

A minor in soil resources is useful for students majoring in agriculture who plan to seek employment in areas of agricultural production, marketing, management, and conservation, i.e., areas in which decision-making requires a basic understanding of soils. The minor is also valuable for students in the Arts and Sciences and other students who would like to understand the fate of chemicals and waste products that are applied to or buried in the soil. For students in Geology, Geography, Anthropology and Archeology, this minor will provide background information for identifying and understanding soils and the climate and processes under which they are formed. Since soil is the basic resource on which civilizations are built, students in an international program, or who are interested in working in developing countries of the world, will acquire a background in soils that will help them relate to the economic and political problems of these developing countries.

Soil is a fundamental resource for ecosystem function and environmental health. It is a living filter that provides vital ecosystem services – including food production, water purification, carbon sequestration, nutrient recycling, and assimilation of waste products. Soil is a key component of natural agricultural, wildland, and urban ecosystems that sustain all global processes. Soil science is highly interdisciplinary; soil scientists apply biology and microbial ecology, chemistry, earth sciences, ecology, hydrology, mineralogy, mathematics, nutrition, toxicology, and physics to understand, sustain, and improve the environment.

The minor in Soil Science is designed to introduce students to basic soil environmental science concepts, techniques and practices. A diverse range of soil science course offerings provide experience with geospatial analysis, computer modeling, spectroscopy, bioassays, molecular biology, and other advanced field and lab technology for soil investigation.

**A total of 16 semester units are required for this minor.**

Course number	Course Title	Credit hours	Prerequisite
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**Required:**

ENR 3000	Soil Science	3	
ENR 3001	Soil Science Laboratory	1	ENR 3000

**Electives:**

**(choose courses from the following list to equal 12 units)**

ENR 4260	Soil Resource Management	3	ENR 3000
ENR 5260	Soil Landscapes: Morphology, Genesis & Classification	3	ENR 3000 & ENR 3001
ENR 5261	Environmental Soil Physics	3	
ENR 5262	Soil Chemical Processes & Environmental Quality	3	CHEM 1210 or CHEM 1250
ENR 5263	Biology of Soil Ecosystems	3	ENR 3000
ENR 5268	Soils & Climate Change	2	
ENR 5270	Soil Fertility	3	ENR 3000
ENR 5273	Environmental Fate and Impact of Contaminants in Soil and Water	3	2 semesters of CHEM
ENR 5274	Ecosystems Simulation	3	ENR 3000 & ENR 3001
ENR 5279	Soil & Ecosystem Services: Assessment & Restoration	3	
ENR 6610*	Soil & Environmental Biochemistry	2	Instructor permission

\*Graduate level courses require permission of instructor.

### **Restrictions and General Information**

1. This minor is not available to students majoring in Environmental Science.
2. A maximum of 6 approved study abroad credits (ENR 5797 or a related study abroad experience as approved by an ENR advisor) may be used toward the minor unless specified otherwise.
3. A minimum 2.00 cumulative point-hour ratio is required in the minor course work; and a minimum grade of a C- is required for each course used to complete the minor.
4. A minor should be declared at the time a student accumulates 60 hours.
5. A student is permitted to overlap up to 6 credit hours between the GE and the minor.
6. The minor must contain a minimum of 12 credit hours distinct from the major and/or additional minors (i.e. if a minor requires more than 12 credit hours, a student is permitted to overlap those hours beyond 12 with a major or with another minor).
7. The minor must include at least 6 hours of upper-level or upper-division course work (3000 or above).
8. Course work graded Pass/Non-Pass cannot count in the minor, and no more than 3 credit hours of course work graded Satisfactory/Unsatisfactory may count toward the minor.
9. A student is permitted to count up to 6 total hours of transfer credit and/or credit by examination.
10. No more than 3 credit hours of xx93 may count toward the minor.