

LSC Use Only
Number: _____
Action: _____
Date: _____

UWUCC Use Only
Number: 91-52
Action: _____
Date: _____

CURRICULUM PROPOSAL COVER SHEET
University-Wide Undergraduate Curriculum Committee

I. Title/Author of Change

Course/Program Title: Biotic Diversity of North America
Suggested 20 Character Course Title: Biotic Diversity
Department: Biology
Contact Person: Dr. A. C. Hulse

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

XXXX 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

_____	_____
Department Curriculum Committee	Department Chairperson
_____	_____
College Curriculum Committee	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: _____	Semester to be implemented: _____	Date to be published in Catalog: _____
to UWUCC: _____		

LIBERAL STUDIES COURSE APPROVAL PARTS 1-3: GENERAL INFORMATION CHECK-LIST

I. Please indicate the LS category(ies) for which you are applying:

LEARNING SKILLS:

- First Composition Course Second Composition Course
 Mathematics

KNOWLEDGE AREAS:

- Humanities: History Fine Arts
 Humanities: Philos/Rel Studies Social Sciences
 Humanities: Literature Non-Western Cultures
 Natural Sci: Laboratory Health & Wellness
 Natural Sci: Non-laboratory Liberal Studies Elective

II. Please use check marks to indicate which LS goals are primary, secondary, incidental, or not applicable. When you meet with the LSC to discuss the course, you may be asked to explain how these will be achieved.

Prim Sec Incid N/A

- | | | | | |
|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|--|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | A. Intellectual Skills and Modes of Thinking: |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 1. Inquiry, abstract logical thinking, critical analysis, synthesis, decision making, and other aspects of the critical process. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 2. Literacy—writing, reading, speaking, listening. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3. Understanding numerical data. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 4. Historical consciousness. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 5. Scientific Inquiry. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 6. Values (Ethical mode of thinking or application of ethical perception). |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 7. Aesthetic mode of thinking. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | B. Acquiring a Body of Knowledge or Understanding Essential to an Educated Person |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | C. Understanding the Physical Nature of Human Beings |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | D. Collateral Skills: |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 1. Use of the library. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 2. Use of computing technology. |

III. The LS criteria indicate six ways that courses should contribute to students' abilities. Please check all that apply. When you meet with the LSC, you may be asked to explain your check marks.

1. Confront the major ethical issues which pertain to the subject matter, realize that although "suspended judgment" is a necessity of intellectual inquiry, one cannot live forever in suspension; and make ethical choices and take responsibility for them.
2. Define and analyze problems, frame questions, evaluate available solutions and make choices.
3. Communicate knowledge and exchange ideas by various forms of expression, in most cases writing and speaking.
4. Recognize creativity and engage in creative thinking.
5. Continue learning even after the completion of their formal education.
6. Recognize relationships between what is being studied and current issues, thoughts, institutions, and/or events.

CHECK LIST — NATURAL SCIENCES (Non-laboratory)

Knowledge Area Criteria which the course must meet:

- Treat concepts, themes and events in sufficient depth to enable students to appreciate the complexity, history and current implications of what is being studied; and not be merely cursory coverage of lists of topics.
- Suggest the major intellectual questions/problems which interest practitioners of a discipline and explore critically the important theories and principles presented by the discipline.
- Allow students to understand and apply the methods of inquiry and vocabulary commonly used in the discipline.
- Encourage students to use and enhance, wherever possible, the composition and mathematics skills built in the Skill Area of Liberal Studies.

Natural Science Criteria which the course must meet:

- Examine a body of knowledge of natural science that will contribute to an understanding of the natural world.
- Provide an understanding of the development of natural science theories and their modification.
- Teach students to formulate and test hypotheses.
- Provide an understanding of some of the "great moments" in the history of natural science and the individuals, including women and minorities, responsible for them.

Additional Natural Science Criteria which the course should meet:

- Encourage an appreciation of the complex interrelationship of natural science with the life of the individual.
- Develop in students the abilities necessary to cope with the consequences of natural science in the modern world.
- Develop an inquiring attitude consistent with the tenets of natural science, an attitude that is willing to expose fallacy on the basis of reason, that demands evidence for scientific assertions and yet is tolerant of hypotheses in the absence of contradictory evidence.

BI 115. Biotic Diversity of North America 3c-01-3sh

Prerequisite: Non-biology majors and non-biology minors only.

An introduction to the biological diversity of North America from Barrow, Alaska to Tehuantepec, Mexico. All major aquatic and terrestrial biomes occurring in North America will be examined with regard to plant forms, animal composition, and environmental (abiotic) conditions.

SYLLABUS

BIOTIC DIVERSITY OF NORTH AMERICA

BI 115

3 credit hours (3 hours of lecture)

An introduction to the biological diversity of North America from Barrow, Alaska to Tehuantepec, Mexico. All major aquatic and terrestrial biomes occurring in North America will be examined with regard to plant forms, animal composition, and environmental (abiotic) conditions.

OBJECTIVES

- 1- To give the non-major student an appreciation of the biotic diversity of a single continental land mass and the rich heritage that it represents. In so doing it is hoped that the student will gain a greater appreciation for the extent of global diversity and a desire to preserve it.
- 2- To give the student an understanding of the environmental factors that shape ecosystems and communities and thus to instill in the student an awareness and concern for technological practices that might act to the detriment of ecosystems and communities.
- 3- To apprise the student of the degradation and destruction of biotic associations that have occurred due to human agencies and endeavors.
- 4- To demonstrate the variety of adaptations that allows organisms to exist under specific environmental regimes.
- 5- To attempt to instill in the student the ethical concept that the biotic diversity of the earth is a rich legacy that should be preserved for future generations and that short-term gains made at long-term expense to the environment should be avoided.

LECTURE TOPIC OUTLINE

- Lecture 1. Introduction and the concept of limiting factors.
- Lecture 2. Abiotic environmental factors and their importance in community structure: Temperature
- Lecture 3. Abiotic environmental factors and their importance in community structure: Moisture
- Lecture 4. Abiotic environmental factors and their importance in community structure: light, soil, fire
- Lecture 5. Arctic Habitats
- Lecture 6. The Tundra Biome
- Lecture 7. Boreal Coniferous Forests
- Lecture 8. Boreal Coniferous Forests
- Lecture 9. Deciduous Hardwood Forests
- Lecture 10. Deciduous Hardwood Forests
- Lecture 11. Coastal Rainforests of the North
- Lecture 12. Coastal Rainforests of the North

EXAM # ONE

- Lecture 13. Grasslands
- Lecture 14. Grasslands
- Lecture 15. Grasslands
- Lecture 16. Deserts: Hot and Cold
- Lecture 17. Deserts: Hot and Cold
- Lecture 18. Deserts: Hot and Cold
- Lecture 19. Deserts: Hot and Cold
- Lecture 20. Ecotonal Communities of the Southwestern U.S.
- Lecture 21. Tropical Deciduous Forests
- Lecture 22. Tropical Deciduous Forests
- Lecture 23. Tropical Rainforest

Lecture 24. Tropical Rainforest

EXAM # TWO

Lecture 25. Seasonal Wetlands

Lecture 26. Seasonal Wetlands

Lecture 27. Permanent Standing Water

Lecture 28. Permanent Standing Water

Lecture 29. Flowing Water And Riparian Habitats

Lecture 30. Flowing Water And Riparian Habitats

Lecture 31. Temperate Coastal Habitats

Lecture 32. Temperate Coastal Habitats

Lecture 33. Barrier Island Habitats

Lecture 34. Subtropical Coastal Habitats

Lecture 35. Subtropical Coastal Habitats

Lecture 36. Coral Reefs and Tropical Coasts

Lecture 37. Coral Reefs and Tropical Coasts

Lecture 38. Discussion of non-textbook reading.

Lecture 39. Discussion of non-textbook reading.

FINAL EXAM

NOTE: The discussion of each habitat will begin with a description of the physical (Abiotic) characteristics of the habitat and then continue into an examination of the "typical" flora and fauna found in the area under discussion. This examination will include basic ecology and life history of the organisms as well as any special adaptations that allow the organisms to successfully live in the habitat.

METHOD OF EVALUATION

Students will be evaluated as follows:

1- There will be three examinations given during the course. Each will be worth 20% of the final grade. Exams will be a mixture of objective and short answer essay questions.

2- Students will be expected to maintain a "scrapbook" of articles directly pertaining to specific North American biomes and habitats. The articles are to be gathered from sources usually available to a concerned, aware citizenry. A short critique or analysis will accompany each article. This scrapbook will be worth 20% of the final grade. The grade will be determined by the diversity of the articles and the quality of the critiques.

3- Students will submit a 5 page paper on a subject germane to the course. This will be worth 10% of the final grade.

4- Students will submit a critique (maximum of five pages) of the non-textbook reading. This will be worth 10% of the final grade.

TEXTBOOK: Biodiversity by E. O. Wilson.

NON-TEXTBOOK READING: One of the following:

- 1- The narrative log to the Sea of Cortez by John Steinbeck.
- 2- A desert country by the sea by Anne Zwinger
- 3- Women in the Field by Marcia Bonta

BIBLIOGRAPHY:

Audobon Society Nature Guides. 1985 to 1989. This is a series of extensive field guides dealing with specific habitat types in North America. Habitats dealt with in individual volumes include the following: Wetlands, Eastern Forests, Atlantic and Gulf Coast, Deserts, Grasslands, Pacific Coast, and Western Forests.

Andrewartha, H. G. and L. C. Birch. 1954. The distribution and abundance of animals.

Barnes, R.S.K. 1984. Estuarine Biology.

Barnes, R.S.K. and R.N. Hughes. 1982. An introduction to marine ecology.

Bayly, I.A.E. and W.D.Williams. 1973. Inland waters and their ecology.

Beard, J. 1953. The savanna vegetation of northern tropical america.

Bliss, L.C. et al. 1973. Arctic tundra ecosystems.

Carefoot, T. 1977. Pacific seashores.

Cloudsley-Thompson, J.L. and M.J.Chadwick. 1964. Life in deserts.

French, N. et al. 1979. Perspectives in grassland ecology.

Hynes, H.B.N. 1970. The ecology of running water.

Ivens, J.D. and R.G.Barry. 1974. Arctic and Alpine Environments.

Janzen, D.H. 1983. Costa Rican Natural History.

Leigh, E.G. et al. 1982. The ecology of a tropical forest.

MacArthur, R.H. 1972. Geographical ecology.

Mooney, H.A. 1977. Convergent evolution in Chile and California.

Noy-Meir. I. 1973. Desert ecosystems.

Orians, G.H. and O. T. Solbrig. 1977. Convergent evolution in warm deserts.

Pomeroy, L.R. and R.G. Wiegert. 1981. The ecology of a salt marsh.

Ricketts, E. et al. 1985. Between Pacific Tides.

Shelford, V. 1978. The ecology of North America

NOTE: The above bibliography is only a partial list of sources that will be used in this course. It is designed with the student in mind. Students will be given this list with each title annotated so that they can determine if a specific book might be of interest to them as a voluntary reading. Material for the course will also be taken from both semi-technical magazines (e.g. National Wildlife, Audobon Magazine, National Geographic etc.) and (e.g. Ecology, Oikos, Oecologia, Conservation Biology, Southwestern Naturalist, American Midland Naturalist etc.).

ANSWERS TO LIBERAL STUDIES QUESTIONS

A. Not Applicable. This course will be taught by a single instructor.

B. This course is designed to introduce the students to the diversity of the flora and fauna of North America by an examination of the numerous biomes and habitats found on the continent. As a consequence of this no mention of human race or gender will enter into the subjects discussed in class. However, the contributions of women to the field of natural history will be dealt with in the non-textbook reading section.

C. Students will select one of three non-textbook readings. They are: 1- A desert country by the sea by Anne Zwinger, 2- Women in the field by Marcia Bonta, and 3- The narrative log from the Sea of Cortez by John Steinbeck. The first and the third selections were chosen to illustrate potential differences in perspective of women and men when reporting on a similar habitat. Both of these books deal with the nature of Baja California, Mexico. The second reading is designed to illustrate the past and present role of women in field biology. These topics will be discussed in the classroom.

D. This course is not intended as an introduction to the field of biology, but rather is designed to introduce the students to the rich and varied natural world that is both their inheritance and their legacy.

ANSWERS TO COURSE ANALYSIS QUESTIONNAIRE

A1. The course is designed to be a three credit non-laboratory science course that students may elect to take to fulfill part of their liberal studies requirements for the 4-3-3 science option. It is designed exclusively for non-biology majors.

A2. The course does not require a change in any existing course or program.

A3. This will be a traditional lecture oriented course.

A4. This course has never been offered at IUP.

A5. This course will not be listed as dual-level.

A6. The course will not be offered for variable credit.

A7. An examination of catalogs from other schools in the tri-state area did not reveal any course identical to the one proposed here.

A8. No, the content of this course is not required by any professional agency or organization.

B1. The course will be offered by one instructor.

B2. No additional or corollary courses are or will be required.

B3. The content of this course does not overlap that of any courses offered in other departments.

B4. There will be seats in the course for continuing education.

C1. With the exception of some visual materials (slides) all resources necessary for this course are available on campus.

C2. Not Applicable. The course is not being funded by a grant.

C3. Either every fall semester or every other fall semester depending upon student demand.

C4. One section.

C5. 48 students.

C6. No professional society recommends enrollment limits.

C7. This course is designed for non-majors and as such will not affect the curriculum requirements for biology majors.