Huxley College

Mission and goals

Huxley College addresses the university's mission of active pursuit of truth. This is done through its teaching, 95 percent of which is focused primarily on undergraduate instruction, with the other 5 percent addressing students in graduate programs in environmental science and geography. It adheres to the mission of curriculum development through its constant exploration in the field of environmental studies.

The Huxley College curriculum continuously evolves as the field of environmental studies grows and changes.

For instance, courses in risk assessment, geographic information systems, environmental restoration, environmental journalism, and conservation biology have been added to the curriculum in the past decade as these have emerged in the world of environmental studies.

The college also encourages scholarship and creative endeavor, and its faculty are active researchers. Its institutes of Watershed Studies and Environmental Toxicology and Chemistry are centers of research activity. Individual faculty compile extensive records of grants and publications, as shown in their curriculum vitae. Students are involved extensively in research and creative activity both in courses and as collaborators with faculty.

Finally, Huxley College serves the community through the activities of its faculty and students. The Institute for Watershed Studies, for instance, continues to conduct the Lake Whatcom monitoring project under contract for the City of Bellingham. A student-initiated program called L.E.A.D. uses ser-

vice-learning for college students as a vehicle to assist public school teachers and students in carrying out activities in the field. Student interns are learning and contributing throughout the community, and faculty serve on various boards and commissions off campus and well as in the university governance on campus. A service ethic is very strong in the Huxley College learning community.

In many ways, then, the college addresses the broad mission of the university.

General requirements

The Huxley College undergraduate curriculum displays a consistent design through the various majors that are offered, which include environmental science, geography, planning and environmental policy, and environmental education. Students must satisfy background requirements before entering any of the majors. These requirements emphasize basic knowledge and skills necessary to do the work required in the major.

When these requirements have been met, or nearly so, the student is admitted to the college and the major.

All majors consist of a common core of environmental studies courses, a major core, and electives, with approximately one-third of the curriculum devoted to each of these three parts. The common core consists of concepts and information that the faculty believe all students of environmental studies should acquire. This is the interdisciplinary heart of the Huxley College experience.

The core varies among the majors and consists of the knowledge that all students need to achieve the goals of the chosen major. In environmental science, for instance, the major core requires that students learn ecology, organic chemistry and statistics, which are essential for understanding the science courses in the major, and that they study large-scale systems and engage in laboratory and field study.

This core is a combination of basic knowledge and practice essential for doing environmental science. In environmental education, the major core exposes students to the theory and methodology of the field and gives them field experience in applying that theory and methodology with learners.

The third component, electives, allows students to develop a specialization with the majors. Specializations in environmental

science, for instance, might include aquatic ecology, environmental toxicology, or marine ecology. Each major offers such specializations.

This curriculum structure involves a balancing of breadth and depth. The college core is interdisciplinary; the major core and electives involve interdisciplinary and multidisciplinary approaches. Breadth is necessary in environmental studies because of the nature of the complex problems around which the field is organized. The environmental-studies student, regardless of major, should have ability to examine problems using tools from both the natural and social sciences. At the same time, some degree of specialization is necessary, and that may be achieved through judicious use of the electives.

One way to describe the design of the curriculum is to illustrate how it is organized around a broad set of academic goals. What follows is a list of general goals and some of the courses that address them.

The undergraduate student of environmental studies will:

1. Understand the natural environment as a system and how human enterprise affects that system:

   301 Environmental Systems
   302 Environmental Disturbances
   325 Fundamentals of Ecology
   326 Intro to Marine Pollution and Toxicology
   407 Terrestrial Ecology
   429 Stream Ecology
   435 Landscape Ecology
   439 Conservation of Biological Diversity

2. Acquire the knowledge and skill to apply a systems approach to the analysis and management of natural and man-made environments.

   301 Environmental Systems
   328 Introduction to Ecosystems Management
   415 Environmental Design
   418 Social Impact Assessment
   436 Environmental Impact Assessment
   438 Coast Ecosystems Management

   Geography
   270,370,470 Planning sequence
   362 Land Resource Analysis
   433 Climate and Biophysical Processes

3. Understand that the modern world is an entity that is ecologically, economically and politically interconnected and interdependent and the implications of this for environmental problem-solving.

   303 Human Ecology
   304 Environment and Resource Policy
   410 Agroecology and Sustainable Agriculture
   416 Human Population and Environment
   420 Environmental Politics
   465 Comparative and International Environmental Policy

   Geography
   310 Developing World
   312 Geography of the World Economy
   340 Population and Resources
   414 The Urban Environment

4. Recognize the necessity for consideration of ethical, social, cultural and economic dimensions of environmental problems in any search for their solution.

305 Environmental History and Ethics
401 Environmental Ethics
418 Social Impact Assessment
436 Environmental Impact Assessment
477 American Literature of Nature and Place

Geography
312 Geography of the World Economy

5. Be able to deal in complex wholes – to view the self and social situation in their full ecological, cultural and social context.

301 Environmental Systems
303 Human Ecology
305 Environmental History and Ethics
401 Environmental Ethics
477 American Literature of Nature and Place

6. Be able to think in terms of many variables, related to each other as probabilities rather than certainties and related as both cause and effect of each other.

301 Environmental Systems
302 Environmental Disturbances
325, 407, 429, 435 Ecology courses
490 Environmental Risk Assessment

Geography
363 Natural Hazards Planning

7. Understand the temporal dimension of the environment, including what forces have created the contemporary environment and what effects contemporary behavior may have on future environments.

303 Human Ecology
304 Environmental History and Ethics
376 The History of Conservation in America
377 Alternative Futures
415 Environmental Design
460 American Environmental History
477 The American Literature of Nature and Place

8. Perceive the future of society and environment as a range of alternate possibilities that will be determined by the policies and decisions of the present, and understand the processes through which these policies and decisions are made.

304 Environmental and Resource Policy
305 Environmental History and Ethics
464 U.S. Environmental Policy
465 Comparative and International Environmental Policy
469 Canadian Environmental Policy

Geography
270, 370, 470 Planning sequence
310 Developing World
340 Population and Resources
461 Natural Resources Management
462 Transportation Systems and Planning

9. Acquire a measure of logical skill in working through the moral dilemmas implicit in the assignment of social priorities and in the risks involved in seeking to attain those priorities.

   305 Environmental History and Ethics
   401 Environmental Ethics
   415 Environmental Design
   420 Environmental Politics
   436 Environmental Impact Assessment
   468 Environmental Law

10. Acquire specific skills necessary to achieve understanding of and solutions to environmental problems, including those necessary for analysis of ecosystems, evaluation of toxic substances in the environment, for assessment of environmental impact of human activity, and for monitoring of the health of environmental systems.

    (So many courses contribute to this goal that they cannot be listed. Skill-oriented courses may be readily identified in the catalog.)

11. Be prepared for entry into professions involved in environmental monitoring, assessment, management, planning, and education, and/or for entry into graduate and professional school.

    (All courses are aimed primarily or secondarily toward this goal, with the exception of courses designed specifically for the university's General University Requirement program, including ENVR 110 and 202 and GEOG 201 and 209.)

This rather long list demonstrates how courses are designed to address general environmental-studies goals. Similar lists of major-specific goals are available, but only one will be provided here for illustration – geography.

The undergraduate student of geography will:

1. Use quantitative methods of analysis to interpret spatial information, as exemplified by ability to produce descriptive and analytical statistics to support the development of generalizations.

2. Draw conclusions about cause and effect by correlating spatial information.

3. Determine relationships (areal, causal, chronological, etc.) by analyzing and interpreting spatial data.

4. Formulate valid generalizations from the results of various kinds of spatial inquiry, as exemplified by being able to use the results of case-study analysis to speculate about general relationships.

5. Systematically locate and collect spatial information from a variety of primary and secondary sources.

6. Synthesize information to present a point of view expressed in written and oral form.

7. Use a spatial model to predict consequences on the basis of multiple sources of data.

8. Use quantitative measures to describe data.

9. Explain the results of spatial inquiry both orally and in writing.

10. Select and design appropriate forms of graphs, diagrams, tables, and charts to organize spatial information.

11. Prepare maps appropriate to the level of measurement of the data.

Similar statements of goals may be provided for the college's graduate programs. The graduate program in geography, for instance, assumes that students have achieved all or most of the goals listed for the undergraduate program.

The graduate student of geography will:

1. Use the processes of analysis, synthesis, evaluation, and explanation to interpret spatial information from a variety of sources.

2. Evaluate geographic reasoning (identify lines of argument and points of view, logical flaws in content and perspective, and inferences).

3. Apply models, generalizations, and theories to the analysis, interpretation, and presentation of spatial data.

4. Use a variety of media to develop and organize integrated summaries of spatial information.

5. Select and design appropriate forms of maps and graphical representations to organize spatial information.

6. Develop advanced research and writing skills necessary for the advancement of knowledge in the field.

7. Acquire the skills and knowledge for careers in geographic work.

Use of library and other information sources

Courses in Huxley College routinely require that students search out information for preparation of papers and reports. The core courses required of all Huxley students, for instance, require that term papers be written. The library is used as the principal resource for such papers. Other courses require that students access primary sources of data, as in Social Impact Assessment and Environmental Impact Assessment. Students do interviews in the field, visit field sites to collect data, and use whatever print and electronic data related to their project that is available from local, state and federal agencies. Students in environmental science and geography working with geographic information systems (GIS) use data sets from a range of sources. Some students choose to do a senior thesis or project which requires extensive research.

Curriculum design, approval, and implementation

Curriculum design is the responsibility of the faculty of the college. Its development may be initiated by an individual faculty member or by a formal or informal faculty committee. A proposal for a new course or program is prepared that describes the course or program, its goals and objectives, its resource needs, and whether or not it duplicates any

existing course or program. The proposal is reviewed by the unit head, then goes to the college curriculum committee for review.

This committee is comprised of six faculty, two students, and one staff member from the college. The committee review results in a recommendation to deny, modify, or approve the proposal, which is then presented by the curriculum committee to the whole faculty for its vote.

If the proposal is approved, it is then scheduled by the unit head to be offered in the next academic year.

A similar process is followed for minor changes such as course title, prerequisites, or crediting, or when the proposal is to cancel a course.

Accessible scheduling

Scheduling is a straightforward process with constant monitoring of which courses fill and may pose an access problem. The most heavily enrolled courses are, as expected, the core courses required of all Huxley College students.

These courses are offered every quarter (three to four times per year), and attention is paid to assuring that they do not conflict in the time schedule.

Another accessibility problem involves laboratory and field courses, which must have small enrollments.

The strategies for these are to carefully schedule them to void conflict with other requirements, to offer a sufficient number of lab sections to accommodate anticipated demand, and to provide alternatives students who cannot work a particular course into the schedule. This has not been a large problem.

Educational program planning and assessment

Several procedures are used to assess the effectiveness of programs, including surveys of graduates every five years to determine their satisfaction and track their job placement.

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The faculty routinely examine the information gathered in these formal processes and include it in program revisions brought to the college curriculum committee, which regularly reviews the curriculum and recommends revisions to the committee of the whole faculty.

In addition to the planning of the curriculum committee, the college undertook strategic planning in 1990-1991 and again in 1996-1997. An appointed strategic planning committee interviews all faculty and staff and proposes a plan to the college community. This is then discussed and debated until a formal plan is approved.

Broad goals for the program are established, as described earlier. The curriculum is designed to address these goals, and individual faculty build objectives into their courses that contribute to the goals. Each course has an evaluative procedure to determine how well the students do in achieving course objectives. The procedure is reflected in student performance and grades. Achieve-

ment of the more general goals is assessed through the graduate surveys.

As for assessment activities leading to improvement of teaching and learning, evidence linking cause and effect of a specific curricular change with a specific learning improvement is limited. An example will illustrate, however, how improvement occurs and is assessed.

The college has two major program thrusts, one in environmental science and the other in social science. For many years, the college attempted to provide, as a core course for all majors in either program, a single course in environmental systems. Students indicated that the course was not effective because the backgrounds students brought to it were too different. The science students had much more background in chemistry and biology than the social science students did. Ultimately the decision was made to offer the science students a course titled “Ecology” that built on their backgrounds, and to provide the social science students with a separate course titled “Environmental Systems.” Student satisfaction, as indicated by routine questioning by course instructors, has increased, and the material covered better prepares students for subsequent coursework than was the case earlier.