

MATH 142G, Applied Mathematics for the Biological and Social Sciences I or MATH 191, Calculus and Analytic Geometry I.....	3
PHYS 211, General Physics I.....	3
A computer-oriented course above C S110G approved by the department.....	2-4

**Soil Science Options**

Three options are available in soil science. In each case, your academic advisor has a list of appropriate courses.

**OPTION: Soils**

Crop production and plant growth are emphasized in the general soils option. Soil management, soil conservation, and soil reclamation are related to plant growth for those students interested in both private industry and government employment opportunities as well as farm management. You must select one course from each of the four following subject matter areas and a total of at least ten courses (30 credits): soil, water or range management; crop production or protection; farm and ranch management and economics; math, statistical, or computer sciences.

**OPTION: Environment and Resource Management**

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 option courses. You must select one course from each of the four following subject matter areas and a total of at least ten courses (30 credits): soil, water, wildlife, or range conservation and economics; ecology, plant biology, or crop production; earth, mineral, or climatic resources; math, statistical, or computer sciences.

**OPTION: Soil and Water Science**

The soil and water science option is for students interested in careers in water management and water quality. Employment opportunities exist with irrigation districts, consulting firms, and government agencies dealing with water management and quality. The optimum use of water in semi-arid areas is emphasized through selection of courses in the technical and social sciences. You must select one course from each of the four following subject matter areas and a total of at least ten courses (30 credits): soil and water engineering; ecology; crop production and protection; math, statistical, or computer sciences.

**DEGREE: Bachelor of Science in Agriculture****MAJOR: Turfgrass Science and Management**

Turfgrass managers help build, maintain, and manage golf courses, athletic fields, parks, and other recreational areas. The curriculum of each option allows you to focus on a specific segment of the turfgrass industry. All majors are required to pursue two internships with a golf course, parks department, athletic field, lawn care operator or other acceptable turfgrass segment.

**Turfgrass Science and Management Core Requirements I**

BIOL 111G, 190 or 211G, Biology.....	3
CHEM 111, CHEM 112, General Chemistry I, II.....	8
EPWS 311, Introduction to Weed Science.....	3
EPWS 314, Plant Physiology.....	3
HORT 377, Introduction to Turfgrass Management.....	4
HORT 378, Turfgrass Science.....	4
HORT 391, Internship (two).....	6
HORT 447, Seminar.....	1
HORT 479, Advanced Turfgrass Science.....	4
MATH 121, College Algebra.....	3
SOIL 252, Introduction to Soils.....	3
Turfgrass Science and Management Core Requirements II	
CHEM 211, Organic Chemistry.....	4
EPWS 303, Economic Ecology.....	4
EPWS 310, Plant Pathology.....	4
HORT 100G, Introduction to Plant Science.....	4
HORT 110, Athletic Field and Golf Course Management.....	1
HORT 206, Genetics in the Media.....	3

HORT 210, Ornamental Plants I.....	4
HORT 211, Ornamental Plants II.....	4
HORT 250, Plant Propagation.....	3
HORT 300, Special Topics.....	3
HORT 301, Introduction to Landscape Horticulture.....	3
HORT 305, Principles of Genetics.....	3
HORT 307, Landscape Design.....	3
HORT 308, Landscape Construction.....	3
HORT 350, Arboriculture.....	2
HORT 365, Principles of Crop Production.....	4
HORT 450, Special Topics.....	3
HORT 462, Plant Breeding.....	3
HORT 471, Plant Mineral Nutrition.....	3
HORT 475, Woody Plant Physiology.....	3
HORT 492, Diagnosing Plant Disorders.....	3
P E 150, Beginning Golf.....	1
P E 250, Intermediate Golf.....	1
SOIL 312, Soil Management and Fertility.....	4
SOIL 350, Soils and Land Use.....	3
SOIL 424, Soil Chemistry.....	3
SOIL 456, Irrigation and Drainage.....	3
SOIL 476, Soil Microbiology.....	4
SOIL 477, Soil Physics.....	4
SPAN 212, Intermediate Spanish II.....	3

**OPTION: Athletic Field Management****Athletics**

Select 7 credits from the following:

HIST 343, American Sports History.....	3
P E 150, Beginning Golf.....	1
P E 250, Intermediate Golf.....	1
P E 117, Beginning Soccer.....	1
PE P 187, Sports Officiating I.....	2
PE P 188, Sports Officiating II.....	2
PE P 300, Coaching Football.....	2
PE P 302, Coaching Baseball.....	2
PE P 306, Coaching Softball.....	2
PE P 307, Coaching Soccer.....	2

**Business**

Select 6 credits from the following:

AG E 236, Agribusiness Management Principles.....	3
BLAW 313, Sports Law.....	3
ECON 337G, Natural Resource Economics.....	3
ECON 384G, Water Resource Economics.....	3
ECON 406, The Economics of Sports.....	3
FIN 206, Introduction to Finance; or FIN 341, Financial Analysis and Markets.....	3
MGT 315G, Human Relations in Organizations; or MGT 309, Human Relations in Business.....	3
MGT 332, Human Resources Management.....	3
MKTG 454, Sports Marketing.....	3
MKTG 491, Sports Marketing Management.....	3
SPAN 212, Intermediate Spanish II.....	3

**Technical**

Select 3 credits from the following:

A EN 372, Landscape Irrigation Design.....	3
AXED 303, Small Engine Technology.....	3
E T 106, Drafting Concepts/Computer Drawing Fundamentals I.....	4
OEPB 100, Basic Plumbing Materials and Systems	

**OPTION: Golf Course Management****Business**

Select 6 credits from the following:

AG E 236, Agribusiness Management Principles.....	3
BLAW 313, Sports Law.....	3

ECON 337G, Natural Resource Economics .....3  
 ECON 384G, Water Resource Economics.....3  
 ECON 406, The Economics of Sports.....3  
 FIN 206, Introduction to Finance; or FIN 341, Financial Analysis and Markets ...3  
 MGT 315G, Human Relations in Organizations; or MGT 309, Human Resources in Business.....3  
 MGT 332, Human Resources Management.....3  
 MKTG 454, Sports Marketing.....3  
 MKTG 491, Sports Marketing Management.....3

**Science**

Select 6 credits from the following:

CHEM 211, Organic Chemistry .....4  
 EPWS 303, Economic Entomology.....4  
 EPWS 310, Plant Pathology .....4  
 EPWS 420, Environmental Fate Pesticides.....3  
 EPWS 455, Advanced Integrated Pest Management.....3  
 EPWS 456, Biological Control .....3

**Technical**

Select 3 credits from the following:

A EN 372, Landscape Irrigation Design .....3  
 AXED 303, Small Engine Technology .....3  
 ET 106, Drafting Concepts/Computer Drawing Fundamentals I.....4  
 OEPB 100, Basic Plumbing Materials and Systems.....5

**OPTION: Turfgrass Business**

**Personnel Management**

Select 6 credits from the following:

MGT 315G, Human Relations in Organizations; or MGT 309, Human Resources in Business.....3  
 MGT 332, Human Resources Management.....3  
 MGT 333, Training and Development.....3  
 MGT 359, Management of Diversity.....3  
 SPAN 212, Intermediate Spanish II .....3

**Economics and Finance**

Select 3 credits from the following:

ACCT 200, Survey of Accounting.....3  
 AG E 236, Agribusiness Management Principles .....3  
 BLAW 313, Sports Law .....3  
 ECON 337G, Natural Resource Economics.....3  
 ECON 384G, Water Resource Economics.....3  
 ECON 406, The Economics of Sports.....3  
 FIN 206, Introduction to Finance; or FIN 341, Financial Analysis and Markets ...3  
 MGT 351, Purchasing and Materials Management.....3  
 MKTG 203, Introduction to Marketing; or MKTG 303, Principles of Marketing ...3  
 MKTG 454, Sports Marketing.....3  
 MKTG 491, Sports Marketing Management.....3

**Science and Technical**

Select 6 credits from the following:

A EN 372, Landscape Irrigation Design .....3  
 AXED 303, Small Engine Technology .....3  
 CHEM 211, Organic Chemistry .....4  
 ET 106, Drafting Concepts/Computer Drafting Fundamentals I.....4  
 EPWS 303, Economic Entomology.....4  
 EPWS 310, Plant Pathology .....4  
 EPWS 420, Environmental Fate Pesticides.....3  
 EPWS 455, Advanced Integrated Pest Management.....3  
 EPWS 456, Biological Control .....3  
 OEPB 100, Basic Plumbing Materials and Systems.....5

**OPTION: Turfgrass Science**

**Science I**

Select 6 credits from the following:

BCHE 341, Survey of Biochemistry .....3  
 BCHE 395, Biochemistry.....3

CHEM 211, Organic Chemistry .....4  
 E ST 311G, Statistical Applications.....3  
 E ST 456, Statistical Methods and Data Analysis.....3  
 EPWS 420, Environmental Fate of Pesticides .....3

**Science II**

Select 6 credits from the following:

EPWS 303, Economic Entomology.....4  
 EPWS 310, Plant Pathology .....4  
 EPWS 455, Advanced Integrated Pest Management.....3  
 EPWS 456, Biological Control .....3

**Business and Technical**

Select 6 credits from the following:

AXED 303, Small Engine Technology .....3  
 A EN 372, Landscape Irrigation Design .....3  
 BLAW 313, Sports Law .....3  
 ECON 337G, Natural Resource Economics .....3  
 ECON 384G, Water Resource Economics.....3  
 ECON 406, The Economics of Sports.....3  
 FIN 206, Introduction to Finance; or FIN 341, Financial Analysis and Markets ...3  
 MGT 332, Human Resources Management.....3  
 MGT 351, Purchasing and Materials Management.....3  
 MKTG 454, Sports Marketing.....3  
 MKTG 491, Sports Marketing Management.....3  
 OEPB 100, Basic Plumbing Materials and Systems.....5

**DEGREE: Bachelor of Science in Environmental Science**

**MAJOR: Environmental Science**

The environmental science major is a multidisciplinary program based on a strong general science curriculum and an environmental curriculum that focuses on environmental problems and solutions. Although administered by the Department of Plant and Environmental Sciences, a multidisciplinary advisory committee recommends curriculum and other changes to the program. Graduates are very competitive for careers in industry and government and have excellent preparation for graduate programs in a variety of fields. A grade of C must be earned in the Basic Background and Core Requirements. The program is accredited by The Association of Environmental Health Academic Programs.

**Basic Science Background**

BIOL 111G, Natural History of Life.....3  
 BIOL 211G, Cellular and Organismal Biology .....3  
 BIOL 311, General Microbiology.....3  
 C E 151, Introduction to Civil Engineering.....3  
 CHEM 111, CHEM 112, General Chemistry I, II.....8  
 CHEM 211, Organic Chemistry.....4  
 E ST 311G, Statistical Applications.....3  
 GEOL 111G, Survey of Geology .....4  
 MATH 191, MATH 192, Calculus and Analytic Geometry I, II.....6  
 PHYS 215, Engineering Physics I.....3  
 SOIL 252, Soils.....3  
 SOIL 252 L, Soils Laboratory .....1

**Environmental Science Core**

E S 110G, Introduction to Environmental Science .....4  
 E S 256, Environmental Science .....3  
 E S 301, Principles of Ecology .....3  
 E S 312, Emergency Response to Hazardous Material Incidents.....2  
 E S 330, Environmental Management Seminar I .....1  
 E S 361, Basic Toxicology.....3  
 E S 370, Environmental Soil Science .....3  
 E S 391, Internship .....3  
 E S 422, Environmental Chemistry.....3  
 E S 430, Environmental Management Seminar II.....1  
 E S 450, Epidemiology.....3  
 E S 452, Geohydrology.....3  
 E S 454, Environmental Health .....3