponding departments elsewhere;

relatively new, now being widely established

not yet to be found in many (or any) other universities

12. Is this course part of a proposed new program?  No  Yes If yes, which?

13. Will adding this course change the degree requirements in one or more programs?\*

No  Yes If yes, explain the change(s).

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

COMPETENCIES: Upon completion of this course, the student will:

1. Understand the taxonomic hierarchy of the animals in the aquatic invertebrate community.
2. Describe the life history of freshwater invertebrates.
3. Differentiate among the different types of freshwater habitats.
4. Describe ecological processes and the role they play in supporting aquatic life.
5. Conduct invertebrate sampling & utilize preservation methods according to accepted protocols.
6. Identify freshwater invertebrates using taxonomic keys.
7. Analyze a freshwater invertebrate community using appropriate biotic indices.
8. Explain the role of aquatic invertebrates in biomonitoring for stream protection and restoration.
9. Express the importance of protecting endangered invertebrate species, with emphasis on those that live in Kentucky.

OUTLINE:

I Introduction

- A. Invertebrate aquatic habitats
- B. Ecological processes affecting invertebrates

II Porifera

- A. Architectural types
- B. Classification
- C. Reproduction
- D. Ecology

III Cnidaria

- A. Morphology
- B. Classification
- C. Life cycles

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



- D. Ecology
- IV Platyhelminthes
  - A. Morphology
  - B. Reproduction
  - C. Ecology
- V Nematoda
  - A. Morphology
  - B. Reproduction
- VI Rotifera
  - A. Morphology
  - B. Reproduction
- VII Gastrotricha
  - A. Morphology
  - B. Reproduction
- VIII Nematomorpha
  - A. Life history & reproduction
- IX Mollusca
  - A. Gastropoda
    - 1. Morphology
    - 2. Life history
    - 3. Ecology
  - B. Bivalvia
    - 1. Morphology
    - 2. Life history
    - 3. Ecology
    - 4. Distribution & biogeography
    - 5. Exotics
- X Annelida
  - A. Life history & Reproduction
  - B. Physiology
- XI Arthropoda
  - A. General characteristics
  - B. Branchiopoda
    - 1. classification
    - 2. life history & reproduction
  - C. Maxillopoda
    - 1. life history & reproduction
  - D. Amphipoda
    - 1. life history & reproduction
  - E. Isopoda
    - 1. life history & reproduction
  - F. Decapoda
    - 1. Shrimp
      - a. life history & reproduction
    - 2. Crayfish
      - a. life history & reproduction
      - b. ecology & biogeography
  - G. Insecta

1. Introduction
2. Ephemeroptera
  - a. life history & reproduction
  - b. feeding
  - c. identification
3. Plecoptera
  - a. life history & reproduction
  - b. feeding
  - c. identification
4. Hemiptera
  - a. life history & reproduction
  - b. feeding
  - c. identification
5. Odonata
  - a. life history & reproduction
  - b. feeding
  - c. identification
6. Trichoptera
  - a. life history & reproduction
  - b. feeding
  - c. identification
7. Coleoptera
  - a. life history & reproduction
  - b. feeding
  - c. identification
8. Diptera
  - a. life history & reproduction
  - b. feeding
  - c. identification

#### XII Biomonitoring

- A. The role of aquatic invertebrates in biomonitoring for stream protection and restoration.
- B. Invertebrate sampling, sorting & preservation protocols
- C. Selection and use of appropriate biotic indices

#### XIII Endangered freshwater invertebrate species

15. If the course is a 100-200 level course, please submit evidence (e.g., correspondence) that the Community College System has been consulted. Once submitted to Academic Council, Tri Roberts will notify the Community College System that this course is being considered.
16. Within the Department, who should be contacted for further information about the proposed course?  
Name Jean Watts Phone Extension: 257-4872 ext. 4042

APPLICATION FOR NEW COURSE  
Additional Information on CCS Forms

1. List of Experiments/Activities: (If laboratory or clinic is involved)
  
2. For Inclusion on LCC General Education List:
  - A. Degree Area (AA/AS or AAS or both)
  
  - B. Competency Area
  
  - C. General Education Competency Statement (List and provide examples of implementation methods/activities)
  
  - D. Across the Curriculum Competencies (List and provide examples of implementation methods/activities)
  
3. For Inclusion on University Studies List: (A syllabus must be attached.)
  - A. Area
  
  - B. Description of Writing Component

If the new course is to be offered through distance education, the *Application for Offering a Course Using a Distance Education Format* form must also be submitted with this form.

Signatures of Approval:

Department Chair: Shirley A. White Date: 2/25/04

Dean of the College: [Signature] Date: 2/26/04

President of the College: [Signature] Date: 4-21-04

Date of Notice to the Faculty: \_\_\_\_\_

Undergraduate Council: \_\_\_\_\_ Date: \_\_\_\_\_

Graduate Council: \_\_\_\_\_ Date: \_\_\_\_\_

Academic Council for the Med. Ctr: \_\_\_\_\_ Date: \_\_\_\_\_

Senate Council: \_\_\_\_\_ Date of Notice to Univ. Senate: \_\_\_\_\_  
(Chair)

ACTION OTHER THAN APPROVAL: \_\_\_\_\_