SOIL AND WATER SCIENCES

Soil and Water Sciences involves managing land and water resources across a wide range of ecosystems, including agricultural, forested, range, urban and wetlands. Soil and Water Sciences students have a strong science and math background and study biology, calculus, microbiology, chemistry, physics, and ecology.

About this Program

- **College**: Agricultural and Life Sciences (https://catalog.ufl.edu/UGRD/colleges-schools/UGAGL)
- **School**: Natural Resources and Environment (https://catalog.ufl.edu/UGRD/colleges-schools/UGNTR)
- **Degree**: Bachelor of Science
- **Credits for Degree**: 120

Students in the Major Will Learn To

Student Learning Outcomes (SLOs)

**Content**
1. Apply fundamental principles of chemistry and physics in relation to critical zone processes in the pedosphere and hydrosphere.
2. Classify fundamental biological processes and differentiate basic organism function in soil and hydrologic systems.
3. Utilize field observations, case study evidence and experimental data to describe soil formation, morphology and interactions of the varied components of the hydrologic cycle.

**Critical Thinking**
4. Critically evaluate the sustainability of water resources in relation to human needs and natural ecosystem function.
5. Demonstrate quantitative problem-solving abilities by applying, analyzing and synthesizing content knowledge related to soil and water chemistry and physics.

**Communication**
6. Create, interpret and analyze written text, oral messages and multimedia presentations used in agricultural and life sciences.

Related Soil and Water Sciences Programs

- Combined Degree (https://catalog.ufl.edu/UGRD/academic-programs/combined-degrees)
- Soil and Water Sciences minor (https://catalog.ufl.edu/UGRD/colleges-schools/UGAGL/SWS_UMN)

Assessment Types

- Case studies
- Field studies
- Lab assignments and reports
- Written analysis
- Exams

Before Graduating Students Must

- Pass the soil and water sciences competency exam, given in four parts. One part will be given in each of these required courses:
  - SWS 3022 Soils in the Environment
  - SWS 4451 Soil and Water Chemistry
  - SWS 4602C Soil Physics
  - SWS 4715C Environmental Pedology
- Satisfactorily complete an approved research project in SWS 4905 or SWS 4941.
- Achieve minimum grades of C in AEC 3030C and AEC 3033C. These courses are graded using rubrics developed by a faculty team.
- Complete requirements for the baccalaureate degree, as determined by faculty.

Curriculum Map

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<tr>
<th>Courses</th>
<th>SLO 1</th>
<th>SLO 2</th>
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I = Introduced; R = Reinforced; A = Assessed

Academic Learning Compact

The soil and water sciences major enables students to identify and to describe the morphology of soils, to differentiate soils according to soil taxonomy and to distinguish soil forming factors. Students will use this knowledge to assess properties of soils in relation to plant growth and environmental uses and to apply this knowledge to different soil uses in agriculture, natural resources and urban settings.