

Agronomy's Soil Science Certificate

What is it?

A certificate is between a minor and major in how it provides official recognition for a focus area of study. A certificate from Iowa State University is unique in that you do not have to have a bachelor's degree from Iowa State to earn a certificate. This soil science certificate is specially designed to match up with federal and state requirements for employment as a soil scientist. Anyone completing this certificate will have completed the curricular requirements to obtain a federal job classified for soil scientists and to obtain licensure in states that require it.

Why soil?

Soil science is a very interdisciplinary area of study. Traditionally, soil science has been highly valued by agriculture because of the obvious impacts that soil has on crop productivity. While that interest continues, many other fields have recognized the role of soil in Earth systems in general. Understanding soil is critical for addressing issues of food scarcity, infrastructure development, water management, climate change, biodiversity loss, and human health. Soil provides many ecosystem services that are crucial for achieving sustainability goals.

What are the benefits?

This certificate provides guidance for how the students can select their courses to open additional career opportunities. By completing this certificate, they will be eligible for jobs that require specialized education in soil science. That education reflects the many interactive components of soil, which is one of the reasons that soil is such a fascinating thing to study.

Why study soil at Iowa State University?

Iowa State University has been home for groundbreaking soil science since the inception of the university, which makes sense due to the importance of soil to Iowa's economy. Today, Iowa State University has one of the largest, most recognized soil science faculty in the world.

How do I sign up?

Declaring a certificate is similar to declaring a minor. With the assistance of an adviser you will need to complete a "Request for Undergraduate Certificate" form, which will document the courses you plan to use to meet the requirements. The advisor for the Soil Science certificate will verify that your course plan meets the requirements, and then you will take the form to your primary major advisor for their signature, and finally turn the form into your college's student services office.

Contact

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Soil Science Certificate Requirements

The overall program is divided into three categories: Foundation course (3 credits), Supporting Science courses (15 credits), and Soil Science courses (13 credits). For courses to qualify as a supporting science course, they must be from the biological, physical or earth sciences. For a course to qualify as a soil science course, the course must apply principles and concepts of soil science to solve problems within an agricultural, environmental, and/or ecological framework.

Foundation (3 credits)

Agron 182 (Introduction to Soil Science) 3 cr.

Supporting Sciences (15 credits)

Biological, Physical, or Earth Sciences preapproved list from the following designators:

ABE, AGRON, A ECL, BIOL, CHEM, CE, CRP, ENSCI, ENT, FOR, GEOL, HORT, LA, MTEOR, MICRO, NREM, PHYS

Soil Science (13 credits)

At least 2 credits from each of the categories below and 9 credits of which at the 300-level or above

Soil Physical Properties or Soil Water Relationships:

Agron 282 (Soil Conservation and Land Use)	3 cr.
Agron 360 (Environmental Soil Science)	3 cr.
Agron 405 (Environmental Biophysics)	3 cr.
Agron 477 (Soil Physics)	3 cr.
ABE 431 (Design and Evaluation of Soil and Water Conservation Sys.)	3 cr.
TSM 324 (Soil and Water Conservation Management)	3 cr.

Soil Chemistry:

Agron 259 (Organic Compounds in Plants and Soils)	3 cr.
Agron 459 (Environmental Soil and Water Chemistry)	4 cr.

Soil Biology:

Agron 354 (Soils and Plant Growth)	3 cr.
Agron 354L (Soils and Plant Growth Lab)	1 cr.
Agron 485 (Soil and Environmental Microbiology)	3 cr.

Soil Morphology and Geography:

Agron 270X (Geospatial Technologies)	3 cr.
Agron 370 (Field Experience in Soil Description and Interpretation)	1 cr.
Agron 463 (Soil Formation and Landscape Relationships)	3 cr.
Agron 463L (Soil Formation and Landscape Relationships Lab)	1 cr.