

LSC Use Only  
Number: \_\_\_\_\_  
Action: \_\_\_\_\_  
Date: \_\_\_\_\_

UWUCC Use Only <sup>94-1</sup>  
Number: 93-7  
Action: \_\_\_\_\_  
Date: App - 11/8/94  
Senate App - 2/7/95

**CURRICULUM PROPOSAL COVER SHEET**  
University-Wide Undergraduate Curriculum Committee

**I. Title/Author of Change**

Course/Program Title: BI 450/550 Pymatuning: Field Studies  
Suggested 20 Character Course Title: Pym: Field Studies  
Department: Biology  
Contact Person: Nastase

**II. If a course, is it being Proposed for:**

NEW  
COURSE

Course Revision/Approval Only  
 Course Revision/Approval and Liberal Studies Approval  
 Liberal Studies Approval Only (course previously has been approved by the University Senate)

**III. Approvals**

Robert P. Henderson  
Department Curriculum Committee

Allan T. Andrews  
Department Chairperson

[Signature]  
College Curriculum Committee

W. G. Cole  
College Dean\*

\_\_\_\_\_  
Director of Liberal Studies  
(where applicable)

\_\_\_\_\_  
Provost (where applicable)

\*College Dean must consult with Provost before approving curriculum changes. Approval by College Dean indicates that the proposed change is consistent with long range planning documents, that all requests for resources made as part of the proposal can be met, and that the proposal has the support of the university administration.

**IV. Timetable**

Date Submitted  
to LSC: \_\_\_\_\_  
to UWUCC: \_\_\_\_\_

Semester to be  
implemented: \_\_\_\_\_

Date to be  
published in Catalog: \_\_\_\_\_



93-7  
94-1

Indiana, Pennsylvania 15705

Date: May 7, 1993  
To: Dr. Hilda Richards  
Provost  
From: William G. Cale J.E.C. AK  
Dean, NS&M  
Subject: Curriculum Proposals

Attached please find several curriculum proposals submitted by departments in the College of Natural Sciences and Mathematics. Program changes for the BS in Education/Biology, BS in Geology, BS in Environmental Geoscience, BA in Psychology, and BA in Psychology/Applied Track, will not require an increase in the number of credits required or faculty workload hours.

Similarly, the proposed new courses do not necessitate additional resources. Those courses, BI 450/550 Pymatuning: Field Studies, MA 320 Mathematics for Early Childhood, PC 315 Experimental Developmental Psychology, PC 335 Experimental Social Psychology, PC 345 Human Cognition, PC 355 Animal Behavior, PC 356 Biopsychology, PC 390 Industrial- Organizational Psychology, PC 425 Experimental Organizational Psychology, are proposed in place of courses earlier deleted, courses previously offered as Special Topics, or as an alternative choice between laboratory or lecture versions of existing offerings. There will be no increase in the number of credits required and present faculty are well qualified to teach the proposed courses.

**V. DESCRIPTION OF CURRICULUM CHANGE****I. CATALOG DESCRIPTION****BI 450/550 Pymatuning: Field Studies****3 credits**

During the summer session, various field courses are offered through the Pymatuning Laboratory of Ecology. The offerings will vary depending on the summer. Some of the possible offerings include Experimental Design, Fish Ecology, Behavioral Ecology, Aquatic Botany and Ecological Genetics. Information regarding specific offerings available from Biology Department in Spring.

### Course Syllabus

Syllabi will vary from year to year depending on the specific subject matter being taught. See the Appendix for an example of a typical syllabus.

Appendix

Example of a Course Syllabus

I. COURSE DESCRIPTION

BI 450/550 Vertebrate Community Ecology 3 credits

Consideration of the structure and function of terrestrial vertebrate communities, with emphasis on factors that determine community composition. Topics include the influences of species interactions, abiotic environment, and human impacts on community dynamics. Techniques of data gathering and analysis will be acquired during field studies of small mammal communities in two different habitats.

II. COURSE OBJECTIVES

- A. Students will learn of organization hierarchies above and below the community level, i.e. population and ecosystem ecology.
- B. Students will gain an in depth understanding of community structure and of the factors generally considered to govern community composition and assembly.
- C. Students will be able to apply theoretical concepts previously discussed to real communities.
- D. Students will gain direct experience in the techniques used to study communities, as well as learning to analyze data.

III. COURSE OUTLINE

- A. Introduction
- B. Evolutionary Background
- C. Population Biology
  - 1. Evolution of Populations - based on gene pool
    - a. genetic definition of population
    - b. conservation of gene frequency - Hardy-Weinberg
    - c. genetic variation and change in natural populations
    - d. population divergence (- > speciation)
  - 2. Population Descriptors (demography, basic processes)
    - a. reproductive rate
    - b. mortality/survivorship patterns
    - c. synthesis
  - 3. Population Regulation
    - a. density independent factors
    - b. density dependent factors
    - c. life history strategies
    - d. population cycles
  - 4. Determinants of Distribution

- a. abiotic factors (interaction with physiological tolerances)
- b. biotic factors - historical, habitat, physiological and behavioral characteristics of species, interactions with other species)

D. The Niche Concept

E. Community Ecology

- 1. definition - conflicting views
- 2. attributes and organization - descriptive
  - a. species diversity
  - b. trophic organization - guilds
  - c. niche concept
  - d. equilibrium vs. non-equilibrium communities
- 3. forces structuring communities
  - a. regional and historical influences
  - b. communities as groups of species whose requirements overlap (continuum of botanists)
  - c. communities as co-evolved units
    - 1. competition
    - 2. predation
    - 3. character displacement - causes or results of co-existence
    - 4. symbiotic relationships
- 4. island biogeography (as a means of studying how communities are assembled)
  - a. area effects
  - b. distance effects
  - c. diversity of source
  - d. species turnover
  - e. adaptive radiation
  - f. application to habitat islands
- 5. kinds of communities
  - a. food limited
  - b. space limited
  - c. temperature vs. tropical

IV. EVALUATION METHODS

A. The final grade in the course will be determined as follows:

- 1. 50% Exams
  - Two exams (mid-term and final) consisting of essay, multiple choice and completion.
- 2. 30% Laboratory Research Project
  - Each student will design and carry out an approved (by instructor) field research project, dealing with vertebrate community ecology.
- 3. 20% Primary Literature
  - Each student will choose an approved (by instructor) current research article from a journal in ecology, review the article and associated literature, and orally present the material to the

class. Areas to be included are: the scientific question; the hypothesis; methods to test the hypothesis; the results; and a discussion of the paper's relevance to the associated literature.

V. REQUIRED TEXTS

Strong, D. R. Jr., D. Simberloff, L. G. Abele, and A. B. Thistle, eds. 1984. Ecological Communities: Conceptual Issues and Evidence. Princeton University Press, Princeton.

Diamond, J. and T. J. Case, eds. 1986. Community Ecology. Harper and Row, New York.

VI. SPECIAL RESOURCE REQUIREMENTS

A. Each student will be required to pay a \$40.00 lab bench fee. This is a standard charge at field stations across the country.

VII. BIBLIOGRAPHY

A. The bibliographies will vary significantly depending on the course offerings. See attached 1994 Summer course list.

## Sample 3 Week Summer Syllabus

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### Week 1

#### Lecture -10 hours

Introduction, evolutionary background, and population demography. Discussion of recent literature.

#### Laboratory-25 hours

Trapping, tagging, and determining small mammal population dynamics. Census of amphibians and reptiles, and population estimates.

### Week 2

#### Lecture-10 hours

Regulation and distribution of populations and the niche concept. Discussion of recent literature. Exam I.

#### Laboratory-25 hours

Analyzing avian community structure and dynamics. Sampling of fish communities and estimates of populations.

### Week 3

#### Lecture-10 hours

Community Structure and ecology. Discussion of recent literature. (Final Exam)

#### Laboratory-25 hours

Individual student research projects.



## Course Analysis Questionnaire

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### A. DETAILS OF THE COURSE

- A1. At the present time, the Biology Department offers a number of Special Topics taught at the Pymatuning Laboratory of Ecology. Since Special Topics are only to be taught three times before they become regular course offerings, it has been suggested by Dr. Duntley that a new course, Pymatuning Field Studies, be submitted by the Biology Department. This course will have variable titles depending on the schedule offered at Pymatuning.

This course will not be submitted as a liberal studies course.

- A2. No changes are required in existing courses.
- A3. Course will follow the type of offering at the Pymatuning Laboratory of Ecology.
- A4. The courses have been offered as Special Topics in the past. The Biology Department has been asked to submit a new course proposal to cover the offerings in the future.
- A5. Course will be submitted as a dual level course to Graduate Committee at the same time it is submitted to the UCC.
- A6. Course will not be taught for variable credit.
- A7. Certain titles offered will be and have been taught at other colleges and universities.
- A8. No accrediting agency recommends or requires the proposed course.

### B. INTERDISCIPLINARY IMPLICATIONS

- B1. The instructors for the course will be determined by the various titles offered.
- B2. No additional courses will be required.
- B3. The course complements but does not overlap other offerings in the Biology Department.
- B4. No seats in the course will be made available to the school of Continuing Education.

C. IMPLEMENTATION

- C1. This course is taught off campus through the University of Pittsburgh at the Pymatuning Laboratory of Ecology. It, therefore, falls under different funding and resources. When IUP faculty teach at Pymatuning, their salary is part of the Biology Department summer allocation of teaching contracts. General laboratory materials are supplied by the Pymatuning Laboratory of Ecology. Also, when IUP faculty teach at the field station, the Biology Department supplies a van from the department van pool.
- C2. The course is not grant funded.
- C3. This course will be offered during the summer. Some titles will be offered during the first five week session; some during the second. The exact dates for the course will be determined by the University of Pittsburgh.
- C4. The number of different titles to be offered will vary from summer to summer. There will be one section of each title offered.
- C5. Determined by faculties at Pymatuning.
- C6. No professional society recommends enrollment limit.
- C7. This would not be a required course, but would be a biology elective. Students in the biology department are required to take 15 hours of electives from within the department. This course would offer students a wide range of electives to choose from.

D. MISCELLANEOUS

- D1. The Biology Department at IUP and the University of Pittsburgh have been cooperating in a field studies program for a number of years. IUP students have been able to take classes at the Pymatuning Laboratory of Ecology and have the grade and credits placed on their IUP transcript. This is similar to what is done with the Marine Science Consortium.

Up until last year, the courses at Pymatuning were listed as Special Topics in the summer catalog. The University is in the process of reviewing the Special Topic offerings. Since a number of titles used at Pymatuning have been used for several years, it was suggested that the department submit a course "Pymatuning: Field Studies." This course would have variable titles, depending on what courses are being offered at Pymatuning.

Although this is being submitted as a new course - it falls under different funding and resource allocation than courses offered on campus.

V. DESCRIPTION OF CURRICULUM CHANGE

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I. CATALOGUE DESCRIPTION

BI 450/550 Pymatuning: Field Studies

3 credits

During the summer session, various field courses are offered through the Pymatuning Laboratory of Ecology. The offerings will vary depending on the summer. Some of the possible offerings include Experimental Design, Fish Ecology, Behavioral Ecology, Aquatic Botany and Ecological Genetics. Information regarding specific offerings available from Biology Department in Spring.