

Dear Botany Department,

Connecticut College has committed itself to the issue of sustainability as part of our shared role as citizens in a global world. Our planet faces many environmental and social challenges that include problems that stem from climate change and the natural disasters that disproportionately impact poor communities, food insecurity related to unequal production and distribution of this most precious resource, and continuing pollution problems especially related to non-biodegradable plastics. Fortunately, we are not alone in attempting to address these issues, and other institutions have made similar pledges. What is harder to discern is the level of progress we have made as an institution in comparison to what peer institutions have accomplished.

The Association for the Advancement of Sustainability in Higher Education (AASHE) is an organization that helps institutions of higher education benchmark themselves relative to other schools through their Sustainability Tracking, Assessment & Rating System (STARS). Over 1,000 colleges and universities have submitted applications to this system and received ratings from platinum (9 institutions in the U.S. and Canada) to bronze. This rating system is viewed by current students, prospective students and other groups as a way to assess institutions progress towards sustainability initiatives. Connecticut College has a long tradition of interest and progress towards sustainability and the related focus on environmental concerns. However, we must continue to innovate and advance if we want to stay relevant as leaders in sustainability in the hyper competitive admissions market we exist within.

Currently, Connecticut College has achieved a Silver rating from STARS (All our NESCAC peers have either achieved Gold or Silver ratings to date). It is our hope that we may soon be able to achieve a Gold rating if we can demonstrate progress since our last submission. As part of the data collection effort for the STARS submission in early spring, we are reaching out to departments and programs to gather information about sustainability activities in the classroom and in research. In particular, we are asking chairs to help coordinate gathering of information from departmental colleagues that we can use to demonstrate how well integrated sustainability is into our educational mission. The sections below detail the type of information we are seeking. We appreciate your help with this effort.

We recommend going through the questions below in a department meeting to simplify the process. We expect it will take around 15 minutes to review, although you are certainly welcome to discuss this more with your department. Please put your responses directly into this google doc by December 15.

Definition of Sustainability

Our definition of sustainability at Connecticut College is holistic and interdisciplinary:

“At Connecticut College, sustainability is a framework by which long-lasting solutions to local and global challenges are developed through understanding the connections among social equity, environmental stewardship, and economic well-being and including all three within all decision-making and strategic planning processes.”

Likewise, AASHE (the organization overseeing this sustainability rating system) has a broad definition:

“AASHE defines sustainability in a pluralistic and inclusive way, encompassing human and ecological health, social justice, secure livelihoods, and a better world for all generations. Major sustainability challenges include (but are not limited to) climate change, global poverty and inequality, natural resource depletion, and environmental degradation.”

The UN sustainable development Goals (listed at the end of this document) can help illustrate the broad range of sustainability challenges.

Please keep these definitions in mind as you consider how sustainability is included in your courses, learning goals and scholarship.

Sustainability Courses (either sustainability-focused or sustainability-inclusive)

There are two types of sustainability courses: sustainability-focused means that there is a primary and explicit focus on sustainability or sustainability challenges, while sustainability-inclusive means that the course includes a unit or activities related to sustainability or a sustainability challenge or ties in the course topics to sustainability regularly. More complete definitions of these two course types are at the end of this letter for reference. Given these definitions please review your departmental courses as shown below:

- 1) The following courses were included as sustainability-focused courses in our previous submission. Please let us know if anything has changed (e.g. not offered, no longer sustainability-focused, changes to course number or title)

Course Name	Num	Any changes?
Ecological Agriculture	BOT 320	no changes
BIOFUELS	BOT 493N	no changes
ECOLOGICAL RESTORATION	BOT 493K	no changes
Sustainable Agriculture	BOT 493M	no changes

- 2) The following courses were included as sustainability-inclusive courses in our previous submission. Please let us know if anything has changed (e.g. not offered, no longer sustainability-focused, changes to course number or title)

Course Name	Num	Any changes?
How Plants Feed the World	BOT 115	no changes
CoEvolution of Plants and People	BOT 117	no changes
Indigenous People's Uses of the Tropical Rainforest	BOT 207	no changes
Ethnobotany of Southern New England	BOT 311	no changes

- 3) The following courses were not listed last time, but seem to clearly be related to sustainability. Please let us know if you agree and if you feel they are sustainability-focused or sustainability-inclusive

Course Name	Num	Focused/Inclusive/Neither?
ENVIRONMENTAL BIOLOGY	BOT 105	Focused
CC: BOTANY AND CLIMATE CHANGE	BOT 114	Inclusive
COMMUNITY AGRICULTURE	BOT 290	Focused
GENETICALLY MODIFIED CROPS	BOT 493B	Inclusive
GENETIC ENGINEERING	FYS 109P	Inclusive

- 4) From the description, we thought the following might be sustainability related courses, but couldn't tell for sure. If these courses do fit the description of a sustainability-focused or sustainability-inclusive course, please let us know and attach a brief explanation of how the course includes sustainability?

Course Name	Num	Focused/Inclusive/Neither?
APPLIED MYCOLOGY	BOT 330	Inclusive
PLANTS, PROTISTS & FUNGI	BOT 205	Inclusive
PLANT ECOLOGY	BOT 315	Inclusive
ENVIRONMNTL PLANT PHYSIOLOGY	BOT 320	Inclusive
EPIDEMICS	FYS 100X	N/A

5) If there are any other courses in your department related to sustainability that we missed, please let us know.

Course Name	Num	Focused/Inclusive/Neither?
Freshwater Ecology	BIO/BOT 307	Inclusive
FYS Biology in the Popular Media	FYS	Inclusive
South American Cultures & Environment	BOT/ES 234	Inclusive

Sustainability Learning Outcomes

For this part of the assessment we are looking to determine if a department or program has “adopted one or more sustainability-focused learning outcomes (i.e., student learning outcomes that explicitly focus on the concept of sustainability or the interdependence of ecological systems and social/economic systems)”

We have reviewed your student learning goals in the Catalog and they are clearly and explicitly sustainability focused.

Sustainability Related Scholarship

We are also trying to determine which faculty members conduct sustainability related research or scholarship. As defined by AASHE, “Sustainability research is research and scholarship that explicitly addresses the concept of sustainability, furthers our understanding of the interdependence of ecological and social/economic systems, or has a primary and explicit focus on a major sustainability challenge.” (see definition above and UN Sustainable Development Goals in appendix for breadth of sustainability challenges)

Below is a list of faculty in your department who were on our list from last time - with their short explanation of how their scholarship relates to sustainability. If there are additional faculty members involved in sustainability scholarship please list them and attach a short description.

Chad Jones
My research has focused on invasive species and understanding how we can better predict

where invasive species are likely to occur within natural areas. The purpose of this research is to help efforts to protect biodiversity

Manuel Lizarralde

Scholarship covers the issue of conservation and ecological uses of plant resources or other resources

Peter Siver

Part of my research program looks at impacts of climate on freshwater ecosystems, and on reconstructing ancient climates. Another component of my research program involves long-term monitoring of lakes in Connecticut in order to aid private associations and governmental agencies in efforts to protect aquatic resources.

Eric Vukicevich (*if a visitor is to be included*)

My research has centered on the relationship between plants and soil fungi in agricultural ecosystems. I am currently expanding my focus to look at ecological relationships at different scales in community farming systems. This includes regeneration of degraded and urban soils, cultivation of culturally-relevant crops, and the centrality of education and community building in local food production.

Miles Schwartz Sax (adjunct in Botany)

We assume that staff appointments are not to be included, but if you'd like a short statement from Miles about his research, please let us know.

Appendix: Definitions and Supporting Material for Reference

UN Sustainable Development Goals

Goal 1. End poverty in all its forms everywhere

Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Goal 3. Ensure healthy lives and promote well-being for all at all ages

Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Goal 5. Achieve gender equality and empower all women and girls

Goal 6. Ensure availability and sustainable management of water and sanitation for all

Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all

Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Goal 10. Reduce inequality within and among countries

Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable

Goal 12. Ensure sustainable consumption and production patterns

Goal 13. Take urgent action to combat climate change and its impacts

Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development

Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

Goal 17. Strengthen the means of implementation and revitalize the global partnership for sustainable development

Sustainability Course Definitions (examples of courses in each category are at the end of the document)

To count as **sustainability-focused**, the course title or description must indicate a primary and explicit focus on sustainability. This includes:

- Foundational courses with a primary and explicit focus on sustainability (e.g., Introduction to Sustainability, Sustainable Development, Sustainability Science).
- Courses with a primary and explicit focus on the application of sustainability within a field (e.g., Architecture for Sustainability, Green Chemistry, Sustainable Agriculture, Sustainable Business). As sustainability is an interdisciplinary topic, such courses generally incorporate insights from multiple disciplines.
- Courses with a primary and explicit focus on a major sustainability challenge (e.g., Climate Change Science, Environmental Justice, Global Poverty and Development, Renewable Energy Policy). The focus of such courses might be on providing knowledge and understanding of the problems and/or the tools for solving them.

The course title or description does not have to use the term “sustainability” to count as sustainability-focused if the primary and explicit focus of the course is on the interdependence of ecological and social/economic systems or a major sustainability challenge.

To count as **sustainability-inclusive**, the course description or rationale provided in the course inventory must indicate that the course incorporates a unit or module on sustainability or a sustainability challenge, includes one or more sustainability-focused activities, or integrates sustainability challenges, issues, and concepts throughout the course.

While a foundational course such as chemistry or sociology might provide knowledge that is useful to practitioners of sustainability, it would not be considered “sustainability-inclusive” unless the concept of sustainability or sustainability challenges and issues are specifically integrated into the course. Likewise, although specific tools or practices such as GIS (Geographic Information Systems) or engineering can be applied towards sustainability, such courses would not count unless the description or rationale provided in the inventory clearly indicates that sustainability is integrated into the course.

Credit Example: Identifying Sustainability Course Offerings

Sustainability-focused	Sustainability-inclusive	Insufficient evidence to qualify as a sustainability course offering
<p>Introduction to Sustainable Energy This course assesses current and potential future energy systems, with emphasis on meeting regional and global energy needs in the 21st century in a sustainable manner. We will examine various renewable and conventional energy production technologies, energy end-use practices and alternatives, and consumption practices in different countries. Students will learn to evaluate energy technology system proposals in the context of environmental, engineering, political, social, and economic goals.</p> <p><i>The course title and description indicate a primary and explicit focus on the application of sustainability within a field and a major sustainability challenge (sustainable energy production).</i></p>	<p>Energy Infrastructure An overview of production methods for electric power, thermal energy and cooling. The course includes a unit on the environmental consequences of different technologies.</p> <p>Photovoltaic and Wind Turbine Installation The course will discuss the fundamentals of photovoltaic and wind power generation, installation and maintenance practices.</p> <p><i>The primary and explicit focus of each of these courses is on a topic other than sustainability, but sustainability challenges, issues, and concepts are clearly incorporated into course content.</i></p>	<p>Energy Systems Explores energy systems as infrastructure critical to national and global economies and provides an overview of energy resources, production, and delivery.</p> <p><i>Although the course provides knowledge that may be useful to sustainability practitioners, the description does not indicate that the sustainability challenges associated with energy production are addressed.</i></p> <p><i>If a rationale was provided that indicated the presence of a sustainability-focused unit, module, or activity, the course could be counted as sustainability-inclusive.</i></p>
<p>Conservation Biology The focus of this course is on the science of conservation biology in the context of environmental policy, socioeconomic demands, and environmental ethics. Topics will include population biology, extinction, wildlife management, the role of science in making environmental policy, wetlands conservation, sustainable agriculture and forestry, integrated land-use management, and vegetation analysis.</p> <p><i>Although the course is not focused on the concept of sustainability, the description indicates a primary and explicit focus on the interdependence of ecological and social/economic systems.</i></p>	<p>Population Biology Introduction to basic theoretical tools to study the evolutionary and ecological dynamics of populations. Topics include ecology of individuals, population growth models, structured populations, life history strategies, stochastic populations, basic population genetics theory, deleterious alleles in natural populations, and molecular population genetics.</p> <p><i>The primary and explicit focus of the course is on a topic other than sustainability, but sustainability challenges, issues, and concepts (e.g., ecological dynamics) are clearly incorporated into course content.</i></p>	<p>Introduction to Biology This introductory course defines biology and its relationship to other sciences. We examine the overarching theories of life from biological research and also explore the fundamental concepts and principles of the study of living organisms and their interaction with the environment.</p> <p><i>Although the course provides knowledge that may be useful to sustainability practitioners, the description does not indicate that sustainability challenges, issues, and concepts are integrated into the course.</i></p> <p><i>If a rationale was provided that indicated the presence of a sustainability-focused unit, module, or activity, the course</i></p>

<p>Environmental Literature This course will introduce students to contemporary environmental literature. All texts in the course focus on the natural world and the human relationships with it. We will discuss such questions and topics as pollution, climate change, the fossil- and post-fossil fuel economies, ethics, environmental activism, and questions of responsibility to the earth.</p> <p><i>Although the course is not focused on the concept of sustainability, the description indicates an explicit focus on the interdependence of ecological and social/economic systems.</i></p>	<p>Modern and Contemporary Nature Writing This course examines varied depictions of the environment in modern and contemporary literary texts from a range of genres. The course will place these in theoretical and historical context, considering the key features of contemporary environmental discourses. Includes units on post-pastoral, post-carbon, apocalyptic and 'the new nature writing', and media reportage of recent environmental issues.</p> <p><i>The primary and explicit focus of the course is on a topic other than sustainability, but sustainability challenges, issues, and concepts (e.g., post-carbon futures) are clearly incorporated into course content.</i></p>	<p>American Renaissance Literature This class investigates how the diverse literary genres of the American Renaissance have been used to construct identity and culture. Required readings include works by Emerson, Melville, Thoreau, and Whitman.</p> <p><i>Although the course provides knowledge that may be useful to sustainability practitioners, the description does not indicate that sustainability challenges, issues and concepts are integrated into the course.</i></p> <p><i>If a rationale was provided that indicated the presence of a sustainability-focused unit, module, or activity, the course could be counted as sustainability-inclusive.</i></p>
<p>Sustainable Business This course will provide an overview of the challenges of sustainability, including the expected impacts of climate change, resource constraints on various sectors of the economy (including job creation), and expectations around corporate governance. It will embed the issues of carbon management, sustainable practices, waste reduction, social development and resource management in the larger set of goals encompassed in what is known by the closely related terms of "corporate sustainability" or just "corporate responsibility."</p> <p><i>The course title and description indicate a primary and explicit focus on the application of sustainability within a field.</i></p>	<p>Business Ethics The overall goal of this course is to help the student understand and appreciate the elements of ethics, the importance of ethical decision making, and its effects on themselves, business and society. The course includes a module on "ESG (environmental, social and governance) Criteria" that addresses corporate social and environmental responsibility in a global context.</p> <p><i>The primary and explicit focus of the course is on a topic other than sustainability, but sustainability challenges, issues, and concepts (e.g., social and environmental responsibility) are clearly incorporated into course content.</i></p>	<p>Supply Chain and Procurement Management Students will gain an in-depth understanding of strategic, tactical and operational issues relating to the management of supply chains. You will be equipped with state-of-the-art concepts, methods, techniques and tools to contribute towards the competitiveness of industrial and commercial organizations worldwide.</p> <p><i>Although the course provides knowledge that may be useful to sustainability practitioners (e.g., supply chain management), the description does not indicate that sustainability challenges, issues, and concepts are integrated into the course.</i></p> <p><i>If a rationale was provided that indicated the presence of a sustainability-focused unit, module, or activity, the course could be counted as sustainability-inclusive.</i></p>

Environment and Public Health

The course will examine the health impacts of environmental degradation and pollution, with a focus on the concept of environmental justice. Students will also investigate how the outputs of healthcare (for example, chemicals and waste) can impact patients, staff and local communities.

The course title and description indicate a primary and explicit focus on the application of sustainability within a field and the interdependence of ecological and social systems (environmental justice and the relationship between the environment and human health).

Community Health

This course designed to give students an in-depth understanding of the social determinants of health. The course will provide historical and theoretical perspectives on the problem, provide a critical examination of empirical support for various explanatory pathways, and prepare students to conduct health-related research with disadvantaged communities. Includes readings on the intersection of poverty, environmental issues, and health.

The primary and explicit focus of the course is on a topic other than sustainability, but sustainability challenges, issues, and concepts are clearly incorporated into course content.

Foundations in Medicine I

This course provides the grounding in the physician-patient relationship that is central to all of medical practice. It includes medical interviewing, medical ethics, community preceptorships, service learning, preventive medicine, human behavior and the healthcare system as well as other topics and issues important for contemporary medicine.

Although the course provides knowledge that may be useful to sustainability practitioners (e.g., ethics and service learning), the description does not indicate that sustainability challenges, issues, and concepts are integrated into the course.

If a rationale was provided that indicated the presence of a sustainability-focused unit, module, or activity, the course could be counted as sustainability-inclusive.