

B.S. in Environmental Studies ***Degree Concept Paper***

Submitted by the
Department of Science, Technology & Society/Public Policy
College of Liberal Arts

Introduction

The Department of STS/Public Policy in the College of Liberal Arts is pleased to submit this concept paper for a proposed BS program in *Environmental Studies*. This document summarizes the goals of the proposed program and describes how the program fills a unique niche within RIT's mission and strategic direction. In particular, this paper also identifies innovative curricular linkages with other academic programs and the potential for a common "Environmental Exploration" experience for first year students.

Background

Environmental Studies is an interdisciplinary educational field that examines the root social causes of environmental problems and the associated solutions to those problems. Recognizing that environmental problems cannot be addressed within a single disciplinary framework, *Environmental Studies* has integrated social science and humanities research tools with existing natural science approaches to link the individual human experience in nature to the societal level. Over the past 40 years, *Environmental Studies* has become a ubiquitous degree granting presence in colleges and universities in the United States and around the world. The proposed degree in *Environmental Studies* will be one of a kind, reflecting RIT's unique characteristics and expertise.

The RIT degree in *Environmental Studies* will complete the interdisciplinary links in the Institute's many faceted activities in the area of sustainability. The meaning of "sustainability" is usually derived from the definition of "sustainable development" expressed by the Brundtland Commission as follows:¹

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Since 1987 emergent literatures have broadened the understanding of this concept, creating important openings for social and cultural critique and understanding above and beyond current approaches in natural science. The concept of sustainability compels us to think beyond the natural systems and into social systems. All members of society need to foster sustainability, requiring collective action at all levels – be it personal, community, national, or international. Social and ecological sustainability depends upon the capacity to learn together and to integrate knowledge and know-how across disciplines.

RIT currently offers two undergraduate degrees that play a part in the Institute's sustainability education, *Environmental Science* and *Environmental Management*. With these programs primarily addressing the technological and ecological dimensions of environmental problems, the *Environmental Studies* degree will provide the necessary complementary component of sustainability education – the social dimension. The *Environmental Studies* degree will connect students to the historical, ethical, spiritual, economic, public and political elements of sustainability necessary for a comprehensive approach to environmental problem solving. With the *Environmental Studies* degree in place, RIT will give students three complementary but distinct options for pursuing sustainability goals, making the Institute unique amongst its peers in its ability to prepare the leaders of industry, management, government, and most importantly, the citizenry, to address the complex environmental challenges of today and beyond.

¹ World Commission on Environment and Development, *Our Common Future*, Oxford, Great Britain: Oxford University Press, 1987.

The Program

The BS degree in *Environmental Studies* will draw upon a number of critically important disciplines reflecting the interests and expertise of faculty within the Science, Technology, and Society/Public Policy (STS/PP) Department and throughout the College of Liberal Arts. The curriculum is designed to complement related programs of study by requiring students to integrate perspectives from several disciplines in the physical and natural sciences, social sciences, and humanities. This integration will emphasize the blending of environmental literacy with social responsibility to create an intellectual foundation for leadership development.

This degree is specifically designed to encourage double majors. The curriculum includes significant flexibility so that students can deepen a more professionally-focused degree with the historical, economic, and social context of 21st century environmental problems. For this reason, we believe the *Environmental Studies* double major will enhance many other majors on campus. Students will be able to earn an *Environmental Studies* double major with most other BS degree offered at RIT in a *maximum* of two extra quarters. In most cases, the students will be able to graduate without any additional time to graduation.

Potential Common First Year (“Environmental Exploration”) for Environmental Students

Concurrently with the development of the *Environmental Studies* degree, we are engaging in discussions with the faculty of two other environmental undergraduate programs (*Environmental Science* and *Environmental Management*) to develop a common first year for students who have environmental interests. This option would be provided as an alternative to first year admission to one of the three undergraduate environmental programs. Under this scheme, students interested in environmental careers could enter RIT without declaring a specific major. All students would have the opportunity to explore *Environmental Science*, *Environmental Management*, and *Environmental Studies* perspectives, theories, tools and methodologies, as well as career and graduate study options within each field. By their second year, students could declare a major in one of the three programs. In this way, RIT may successfully market itself as a place where students can get a holistic *environmental* education, and where specific identity with one particular area of the environmental field is not necessary upon matriculation.

Character and Goals of the Program

The proposed degree’s mission is to prepare students to address the social complexities of environmental problems. Along with the required core courses, the program will draw upon the strengths of other programs and the specific resources and approaches to education at RIT to develop a unique program that combines the following features:

Environmental Literacy in the Liberal Arts – The humanizing dimensions of the Liberal Arts are fundamental and necessary dimensions of the education of our graduates. Through this degree, students will gain not only an understanding of the language of the environment, but also its grammar, literature, and rhetoric. Students will explore the underlying scientific and technological principles, societal and institutional value systems, and the spiritual, aesthetic, and ethical responses that the environment invokes.

Interdisciplinarity – The curriculum demands that students take courses over a wide range of disciplines. However, this in itself is not enough because interdisciplinarity also demands *integration* of the diverse disciplines. This integration will be achieved by a required sequence of courses that make up the core of the curriculum. Deliberately spaced throughout all four years of study, the core courses will utilize team research projects that require students to apply concepts acquired during interdisciplinary study.

An integration of qualitative and quantitative skills – The proposed degree will take a balanced approach to research skills, providing students with *both quantitative and qualitative methodologies* as they apply to systems research. Students will be able to focus their skills depending on their post-graduation goals.

A community action/experiential learning foundation – Because environmental problem solving often requires action-oriented research, the program will include experiential learning/community action elements throughout the curriculum. Students will have the opportunity to work in community settings, supporting the efforts of local residents to solve local problems. Therefore, the degree will also require a co-op or internship following the third year to focus students on professional development.

Flexibility – Finally, the degree contains an extremely high level of flexibility and choice, allowing students to tailor their education to meet their desired career trajectory. The proposed degree will encourage students to minor or double major in areas of particular interest.

Proposed Learning Outcomes

Interdisciplinary Perspectives

Students will develop knowledge of environmental problems from multi-disciplinary and interdisciplinary perspectives involving the natural sciences, social sciences, and humanities, and of the role science, technology, and society play in contributing to the generation and resolution of environmental dilemmas.

Expected Outcomes:

- *Environmental Studies* majors will acquire knowledge and skills necessary to obtain or pursue a professional position or graduate training in a variety of fields pertaining to environmental research, law, advocacy, and policymaking. Students double-majoring in *Environmental Studies* and a scientific or engineering discipline will enhance their career prospects by integrating an awareness of sustainability solutions with their technical training.
- All students will be able to:
 - Articulate multiple principles, concepts, and theoretical perspectives central to understanding complex environmental issues.
 - Formulate effective responses to specific environmental problems.
 - Connect their personal beliefs to their professional practice.

Analytical Tools and Collaborative Skills

Students will acquire the tools of environmental analysis, including ethical, socio-cultural, historical, economic, political, technological, and scientific approaches and will collaborate with peers across related disciplines at RIT, including but not limited to students in *Environmental Science* and *Environmental Management*.

Expected Outcomes:

- *Environmental Studies* students will perform collaborative research, analyze complex problems, and communicate to diverse stakeholders using a variety of methods.
- All students will be able to:
 - Conduct original research and analyze complex issues.
 - Write and speak professionally for diverse audiences.
 - Utilize computer models and other innovative technological applications intrinsic to state-of-the-art research.
 - Utilize digital technologies for effective presentation.
 - Serve as leaders and “change agents” in their professions and communities.

Global and Local Community Experiences and Outreach

Environmental Studies students will engage diverse communities through classroom and internship/co-op activities.

Expected Outcomes:

- Students will understand environmental issues facing the local community through community-based experiential learning.

- Internships and co-ops in both local and international contexts will provide students a variety of opportunities for cultural interaction with communities impacted by environmental degradation.
- Students will develop sensitivity to diverse viewpoints by working with a range of public stakeholder groups at the local and global levels.

Collaboration

The program will encourage interdisciplinary collaboration among related disciplines at RIT, including but not limited to Environmental Science and Environmental Management.

Expected Outcomes:

- Students will learn the value of an integrated approach to analyzing and articulating responses to environmental problems.
- Students will:
 - Understand the skills, perspectives and scopes of related disciplines.
 - Interact effectively with peers and professionals in related fields.

RIT Fit

The BS in *Environmental Studies* will advance several of RIT's strategic goals.

Student Success

Goal 1. Student Retention. The proposed degree will give students with environmental interests broader options in environmental curricula and degrees. The proposed “Environmental Exploration” for first year students, in collaboration with *Environmental Science* and *Environmental Management*, will provide a reinforcing experience for students. In addition, the flexibility in the proposed curriculum will provide ample opportunity for dual and double majors.

Goal 4. Increase student involvement in global initiatives. *Environmental Studies* provides a natural gateway to thinking globally about environmental problems and solutions. Each of the global satellite RIT colleges offers unique opportunities to explore environmental questions and establish international co-ops or internships.

Goal 5. “Best in Class” for percentage of students graduating with employment offers or acceptance into graduate school. The emphasis on hands-on experiential learning and development of the “tools” necessary to address environmental problems will prepare students for a wide range of career options. Environmental career opportunities are growing as environmental issues become a more important component of business and government planning and policy and nonprofit advocacy.

Opportunities for Innovation, Creativity, Research, Scholarship

Goal 6. Provide opportunities for 100% of RIT students for Innovation, Creativity, and Scholarship.

All of the students in the degree will be required to complete a senior capstone research project. Undergraduate research opportunities also will be provided through all of the required core courses and program faculty will be encouraged to engage students in their research activities.

Stakeholder Satisfaction

Goal 13. Increase undergraduate applications. The STS/Public Policy Department has seen a measureable increase in the number of students enrolling in its undergraduate minor in environmental studies and current environmental studies courses are routinely oversubscribed. This parallels a growing interest in environmental issues among students. There is also a corresponding growth of environmental studies curricula within high schools across the nation. In some instances, entire high school curricula are dedicated to environmental studies in schools such as the High School for Environmental Studies in New York City, the Bowen High School for Environmental Studies in Chicago, and the School of Environmental Studies in Apple Valley, Minnesota. These trends would support increased undergraduate applications to the RIT *Environmental Studies* degree.

Goal 14. Increase graduate applications. The proposed undergraduate program will be a natural feeder to several RIT graduate programs, especially MS programs in *Environmental Science*, *Environmental Management*, and *Science, Technology & Public Policy*.

Goal 15. Alumni Participation. The department of STS/Public Policy anticipates there will be ample opportunity to involve alumni as featured speakers in conjunction with program activities.

Resources

Given that many of the environmental courses that will be featured in this degree are currently available, we believe the BS in *Environmental Studies* can be delivered at minimal expense to RIT. Preliminary estimates developed by our Department indicate that the full BS program can be offered with two (2) additional tenure-track faculty lines and a part-time (1/2) staff assistant. Some other nominal costs will involve recruitment expenses, marketing costs, and student instructional costs related to capstone projects or independent research. These limited costs are balanced by the potential for a large undergraduate student population within the degree, enhancements of RIT's other environmental degrees through the "Environmental Exploration" program, and the ability to use the degree as a retention tool. These benefits are expected to far outweigh programmatic costs.

Conclusion

The proposed *Environmental Studies* degree would provide students a liberal arts educational opportunity that is not currently offered by RIT and that would complete RIT's portfolio of sustainability research and education. It will allow students to benefit from attending a technological institution by fusing together the technical and social dimension of sustainability problem solving. They will be able to connect courses in liberal arts disciplines together in unique ways to create an integrated interdisciplinary education.

By adding this degree program, RIT will have an important opportunity not only to enhance its own strategic goals, but also to carve out its place at the forefront of higher education's efforts to educate leaders able to address the increasing complexities of sustainability challenges.