NATURAL RESOURCES
http://www.uvm.edu/lsenr/

OVERVIEW
Graduate students in the Rubenstein School work closely with faculty who are dedicated to applied environmental research in service of society and have very active research programs. Faculty take an integrated approach to their research projects, work with other faculty teams in the School, and collaborate nationally and internationally with other researchers.

DEGREES
- Natural Resources AMP (http://catalogue.uvm.edu/graduate/naturalresources/naturalresourcesamp/)
- Natural Resources M.S. (http://catalogue.uvm.edu/graduate/naturalresources/naturalresourcesms/)
- Natural Resources: Leadership for Sustainability M.P.S. (http://catalogue.uvm.edu/graduate/naturalresources/leadershipforsustainabilitymps/)
- Natural Resources: Master of Environmental Law and Policy/ Master of Science in Natural Resources (MELP/MSNR) (http://catalogue.uvm.edu/graduate/naturalresources/naturalresourcesmasterofenvironmentallawandpolicy/masterofscienceinnaturalresources)
- Natural Resources Ph.D. (http://catalogue.uvm.edu/graduate/naturalresources/naturalresourcesphd/)

FACULTY
Adair, Elizabeth Carol; Assistant Professor; Rubenstein School of Environment and Natural Resources; PHD, Colorado State University
Bierman, Paul Robert; Professor, Department of Geology; PHD, University of Washington
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Chase, Lisa Cheryl; Extension Professor; Department of Extension and Faculty Support; PHD, Cornell University
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Stokowski, Patricia A.; Professor; Rubenstein School of Environment and Natural Resources; PHD, University of Washington

Strong, Allan Matthew; Associate Professor; Rubenstein School of Environment and Natural Resources; PHD, Tulane University

Troy, Austin R.; Adjunct Professor; Rubenstein School of Environment and Natural Resources; PHD, University of California Berkeley

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Yamamato, Britt; Adjunct Associate Professor, Rubenstein School of Environment and Natural Resources; PHD, University of Washington Seattle

Zydlewski, Gayle Barbin; Adjunct Associate Professor, Rubenstein School of Environment and Natural Resources; PHD, University of Maine

Courses

NR 220. Landscape Ecology. 3 Credits.
The course examines the critical role of landscape pattern in determining ecological process and dynamics, as well as human-ecological interactions. Includes field labs. Prerequisites: NR 103 or BCOR 102; Senior/Graduate standing.

NR 228. Ecosystems Ecology. 3 Credits.
Examination of the structure and function of terrestrial ecosystems focusing on carbon and nutrient cycles. Laboratory sessions involve spatial modeling and data analysis. Prerequisites: NR 103, BCOR 102, PSS 161, or Graduate student standing. Cross-listed with: FOR 228.

NR 242. Adv Geospatial Techniques. 1-3 Credits.
Advanced course encompassing a wide range of topics in GIS, remote sensing, GPS, modeling, and visualization designed to provide technical expertise in geospatial techniques. Prerequisite: NR 143, GEOG 184, NR 343, NR 146, NR 346, or GEOG 185.

NR 243. GIS Practicum. 3 Credits.
An applied course in geospatial technology with a focus on ESRI’s ArcGIS software suite. Prerequisite: NR 143 or NR 343.

NR 250. Limnology. 0 or 4 Credits.
Ecology of lakes and reservoirs, including their origin, physics, chemistry and biology, and the effects of anthropogenic perturbations. Field and laboratory experience. Prerequisites: BIOL 001 and BIOL 002 or BCOR 011 and BCOR 012, and CHEM 023 or CHEM 026 or CHEM 031 and CHEM 032, and NR 103 or BCOR 102.

NR 254. Adv Natural Resource Policy. 3 Credits.
Advanced seminar in environmental and natural resource policy. Prerequisites: NR 153 or ENVS 142 or POLS 130 or Graduate standing.

NR 268. Soil Ecology. 0 or 4 Credits.
Underlying concepts and theory of modern soil ecology will be reviewed including spatial and temporal distributions, sampling methods, biogeochemical cycles, and ecological functions of soil. Prerequisites: BCOR 102 or NR 103, Prerequisites: BCOR 102 or NR 103, and PSS 161. Cross-listed with: PSS 268.

NR 280. Stream Ecology. 0 or 4 Credits.
Ecology of streams including hydrodynamics, morphology, sediment transport, chemistry, biology and human impacts. Field and laboratory experience. Prerequisites: BIOL 001 and BIOL 002 or BCOR 011 and BCOR 012, and CHEM 023 and CHEM 026 or CHEM 031 and CHEM 032, and NR 103 or BCOR 102.
NR 288. Ecol Design & Living Technol. 3 Credits.
The course explores the potential for ecological design to shape a sustainable future. It analyzes living technologies for food production, waste management and environmental restoration. Prerequisite: Junior standing.

NR 289. Advanced Ecological Design. 3 Credits.
A problem-based, cross-disciplinary design course in which existing conditions are integrated with the redesign of place and system in alignment with ecological design principles. Prerequisite: NR 288.

NR 306. Envisioning a Sust Future. 2 Credits.
Seminar orienting graduate students to RSENR and providing frameworks for collaborative leadership, whole systems thinking, and intercultural competency.

NR 311. Leadership for Sustainability. 3 Credits.
Provides an experiential and theoretical orientation to foundational practices, principles, and skills of sustainability leadership with an emphasis on ecological/systems thinking, sustainability, and leadership.

NR 312. Power Privlge & Catalyz Change. 3 Credits.
Focuses on leadership skills and systems frameworks for engaging with issues of diversity, power, and privilege and the implications of these topics on leaders' capacity. Designed to meet the RSENR graduate diversity requirement. Prerequisite: NR 311.

NR 333. Professional Writing Essential. 1 Credit.
Basics of good writing, essay and report writing, as published in both popular and professional journals in the environment and natural resources. Prerequisite: Graduate standing. Cross-listed with: PBIO 333.

NR 334. Professional Writing AdvTopics. 1 Credit.
Writing workshop that explores essay and report writing, as published in both popular and professional journals that examine the natural world and its resources. Prerequisite: Graduate standing. Cross-listed with: PBIO 334.

NR 341. Ecological Economic Theory. 3 Credits.
A transdisciplinary study of the economic system as embedded and interdependent on social institutions and environmental systems. Prerequisite: Graduate standing.

NR 342. Ecosystem Services. 3 Credits.
Examines the economic and other benefits nature provides to people. Covers the ecological foundations of quantifying ecosystem services, the economics of valuation, and the practical issues involved with putting them to work for conservation. Prerequisites: Graduate standing; Instructor permission.

NR 343. Fndmths of Geog Info Systems. 0 or 3 Credits.
Concepts and methods in Geographic Information Systems (GIS) presented at an accelerated pace for Graduate students using ArcGIS software. Prerequisite: Graduate standing.

NR 351. Ecological Economics Methods. 3 Credits.
A survey of frameworks and tools used to analyze and understand linked social and natural systems. Prerequisite: Graduate standing.

NR 352. Ecological Economics Practice. 3 Credits.
An applied field course drawing from Ecological Economics theory and methods to help solve real-world problems at the interface among ecological, social, and economic systems. Prerequisite: Graduate standing.

NR 376. Graduate Teaching Practicum. 2 Credits.
Natural Resource teaching practicum for doctoral students in the Rubenste School. Course is required if students are following the academic option. Should be taken concurrently or one semester in advance of completion of the doctoral teaching requirement. Prerequisite: Doctoral standing.

NR 384. Independent Study in NR. 1-18 Credits.
Readings, with conferences, to provide graduate students with backgrounds and specialized knowledge relating to an area in which an appropriate course is not offered.

NR 388. Ecological Leadership Seminar. 3 Credits.
Explores emerging topics and themes related to the theory and practice of ecological leadership. Can be taken in successive semesters (up to 2 times), as learning module topics will change.

NR 389. Ecological Leadership Practicum. 3 Credits.
An advanced exploration of ecological/systems thinking, sustainability, leadership skills, and leveraging change; offering students the opportunity to integrate these concepts and skills through an applied leadership practicum. Prerequisite: NR 388.

NR 390. Internship. 1-18 Credits.
On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

NR 391. Master's Thesis Research. 1-18 Credits.

NR 392. Master's Project Research. 1-12 Credits.

NR 395. Advanced Special Topics. 1-18 Credits.
Graduate topics and material that may eventually develop into a regular course offering.

NR 491. Doctoral Dissertation Research. 1-18 Credits.

NR 496. Advanced Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.