

# Conservation and Restoration Study Plan

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The Conservation and Restoration Study Plan is for students who intend to pursue a career and/or graduate study in a variety of fields related to conservation, restoration, and management of natural and cultural landscapes. Under the plan, students combine an interdisciplinary education in environmental studies with in-depth work in a particular area of emphasis, giving them valuable expertise within the broader fields of conservation and restoration.

This interdisciplinary plan consists of a core set of courses dealing with the ecological and social dimensions of conservation and restoration, and two elective tracks that develop deeper expertise in either the biological or social science perspectives of these fields.

An important component of this study plan is the internship, which provides opportunity for real-world experience working in the field. Many excellent opportunities for internships exist near campus. Students are encouraged to divide the four required internship units into two different internships to broaden their experience and expertise.

Students completing this study plan will be well prepared for careers with organizations that use, conserve, or manage natural resources and ecological

systems. Past graduates have taken positions with federal and state land management and wildlife agencies, state and county park systems, water districts, open space districts, non-profit conservation organizations, private environmental consulting firms, and many others.

## Track I. Biological Emphasis

Track I is for students interested in science-based conservation, restoration, conservation planning, land management and preservation. Students participate in an interdisciplinary curriculum that combines course work in ecology and biology with environmental policy, law, and/or planning. A minor in Biology is strongly encouraged.

## Track II. Social Science Emphasis

Track II is for students interested in the human dimensions of conservation and restoration. Coursework focuses on the political, historical, and/or geographic aspects of land and resource conservation, planning, and management, while also covering a solid interdisciplinary foundation of ecological understanding. A minor in Geography is strongly encouraged.

Students with Biology or Geography minors must be certain to complete a minimum of 24 units in ENSP.

Check our website: [www.sonoma.edu/ensp](http://www.sonoma.edu/ensp)

Other ENSP Study Plans include BA programs in Environmental Education, Outdoor Leadership or Planning, and BA/BS programs in Environmental Technology: Hazardous Materials Management, Water Quality, or Energy Management & Design

## Conservation and Restoration - Core Sequence

All Conservation and Restoration (C&R) students will complete a sequence of lower-division courses and upper-division courses, including the ENSP core and the conservation and restoration core. The lower-division requirements provide an introduction to practitioners working in various fields in the environmental sciences and basic statistical concepts. C&R students pursuing a biological emphasis (see Track I below) will complete two additional courses in the lower-division biology core. ENSP students are expected to complete all lower-division requirements before attaining junior standing (60 units).

The upper-division core is completed by all ENSP students and designed to provide breadth in different disciplines related to Environmental Studies and Planning. The Conservation and Restoration Core complements this set of courses with in-depth training and practice in the fields related to conservation, restoration, and management. Students also select courses in one or more technical and research skills.

Conservation and Restoration Required Courses				
Requirement	Course	Units	Sem	<input checked="" type="checkbox"/>
Lower-division Requirements	MATH 165 - Statistics (or equivalent)	4	F/S	<input type="checkbox"/>
	ENSP 201 - Environmental Forum (must be taken at SSU)	1	F	<input type="checkbox"/>
	BIOL 121 - Diversity, Structure and Function (Track I only)*	4	F/S	<input type="checkbox"/>
	BIOL 122 - Genetics, Evolution and Ecology (Track I only)*	4	F/S	<input type="checkbox"/>
	<b>TOTAL LOWER-DIVISION UNITS</b>	<b>5-13</b>		
Upper-division ENSP Core	<u>Life Sciences</u> (Complete one of the following): ENSP 302 - Applied Ecology (Track II only) BIOL 333 - Ecology (Track I only)	4 4	F/S F	<input type="checkbox"/>
	<u>Physical Sciences</u> (Complete one of the following) ENSP 303 - Applied Physical Science GEOG 204 - Global Environmental Systems	4 4	F/S F	<input type="checkbox"/>
	<u>Humanities</u> (Complete one of the following): ENSP 307 - Environmental History ENSP 308 - Environmental Literature ENSP 421 - Natural Resources of the American West	4 3 3	F S S	<input type="checkbox"/>
	<u>Social Sciences</u> (Complete one of the following): ENSP 401 - Environmental Policy ENSP 404 - Environmental Law ENSP 416 - Environmental Planning	4 3 4	S F F	<input type="checkbox"/>
	ENSP 322 - Conservation Biology**	4	S	<input type="checkbox"/>
	ENSP 423 - Restoration Ecology (Track I)	4	F	<input type="checkbox"/>
	ENSP 425 - Restoration and Society (Track II)	3	S	<input type="checkbox"/>
	ENSP 497 - Senior Seminar***	2	S	<input type="checkbox"/>
	ENSP 499 - Internship	4	F/S	<input type="checkbox"/>
	Complete two of the following: ENSP 305L - Computer Aided Communications ENSP 405 - Environmental Writing ENSP 428/GEOG 315 - Cons. Res. Methods/Field Methods GEOG 205 - Introduction to Map Reading and Interpretation GEOG 380 - Remote Sensing and Image Processing GEOG 387 - Introduction to GIS	3 3 2-3 1 4 4	S F F F/S S F	<input type="checkbox"/>
	<b>TOTAL UPPER- DIVISION UNITS</b>	<b>30-35</b>		

**NOTES:**

\* BIOL 121 and BIOL 122 are requirements for Track I students only and are pre-requisites for all upper-division biology classes. BIOL 121 and BIOL 122 can be taken in any order.

\*\* BIOL 122 or ENSP 302 must be taken before taking ENSP 322.

\*\*\* ENSP 497 must be taken during the final semester or within one semester of graduation.

Note: GEOG 205 is a pre-requisite for ENSP 428/GEOG 315, GEOG 380, and GEOG 387

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## Conservation and Restoration Upper Division Electives

Select one of two following tracks to focus selection of upper-division courses:

### Track I. Biological Emphasis (8-12 units):

- Complete two courses from the upper-division biology electives list below, including at least one course covering a particular taxonomic group (e.g. courses marked with \*). Additional taxonomic courses may be substituted when offered; and
- Complete one upper-division course from the environmental/social science elective list below. Upper-division courses from the ENSP and/or Conservation and Restoration Core list (previous page) can be applied after the core requirements are filled.

### Track II. Social Science Emphasis (8-12 units):

- Complete one additional social science course, which can be chosen from the Upper-division ENSP Core list (previous page), or any ENSP class marked with \* below; and
- Complete two upper-division courses from the environmental/social science elective list below. Upper-division courses from the ENSP and/or Conservation and Restoration Core list (previous page) can be applied after the core requirements are filled.

Upper-division Electives				
Requirement	Course	Units	Sem	<input checked="" type="checkbox"/>
Biology	BIOL 314 - Field Biology	4	S	<input type="checkbox"/>
	BIOL 322 - Invertebrate Biology*	4	F	<input type="checkbox"/>
	BIOL 323 - Entomology*	4	S	<input type="checkbox"/>
	BIOL 327 - Vertebrate Biology*	4	S	<input type="checkbox"/>
	BIOL 328 - Vertebrate Evolutionary Morphology*	4	S	<input type="checkbox"/>
	BIOL 329 - Plant Biology*	4	F	<input type="checkbox"/>
	BIOL 330 - Plant Taxonomy*	4	S	<input type="checkbox"/>
	BIOL 331 - Aquatic Botany*	4	S	<input type="checkbox"/>
	BIOL 332 - Marine Ecology	4	S	<input type="checkbox"/>
	BIOL 337 - Behavioral Ecology	4	S	<input type="checkbox"/>
	BIOL 341 - Evolution	4	F	<input type="checkbox"/>
	BIOL 347 - Environmental Physiology	4	F	<input type="checkbox"/>
	BIOL 485 - Biometry	4	F	<input type="checkbox"/>
	BIOL 512 - Conservation Ecology	2	S	<input type="checkbox"/>
		* Courses that satisfy taxonomic requirement		
Environmental and Social Sciences	ANY courses from the ENSP and/or C&R core lists (see previous page) not already applied to core requirements	2-4		<input type="checkbox"/>
	ENSP 306 - Environmental Ethics	3	F/S	<input type="checkbox"/>
	ENSP 309 - Soil Science	3-4	F	<input type="checkbox"/>
	ENSP 310 - Introduction to Planning*	3	F/S	<input type="checkbox"/>
	ENSP 315 - Environmental Impact Reporting*	3	F	<input type="checkbox"/>
	ENSP 324 - Agroecology	2	F/S	<input type="checkbox"/>
	ENSP 326 - Native Plant Propagation	2	F/S	<input type="checkbox"/>
	ENSP 330 - Energy, Technology, and Society	4	S	<input type="checkbox"/>
	ENSP 415 - Land Use Law*	3	S	<input type="checkbox"/>
	ENSP 422 - Special Topics in ENSP	2-3	F/S	<input type="checkbox"/>
	ENSP 424 - Fire Ecology and Management	3	F/S	<input type="checkbox"/>
	ENSP 418 - Planning for Sustainable Communities*	3	S	<input type="checkbox"/>
	ENSP 440 - Education and the Environment	4	F	<input type="checkbox"/>
	GEOG 322 - Liberation Ecologies	4	F	<input type="checkbox"/>
	GEOG 335 - Global Food Systems	4		<input type="checkbox"/>
	GEOG 340 - Conservation of Natural Resources	4	S	<input type="checkbox"/>
	GEOG 372 - Global Climate Change	4	F	<input type="checkbox"/>
	GEOG 375 - Natural Hazards	4	S	<input type="checkbox"/>
	GEOG 487 - Advanced Geographic Information Systems	4	S	<input type="checkbox"/>
	ECON 381 - Natural Resource & Environ. Economics	4	F	<input type="checkbox"/>
PHIL 325 - Environmental Philosophy	3		<input type="checkbox"/>	
	* Courses that satisfy additional social science requirement			