SOIL SCIENCE (ENVIRONMENT AND RESOURCE MANAGEMENT) - BACHELOR OF SCIENCE IN AGRICULTURE

Soil scientists investigate the physical, chemical and biological characteristics and behavior of soils, their description and classification, and their management for both agricultural and non-agricultural uses. Career opportunities include: industry jobs; environmental consulting firms; and federal, state and local government careers working on various environmental, agricultural and ecological projects.

Soil science is integrated into the management of the environment and natural resources. Students interested in careers of conservation,. environmental management, urban planning, waste disposal and related fields in government and industry may choose from a variety of course offerings. The economic and social implications as well as the technological aspects of resource management are included in the concentration courses.

Students must complete all University degree requirements, which include: General Education requirements, Viewing a Wider World requirements, and elective credits to total at least 120 credits with 48 credits in courses numbered 300 or above. Developmental coursework will not count towards the degree requirements and/or elective credits, but may be needed in order to take the necessary English and Mathematics coursework. In addition to the courses listed for each major, you must take 35 credits in the College of Agricultural, Consumer and Environmental Sciences and at least 24 credits of soil science related courses with a grade of C- or above including:

Prefix	Title	Credits
General Education		
Area I: Communications		
English Composition - Level 1 [1]		*4*
English Composition - Level 2		
ENGL 2210G	Professional and Technical Communication	3
or ENGL 2210H	Professional and Technical Communication	
Oral Communication [1]		*3*
Area II: Mathematics		
Choose from one of the following:		3-4
MATH 1430G	Applications of Calculus I [2]	
MATH 1511G	Calculus and Analytic Geometry I [2]	
or MATH 1511H	Calculus and Analytic Geometry I Honors	
Area III/IV: Laboratory Science and Social/Behavioral Sciences		*11*
CHEM 1215G	General Chemistry I Lecture and Laboratory for STEM Majors	
CHEM 1225G	General Chemistry II Lecture and Laboratory for STEM Majors	
Area IV: Social & Behavioral Sciences Course (3 credits) [1]		
Area V: Humanities [1]		*3*
Area VI: Creative and Fine Arts [1]		*3*
General Education Elective		
GEOL 1110G	Physical Geology	4
or HNRS 2116G	Earth, Time and Life	
Viewing A Wider World [3]		**6**
Departmental/College Requirements		**24**
SOIL 2110 & 2110L	Introduction to Soil Science and Introduction to Soil Science Laboratory	
SOIL 312 & 312 L	Soil Management and Fertility and Soil Management and Fertility Lab	
SOIL 447	Seminar	
Choose 15 credit hours of SOIL Courses (300-level or above)		
SOIL 370	Environmental Soil Science	
SOIL 424	Soil Chemistry	
or SOIL 479	Environmental Soil Chemistry	
SOIL 456	Irrigation and Drainage	
SOIL 472	Soil Morphology and Classification	
SOIL 476	Soil Microbiology	
SOIL 476 L	Soil Microbiology Laboratory	
SOIL 477	Environmental Soil Physics	
SOIL 477 L	Environmental Soil Physics Laboratory	
Concentration Coursework [4]		
Select at least one course from each of the following four categories to bring total concentration coursework to 30 credits		30
All course selections must be in addition to the courses required under the Departmental/College and Non-Departmental Requirements sections listed above		
Category 1: Soil, Water, Wildlife, or Range Conservation		
Course category areas are as follows:		
Range Science		
Soil		
Environmental Science		
Wildlife Science		
Category 2: Ecology, Plant Biology, or Crop Production		
Course category areas are as follows:		
Agronomy		
Biology		
Entomology		
Plant Pathology		
Weed Science		
Horticulture		
Toxicology		
Category 3: Earth, Mineral, or Climatic Resources & Economics		
Course category areas are as follows:		
Agricultural Economics		
Geography		
Geology		
Planning		
Survey		
Category 4: Advanced Science, Computing & Statistics		
Course category areas are as follows:		
Math		
Chemistry		
Physics		
Computer-Oriented		
Statistics or Applied Statistics		
Non-Departmental Requirements (in addition to Gen.Ed/VWW)		
PHYS 1230G	Algebra-Based Physics I ((Lab not required))	3
CHEM 2120	Integrated Organic Chemistry and Biochemistry (CHEM 2120 must be taken with associated 1-cr CHEM lab)	3-4
or ANSC 1170	Introduction to Animal Metabolism	
Choose two from the following (lab is NOT required)		6

BIOL 2610G	Principles of Biology: Biodiversity, Ecology, and Evolution	
BIOL 311	General Microbiology	
BIOL 2110G	Principles of Biology: Cellular and Molecular Biology	
Second Language: (not required)		
Electives, to bring the total credits to 120 [5]		**12-14**
Total Credits		**120**

1. See the General Education (https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/) section of the catalog for a full list of courses
2. MATH 1430G Applications of Calculus I or MATH 1511G Calculus and Analytic Geometry I is required for the degree but students may need to take any prerequisites to enter either course first.
3. See the Viewing a Wider World (https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/#viewingawiderworldtext) section of the catalog for a full list of courses
4. Please see your academic advisor for a list of appropriate courses to satisfy the concentration coursework requirements.
5. Elective credit may vary based on prerequisites, dual credit, AP credit, double majors, and/or minor coursework. The amount indicated in the requirements list is the amount needed to bring the total to 120 credits and may appear in variable form based on the degree. However, students may end up needing to complete more or less on a case-by-case basis and students should discuss elective requirements with their advisor.

A Suggested Plan of Study for Students

Additional classes may be needed based on placement test results and course prerequisites. Visit with an advisor for help with creating a customized plan. This roadmap assumes student placement in MATH 1430G Applications of Calculus I or MATH 1511G Calculus and Analytic Geometry I and ENGL 1110G Composition I . The contents and order of this roadmap may vary depending on initial student placement in mathematics and English. It is only a suggested plan of study for students and is not intended as a contract. Course availability may vary from fall to spring semester and may be subject to modification or change.

First Year		
Fall		**Credits**
ENGL 1110G or ENGL 1110H	Composition I or Composition I Honors	4
ACES 1120 & ACES 1210	Freshman Orientation and Financial Fitness for College Students (recommended)	2
BIOL 2110G or BIOL 2610G	Principles of Biology: Cellular and Molecular Biology ((Lab not required)) or Principles of Biology: Biodiversity, Ecology, and Evolution	3
MATH course as per MPE		3-4
Area V: Humanities Course [3]		3
	Credits	**15-16**
Spring		
GEOL 1110G or HNRS 2116G	Physical Geology or Earth, Time and Life	4
ACOM 1130G	Effective Leadership and Communication in Agriculture	3
Area VI: Creative and Fine Arts Course [3]		3
Concentration Category Course: Category 1, 2, 3, or 4 [4]		4
Elective Course [1]		1-3
	Credits	**15-17**
Second Year		
Fall		
CHEM 1215G	General Chemistry I Lecture and Laboratory for STEM Majors	4
Viewing a Wider World [5]		3
Concentration Category Course: Categories 1, 2, or 3 [4]		4
Choose one from the following: [6]		3
BIOL 2110G	Principles of Biology: Cellular and Molecular Biology	
BIOL 2610G	Principles of Biology: Biodiversity, Ecology, and Evolution	
BIOL 311	General Microbiology	
	Credits	**14**
Spring		
CHEM 1225G	General Chemistry II Lecture and Laboratory for STEM Majors	4
SOIL 2110 & 2110L	Introduction to Soil Science and Introduction to Soil Science Laboratory	4
ENGL 2210G or ENGL 2215G or ENGL 2210H	Professional and Technical Communication or Advanced Technical and Professional Communication or Professional and Technical Communication	3
Elective Course [1]		4
	Credits	**15**
Third Year		
Fall		
SOIL 472	Soil Morphology and Classification	4
Viewing a Wider World Course [5]		3
Concentration Category Course: Category 1, 2 ,3 ,or 4 [4]		3
PHYS 1230G	Algebra-Based Physics I	3
Choose from one of the following:		3-4
MATH 1430G	Applications of Calculus I	
MATH 1511G or MATH 1511H	Calculus and Analytic Geometry I or Calculus and Analytic Geometry I Honors	
	Credits	**16-17**
Spring		
SOIL 456	Irrigation and Drainage	3
SOIL 476	Soil Microbiology	3
SOIL 479 or SOIL 424	Environmental Soil Chemistry or Soil Chemistry	3
Choose from one of the following:		3-4
CHEM 2120	Integrated Organic Chemistry and Biochemistry (CHEM 2120 must be taken with associated 1-cr CHEM lab)	
ANSC 1170	Introduction to Animal Metabolism	
CHEM 313	Organic Chemistry I	
Concentration Category Course: Categories 1, 2, 3, or 4 [4]		3
	Credits	**15-16**
Fourth Year		
Fall		
SOIL 477	Environmental Soil Physics	3
Concentration Category Course: Categories 1, 2, 3, or 4 [4]		3
Concentration Category Course: Categories 1, 2, 3, or 4 [4]		3
Concentration Category Course: Categories 1, 2, 3, or 4 [4]		3

Elective Course [1]		4
	Credits	**16**
Spring		
SOIL 312 & 312 L	Soil Management and Fertility and Soil Management and Fertility Lab	4
SOIL 447	Seminar	1
Concentration Category Course: Cateogries 1, 2, 3, or 4 [4]		3
Concentration Category Course: Cateogries 1, 2, 3, or 4 [4]		3
Elective Course [1]		3
	Credits	**14**
	Total Credits	**120-125**

[1] Elective credit may vary based on prerequisites, dual credit, AP credit, double majors, and/or minor coursework. The amount indicated in the requirements list is the amount needed to bring the total to 120 credits and may appear in variable form based on the degree. However, students may end up needing to complete more or less on a case-by-case basis and students should discuss elective requirements with their advisor.

[2] The degree requires either MATH 1430G Applications of Calculus I or MATH 1511G Calculus and Analytic Geometry I, students who do not test into these courses will have additional MATH courses to complete in this semester and where "Elective Courses" are listed in the Roadmap.

[3] See the General Education (https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/) section of the catalog for a full list of courses

[4] Please see your academic advisor for a list of appropriate courses to satisfy the concentration coursework requirements.

[5] See the Viewing a Wider World (https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/#viewingawiderworldtext) section of the catalog for a full list of courses

[6] Students must take two courses from the following, to fulfill degree requirements (lab is not required)

- BIOL 2110G Principles of Biology: Cellular and Molecular Biology
- BIOL 2610G Principles of Biology: Biodiversity, Ecology, and Evolution
- BIOL 311 General Microbiology