GRADUATE PROGRAMS SUSTAINABLE RESOURCES MANAGEMENT

The SRM graduate program prepares students for careers in resource administration, management, scientific research, professional education, and a variety of other specialized positions related to the sustainable management of natural and built systems and resources.

M.F. M.P.S, M.S. & Ph.D. in Forest Resources Management

Master of Forestry (M.F.)

The Master of Forestry (MF) graduate degree program enables students to integrate knowledge and expertise drawn from both the natural and social sciences, and to apply their knowledge to solve practical forest management problems.

The primary focus of the program is to provide an opportunity for graduates coming from diverse academic backgrounds with non-forestry baccalaureates to gain a professional education in forestry. As such, the program is designed to be the first professional degree in forestry attained by a student. Graduates will successfully function as professional foresters on multi-disciplinary forest management teams and respond to the challenges related to the sustainable management of local, regional, and global forest resources.

The degree requires 37 graduate credits of coursework, of which at least 24 must be taken in residence at ESF. The degree accredited as a professional forestry program by the Society of American Foresters under Forestry.

The program is open to both students with some prior background in forestry and natural resources, and for those without such background. More than four (4) semesters may be required for students from non-science backgrounds who need additional basic undergraduate coursework as part of their degree program. The MF program is designed for May admission to accommodate the 4-week summer field course at the Ranger School in Wanakena, NY that is taught in June. All MF students must begin the program with this important foundational field course.

Undergraduate Required Core Courses		
FOR 304	Adirondack Field Studies	4
ESF 300	Intro/Geospatial Info Tech	3
EFB 336	Dendrology I	3
Graduate Required Core Courses		
FOR 522	Forest Mensuration	3
FOR 524	Forest Biometrics	3
FOR 532	Forest Ecology	4

FOR 533	Natural Resrc Managerial Econ	3
FOR 545	Introduction to Soils	3
FOR 570	Forest Mgmt Dec Mkng&Plng	3
FOR 573	Sustainable Harvesting Pract	3
FOR 689	Natural Resources Law & Policy	3
FOR 690	Integrated Resources Mgmt	3
FOR 898	Prof Exp/Intern	1 - 6
FOREST RESOURCES MANAGEMENT DIRECTED ELECTIVE		3

Master of Professional Studies (M.P.S.)

The Master of Professional Studies (M.P.S.) graduate degree program enables students to integrate knowledge and expertise drawn from both the natural and social sciences, and to apply their knowledge to solve practical forest and natural resources management problems. The primary focus of the program is to provide an opportunity for graduates coming from related academic backgrounds with baccalaureates to gain a professional education in forestry. As such, the program is designed to be the first professional degree in forest and natural resources management. Graduates will successfully function as professional managers on multi-disciplinary forest and natural resources management teams and respond to the challenges related to the sustainable management of local, regional and global resources.

The M.P.S. degree is a coursework-based degree that enables students to increase, refine, and integrate their natural science and social science knowledge and expertise in forest and natural resources management.

The degree requires at least 30 graduate credits of coursework. At least 24 of the course credits must be taken in residence at ESF. Within these credits, students must complete a core of required courses and other requirements.

The program is open to both students with some prior background in forestry and natural resources and for those without such background. Students with a degree in a related discipline (e.g., ecology, biology, wildlife, chemistry, etc.) can complete the M.P.S. degree in twelve (12) to eighteen (18) months. Students without a general science background will require eighteen (18) to twenty-four (24) months to complete the program. The curriculum is designed for fall admission, but spring semester admission is possible. More than four (4) semesters may be required for students from non-science backgrounds who need additional basic undergraduate coursework as part of their program of study.

Required Courses

GRADUATE LEVEL STATISTICS	3

FOR 560	Principles of Mgmt/Envrn Prof	3
FOR 692	Capstone/Resources Management	3
15 CREDIT IN AREA OF STUDY		15
QUANTITATIVE METHODS		3

Master of Science (M.S.)

The Master of Science (M.S.) graduate degree program enables students to integrate knowledge and expertise drawn from both the natural and social sciences, and to research issues and apply their knowledge to solve practical problems in forest and natural resources management situations. The primary focus of the program is to provide an opportunity for graduates coming from related academic backgrounds with baccalaureate degrees to gain a science-based education in forest and natural resources management. Graduates will successfully function as researchers and managers on multi-disciplinary forest management teams and respond to the challenges related to the sustainable management of local, regional and global resources.

The program is open to both students with some prior background in forestry and natural resources and for those without such background. Students with a degree in a related discipline (e.g., ecology, biology, wildlife, chemistry, etc.) can complete the M.S. degree in twenty-four (24) to thirty (30) months. Students without a general science background will require more than thirty (30) months to complete the program. More than four (4) semesters of coursework may be required for students from non-science backgrounds who need additional basic undergraduate coursework as part of their program of study.

The degree requires at least 30 graduate credits, of which 24 are for coursework and six for the thesis. One-half of the 24 hours of coursework must be at the 600-level or above. At least 18 of the coursework credits must be taken in residence at ESF. All students must take two topical seminars.

Doctor of Philosophy (Ph.D.)

The Doctor of Philosophy (Ph.D.) graduate degree program enables students to extend knowledge and expertise from their natural and social science background in their baccalaureate and master's degrees. It is normally built upon a M.S. degree, but in some instances it can be undertaken after a non-research based graduate degree (such as a J.D., M.B.A, M.P.A, or M.P.S. degree).

The primary focus of the program is to provide an opportunity for graduates coming from diverse academic backgrounds to gain a science-based education in forest and natural resources management.

The degree provides students with an opportunity for in-depth study and to conduct a comprehensive scientifically based research program using advanced research tools. Ph.D. dissertations are expected to lead to a number of peer-reviewed articles in influential journals.

The degree is appropriate for students interested in advanced positions as forest and natural resources educators, researchers, managers, consultants and analysts on the local, regional and global levels.

The program is open to both students with some prior background in forestry and natural resources and for those without such background. Students with degrees in a related discipline (e.g., ecology, biology, wildlife, chemistry, etc.) can complete the Ph.D. degree in three (3) to five (5) years. Students with a general science background, but little or no forest or natural resources experience, may require more than five (5) years to complete the program.

The degree requires at least 60 graduate credit hours, of which 48 are for coursework and 12 for the dissertation. One-half of the 48 hours of coursework must be at the 600-level or above. At least 24 coursework credits must be taken in residence at ESF. All students must take two topical seminars.

Areas of Study

Forest Management and Operations (M.F.)

The Forest Management and Operations area of study focuses on the the management of forest ecosystems. Students learn how management decisions affect the sustainability of forests and provides the training necessary to be a professional forester. It is an applied area of study designed to meet professional accreditation standards.

Ecology and Ecosystems (M.P.S., M.S., Ph.D.)

The Ecology and Ecosystems area of study focuses on the structure, function, dynamics, and resilience of terrestrial ecosystems, at a range of scales, from tree genetics and plant physiology to landscape ecology, modeling and remote sensing.

Because functioning and resilient ecosystems are central to human well-being, research opportunities in this area of study address a diversity of topics that help us better understand and enhance the sustainability of terrestrial ecosystems in a rapidly changing world.

Economics, Governance and Human Dimensions (M.P.S., M.S., Ph.D.)

The Economics, Governance and Human Dimensions area of study emphasizes the human dimensions of resource systems involved in the processes of decision-making and action related to how coupled human-natural systems may be managed for sustainable outcomes.

This area of study also incorporates rigorous research into human behavior in recreational and natural settings, a topic that draws from multiple disciplinary perspectives in the social sciences.

Forest Management & Silvicuture

The Forest Management and Silviculture area of study focuses on sustainable management of forest ecosystems.

Because functioning and resilient forest ecosystems are essential to human well-being, research opportunities in this area of study address practices and decisions, economic and recreational considerations, landowner objectives and/or policies, ecological underpinnings, and applied science related to the sustainable management of forests.

Monitoring, Analysis and Modeling (M.P.S., M.S., Ph.D.)

The Monitoring, Analysis and Modeling area of study focuses on the application of statistical and operations research methods and techniques used to sample, describe and predict how individual trees, forest stands and terrestrial ecosystems change over both temporal and spatial scales.

Because trees and forests respond in varying ways to an array of human and natural disturbances, research opportunities in this area of study address a diversity of topics that help us to better understand and evaluate the dynamics of terrestrial ecosystems in a rapidly changing world.

M.P.S., M.S., & Ph.D. in Natural Resources Management (CIP code: 3.0199)

The Natural Resources Management program focuses on both the underlying theory and on-the-ground application of practices to achieve sustainable outcomes in natural resource systems.

Because management practices and decisions arise from the combination of ecological knowledge, economic considerations and landowner/manager objectives and/or policies, research opportunities in management are interdisciplinary by nature.

M.P.S, M.S. & Ph.D. in Sustainable Construction Management (CIP code: 14.3301)

Areas of Study

Construction Management (M.S., M.P.S.)

This option is for students who plan to specialize in construction management. Studies depend upon the student's previous education, professional objectives and interests.

Recent graduates have matriculated upon completion of undergraduate degrees in architecture, mechanical engineering, construction management and civil engineering.

M.S. in Construction Management

Applicants for the Construction Management area of study leading to an M.S. degree are required to have a bachelor’s degree in one of the following: science, construction management, business, management, architecture or engineering.

Topics for M.S. research may include the following areas in the management of construction projects: Construction project management, Estimating, cost engineering, building codes and zoning, Production management, Computer graphics and computer applications in construction.

For the M.S. degree in Construction Management the following courses are required (or equivalent with committee approval):

Required Courses

CME 543	Construction Estimating	3
CME 653	Construct Plan/Scheduling	3

CME 654	Construction Project Mgt	3

M.P.S. in Construction Management

The M.P.S. degree is a non-thesis degree open to students with a demonstrated interest in the profession of construction management. A bachelor's degree in one of the following is strongly recommended: science, construction management, business, management, architecture, engineering, or related field of study.

Coursework

- Required: 12 cr hrs
- Directed Electives: 6-12 cr hrs
- Open Electives: 3-9 cr hrs
- Practicum/Synthesis Project: 3-6 cr hrs
- Total credit hours: 30 cr hrs

Required Courses (12 credits)

CME 543	Construction Estimating	3
CME 653	Construct Plan/Scheduling	3
CME 654	Construction Project Mgt	3
CME 658	Construct Contracts/Specs	3

Directed Elective Courses (6 - 12 credits)

CME 525	Const Methods&Equipment	3
CME 531	Construction Safety	3
CME 535	Cost Engineering	3
CME 658	Construct Contracts/Specs	3

Open Elective Courses (3 - 9 credits)

FOR 665	Natural Resources Policy	3
FOR 670	Resource & Envrn Economics	3
FOR 680	Urban Forestry	3
FOR 687	Environmental Law & Policy	3
FOR 770	Ecological Economics & Policy	3
EST 550	Envrn Impact Analysis	3
EST 603	Research Methods and Design	3
EST 604	Survey Research Methods	3

EST 605	Qualitative Methods	3
EST 626		
EST 627	Environmental &Energy Auditing	3
EST 635	Pub Part&Decision Making	3
EST 640	Envrn Thought and Ethics	3
EST 660	Land Use Law	3
Professional Experience/Synthesis Project (3-6 credits)		
CME 898	Prof Experience/Synthesis	1 - 6

Sustainable Construction (M.S., M.P.S.)

This option is for students interested in sustainable construction practices including topics such as energy use in buildings, material use in sustainable construction, life cycle analysis, environmental rating systems and environmental performance measures.

Students with a strong background in science are given greater consideration.

M.S. in Sustainable Construction

Applicants for the Sustainable Construction area of study leading to an M.S. degree are required to have a bachelor's degree in one of the following: science, construction management, architecture or engineering. It is preferred that students have a science background and to have completed courses in physics, chemistry and calculus.

Topics for the M.S. or Ph.D. research may include the following: Energy systems in buildings, Sustainable materials, Environmental performance measures, Building codes, Renewable materials, Deconstruction and reuse, Life cycle analysis, building performance.

For the M.S. degree in Sustainable Construction, students must complete coursework in construction project management if this was not part of their undergraduate degree.

M.P.S. in Sustainable Construction

The M.P.S. degree is open to students with a demonstrated interest in sustainable construction such as properties of construction materials, energy systems in buildings, rating systems and building performance. A bachelor'cs degree in one of the following is strongly recommended: science, construction management, architecture, engineering, or related degree. It is preferred that students have a science background and to have completed courses in physics, chemistry and calculus.

Coursework

- Required: 12 cr hrs
- Directed Electives: 6-12 cr hrs
- Open Electives: 3-9 cr hrs
- Practicum/Synthesis Project: 3-6 cr hrs

- Total credit hours: 30 cr hrs

Core courses (12 credits)

CEE 678	Rehab of Civil Infrastructure	0 - 8
CME 504	Envrn Perform Measures/Bldgs	3
CME 505	Sustainable Energy Sys/Bldgs	3
CME 532	Mech/Elect Equipment	3
CME 565	Sustainable Innovatns/Res Cons	3
CME 605	Bldg Info Modelng/Cons Mgt	3

Construction management courses (6-12 credits)

CME 543	Construction Estimating	3
CME 653	Construct Plan/Scheduling	3
CME 654	Construction Project Mgt	3

Application electives (3-9 credits)

EST 550	Envrn Impact Analysis	3
EST 603	Research Methods and Design	3
EST 604	Survey Research Methods	3
EST 605	Qualitative Methods	3
EST 626		
EST 627	Environmental &Energy Auditing	3
EST 635	Pub Part&Decision Making	3
EST 640	Envrn Thought and Ethics	3
EST 660	Land Use Law	3
FOR 665	Natural Resources Policy	3
FOR 670	Resource & Envrn Economics	3
FOR 680	Urban Forestry	3
FOR 687	Environmental Law & Policy	3
FOR 689	Natural Resources Law & Policy	3

FOR 770	Ecological Economics & Policy	3

Professional Experience/Synthesis (3-6 credits):

CME 898	Prof Experience/Synthesis	1 - 6

M.P.S., M.S., & Ph.D. in Sustainable Energy

The Sustainable Energy (SE) graduate program enables students to focus on energy resource management and policy research with a strong foundation in the social and biophysical sciences.

The study of responsible energy resources use and the development of sustainable sources of energy have become critical national and global issues. Energy concerns include the quality and quantity of energy resources, energy security, and the impacts of energy generation, transmission and use on the environment and human health. The SE program prepares graduates to lead in addressing these concerns through the development of professional competency in transdisciplinary research and analytical skills. SE graduates advance into careers in academia, sustainable energy administration and management, scientific research, consulting, environmental advocacy, and a variety of other specialized positions related to sustainable energy resources.

SE students take courses in energy systems and pathways, resource management, environmental engineering, law and policy, and statistical analysis, among others. Rather than follow a specific track, the curriculum path for each student will follow a mentor-based approach tailored to individual professional and research interests. Students work with their major professor and steering committee to develop their coursework curriculum, which includes opportunities for both classroom-based and lab- and field-based instruction.

- M.P.S. students are required to complete 30 credit hours of graduate coursework.
- M.S. students are required to take 30 graduate credit hours, including 24 hours of coursework credit and six thesis research credits; 12 coursework credit hours must be at the 600-level or above.
- Ph.D. students are required to take 60 graduate credit hours, including 48 hours of coursework credit and 12 hours of thesis research credit.

Certificate in Climate Sustainability Leadership

The Advanced Certificate in Climate & Sustainability Leadership is a science-based leadership and management-oriented certificate for emerging professionals who work on greenhouse gas emissions reduction, climate adaptation, and sustainability projects.

This program is a 10-credit advanced certificate that provides content training in climate change science, current climate protection, policies, analytic tools and critical thinking, project management, problem solving, workplace effectiveness, communication, and fundraising.

Students in this advanced certificate program will also participate in the Strategic Energy Innovations' (SEI) Climate Corps Fellowship program. Climate Corps fellows gain real-world expertise in the climate change field, while working with private, public and nonprofit partners in the community to address real world climate and sustainability projects and cultivate the next generation of environmental leaders. The SEI Climate Corp Fellowship program develops

relationships with partners to identify placements for fellows and raises funds from partners that provides fellows with stipend and tuition support for the academic program they participate in at SUNY ESF.

Required Courses

SRE 650	Climate&Sust Science&Practce I	3
SRE 660	Climate&Sust Science&Prctce II	3
SRE 898	Prof Experience/Internship	1 - 12