

Sustainability Course

Construction Management Engineering

CME	215	-	Sustainable Construction	Overview of sustainable design and construction concepts and practices. The emergence of green building, issues, and rating systems. Sources of chemicals in buildings, indoor air quality, and human comfort. Basic energy principles and energy-efficient technologies. Selection of materials. Role of the contractor in the management and construction of green projects.
CME	304	504	Environmental Performance Measures for Buildings	An overview of how building rating systems for green construction have developed, their present application, and future directions for growth. The course will explore the process for development of individual standards, the different building certification systems that have been developed using these standards, and long-term development and code adoption of such certification systems.
CME	305	505	Sustainable Energy Systems for Buildings	Exploration of construction management-related issues in creating a more sustainable energy use in our building stock. Integrating sustainable energy sources in construction as well as issues related to using energy more efficiently.
CME	306		Engineering Materials for Sustainable Construction	Introduction to the principal structural materials used for building construction and their engineering properties and environmental impacts. The production and performance of these materials will be explored through class discussion and laboratory experiments.
CME	387	587	Renewable Materials for Sustainable Construction	Properties and uses of major structural construction materials. Identification and knowledge of the major wood species and their applications in construction.
CME	422	622	Composite Materials for Sustainable Construction	Properties, manufacture and design of multiphase materials. Applications and testing for service in sustainable construction systems and life-cycle analysis.
CME	-	565	Sustainable Innovations in Residential Construction	Principles of sustainable residential construction; the adaptation of biological, ecological, and cultural elements into building performance standards, practical building specifications, standards and systems.

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Environmental and Forest Biology

EFB	120	-	The Global Environment and the Evolution of Human Society	An integrated overview of large-scale environmental issues and their relation to the development of human societies and resource-use strategies over time. Focus is on population growth and societal pressures on physical and biotic resources. Topics include energy-use issues, causes and socio-economic implications of climate change, pollution, and loss of biodiversity.
EFB	220	-	Urban Ecology	Explores the city from an ecosystems perspective. Addresses the role and importance of science, engineering, the design professions, and community participation in creating livable communities. Environmental equity and justice are addressed.
EFB	305	605	Indigenous Issues and the Environment	Introduction to perspectives of indigenous people on environmental and natural resources management issues, including tribal forestry, fisheries, biocultural restoration, conservation strategies, climate change and treaty rights. Integrates scientific and indigenous worldviews and knowledge systems.
EFB	411	-	Research Methods: Understanding the Adirondack Ecosystem	An introduction to biodiversity, forest and wildlife management, invasive species, climate science, and the role of humans in the context of the Adirondack Park. Biotic and abiotic drivers of the Adirondack ecosystem, field data collection methods and policy and sustainability are considered. Explores the role of science in natural resource decision-making and the uses and limitations of ecological data and planning tools.
EFB	413	-	Introduction to Conservation Biology	As an introduction to the discipline of conservation biology, the course seeks to demonstrate how basic biological science can be integrated with social, economic and political perspectives to achieve the goals of biological conservation
EFB	445	645	Plant Ecology and Global Change (3)	Impacts of global changes in climate, biodiversity, land-use, and biogeochemical cycles on structure and function of terrestrial plant communities and ecosystems.
EFB	-	513	Adirondack Forest Ecology and Management	One-week, field-based examination of sustainable forest management in the Adirondacks, framed by concepts and issues associated with plant and wildlife ecology, silviculture, and forest management. Contemporary research on central Adirondack forests is featured based on work at the Huntington Wildlife Forest. Emphasis is on experiential learning via a series of trips to, and laboratories in, the forest.
EFB	-	522	Biophysical Economics	Approaches economics as a biophysical rather than social science, i.e., the ecology of human-dominated ecosystems. Reviews concepts of value and economics (physiocrat, classical and neoclassical approaches), and examines an alternative model emphasizing analysis of energy and material flows and their control instead. Focus is on the developing tropics.

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Environmental Science

ENS	200	-	Climate Change Science and Sustainability	Climate Change Science and Sustainability is an introduction to climate science, the evidence of modern climate change, and an evaluation of some of the proposed solutions. The course integrates NASA and other web-based climate change media and products with outside readings. NASA's spatial and temporal climate change resources are the basis for most learning activities, which will enable students to continue their exploration of personal and societal climate change solutions.
ENS	325	525	Energy Systems	Three hours of lecture per week. An interdisciplinary overview of human-dominated energy systems. Topics include traditional extractive approaches, sustainable energy systems, energy return on investment, thermodynamics, energy flow analysis, resource supply, utilization rates, and environmental issues. Students are introduced to the multiple disciplines required to evolve more sustainable systems.
ENS	335	535	Renewable Energy	An interdisciplinary overview of human dominated energy systems. Topics include: traditional extractive approaches, sustainable energy systems, energy return on investment, thermodynamics, energy flow analysis, resource supply, utilization rates, and environmental issues. Students are introduced to the multiple disciplines required to evolve more sustainable systems.
ENS	450	-	Renewable Energy Capstone Planning	This course will afford the student an opportunity to select a topic, in conjunction with the instructor, for detailed investigation in Capstone II.
ENS	460	-	Renewable Energy Capstone	Students will synthesize information from courses in the Renewable Energy minor by performing research and preparing a scientific report on topics related to renewable energy and energy. The research will consist of literature review/analysis, modeling, field work or laboratory research.
ENS	441	661	Biomass Energy	Three hours of lecture per week. Production and use of biomass as a source of renewable energy for the production of bioenergy, biofuels and bioproducts. Characteristics of biomass sources, their conversion to different forms of energy and end products, and an assessment of source sustainability. Field trips to regional biomass facilities.
ENS	-	601	Water Resources Management	This course provides an introduction to interdisciplinary water management. It draws upon subject matters from many areas, including water policy, planning, economics, hydrology, law, engineering and water quality.

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Environmental Resources Engineering

ERE	275	-	Ecological Engineering	Theory and practice of ecological engineering with strong focus on sustainability and design, monitoring, and construction of ecosystems and the built environment. Key concepts, empirical models, and case studies, including applications of water/wastewater treatment, air resources and solid waste management.
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ERE	311	511	Ecological Engineering in the Tropics	Principles of ecological engineering for ecosystem restoration and pollution control. Field trips to pristine and degraded ecosystems including: humid tropical cloud forests, coastal mangrove, dry mountain forests, and coral reefs to identify target functions for nature and society, observe degradations, and develop sustainable restoration designs.
ERE	380	-	Energy Systems Engineering	Fundamentals of thermodynamics and power needed for engineering systems analysis and applies methods such as life cycle analysis, sustainability analysis, and environmental impact analysis to non-renewable and renewable energy systems.
ERE	405	605	Sustainable Engineering	Explore and attempt to develop solutions to societal and environmental problems in a changing world that is facing climate change, premium fuel depletion, and regional water shortages. Evaluation of system sustainability using a multidisciplinary framework. Introduction to sustainability metrics, including energy evaluation and life cycle assessment. Application of energy evaluation.
ERE	465	665	Environmental Systems Engineering	Mathematical models of environmental systems are presented and combined with optimization procedures, decision theory, uncertainty analysis, and engineering economics to develop integrated approaches to the planning, design, and sustainable management of complex environmental systems.
ERE	468	568	Solid and Hazardous Waste Engineering	Introduction to solid and hazardous waste regulations. Analysis and design of solid and hazardous waste management systems, including generation, storage, transport, recycling, biological, physical, chemical and thermal treatment; energy recovery; land disposal; environmental protection systems and monitoring
ERE	475	675	Ecological Engineering for Water Quality	Design and analysis of ecological treatment systems for water quality improvement. Hands-on construction, operation and/or monitoring of engineered ecosystems through group project activities beyond class meeting times in on-campus labs and a greenhouse. Focusing on constructed wetlands, with minor topics selected by students
ERE	-	519	Green Entrepreneurship	Explore challenges and goals of creating a start-up venture in environmental science or technology. Recognize trends in the marketplace, and where commercial opportunities can be created. Analyze feasibility and potential to create a sustainable venture.
ERE	-	527	Stormwater Management	Techniques for urban stormwater and erosion control and analysis of associated water quality impacts. Review of applicable regulations and design standards. Students will, in small teams, generate a design for a stormwater management alternative at a local site.
ERE	-	612	River Form and Process	Field-based data collection methods for river classification. Bankfull flow estimates. Classified river form, suggested evolution sequences and governing fluvial processes. Computational river hydraulics, sediment transport, and issues of channel stability and restoration.

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College Wide

ESF	122	-	The Ecology of the Economic Process	An approach to economics as a natural, rather than a social science. Examination of the ecology of human-dominated ecosystems including cities, agricultural areas, and fisheries. Review of basic ideas of value, classical, neoclassical, and biophysical economics. Examines an alternative model emphasizing analysis of energy and material flows and their control. Case studies will focus on the developing economies of the tropics.
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Environmental Studies

EST	132	-	Introduction to Environmental Studies	Introduction to the study of environmental problems in the social sciences and humanities. Topics: pollution, conservation, preservation, human health, ecosystem health, limits to growth, sustainability, ecosystems, population, energy, risk and traditional knowledge
EST	140	-	Introduction to Native Peoples, Lands & Cultures	Introductory survey of the history, geography, economy, and culture of Native Americans from prehistory to present, with special attention to the Great Lakes region/upstate New York and environmental topics.
EST	200	-	Cultural Ecology	Students develop skills and fluency in preparing, delivering and evaluating multicultural and traditional environmental management and decision-making. Emphasis is on situations encountered in the environmental professions. Case studies pose ethical questions, which challenge students to apply theory and analysis to each case. Topics also include interactions of culture and environment, relationship between traditional and scientific knowledge and co-management as multicultural decision making
EST	220	-	Urban Ecology	Explores the city from an ecosystems perspective. Addresses the role and importance of science, engineering, the design professions, and community participation in creating livable communities. Environmental equity and justice are addressed.
EST	231	-	Environmental Geology	Three hours of lecture and discussion per week. Environmental Geology is an applied field of study that uses geological information to assist in resolving human conflicts related to land use issues, environmental damage, and resource use. Topics include natural resources, energy, environmental pollution, waste disposal, geological hazards and climate change.
EST	245	-	Foundations of Environmental Communication	Survey of environmental communication, including nature representations in popular culture, and the role of mass media on public perceptions of environmental issues. Topics also include strategic communication, public participation in environmental decision-making, and environmental risk perception. Exposure to communication theory and social scientific and humanities-based approaches.
EST	296	-	Special Topics in Environmental Studies	Experimental, interdisciplinary or special coursework at the freshman or sophomore levels. Subject matter and course format vary from semester to semester.
EST	321	-	Government and the Environment	Three contact hours per week. Examines the relationship between government and the environment, primarily in the U.S. Introduces environmental policy, including the policy making process. Reviews legal framework and current issues in several thematic areas (e.g., air, water, hazardous waste, and endangered species protection)
EST	361	-	History of the American Environmental Movement	The historic and cultural origins and evolution of this complex, multifaceted social phenomenon called the environmental movement and its influence on public policies, values and lifestyles. The events, personages, philosophies and historical/cultural processes that marked and continue to drive various, competing attitudes toward nature, even within the United States environmental movement.
EST	366	-	Attitudes, Values and the Environment	Three hours of lecture per week. Historical roots of environmental attitudes, values, and ethics with special emphasis on how individual attitudes impact environmental issues. Perspectives on man's relationship and responsibility to nature. Value implications of ecological principles and concepts. Examples of current environmental issues are examined in this context.
EST	390	-	Social Processes and the Environment	Explores alternative ways of explaining the relationship between social processes and environmental conditions. Analyzes classical and modern social theories and applies their insights to questions of human-environment interaction. Introduces qualitative social science research methods and the social construction of environmental meaning.
EST	393	-	Environmental Discourse and Communication	Considers the role of communication and political discourse in shaping perceptions of nature and environmental issues/problems. Explores a variety of interpersonal, group, organizational and mass communication theories and a wide range of environmental discourses using examples of written, visual, broadcast, and electronic communication.
EST	400	-	Senior Paper	Individual study of an environmental topic resulting in a formal report that meets the requirements for an environmental studies synthesis experience.
EST	401	-	Env. Ethics and Culture: Perspectives on the Adirondack Park	Introduction to the ethics of land-use conflicts in the Adirondacks, NY. This course links the philosophical history of ethics with contemporary principles of environmental ethics and advocacy. Topics include agency, ethics, value theory, morality and responsibility in the context of ongoing regional debates.
EST	402	-	Diverse Perspectives on a common landscape: Exp. the ADK Park	Two hours of lecture and three hours per week of immersion in Adirondack issues including introduction to diverse stakeholders and perspectives through non-governmental, agency, and community meetings; interaction with an array of regional experts through special panel discussions; and field trips to and private tours of historic and cultural sites and institutions
EST	403	-	Sustainable Development: An Adirondack Park Case Study	A place based study of the concepts of sustainable development and their application. Students will learn of the role of historical precedence and current context in approaching planning and policy for a sustainable future. The course will combine lecture, discussion, student led seminars and writing that illustrates both skills in analysis and synthesis. Class will meet once a week for three hours for fourteen weeks at the ESF Newcomb campus, and may require occasional field trips.

EST	404	-	Using Past Exp. to Inform Future Mgmt: Synthesizing the ADK Park	Synthesis of experiences, content and insights gained during the “Sustaining the Adirondack Park” residential semester, including Capstone research and production of an independent position paper and collaborative comprehensive management plan.
EST	426	-	Community Planning and Sustainability	Presents ecological planning and development concepts and theory guiding local and global initiatives for sustainable development. Overlapping themes are considered and linked: the relationship between landscape patterns reflecting wealth, poverty and environmental quality; the role of efficiency in reducing environmental impacts; and the questions of environmental equality, and the quality of development.
EST	427	627	Environmental and Energy Auditing	Presents environmental and energy auditing concepts and theory guiding local and regional initiatives for greenhouse gas production and energy use reduction. This course utilizes a practicum approach through use of inventory and analysis tools by student teams for project application.
EST	450	-	Sustainable Enterprise	Economic, social, and environmental dimensions of sustainability and their interdependence. Influences on organizations to adopt sustainable approaches to operations and activities. Tools to validate organizational sustainability. Transdisciplinary emphasis.
EST	493	-	Environmental Communication Workshop	Three hours of cooperative learning activities, lecture and discussion per week. A workshop format on a specified environmental program or issue introduces the theories and skills of alternative dispute resolution approaches, public participation structures and dynamics, public policy decision making and implementation, risk communication, leadership styles, and small group dynamics.
EST	494	-	Senior Seminar in Environmental Studies	For all seniors in Environmental Studies. Students will prepare portfolios and give capstone presentations on their senior synthesis project and develop career goals and plans.
EST	495	-	Selected Readings in Environmental Studies	An in-depth and independent exploration of selected readings from the environmentally related literature.
EST	496	696	Special Topics in Environmental Studies	Special topics of current interest to undergraduate students in environmental studies and related fields.
EST	498	-	Introductory Research Problems	Guided individual study of an environmental topic. Emphasis is on the study procedure and the methods employed.
EST	-	550	Environmental Impact Analysis	The law, administration and natural/social science basis of the environmental impact assessment process in the federal government and New York state
EST	-	600	Foundations of Environmental Studies	Examines frameworks for understanding and solving environmental problems. Familiarizes students with the epistemological foundations of environment-society relations. Considers multiple methodological and analytical strategies. Uses a case study method to exemplify key principles.
EST	-	608	Env. Risk Perception: Implications for Communication and Policy	Addresses complex dynamics, strategies, and tactics of 1) organized campaigns by grassroots to international organizations to advocate for particular environmental policy and 2) processes that seek to resolve, manage, or prevent environmental conflicts when appropriate.
EST	-	609	Collaborative Gov. Processes for Env. and Nat. Resource Mgmt.	Introduces the evolution of innovative multistakeholder processes that characterize collaborative governance (CG). Distinguishes CG from traditional public involvement and dispute resolution approaches, and explores its challenges and opportunities. Provides knowledge and introductory tools to design and be more productive participants in collaborative processes.
EST	-	612	Environmental Policy and Governance	Examination of the dynamic relationships present in the creation and implementation of environmental policies. Considers the roles of the state, the private sector, and nongovernmental organizations. Explores background and implications of recent trends in environmental management.
EST	-	625	Wetland Management Policy	International, national, and local wetland management and conservation issues. Application of methods of policy research, critical evaluation and design of wetland management issues including delineation, functional evaluation, wetland banking, and property rights issues.
EST	-	626	Concepts and Principles of Sustainable Development	Presents ecological and development concepts and theory guiding local and global initiatives for sustainable development. Four overlapping themes are considered and linked: the relationship between patterns of wealth, poverty and environmental quality; the role of efficiency in reducing environmental impacts; the theme of frugality and sufficiency in advancing development; the questions of environmental equality, and the quality of development.
EST	-	640	Environmental Thought and Ethics	Critical interdisciplinary introduction to philosophical, religious, cultural and historical dimensions of environmental affairs. How ecologically significant cultural assumptions, ideologies, representations, and institutionalized practices contribute to human meanings and relationships to other-than-human-nature. Special attention to the role of language and questions of environmental ethics and ontology
EST	-	645	Mass Media and Environmental Affairs	Introduces the mass media’s role in environmental affairs. Relationships between media organizations, technology, content, and audiences frame examination of how nature and environmental issues and problems are engaged by the media and with what consequences. News and current affairs, advertising and entertainment genres are considered.
EST	-	650	Environmental Perception and Human Behavior	Application of environmental perception and human behavior paradigms and theories in understanding the causes and potential solution strategies to environmental issues. Interdisciplinary approach utilizes concepts, theories and research from disciplines including environmental psychology, sociology, anthropology, and risk perception to understand the myriad influences on human behavior as it relates to environmental impacts
EST	-	695	Environmental Journalism	Covers a range of topics related to journalism: interviewing, writing the lead, style, writing and organizing the story, layout, editing and revising, writing features and follow-up stories, covering speeches, etc. In addition, students explore how the media covers scientific and environmental issues.
EST	-	702	Environmental and Natural Resource Program Evaluation	The systematic analysis of public environmental programs with an emphasis on the evaluation of resultant environmental outcomes. Topics include evaluation contexts, objective setting, environmental monitoring, and analysis of agency organization and procedures.
EST	-	705	Environmental Policy Analysis	Covers current and classic literature in environmental policy analysis, as well as a variety of approaches to policy analysis that are relevant for working through complex environmental issues. While tools and methods for policy analysis will be treated, the overall intention of the course is to provide students with the scholarly background to think analytically, critically, and creatively across a variety of environmental policy contexts.
EST	-	708	Social Theory and the Environment	This course is an advanced graduate seminar that covers social theory related to the environment. Students will be exposed to foundational literature in environmental sociology in the first part of the course, after which other social science literatures will be explored that analyze the relationship between environment and society, such as Political Ecology, Environment and Citizenship, Environmental Governance, Geographies of Energy, Sustainability Indicators and Standards, Ecological Modernization, and Environmental Justice, among others. Environmental issues and scholarship from both industrialized and developing country contexts, and that represent a variety of social science disciplinary perspectives, will be discussed.
EST	-	796	Advanced Topics in Environmental Studies	Lectures and discussions, seminars, conferences and group research on advanced topics of special or current interest to environmental studies faculty and graduate students
EST	-	797	Environmental Studies Seminar	One to three hours of classroom instruction/discussion per week. Discussion of current topics and research related to environmental studies
EST	-	798	Problems in Environmental Studies	One to three hours of supervised individual activity per week. Individualized, special study of environmental studies subjects and issues.
EST	-	899	Master’s Thesis Research	Research and independent study for the master’s degree and thesis.
EST	-	999	Doctoral Thesis Research	Research and independent study for the doctoral degree and thesis.

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Forestry Resources Management

FOR	106	-	Introduction to Green Entrepreneurship	An introduction to the challenges and goals of creating a start-up venture in environmental science or technology. Recognize marketplace trends and creating commercial opportunities. Analyze feasibility and potential to create a sustainable venture. Topics include critical success factors and key start-up issues unique to science and technology.
FOR	204	-	Natural Resources in American History	Introductory survey of American history from colonization through the twentieth century, with attention to natural resources use, allocation, and management. Environmental history and introduction to historiography

FOR	208	-	Introduction to Sustainable Energy Resources	Two hour of seminar/lecture/discussion per week concerning sustainable energy resources. Topics include: energy use and sources, sustainable use of energy resources, energy units and conversions, renewable energy, and financial analysis of energy projects.
FOR	232	-	Natural Resources Ecology	Provides an introduction to basic principles of ecology as they relate to terrestrial and freshwater ecosystems, and to natural resources. General topics for study include consideration of the physical environment, primary net production and energy flow through trophic levels, genetics and adaptation, ecosystem structure and function, competition and community dynamics, characteristics of freshwater ecosystems, and biogeochemical cycling and human impacts from local to global levels.
FOR	312	-	Sociology of Natural Resources	Concepts of community, forest-dependent communities, shared identity, and social structures of resource-based groups. The forest as an integrated social and biological community.
FOR	321	521	Forest Ecology and Silviculture	Two hours of classroom lecture with weekly three-hour trips and labs to forests across Central New York. Survey of forest tree and stand ecology (silvics) and silviculture concepts, applications and implications for treatment of forest stands for various values. Experiential learning emphasized through a strong field component of assessing vegetation, site quality and land use history variables, and treatment alternatives to create different forest conditions.
FOR	330	530	Studies in Silviculture	Students gain an appreciation of silviculture and its use for influencing the character, composition, and development of forest stands, and the conceptual framework for those practices. Projects provide opportunities to explore techniques for analyzing forest stands and developing prescriptions
FOR	332	532	Forest Ecology	Structure, function and dynamics of forest ecosystems at multiple scales, from trees to landscapes, including human interactions. Topics include ecophysiology, disturbance, succession, carbon and nutrient cycling, forest management, invasive species and climate change
FOR	333	533	Natural Resources Managerial Economics	Every natural resources manager must answer the question of how to use economic information to make better business and management decisions daily. Solutions require identifying alternative means of achieving given objective(s), then selecting the alternative that accomplishes this in the most resource efficient manner.
FOR	334	534	Silviculture	The practice of silviculture in managing stands to serve various landowner interests. Field trips and exercises provide opportunities to see examples of silviculture methods under different management scenarios, and to learn and practice techniques for analyzing forest stands and developing prescriptions for their treatment.
FOR	370	-	Forest Management Decision Making and Planning	Introduction to the components of forest management decision making and planning. The topics include forest regulation, growth and yield, and harvest scheduling given that a landowner's goals may include more than just commercial timber production
FOR	403	-	Humans and the Environment: New Zealand	Three and one-half week study-abroad program examines the natural and cultural history and resource management of New Zealand's South Island. Through class lecture/discussion and field excursions, students obtain an understanding of integrated resource management and sustainability in protected areas.
FOR	416	-	Sustainable Energy Policy	Evaluation of the sustainable energy field as it relates to policy. Primary emphasis on the following topics: policy concerns that motivated the development and expansion of sustainable energy, a history of the policy interactions between sustainable energy pathways, and controversies that have arisen from these interactions and their effects.
FOR	433	-	Silviculture Workshop	Advanced study of silviculture in managing stands to serve a variety of landowner objectives. Enhanced problem-solving skills related to stand analysis and prescription making. Field exercises provide practical experience in implementing silvicultural prescriptions.
FOR	454	-	Renewable Energy Finance and Analysis	Topics include: the adoption and financing of renewable energy project within the context of overall economics of energy markets, financial analysis of renewable energy projects, the role of tax and subsidies in promoting the adoption of renewable sources of energy.
FOR	465	-	Natural Resources Policy	Examination of US and NYS government roles in natural resource policy, and how government policies influence the management of public and private lands. Analysis of institutions, participants, and drivers of public lands, forest, water, wetlands, wildlife, fisheries, and fire policies.
FOR	476	676	Ecotourism and Nature Tourism	Three hours of instruction per week. Overview of ecotourism and nature tourism programs and efforts around the world. Community, business, and organizational structures necessary for managing ecotourism and nature tourism programs are discussed, as are related environmental, social, and economic impacts.
FOR	478	-	Wilderness and Wildlands Management	Review of the state and federal legislation and agency policies that frame the planning and management of public lands designated as wilderness or wildlands. Emphasizes stewardship and management for protection of natural resources and human values. Concepts include carrying capacity, preservation of ecological conditions and processes, visitor management, dispersed recreation management, human values and benefits, and planning frameworks.
FOR	480	680	Urban Forestry	Evaluation and management of urban greenspace resources, with emphasis on urban trees, in the context of other values and management processes in urban areas. Class practice in evaluating urban greenspace and tree resources.
FOR	487	-	Environmental Law and Policy	Introduction to the approaches used in US environmental law. Analysis of common law and statutory designs and strategies used to address environmental problems. Examination of common law environmental remedies, Clean Air Act, Clean Water Act, Endangered Species Act, hazardous waste, and other environmental laws.
FOR	490	690	Integrated Resources Management	This capstone course emphasizes the assimilation, integration, and interpretation of the biophysical and socioeconomic sciences. It provides students with the opportunity to integrate skills and knowledge accumulated from professional and supporting coursework. A written comprehensive management plan, also presented orally in the field and classroom, provides the central vehicle by which students demonstrate their abilities as future natural resource managers.
FOR	491	-	Sustainable Energy Management Capstone	This capstone course emphasizes the assimilation, integration, and interpretation of the physical and socioeconomic sciences. It provides students with the opportunity to integrate skills and knowledge accumulated from professional and supporting coursework. A written comprehensive energy resource plan, also presented orally classroom, provides the central vehicle by which students demonstrate their abilities as future energy resource managers.
FOR	-	501	Introduction to Environmental Resources Management	Two-week, field-based examination of forest, water, wildlife, recreation, and mineral resources and their management in New York State and surrounding states, framed by public administration, political science, economic, human dimension, and biophysical concepts.
FOR	-	513	Adirondack Forest Ecology and Management	One-week, field-based examination of sustainable forest management in the Adirondacks, framed by concepts and issues associated with plant and wildlife ecology, silviculture, and forest management. Contemporary research on central Adirondack forests is featured based on work at the Huntington Wildlife Forest. Emphasis is on experiential learning via a series of trips to, and laboratories in, the forest.
FOR	-	692	Capstone in Forest and Natural Resources Management	Students will integrate and apply their knowledge of forest natural resources management to practical problems of their own design in their areas of interest, in consultation with clients whom they identify to be in need of their professional services. Class sessions include opportunities to develop advanced knowledge and professional skills, such as research, analysis, management, and communication.
FOR	-	770	Ecological Economics and Policy	A transdisciplinary approach to understand the interface of human and ecological systems, includes concepts and methods of ecologists, economists, and social scientists. Focus is on historical, conceptual and epistemological foundations. Draws on contemporary economic and policy thought, evolutionary biology, ecology, systems theory, social psychology, and environmental ethics.

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Forest Technology

FTC	204	-	Introduction to Natural Resources Measurements	A study of the tools and techniques used to measure primary forest products and inventory and/or measure natural resources, such as timber, water, biomass, carbon stocks, wildlife habitat, recreation use and impact, and plant diversity. Professional presentation of forest inventory data in the form of technical reports. Basic forest sampling methods are used and compared, and associated statistical methods are learned and applied.
FTC	206	-	Forest Ecology	Study of interactions between forest vegetation and the environment. Considers how sunlight, moisture, soils and climate impact species presence, composition and growth. Human dimension of forest ecology, including critical thinking and evaluation of environmental issues.

FTC	211	-	Silviculture	Regeneration and tending of forest stands. Physical and chemical treatments used for growing forests in the northeastern states. Introduction to silviculture in the southern and western states. Methods for quantifying and predicting forest growth. Marking timber stands for harvesting. Establishing new stands
FTC	212	-	Adirondack Cultural Ecology	Development of the Adirondack Park as influenced by the exploitation and eventual conservation of the region's natural resources. An historical review and contemporary assessment of the political, economic, and sociologic issues that define and influence Adirondack culture. Guest speakers, public meeting attendance, and field trips within the Park reinforce cultural history and emphasize the role of individuals, organizations, and agencies in managing the unique blend of public and private lands that comprise the Park.
FTC	234	-	Wildlife Conservation	An introduction to the history and evolution of wildlife-related policies and laws, and to the biological, ecological, economical and sociological principles underlying wildlife management and conservation efforts in the United States.
FTC	237	-	Introduction to Water and Soil Resources	Introduction to watershed ecology and soil science. Interactions among upland, riparian, stream and wetland systems, including the hydrologic cycle. Study and measurement of soil physical, chemical and biological characteristics and processes. Recognize soil and water resource management and protection issues associated with multiple uses of forest lands.

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Landscape Architecture

LSA	190	-	Clashing Perspectives in the Built Environment	Can obesity, depression, and other public health issues be linked to the design of cities and suburbs? Examine how past and present social behavior, societal needs and cultural values shape the environment. Explore the complex array of public and private decisions--and their unintended consequences--on our physical communities.
LSA	311	611	Natural Processes in Design and Planning	An overview of basic principles and processes of physical and biological landscape systems with respect to their roles in landscape design and planning. Emphasizes landform, soil, slope, hydrology, climate, energy and general ecological issues as common elements influencing landscape design and the land use decision-making process. Sources and uses of environmental data are discussed.
LSA	321	-	Ecological Applications in Planning and Design	Introduction to concepts of ecology and landscape ecology related to sustainable land planning and design. Emphasis on using theory to guide planning and design decision making, with a goal of greater integration of ecological concepts into professional work.
LSA	326	-	Landscape Architectural Design Studio I	This course will instruct those enrolled in the processes of measuring various physical qualities of a site or landscape, and then how to apply knowledge of ecology, natural processes, and human behavior and culture to assess the viability of potential design uses and forms. The material addressed will include land measurement and measurement systems, physiography and landform, soils, hydrology, climate, and plant, animal and human ecology. A variety of manual and computer techniques for data collection, analysis and synthesis of natural and cultural systems information will be explored. The course will concentrate on the comparison of synthesis techniques and their use in land use and site design decision-making.
LSA	327	-	Landscape Architectural Design Studio II	This course addresses intermediate to advanced level site design, including skill development, theory and strategies as they relate to design issues and process. Emphasis is placed on in-depth investigation of concept and form expression in small-scale site design. Focus is on the form implications of applying specific materials, plantings and structural systems through design development and detailing. Occasional field trips to illustrate various design solutions.
LSA	333	-	Plants Materials	Course provides an introduction to the identification, site requirements, natural and cultural history, community ecology, and landscape value of native and exotic woody and herbaceous plant materials typical of landscape architectural practice.
LSA	422	-	Landscape Architectural Design Studio III	This course introduces and applies concepts urban and regional planning, environmental planning, and landscape ecology, in the context of large-scale landscape architectural, community, and urban design. Emphasis will be placed upon the application of appropriate technologies and strategies to foster environmentally and economically sustainable community forms, as well as greater environmental and social equity.
LSA	423	-	Landscape Architectural Design Studio IV	SA 423 addresses the final refining stages of small-scale site design, design detailing, precise layout and grading, selection of individual plant specimens and other materials, and the production of "working drawings" or contract documentation. Projects will include development of a complete set of working "contract documents," including layout plans, grading plans, planting plans and design details and specification. Occasional field trips to illustrate various design solutions.
LSA	433	633	Planting Design and Practice	This course concentrates on the ecological, aesthetic and technical considerations of woody and herbaceous plant use in landscape architectural design. Concepts covered include ecological relationships among plants, cultural requirements of plants, nursery production, planting design and composition, planting plans and specifications, and plant establishment and maintenance. Course utilizes field trips to gardens, arboreta and natural areas to demonstrate planting design concepts.
LSA	451	651	Comprehensive Land Planning	Introduction to the planning process including survey and analysis techniques, the comprehensive plan, political context, and land use controls. Selected functional planning areas such as land use, environmental, growth management, regional planning, and economic development planning. Legal and historical basis.
LSA	458	-	Off-Campus Design Thesis Studio: Faculty Advisor Visit, Weekly Reports and Field Studies	Short field studies executed through on-site observation, sketching and analysis exercises. Study progress is communicated through weekly reports to an advisor and presented during the advisor's visit, the fifth week of the Off-Campus semester.
LSA	459	-	Off-Campus Design Thesis Studio: Design Journal and Project Notebook	Twelve hours of individual field study per week conducted in an international or domestic location. Field observations and travel experiences documented through daily graphic and narrative entries in a design journal/sketchbook. Thesis project studies and research documented through daily entries in a project notebook.
LSA	461	-	Off-Campus Design Thesis Studio: Thesis Project	Twenty-one hours of individual field research and studio per week conducted in an international or domestic location. The completion of a thesis project as delineated in a proposal prepared by the student and approved by the Off-Campus faculty advisor in LSA 425
LSA	460	-	Off-Campus Final Presentation Seminar	Seminar time devoted to individual presentations and critique. Content focuses on individual projects undertaken as a component of LSA 460.
LSA	470	670	Thematic Landscape Design Studio	Content focuses on different themes, topics, and scales each year, traditionally addressing sub-disciplines in landscape architecture such as urban design, community design and planning, ecological design and restoration and cultural landscape preservation.
LSA	-	600	Design Studio I	This course introduces students to the basic vocabulary of theoretical design principles, to the application and operation of these in the physical environment, and to the development of three-dimensional spatial concepts in community scale patterns.
LSA	-	601	Design Studio II	The second in a sequence of studios applying the concepts, skills and methods of design in a critical analysis of various natural and human systems in community scale environments. Concentration is on the evaluation of options concerning a variety of land use activities, with special emphasis on landscape analysis and the functional and spatial quality of built environments.
LSA	-	605	History of Landscape Architecture	Historical study and style analysis of Western culture on environmental design, and changing attitudes and relationships to the environment. Non-Western influences on Western culture. Study of historical personalities as well as periods that are of environmental concern up to the modern period
LSA	-	606	History of Landscape Architecture II	Survey of landscape design in the modern era, emphasizing the 20th century. Lectures and readings on significant movements, works and designers in the cultural, social and environmental context of the period.
LSA	-	620	Design Studio II--Advanced Site Design	This course is the third in a sequence of landscape architectural design studios. It focuses on advanced issues in site design and on the integration of project programming and design development into the design process.
LSA	-	621	Design Studio IV--Community Design and Planning	Design studio problems addressing principles and practice of community design, the structure and language of human settlements, community design process, natural systems and community design, and an introduction to the history, traditions and literature of the field.

LSA	-	632	Plants and Landscapes	This course provides an introduction to the identification and use of native and exotic plants typical of landscape architectural practice. It also introduces students to a range of landscape contexts ranging from natural areas to urban settings and establishes a foundation for the discussion of the social, historical and ecological themes and issues of each.
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Paper Science and Engineering

PSE	-	798	Resrch/Paper Science Engr	Independent research topics in Paper Science Engineering.
PSE	-	898	Prof Experience/Synthesis	A supervised, documented professional work experience in the Master of Professional Studies degree program.
PSE	-	899	Masters Thesis Research	Research and independent study for the master's thesis.
PSE	-	999	Doctoral Thesis Research	Research and independent study for the doctoral dissertation.

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