

## UMaine Sustainability-related course offerings for academic year 2016-2017

### Summary:

Total undergraduate (UG) courses offered: 1573

Total graduate (GR) courses offered: 362

Sustainability courses offered (UG): 24

Sustainability courses offered (GR): 12

Courses that include sustainability offered (UG): 87

Courses that include sustainability offered (GR): 16

Number of Units that offer at least one sustainability-related course: 22

#### UMaine units (key)

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<b>EHD</b>	<b>College of Education &amp; Human Development</b>
EDUH	School of Ed Ldr, Higher Ed, & Human Dev
EDUK	School of Kinesiology, Phy Ed, & Ath Training
EDUL	School of Learning & Teaching
<b>ENGR</b>	<b>College of Engineering</b>
CE	Civil & Environmental Engineering
CHE	Chemical & Biological Engineering
ECE	Electrical & Computer Engineering
ME	Mechanical Engineering
SET	School of Engineering Technology
<b>LAS</b>	<b>College of Liberal Arts and Sciences</b>
ASDN	Dean's office
AT	Art
AY	Anthropology
CH	Chemistry
CIS	School of Computing & Information Sciences
CMJM	Communication & Journalism
EH	English
HY	History
INS	interdisciplinary faculty (Women Studies, Native American Studies, Franco American Studies, Canadian American Studies, and SPIA)
MC	Music
MLC	Modern Languages & Classics
MS	Mathematics & Statistics
NMP	New Media
PL	Philosophy
POL	Political Science
PS	Physics & Astronomy
PY	Psychology
SY	Sociology
TH	Theater
<b>MBS</b>	<b>Maine Business School</b>
BA	Maine Business School
<b>NSFA</b>	<b>College of Natural Sciences, Forestry, and Agriculture</b>
BMMB	Molecular & Biomedical Science
CSD	Communication Sciences & Disorders
ERS	School of Earth & Climate Studies
FORM	School of Forest Resources
NURS	School of Nursing
SBE	School of Biology & Ecology
SFA	School of Food & Agriculture
SMS	School of Marine Sciences
SOE	School of Economics
SWK	School of Social Work
W	Wildlife Ecology
<b>VPR</b>	<b>Vice President for Research</b>
ADCC	Advanced Structures & Composites Center
CLIM	Climate Change Institute
MST	Master of Science in Teaching Program
WRI	Water Research Institute
<b>AC</b>	<b>Academic Affairs</b>
CES	Cooperative Extension Service
HNRS	Honors College

\*Non-academic units are excluded from this analysis: ADSN, ADCC, CLIM, MST, WRI, CES

## Sustainability Courses

Course Name	Term	Unit	level	Sustainability Description
Climate Change, Cultures, and Societies	fa16	AY	UG	Surveys the human dimensions of climate change from a cultural perspective: The interactions among societies, cultures, and climate change. Drivers of climate change and technological, social, and cultural mitigation and adaptations strategies are also discussed.
Tourism, Development and Sustainability	sp17	AY	UG	An introduction to analysis of the effects of tourism on the environment and how tourism and sustainability interact and affect each other.
Sustainability in Engineering	fa17	CE	UG	Introduction to sustainability and sustainable development concepts. This course looks at the role of engineers in sustainable development, the ethical dimension of sustainable development-engineers, technology and ethics, how to measure sustainability, and green and sustainable materials.
Sustainable Solutions for the Developing World	sp17	CE	UG	An exploration of the fundamental principles and strategies necessary to implement sustainable service projects in the developing world. Examines the social, cultural and ecological impacts of past humanitarian projects and develops an understanding of their influence on the human population and the environment.
Environmental Communication	fa16	CMJM	UG	This course focuses on the study and creation of effective communication about, for, and with the environment. The course is built on a service learning model to create projects that connect communication theory and practice with complex social and environmental problems in communities. Students learn about the sustainability concepts that are being communicated.
Solar Cells and Their Applications	sp17	ECE	UG	This course is concerned with electricity generation direction from solar energy using photovoltaic solar cells. Photovoltaic electricity generation system design methods are introduced. Economic analysis, such as life cycle costing, and environmental impact of PV systems are discussed.
Dynamic Earth	fa16	ERS	UG	This course examines how Earth's dynamic processes interact with humans by evaluating: the interplay between Earth's interior, hydrosphere, biosphere and atmosphere; the effects and underlying causes of natural hazards such as earthquakes, volcanic eruptions, tidal waves and global warming; Earth's economic and energy resources - how they form and how long they will last; and the global environment and how best to interact with it.
Dynamic Earth	sp17	ERS	UG	This course examines how Earth's dynamic processes interact with humans by evaluating: the interplay between Earth's interior, hydrosphere, biosphere and atmosphere; the effects and underlying causes of natural hazards such as earthquakes, volcanic eruptions, tidal waves and global warming; Earth's economic and energy resources - how they form and how long they will last; and the global environment and how best to interact with it.

Environmental Geology	fa16	ERS	UG	Environmental Geology explores the interaction of humans with the Earth's systems. Human impacts on earth systems are identified and evaluated with a focus on pollution and climate change. Sources of energy used by humans and the associated environmental consequences of different energy sources are discussed.
Environmental Geology	sp17	ERS	UG	Environmental Geology explores the interaction of humans with the Earth's systems. Human impacts on earth systems are identified and evaluated with a focus on pollution and climate change. Sources of energy used by humans and the associated environmental consequences of different energy sources are discussed.
Humans and Global Change	fa16	ERS	UG	This course explores how Earth's climate system works and how past environmental changes affected humans. Topics range from the development of agriculture at the beginning of the current interglaciation to how humans are now changing global climate through the addition of greenhouse gases to the atmosphere.
Environment and Society	fa16	FORM	UG	This course introduces the concepts and principles necessary to understand the connections between human behavior and environmental conditions. The course includes a review of the conservation and environmental movements in the United States, tracing changing American values towards forests and other natural resources over time. Students learn how to critically analyze the social, economic, and environmental aspects of sustainability.
Forest Landscape Management and Planning	fa16	FORM	UG	This course integrates the biophysical and socioeconomic sciences for multiple-use forest management to achieve desired products, services and conditions. Forest management is intimately connected with sustainability. This class covers the concept of sustainability with evolving definitions of sustainable forest management, issues with implementing sustainable practices, and modern frameworks from multiple perspectives to help manage forests sustainably, including certification, international and tribal perspectives, and the connections between forests and human communities.
American Indians and Climate Change	sp17	INS	UG	Introduces students to the Indian cultures of the United States and U.S. territories in the South Pacific, paying particular attention to the issue of climate change and how it is impacting indigenous people; also examines climate effects on natural resource conditions as it relates to Indian cultures and the roles indigenous groups play in policy responses to climate change.
Wind Energy Engineering	sp17	ME	UG	This course presents the theory and design of modern wind turbines. Design procedures for wind turbines are outlined with an emphasis on maximizing performance, assuring structural integrity and minimizing the cost of energy. Current trends in offshore wind are also covered as well as the social and environmental issues of a burgeoning wind energy industry.
Environmental Ethics	fa16	PL	UG	A critical survey of major contemporary discussions of human relationships to nature and the causes of the environmental crisis. Topics include animal rights, biocentrism, deep ecology, ecofeminism, bio-regionalism, social ecology and sustainability.

Environmental Ethics	sp17	PL	UG	A critical survey of major contemporary discussions of human relationships to nature and the causes of the environmental crisis. Topics include animal rights, biocentrism, deep ecology, ecofeminism, bio-regionalism, social ecology and sustainability.
Human Population and the Global Environment	sp17	SBE	UG	Introduces the concepts and principles necessary to evaluate contemporary global issues of population growth, natural resource conservation and environmental protection. Students learn about how human populations have affected the climate throughout the 'Anthropocene'. Climate change and humans are the primary focus of the course.
Renewable Energy and Electricity Production	fa16	SET	UG	An overview of renewable energy resources, energy conversion and storage for stationary and transportation applications. Topics include: Basics of electrical energy and power generation, load specification, history of electric utilities, distributed generation, and the economics of energy, biomass fuels, wind and solar power.
Sustainable Population and Environmental Design and Construction	fa16	SET	UG	This course provides instruction in Leadership in Energy and Environmental Design (LEED), green building design, environmental favorability rating, and progressive leadership toward the goal of reducing the population footprint through innovative construction practices.
Principles and Practices of Sustainable Agriculture	fa16	SFA	UG	This course explore the basic design principles and examples of environmentally and economically sustainable agricultural systems. Emphasis is placed on identifying management practices that a) biologically improve soil structure, organic matter content, and fertility; and b) minimize or eliminate the need for chemical interventions for control of insect pests, pathogens, and weeds.
Citizens, Energy and Sustainability	fa16	SOE	UG	This course provides students with a broad understanding of energy issues. It explores current energy use and mandates, energy production (with a focus on alternative energy options), and it introduces the political, human, and environmental implications of energy use and production.
Natural Resource Economics	fa16	SOE	UG	Economic aspects of natural resource management and policy are presented. Both consumptive and nonconsumptive uses of natural resources are discussed along with the socially optimal use of renewable and nonrenewable resources.
Sustainable Energy Economics and Policy	fa16	SOE	UG	This course presents the economics of energy supply and use as well as the consequences for environmental quality, energy security, and sustainable economic growth and development. The effects of energy on greenhouse gas emissions and climate change, on air and water quality, and on human health are considered along with policies to mitigate these effects. Alternative future energy paths are developed that are consistent with environmental stewardship, energy security, and sustainable economic growth and development.
Anthropological Dimensions of Environmental Policy	sp17	AY	GR	Seminar on basic principles of environmental policy and analysis in both industrialized and Third World societies. This course is dedicated to environmental solutions and analyzing policy relating to the three pillars of sustainability.

Climate, Culture, and the Biosphere	sp17	AY	GR	This course explores humans and the biosphere through time. Curriculum draws from anthropology, geography, paleoecology, and climate science to inform on the integrated human-environment relationship in the context of global change.
Economic Anthropology	fa16	AY	GR	Seminar on basic principles of environmental policy and analysis in both industrialized and Third World societies. This course is a more in depth study of topics which are introduced in ANT 466 including alternative economies and finance for sustainability.
The Human Dimensions of Climate Change	fa16	AY	GR	Surveys advanced topics on the human dimensions of climate change, including anthropogenic drivers and consequences of climate change, mitigation, and adaptation strategies.
Graduate Seminar in Environmental Communication	sp17	CMJM	GR	This course provides an introduction to research and practice in the field of Environmental Communication. It examines how communication shapes our collective understanding and decision making about environmental change. We explore diverse environmental communication perspectives and topics, including environmental rhetoric, collaboration and public participation in natural resource issues, news media and environmental journalism, and social and environmental justice.
A2C2 Seminar	sp17	ERS	GR	The Adaptation to Abrupt Climate Change doctoral seminar is for students in earth sciences, ecology, anthropology, archaeology, international affairs, and economics. A2C2 is designed to train the next generation of natural and social scientists to meet the critical sustainability challenge of human adaptation to abrupt climate change.
How to Build a Habitable Planet	fa16	ERS	GR	This course explores the mysteries of Earth's evolution with an eye toward placing human existence into the context of what it takes to build, and sustain a habitable world. Students consider internal and external forces that have shaped environmental evolution over the planet's history, including the role of humans in geochemical and climatic change.
Socially Responsible Investing	fa16	MBS	GR	This course examines methods of socially responsible investing, where the goal is not just financial return but also environmental and social good that can bring about positive change.
Environmental Ethics	fa16	PL	GR	A critical survey of major contemporary discussions of human relationships to nature and the causes of the environmental crisis. Topics include animal rights, biocentrism, deep ecology, ecofeminism, bio-regionalism, social ecology and sustainability.
Climate, Culture, and the Biosphere	sp17	SBE	GR	This course focuses on the last 2.5 million years of human evolution and cultural change, climate change, and environmental change. It begins with the first humans and continues to urbanization and modern sustainability issues. There are also several units on sustainability in prehistoric cultures and societies, including topics like resilience and the idea of civilizational collapse. As part of this course, students participate in two Oxford-style debates on sustainability related topics (e.g., the impacts of agriculture, the "pristine myth," and causes of extinction).

Coupled Human and Natural Systems	sp17	SMS	GR	This is an interdisciplinary course concerned with the intersection between natural and social systems and is a basic introduction to complex adaptive systems. It addresses the question of how we can use our new understanding of complex systems to better adapt human behavior to the natural environment.
Sustainable Energy Economics and Policy	fa16	SOE	GR	This course presents the economics of energy supply and use as well as the consequences for environmental quality, energy security, and sustainable economic growth and development. The effects of energy on greenhouse gas emissions and climate change, on air and water quality, and on human health are considered along with policies to mitigate these effects. Alternative future energy paths are developed that are consistent with environmental stewardship, energy security, and sustainable economic growth and development.

### Courses that include sustainability

Course Name	Term	Unit	level	Sustainability Description
Classical Art and Architecture	fa16	AT	UG	This course examines the art and architecture of Greece and Rome. It explores the concept of cultural sustainability, looking at the arc of each culture's establishment, its successive changes, and its undoing or transition to the culture that replaces it. The environmental, social and economic drivers of cultural shifts are addressed.
Introduction to Visual Culture and Learning	sp17	AT	UG	An introduction to visual culture and its relationship to the development and maintenance of human knowledge and experience. The course includes a wide variety of social issues related to art, including a look at environmental concerns and how art might serve to bring attention to such issues.
Printmaking I	sp17	AT	UG	The fundamentals of printmaking covering monoprinting and intaglio. This course utilizes and conducts research on greener/more sustainable materials in fine art print production.
Printmaking I	fa16	AT	UG	The fundamentals of printmaking covering monoprinting and intaglio. This course utilizes and conducts research on greener/more sustainable materials in fine art print production.
Printmaking II	fa16	AT	UG	Continued explorations in printmaking with emphasis on color and multi-plate color printing. This course utilizes and conducts research on greener/more sustainable materials in fine art print production.
Printmaking II	sp17	AT	UG	Continued explorations in printmaking with emphasis on color and multi-plate color printing. This course utilizes and conducts research on greener/more sustainable materials in fine art print production.
Printmaking III	fa16	AT	UG	Continued study of printmaking through a variety and choice of printmaking media. This course utilizes and conducts research on greener/ more sustainable materials in fine art print production.
Printmaking III	sp17	AT	UG	Continued study of printmaking through a variety and choice of printmaking media. This course utilizes and conducts research on greener/ more sustainable materials in fine art print production.

Anthropological Theory	fa16	AY	UG	This course is a seminar exploring the most important theories shaping modern cultural and social anthropology. This course addresses sustainability in units covering ecological anthropology, the study of relationships between humans and their biophysical environment.
Anthropology Capstone Seminar - What does it mean to be human?	sp17	AY	UG	This course addresses five themes concerning anthropology and what it means to be human. (1) Debate and Argumentation in Anthropology; (2) Science, Theory, and the Applications of Anthropological Inquiry; (3) Race and Human Variation; (4) Climate, Environment, and Culture; and (5) Religion and Warfare in Human Society.
Conservation Anthropology	fa16	AY	UG	This course examines the different types of human/nature relationships that emerge across various cultural, environmental, socio-economic, and political contexts. Through a comparative approach, this course illustrates how culture is an important variable when creating viable conservation strategies.
Economic Anthropology	fa16	AY	UG	This course presents a comparative study of production, consumption and exchange in selected Western and non-Western societies. This course gives insight into sustainability with units focused on alternative economies and finance for sustainability.
Environmental Justice Movements in the United States	fa16	AY	UG	Examines how poor and racialized communities have responded to the incidence, causes, and effects of environmental racism. Topics include how critiques offered by these communities challenge the knowledge and procedural forms of justice embedded in environmental policy.
Introduction to Cultural Anthropology	sp17	AY	UG	A survey course focusing on the nature of culture, similarities and differences among the world's cultures, relationships among cultures, and culture change. Addresses the topics of cultural sustainability and diversity, with discussion of how environmental change or degradation influences a culture's sustainability.
Coastal Engineering	fa16	CE	UG	An introductory course on the principles of coastal engineering problems in lakes, river mouths, inlets, estuaries and other coastal areas. The course addresses the sustainability challenge of climate change by covering climate change adaptation, including both hard and nature based infrastructure. It also covers increased frequency of intense storms due to climate change and related storm surge effects.
Fundamentals of Environmental Engineering	fa16	CE	UG	Introduction to environmental engineering including water quality, water and wastewater treatment plant design, solid and hazardous wastes, landfill design, radioactive waste control and air pollution abatement. Addresses the sustainability challenge of environmental degradation.
Materials	fa16	CE	UG	This course examines the structure, properties, and testing of engineering materials. Sustainability is discussed in the context of materials selection and understanding the life cycle of a material. Students evaluate energy & resources, as well as wastes, for each stage of the material's service life: raw resource extraction, material production, product fabrication, usage, and demolition including

				reuse/recycling/disposal.
Wastewater Process Design	sp17	CE	UG	This course deals with the theory and design of wastewater treatment facilities. The course addresses UN SDG 6: Ensure Availability and Sustainable Management of Water and Sanitation for all. This is addressed through design projects covering processes such as sedimentation, biological treatment, aeration and disinfection.
Communication and the Environment	fa16	CMJM	UG	This course provides an overview of the field of Environmental Communication. Students survey a range of disciplinary approaches including environmental journalism and media, science communication and participation, and public participation and decision making in environmental conflicts.
Risk Communication	fa16	CMJM	UG	Risk communication uses social science theories and methods to understand the nature of public discourse around issues of environmental, health, and societal risk. This course emphasizes understanding, applying, and comparing/contrasting theories and concepts of risk communication. Students examine several cases studies related to environmental sustainability, including climate change, aquaculture development, and zoonotic disease.
Beaches and Coasts	sp17	ERS	UG	An introduction to coastal landforms, their origins, global distribution, and associated nearshore processes. This course addresses the sustainability challenge of environmental degradation by considering the human impacts to the coastal zone, including coastal erosion, land loss and management, and human responses to sea-level change.
Earth Systems	fa16	ERS	UG	A survey of dynamic topics in earth sciences. The course explores sustainability related topics including global climate change and changing sea levels.
Glaciers and our Landscape	fa16	ERS	UG	This course examines the nature of the ice ages, including the work of glaciers and how they shape the earth's surface. The course addresses the sustainability challenge of climate change.
Global Environmental Change	sp17	ERS	UG	Examines the physical and chemical interactions among the primary systems operating at the Earth's surface on various timescales throughout geologic history. We will consider internal and external forces that have shaped environmental evolution, including the role of humans in recent geochemical and climatic change.
Introduction to Structural Geology	fa16	ERS	UG	This course covers aspects of energy extraction and the related environmental considerations. Units and assignments address sustainability challenges related to energy extraction. Students debate fracking as a tool for extracting energy resources, and they explore possible alternative approaches to sustainable energy resources.
Principles of Sedimentology and Stratigraphy	fa16	ERS	UG	This course examines the basic concepts and techniques of stratigraphy and sedimentation. The course examines the sustainability and limitations of natural resources. It examines climate change in depth, and it places strong emphasis on human land use and decision making with regard to landscapes.

Applied Forest Ecology and Silviculture	fa16	FORM	UG	A survey of forest ecosystem management. Emerging concepts and technologies relating to forest ecosystem management and sustainability are presented. This course is based on the principles of ecological forestry which promote adoption of forest management practices that sustain ecological components and processes and mimic non-human disturbance agents.
Critical Issues in Ecology & Environmental Sciences	fa16	FORM	UG	Current and historically important issues in natural resource management and conservation are evaluated. Interdisciplinary approaches to problem analysis are stressed, with special attention to the ways scientific information and management options affect policy. This course addresses the sustainability challenges of natural resource depletion and environmental degradation.
Forest Measurement & Statistics	sp17	FORM	UG	A first course in forest biometry that introduces methods used to estimate the quantity and quality of forest products and the characteristics of forest trees, stands, and ecosystems. This course features a unit on sustainability where students learn about the impacts of climate change, natural resource depletion, and environmental degradation on forest products.
Forest Operations Planning	fa16	FORM	UG	This course is designed to introduce the principles of planning industrial forest operations in the United States with specific emphasis on the logging industry in Maine. It focuses on the sustainability challenges of climate change, natural resource depletion, and environmental degradation through topics such as evaluating site disturbance and residual stand damage, the creation of wood biomass for renewable energy, and best management practices.
Forest Resource Economics	fa16	FORM	UG	This course examines the economics of domestic and international forest resources production, processing and distribution. Calculations and financial tools for determining sustainable harvest ages are covered. In addition, valuation methods for non-market goods that can help manage for more holistic sustainability frameworks are discussed.
Forest Resource Policy	sp17	FORM	UG	This course explores the mechanisms involved and influences on the evolution of national, state and private forest policies in the United States and other nations. Students discuss the development of professional codes of ethics in Forestry and examination of professional, private business, environmental, and public sector ethical challenges, particularly in the formation of forest policies.
Forest Resources: Business, Marketing and Entrepreneurship	sp17	FORM	UG	This course examines the multiple facets related to the business, marketing, and entrepreneurship of forest resources. It examines: transactions between buyers and sellers; timber acquisition principles; the marketing of forest resources and the development and management of a forest resource related business. Sustainability is implicit in the study of silviculture, because silvicultural systems by definition require a long-term perspective, particularly consideration of the future regeneration and condition of forests following timber harvest or other management activities.

Intro to Ecology & Environmental Sciences	fa16	FORM	UG	An introductory course where students are introduced to environmental science concepts. The course examines ecological systems, the interrelationships between human activities and the environment, and the social, political, economic, and technological factors that affect the use of natural resources.
Introduction to Forest Bioproducts and Bioenergy	sp17	FORM	UG	Introduction to renewable products (including energy) derived from the forest. The fundamentals of their production systems will be described through required wood forms and processing systems.
Introduction to Tourism	sp17	FORM	UG	This course introduces the nature, structure and complexity of travel and tourism. It covers multiple sustainability issues relevant to the tourism industry, including sustainable tourism, strategic planning, environmental considerations in tourism management, and climate change.
Tools for Forest Management	fa16	FORM	UG	This course provides hands-on experience with tools useful for forest management, including: database, mapping, growth and yield programs; mathematical techniques; and landscape management systems. Mathematical tools and techniques for modeling sustainable forest harvest over time are introduced.
Wildlife Management in Forestry	sp17	FORM	UG	This course explores why maintaining wildlife populations and biodiversity is an important component to sustainable use of our forests and for forest certification.
Fur, Frontiers & Fame: Explorations	fa16	HY	UG	This course examines the identities, practices, and spaces of exploration in North America from the late fifteenth to the twentieth centuries. It featured lectures on Henry David Thoreau and John Muir and their interests in the idea of sustainability.
Senior Seminar in History	sp17	HY	UG	This course is oriented around a semester-long research project in environmental history, the study of how humans have been affected by the natural environment in the past and also how they have affected that environment.
Introduction to Native American Studies	fa16	INS	UG	This course introduces the interdisciplinary perspective of Native American Studies. It examines the experience of Native Americans, past and present, focusing on diverse and distinct cultural areas and historical events. Students study Native American sustainable environmental perspectives and how land use is integral to that.
Introduction to Native American Studies	su17	INS	UG	This course introduces the interdisciplinary perspective of Native American Studies. It examines the experience of Native Americans, past and present, focusing on diverse and distinct cultural areas and historical events. Students study Native American sustainable environmental perspectives and how land use is integral to that.
Native American Cultures and Identities	sp17	INS	UG	Covers both traditional culture patterns and modern developments and problems for Native Americans. Students study Native American sustainable environmental perspectives and how land use is integral to that. Students look at indigenous philosophy and sovereignty, reading works by Native authors about their connections and work with sustainability, and talking about the law and environment.

Advanced Managerial Accounting	sp17	MBS	UG	This course focuses on contemporary management accounting tools. The course unit, "Quality and Environmental Costs", addresses sustainability. Students are assigned a case requiring them to analyze a company's sustainability report. Students also read and write an executive summary of a sustainability related article in a cost accounting practitioner journal.
Business Finance	fa16	MBS	UG	This course addresses sustainability within the context of corporate governance and business ethics. Within a corporate governance context, the course explores the need for businesses to enact sustainable practices that treat all shareholders as fairly as possible. Discussions also focus on the need for businesses to maximize value, via sustainable practices, over the long term rather than act only with short-term profit motives.
Business Finance	sp17	MBS	UG	This course addresses sustainability within the context of corporate governance and business ethics. Within a corporate governance context, the course explores the need for businesses to enact sustainable practices that treat all shareholders as fairly as possible. Discussions also focus on the need for businesses to maximize value, via sustainable practices, over the long term rather than act only with short-term profit motives.
Financial Planning	sp17	MBS	UG	This course has a module on Environmental, Social, Governance investing. As part of this module, we discuss how investors can identify and invest in companies that have sustainable environmental practices and sustainable human rights / employment practices. In addition to this module, we also look at ethics within the finance profession, and how better ethics can lead to better long-term outcomes, including better functioning and more sustainable capital markets.
Strategic Management	sp17	MBS	UG	As the capstone course of undergraduate business majors, this course requires students to draw together the knowledge gained in all core business coursework in the analysis of contemporary challenges. Corporate social responsibility is included in the introduction to strategy. Cases involving sustainability-oriented companies are featured throughout the course. Aspects of sustainability, such as the triple bottom line, greenwashing, and social responsibility, are also integrated throughout the course.
Offshore Floating System Design	fa16	ME	UG	This course focuses on the innovation and design of offshore floating wind turbines. It places an emphasis on renewable energy, in particular offshore wind energy and wave energy. Sustainability is emphasized through enabling the background technological development of renewable energy systems. In doing so it addresses the sustainability challenge of natural resource depletion and addresses the UN sustainable development goals 7 and 9.
Contemporary Moral Problems	fa16	PL	UG	This course teaches students the basic moral concepts and arguments to evaluate and assess a range of contemporary moral problems. It addresses the dimensions of social and economic sustainability by exploring some of the most difficult questions we face as human

				beings. Topics include: control over biomedical resources and research, racial and gender discrimination, economic and class justice, and the right to protest unjust laws.
Modern Experimental Physics	sp17	PS	UG	This course allows students to conduct experiments selected from various topics in physics including x-ray diffraction, microwaves, nuclear magnetic resonance, and the Hall effect. This course teaches students about renewable energy generation through the science of solar panels as a renewable energy source.
Nuclear Physics	fa16	PS	UG	This course explores the properties of the nucleus, nuclear reactions, radioactive decay, nuclear models, nuclear reactors and nuclear health physics. Nuclear power is discussed as a sustainable energy source. The course also looks at the environmental impacts of nuclear power plants and how to clean up sites to reverse environmental degradation.
Basic Biology	fa16	SBE	UG	An introduction to the fundamental topics in biology. The course explores topics of organism physiology and ecosystem structure highlighting the finite availability of resources, the use of waste material from one source as food input into another trophic level. The course addresses the sustainability challenges of natural resource depletion and environmental degradation.
Basic Biology	sp17	SBE	UG	An introduction to the fundamental topics in biology. The course explores topics of organism physiology and ecosystem structure highlighting the finite availability of resources, the use of waste material from one source as food input into another trophic level. The course addresses the sustainability challenges of natural resource depletion and environmental degradation.
Biology of Organisms	sp17	SBE	UG	Introduces functions and structures of animals and plants stressing basic physiological processes and adaptations to the environment. The course explores topics of organism physiology and ecosystem structure highlighting the finite availability of resources, the use of waste material from one source as food input into another trophic level. The course addresses the sustainability challenges of natural resource depletion and environmental degradation.
Biology: The Living Science	sp17	SBE	UG	This course examines the processes and principles of science across disciplines. Focused examples are presented from topics such as ecology, evolution, and cellular biology. The role of science in the resolution of ethical issues regarding the impact of the human population on the environment is emphasized.
Field Natural History	fa16	SBE	UG	This course includes field and lecture content on the historical ecology of Maine, including identifying and understanding the impacts of logging, agriculture, dams, invasive species, resource extraction (e.g., fishing, hunting, trapping, and plant collecting), pollution, and climate change on the past and present biodiversity of our state.
General Ecology	sp17	SBE	UG	This course explores ecological principles for the science major including environmental factors, population ecology, community ecology and ecosystem analysis. The course has lecture topics on

				sustainability, climate change, and a variety of other ecological topics that include a consideration of sustainability.
Invasion Biology	sp17	SBE	UG	This course is designed to serve as an introduction to invasion biology. Students learn about the mechanisms of natural and human-mediated biological invasions, their consequences from ecological, economic, political, and ethical perspectives, and review management options available for prevention and/or mitigation of the negative impacts of invasive species.
Plants in our World	fa16	SBE	UG	This course covers botany and the role plants play in current and historical human society and ecology. Topics in agriculture and forestry including genetic engineering, biodiversity, and plant-based drugs. The course has lecture topics on tropical deforestation, weed management, and invasive plants that all consider sustainability issues.
River Ecology	fa16	SBE	UG	An introduction to the ecology of rivers with emphasis on the role of physical and biological factors in controlling ecosystem processes and how these processes are influenced by human activities. It addresses the sustainability challenge of environmental degradation.
Contemporary Issues in the Food Industry	fa16	SFA	UG	A course on current topics and recent developments affecting the food industry. Four weeks are spent reading and discussing different aspects of sustainable food systems. Topics include: principles of healthy and sustainable food systems; approaches to reducing food waste; ensuring food security; and potential impacts of entomophagy.
Foodservice Management	fa16	SFA	UG	This course explores foodservice management in both commercial and healthcare foodservice settings. The course examines sustainable food purchasing practices during discussions on foodservice operations. Examples include how management can encourage foodservice operations to buy foods packaged in recyclable containers and encourage the buying and use of real dishes and silverware instead of disposable products. Multiple visiting speakers discuss sustainability in foodservice operations.
Fruit and Vegetable Production	fa16	SFA	UG	This course provides students with a practical introduction to growing vegetable and fruit crops of local importance with an emphasis on organic and sustainable production systems. Lectures will focus on particular species, and will include information on cultivar selection, field preparation, fertility and pest management, cultural practices, and harvesting.
Greenhouse Management	sp17	SFA	UG	The study of greenhouse management practices and principles. Specific areas of study will include greenhouse structure, operation, and the use of greenhouses for ornamental plant production. This course addresses goals 6 and 15 of the UN Sustainable Development Goals
Intro to Animal Science	fa16	SFA	UG	An introduction to the scientific fundamentals of animal sciences, including animal nutrition, genetics and breeding, reproduction, microbiology, health, management of major domesticated animal species, and sustainable agriculture.

Introduction to Food Science and Human Nutrition	su17	SFA	UG	A survey of food and nutrition principles. Among other topics, this course enables students to choose sustainable solutions when it comes to diet choices and how these affect their health, prevent disease and preserve the environment. It addresses the social and environmental aspects of sustainability.
Introduction to Food Science and Human Nutrition	sp17	SFA	UG	A survey of food and nutrition principles. Among other topics, this course enables students to choose sustainable solutions when it comes to diet choices and how these affect their health, prevent disease and preserve the environment. It addresses the social and environmental aspects of sustainability.
Introduction to Horticulture and Green Design	sp17	SFA	UG	This course examines the science of growing plants. Students learn to apply botany and soil science to produce horticulture crops. Students also apply the science of horticulture to topics in the green design field such as permaculture, green roof design, and sustainable landscape design and construction.
Medical Nutrition Therapy II	sp17	SFA	UG	This course explores metabolic and physiological alterations of disease processes. It includes the appreciation of sustainability issues in a clinical setting, reducing health care costs with the use of Medical Nutrition therapy and improving quality of life. It encompasses the social and economic aspects of sustainability.
Nursery Management	fa16	SFA	UG	This course covers the basic techniques for production of woody and herbaceous plants in nursery and other outdoor settings. It incorporates sustainability through the inclusion of lecture content on water use and runoff, principles of fertility and responsible fertilizer use, regulations and concerns related to pesticide application and strategies to reduce their use in the nursery industry, regulations restricting use of invasive plants and the ecological damage caused by invasive plants, and the importance of county, state, and federal quarantines on the transport of plants and plant products to reduce environmental degradation caused by the dispersal of nonnative insects, bacteria, and fungi.
Our Animals, Our Selves: Attitudes and Impacts	fa16	SFA	UG	This course examined the many roles that animals play in our lives. This course includes sustainability concepts by describing and discussing lifestyles that involve animals, both contemporary/urban and historical/rural. In addition, ethnic lifestyles centered around animals, such as the Laplanders whose lives are based on reindeer migrations, are presented as sustainable choices for human society.
Soil Organic Matter Management	fa16	SFA	UG	This course examines the principles of plant residue decomposition, tillage, use of organic soil amendments and environmental and agricultural implications of human soil management. It addresses the sustainability challenge of environmental degradation.
Utilization of Aquatic Food Resources	sp17	SFA	UG	This course examines the utilization and food quality of wild and farmed aquatic animals. This course introduces students to various social, economic, and ecological aspects of seafood sustainability.

Estuarine Oceanography	fa16	SMS	UG	This course examines the challenges of maintaining healthy marine ecosystems in areas that are densely populated and create much of the world's economic activity. Students learn methods to model, monitor, and apply environmental policy to these complex areas. The course explores sustainable strategies that successful cities and coastal regions are applying to sustain the coastal aesthetics, aquaculture, energy production, navigation, water quality, and fisheries.
Introduction to Fisheries Science	sp17	SMS	UG	Introduction to the assessment, management, conservation and exploitation of fisheries resources of commercial and recreational importance. Sustainability issues are integrated throughout this course which covers topics on assessment and management for developing sustainable fisheries.
Introduction to Marine Policy and Fisheries Management	fa16	SMS	UG	This course focuses on the human dimensions of ocean conservation and management. Issues addressed include ecosystem-based management, fishing communities, collective action dilemmas, bycatch and gear technology, marine protected areas and habitat, marine mammal and protected species conservation, aquaculture policy, and global climate change.
Marine Ecology	fa16	SMS	UG	This course focuses on the ecology of the coast of Maine as part of the School of Marine Science's Semester by the Sea. The ecology course teaches students how anthropogenic activities impact our biosphere in general and marine ecosystems specifically. The human effects covered include climate and atmospheric change.
Disability: Population and Environment Diversity	sp17	SWK	UG	In this course, students examine and analyze disability as an interactive disjuncture between the environment, the human body and population groups. Students analyze how environments shape and are shaped by disability populations. Students learn how to realigning bodies, populations and environments to advance full participation, reduce personal and environmental harm reductions, and preserve just and safe environments.
Human Behavior and the Biological Environment	fa16	SWK	UG	The biological person as viewed from a biopsychosocial-spiritual model requires that social workers develop an appreciation and understanding of the reciprocal impact of behavior and biology on one another.
Human Behavior and the Social Environment I	fa16	SWK	UG	This course examines normative development, behavior, values and attitudes as influenced by age, cohort, gender, culture, social class, social structures, oppression and other environmental factors. It addresses multiple aspects of social and economic sustainability throughout the course.
Human Behavior and the Social Environment II	sp17	SWK	UG	This course examines normative development, behavior, values and attitudes as influenced by age, cohort, gender, culture, social class, social structures, oppression and other environmental factors. It addresses multiple aspects of social and economic sustainability throughout the course.
General Ecology	fa16	W	UG	This course provides students with an ecological framework through which they can better understand and explain the past and present, and prepare for the future, on a complex and rapidly changing planet

				whose productivity and life-support capacity is increasingly eroded by the industrialized human economy.
Human Dimensions of Wildlife and Fisheries Conservation	fa16	W	UG	This course covers such topics as governance of wildlife, sense of place and community, trust and capacity development, wildlife management as a systems process, collective behavior, engagement of stakeholders, collaborative planning and decision-making, adaptive management and adaptive impact management. It addresses the sustainability challenges of natural resource depletion and environmental degradation.
Introduction to Wildlife Resources	fa16	W	UG	A seminar introducing the opportunities, concerns, and professional responsibilities of the wildlife profession. The course involves discussions about the impact of humans on natural resources and wildlife populations and strategies to work towards minimizing those impacts in light of increasing human population and changing climate.
Wetland Ecology and Conservation	fa16	W	UG	This course focuses on major concepts in wetland ecology, classification, policy and regulation and issues in wetland conservation. It addresses the sustainability challenge of environmental degradation.
Wildlife Population Dynamics and Conservation	fa16	W	UG	This course examines the characteristics of wildlife populations, including principles of population dynamics and population interactions, with application in wildlife population conservation.
Coastal Engineering	fa16	CE	GR	An introductory course on the principles of coastal engineering problems in lakes, river mouths, inlets, estuaries and other coastal areas. The course addresses the sustainability challenge of climate change by covering climate change adaptation, including both hard and nature based infrastructure. It also covers increased frequency of intense storms due to climate change and related storm surge effects.
Thermal Soil Mechanics	fa16	CE	GR	This course examines the thermal properties of soils, heat transfer, and methods for predicting soil temperature under freezing conditions. It addresses the UN SDG 9: Build resilient infrastructure, promote sustainable industrialization and foster innovation. It does this by focusing on the design of engineering infrastructure that either experiences, or optimizes the benefits of variable temperature and temperature changes.
Advanced Wood Chemistry	sp17	CH	GR	This course explores the fundamental chemistry of carbohydrates, lignin, and extractives. Throughout the course, sustainability topics involving natural resource depletion and environmental degradation are discussed. In addition, it also provides fundamental background for many students and researchers who are investigating sustainable materials.
Seminar in U.S. Higher Education	fa16	EDUH	GR	This course incorporates concepts and lenses for understanding how systems of inequality shape student experiences in U.S. higher education and how leaders and participants in postsecondary education can play a role in advancing equitable practices for a more just and sustainable world. We explore the social ecology of higher education and consider a range of factors that may impact student

				experiences.
Glaciers and our Landscape	fa16	ERS	GR	This course examines the nature of the ice ages, including the work of glaciers and how they shape the earth's surface. The course addresses the sustainability challenge of climate change.
The Quaternary Stratigraphic Record	fa16	ERS	GR	This course explores cutting-edge hypotheses for Quaternary climate change. It addresses the sustainability challenge of climate change.
Managerial Marketing	su17	MBS	GR	This course is an advanced study in the functional areas of accounting, finance, management, marketing, and management information systems. This course features sustainability in a case discussion in Module Two of the course. The case, "The Uakari Lodge and Community-based Tourism," required students to use business skills to develop strategies for marketing and operating a community owned and operated ecotourism lodge. The intention was to provide benefits to members of the local community in the Amazon rainforest while supporting sensitive environments.
Fluid Structure Interaction	fa16	ME	GR	Introduction to the basics of fluid-structure interaction. The course places an emphasis on renewable energy, in particular offshore wind energy and wave energy. Sustainability is emphasized through enabling the background technological development of renewable energy systems.
Advanced Invasion Biology	sp17	SBE	GR	This course is designed to serve as a more in depth study of invasion biology. Students learn about the mechanisms of natural and human-mediated biological invasions, their consequences from ecological, economic, political, and ethical perspectives, and review management options available for prevention and/or mitigation of the negative impacts of invasive species.
Community Ecology	fa16	SBE	GR	A discussion of the organization of biological communities, including: community structure, competition, predation, and biogeography of communities. This course addresses sustainability by looking at the impacts of climate change and harvesting on biodiversity.
Lipids, Diet and Cardiovascular Disease	fa16	SFA	GR	This course explores lipid and lipoprotein metabolism and its relation to atherosclerosis. It includes appreciation of sustainability issues in a clinical setting, reducing health care costs with the use of Medical Nutrition therapy and improving quality of life. It encompasses the social and economic aspects of sustainability.
Advanced Readings in Marine Policy	sp17	SMS	GR	This course explores foundational readings in the subfield of marine policy that illustrate sustainable and unsustainable management practices and institutions related to human use of the marine environment.
Coral Reefs	sp17	SMS	GR	This courses considers the structure and functioning of coral reef ecosystems. Students also learn why they are so fragile. This course features field work related to sustainability. Students conduct coral reef monitoring in Bonaire that has contributed to more sustainable practices in the region, including the establishment of marine protected areas, banning the use of fish traps, and outlawing the

				harvest of parrotfish.
Fisheries Population Dynamics	sp17	SMS	GR	This course examines fisheries stock assessment theory and techniques. Sustainability issues are integrated throughout this course as students learn to model fish population dynamics and to develop and manage sustainable fisheries.
Readings in Marine Policy	fa16	SMS	GR	This course explores foundational readings in the subfield of marine policy that illustrate sustainable and unsustainable management practices and institutions related to human use of the marine environment.
Advanced Environmental and Resource Economics II	sp17	SOE	GR	Economic analysis of centralized and decentralized regulation of markets with externalities and public goods. Optimal management of renewable and nonrenewable natural resources. Addresses UN SDG 7: Affordable and clean energy.