Overview: Dr. Buckwalter designed a laboratory for an existing Environmental Science lecture course and revised the Environmental Science and Technology curriculum at his institution.

Introduction

The major use I plan to make of the Great Lakes Research Consortium’s Ecosystem Dynamics program materials and ideas is still in the planning stage. Alfred State has received permission from SUNY Central Administration to develop a major in Environmental Science & Technology. I served for the past year on the planning committee for this new curriculum, and was asked to develop a laboratory component for an existing non-lab Environmental Science course. We hope to have this new curricular offering fully approved and in place by the fall of 1992.

Attached are some materials developed to support our program proposal:

1. Course outline for Environmental Science Laboratory that I developed (Appendix 1)
2. Proposed course sequence and technical electives for the new curriculum. Two sequences are being planned: Environmental Science (biology emphasis) and Environmental Technology (engineering emphasis) (Appendix 2)
Appendix 1

School: Agriculture and Allied Health Technologies
Department: Agriculture and Horticulture
Course Name: Environmental Science Laboratory
Course Number: AS 2801

Course Description

A series of field-oriented laboratory experiences involving analyses of various local ecosystems. Topics to be stressed include identification of organisms, use of environmental monitoring equipment, and collection and interpretation of field data. Co/prerequisite: AS 2803, Environmental Science. Three hours of laboratory per week.

Course Objectives

1. To familiarize students through field experience with various representative ecosystems, particularly local vegetation, wildlife and habitats.

2. To enable students to gain proficiency in the use of field techniques and equipment which are important in the monitoring of environmental quality and the ecology of various organisms.

3. To provide students with experience in the collection and recording of data in the field, followed by its processing, organization, interpretation, and reporting.

4. To help students learn to analyze various ecosystems in terms of their present structure, history, probable future, and ecological significance.

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<th>Sub-topic</th>
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<tr>
<td>I. Introduction to field study of plant communities</td>
<td>3</td>
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<td>II. Use of biological keys: identification of trees and shrubs</td>
<td>3</td>
</tr>
<tr>
<td>III. Field orientation: map and compass use</td>
<td>3</td>
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<tr>
<td>IV. Study of terrestrial communities</td>
<td>9</td>
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<tr>
<td>A. Shrub community</td>
<td>3</td>
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<tr>
<td>B. Intermediate forest</td>
<td>3</td>
</tr>
<tr>
<td>C. Climax forest</td>
<td>3</td>
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<tr>
<td>V. Study of aquatic communities</td>
<td>12</td>
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<tr>
<td>A. Marsh</td>
<td>3</td>
</tr>
<tr>
<td>B. Bog</td>
<td>3</td>
</tr>
<tr>
<td>C. Pond / lake</td>
<td>3</td>
</tr>
<tr>
<td>D. Stream / river</td>
<td>3</td>
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<tr>
<td>VI. Animal signs</td>
<td>3</td>
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<tr>
<td>VII. Individual student projects</td>
<td>9</td>
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<td>Collections, ecosystem analysis, organism natural history, environmental quality, etc.</td>
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<td>VIII. Laboratory practical examinations</td>
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Total 45
References


ENVIRONMENTAL SCIENCE AND TECHNOLOGY CURRICULUM

Sequences: Environmental Science / Environmental Technology

FIRST SEMESTER

English Composition
*Math/ Calculus
Environmental Science**/ Physics
Chemical Principles I
Orientation

Second Semester

Introduction to Literature
*Math/ Calculus
Microcomputer Application/ Physics
Chemical Principles II
Environmental Soil Management (mapping, surveying, soil science)

15/16 CH

Math: Algebra, Trig, Statistics/Calculus
**Botany, General Biology, Plant Physiology, Zoology

THIRD SEMESTER

Social Science
Analysis of Environment
Microbiology/ Hydraulics
Microcomputer Applications
Speech
Technical Elective I

17 CH

FOURTH SEMESTER

Social Science
Environmental Geology
Environmental Equipment
Technical Elective II
Environmental Law, Mitigation and Monitoring

15 CH

SUGGESTED TECHNICAL ELECTIVES

Environmental Science
Organic Chemistry I&II
Chemical Instrumentation I&II

Environmental Technology
Environmental Engineering Technology
Architectural Structural Design

Note: Course Comments/Revisions

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