

Second Year

Forestry, Wildlife and Fisheries 212	3
Economics 201*	4
Mathematics 125*	3
Statistics 201* or Mathematics 115*	3
Biosystems Engineering Technology 326 or Geography 411	3
Animal Science 220 or Wildlife and Fisheries Science 431	3-4
Biology 250	4
Communications Studies 210* or 240*	3
Environmental and Soil Sciences 210	4
² Cultures and Civilizations* or Arts and Humanities Elective*	3

Third Year

Wildlife and Fisheries Science 305, 323, 340, 341, 350, 440, 442	16
Forestry, Wildlife and Fisheries 312*, 313, 317	8
Ecology and Evolutionary Biology 470 or Environmental and Soil Sciences 324 or Wildlife and Fisheries Science 301	3
² Cultures and Civilizations* or Arts and Humanities Elective*	3

Fourth Year

Select three from Wildlife and Fisheries Science 433, 443, 444, 445	9
Forestry, Wildlife and Fisheries 416	3
Forestry, Wildlife and Fisheries 412, or Forestry 321* or Forestry 422	3
Ecology and Evolutionary Biology 330 or 433	3
Ecology and Evolutionary Biology 474	4
³ Science Elective	6
¹ Social Science Elective*	3

Total 125-126

* Meets University General Education Requirement.

- 1 Chemistry 130 is a prerequisite/corequisite to Biology 140, therefore a student selects Chemistry 120-130 and Biology 130-140; otherwise the student must select Chemistry 100-110 and Biology 101-102.
- 2 Courses selected from the University General Education lists. One of the Cultures and Civilizations (CC) or Arts and Humanities (AH) or Social Sciences (SS) courses must be a Communicating through Writing course (WC); Forestry, Wildlife and Fisheries 312 and Forestry 321 are both designated as WC courses.
- 3 300-level and above from Animal Science; Biosystems Engineering Technology; Ecology and Evolutionary Biology; Entomology and Plant Pathology; Environmental and Soil Sciences; Forestry; Forestry, Wildlife and Fisheries; Plant Sciences; or Geography 410, 411, 412, 413, 436.

Requirements for the Bachelor of Science in Wildlife and Fisheries Science • Wildlife and Fisheries Science Major • Wildlife Health Concentration

First Year	Hours Credit
Wildlife and Fisheries 101	1
Forestry, Wildlife and Fisheries 250	3
Biology 130*-140*	8
Chemistry 120*-130*	8
Mathematics 125*	3
Statistics 201* or Mathematics 115*	3
English 101*, 102*	6

Second Year

Animal Science 220	3
Biology 240, 250	8
Microbiology 310, 319	5
Chemistry 350, 360, 369	8
Physics 221*, 222*	8

Third Year

Wildlife and Fisheries Science 301	3
Forestry, Wildlife and Fisheries 317	3
Animal Science 380	3
Biochemistry and Cellular and Molecular Biology 401, 440	7
Economics 201*	4
Communications Studies 210 or 240*	3
¹ Cultures and Civilizations* or Arts and Humanities Electives*	6

Fourth Year

Select two from Wildlife and Fisheries Science 433, 443, 444, 445	6
Wildlife and Fisheries Sciences 431	3
Biochemistry and Cellular and Molecular Biology 411	3
Biosystems Engineering Technology 326 or Geography 411	3
² Science Elective	3
¹ Social Science Elective*	3
¹ Cultures and Civilizations* or Arts and Humanities Electives*	6

Total 120

* Meets University General Education Requirement.

- 1 General Education Electives: Choose two from the Cultures and Civilizations (CC) list, two courses from the Arts and Humanities (AH) list, one from the Social Sciences (SS) list for a total of 15 credit hours. One of the Cultures and Civilizations (CC) or Arts and Humanities (AH) or Social Sciences (SS) courses must be a Communicating through Writing course (WC).
- 2 300-level and above from Animal Science; Biosystems Engineering Technology; Ecology and Evolutionary Biology; Entomology and Plant Pathology; Environmental and Soil Sciences; Forestry; Forestry, Wildlife and Fisheries; Plant Sciences; or Geography 410, 411, 412, 413, 436.

Minor in Wildlife and Fisheries Science

Required Courses	Hours Credit
Forestry, Wildlife and Fisheries 250	3
Forestry, Wildlife and Fisheries 317	3
Select three from Forestry, Wildlife and Fisheries 416; Wildlife and Fisheries Science 433, 443, 444, 445	9
Total 15	

DEPARTMENT OF PLANT SCIENCES<http://plantsciences.utk.edu/>

Robert N. Augé, Acting Head

Professors

Albrecht, M.L. (Associate Dean), PhD	Ohio State
Allen, F.L., PhD	Minnesota
Augé, R.M., PhD	Washington State
Bates, G.E., PhD	Georgia
Denton, H.P., PhD	North Carolina State
Deyton, D.E., PhD	North Carolina State
Hayes, R.M., PhD	Illinois
Lockwood, D.W., PhD	Purdue
Miller, R.D., PhD	Kentucky
Mueller, T.C., PhD	Georgia
Rhodes, G.N., PhD	North Carolina State
Samples, T.J., PhD	Oklahoma State
Sams, C.E. (Austin Distinguished Professor), PhD	Michigan State
Stewart, C.N. (Racheff Chair), PhD	Virginia Tech
West, D.R., PhD	Nebraska

Associate Professors

Armel, G.R., PhD	Virginia Tech
Cheng, Z.M., PhD	Cornell
Gwathmay, C.O., PhD	California (Riverside)
Hamilton, S.L., EdD	Tennessee
Klingeman, W.E., PhD	Georgia
Menendez, G.L., MS	Tennessee
Pantalone, V.R., PhD	North Carolina State
Rogers, S.M., MLA	Georgia
Stewart, C.E., MLA	Georgia

Assistant Professors

Bailey, W.A., PhD	Virginia Tech
Chen, F., PhD	California (Davis)
Main, C.L., PhD	Tennessee
Smith, B.R., PhD	Cornell
Sorochan, J.C., PhD	Michigan State
Steckel, L.E., PhD	Illinois
Thompson, M.A., PhD	Tennessee
Yin, X., PhD	Purdue
Wszelaki, A.L., PhD	California (Davis)
Zale, J.M., PhD	Saskatchewan (Canada)

Instructors

Flanagan, P.C., MS	Tennessee
Osburn, L.D., MS	Tennessee

Adjunct Faculty

Airhart, D.L., PhD	Georgia
Bentley, M.L., EdD	Virginia
Ott, R.J., MBA	Tennessee

Emeriti Faculty

Coffey, D.L., PhD	Purdue
McDaniel, G.L., PhD	Iowa State

Advisors

Augé, Hamilton, Menendez, Rogers, Sorochan, C. Stewart, C.N. Stewart

Academic programs in the Department of Plant Sciences span the art, science and technology of plant use in society. Students receive preparation for careers in horticulture and agronomy with-in four concentrations – landscape design and construction; plant science, biotechnology and horticulture; public horticulture; and turfgrass science and management. With increasing emphasis placed on plants in urban areas, extensive training is offered in landscape horticulture (planning, implementation and management for landscapes, turf and gardens). Comprehensive programs are also offered in plant biotechnology and plant production.

Upon entering the department, each student is assigned a faculty advisor for guidance in selection of career specialties and elective courses. The curriculum builds upon the University General Education Requirement with critical courses in botany, soils, and business and adds a set of required departmental courses specific to each concentration. Students are able to customize their program by selecting electives. Students in all concentrations are trained to work knowledgeably in general plant culture. Students are encouraged to earn a minor in a supportive field to further enhance their academic training and professional competitiveness. While firmly grounding students in the knowledge and skills of the plant sciences and arts, our curricula emphasize critical thinking and creative activity. Our students also gain the theoretical education necessary for continuing on for advanced degrees in plant-related fields.

Students should declare a concentration early in their undergraduate program and strictly follow the curriculum described for the concentration. Students who transfer into plant sciences from other colleges or programs must meet the same requirements as those entering the department as freshman. A minimum grade point average of 2.25 is required for all plant sciences courses taken in the major.

Internship or undergraduate research participation is required for each concentration. Full-time summer internships are available at selected local, regional, and national companies or institutions. Part-time summer or semester internships and research experiences are available from the Department of Plant Sciences, other university departments and laboratories, and local commercial firms.

Our graduates find employment in a wide variety of professions. In working for others or within their own businesses, graduates of the landscape concentration design residential landscapes, select proper woody and herbaceous plant materials for specific sites, restore native landscapes, specify specialty components dealing with landscape construction (irrigation, lighting, water features), prepare materials lists and cost estimates for landscape installations, and manage landscape crews. Turf majors have career opportunities in the industries involved with lawn management, athletic fields, golf courses, sales, and park and grounds maintenance. The public horticulture concentration prepares students for careers in botanic gardens, zoos and national parks; professional writing, television and radio; urban forestry; teaching; and municipal and university horticulture. Graduates in plant science, biotechnology and horticulture find employment in education, consulting, sales, agricultural extension, and research and development.

Technical Electives

BIOENERGY CONCENTRATION

Biochemistry and Cellular and Molecular Biology; Biosystems Engineering; Biosystems Engineering Technology; Chemistry; Ecology and Evolutionary Biology; Management; Marketing; Microbiology; Physics; Spanish; Statistics; 200-level and above from Biology, Business Administration; 300-level and above from Agricultural Economics, Environmental and Soil Science, Forestry, Financial Management, Plant Sciences; Accounting 200; Engineering Fundamentals 100; English 360*; Finance 301; Information Management 341, 342; Journalism/Electronic Media 450, 451, 456; Materials Science and Engineering 101, 201; Public Relations 270; Rural Sociology 380.

BIOTECHNOLOGY CONCENTRATION

Biochemistry and Cellular and Molecular Biology, Biosystems Engineering, Biosystems Engineering Technology, Chemistry, Ecology and Evolutionary Biology, Management, Marketing, Microbiology, Physics, Spanish, Statistics; 200-level and above from Biology, Business Administration; 300-level and above from Agricultural Economics, Environmental and Soil Science, Forestry, Plant Sciences; Accounting 200; Business Law

301; English 295, 360; Finance 301; Geology 201, 202; Journalism/Electronic Media 450, 451, 456.

HORTICULTURE SCIENCE AND PRODUCTION CONCENTRATION

300-level and above from Agricultural Economics, Environmental and Soil Science, Forestry, Plant Sciences; 200-level and above from Biology, Business Administration; courses from Biochemistry and Cellular and Molecular Biology, Biosystems Engineering, Biosystems Engineering Technology, Chemistry, Ecology and Evolutionary Biology, Management, Marketing, Microbiology, Physics, Spanish, Statistics; and Accounting 200; Business Law 301; English 295, 360; Finance 301; Geology 201, 202; Journalism/Electronic Media 450, 451, 456.

TURFGRASS SCIENCE AND MANAGEMENT CONCENTRATION

LANDSCAPE DESIGN AND CONSTRUCTION CONCENTRATION
Business Administration; Entomology and Plant Pathology; Plant Sciences; Statistics; Accounting 200, Advertising courses; Architecture 111, 180, 211, 232, 271; Art 101, 103; Art Drawing 211, 212; Art Media Arts 231, 331; Art Painting 213, 214, 215, 216; Biochemistry and Cellular and Molecular Biology 306; Biology 250; Biosystems Engineering Technology 202, 412; Business Law 301; Communication Studies 310; Ecology and Evolutionary Biology 304, 330, 433; English 295*, 360*; Environmental and Soil Science 324, 334; Forestry 321; Forestry Wildlife and Fisheries 211, 250, 311, 317; Geography 131, 365, 366; Geology 201, 202, 203; Philosophy 243*, 244, 245*; Political Science 402, 403, 446; Spanish 111, 112, 211, 212; University Studies 413.

PUBLIC HORTICULTURE CONCENTRATION

300-level and above for Environmental and Soil Sciences; Forestry; Art 481; Agriculture and Extension Education 345; Communication Studies 440; Ecology and Evolutionary Biology 309, 330, 433; Educational Psychology 210; English 295*, 360*; Philosophy 245*; Public Relations 270; Recreation and Leisure Studies 201, 430.

TURFGRASS SCIENCE AND MANAGEMENT CONCENTRATION

300-level and above from Agricultural Economics; Biochemistry and Cellular and Molecular Biology; Biosystems Engineering; Biosystems Engineering Technology; Ecology and Evolutionary Biology; Entomology and Plant Pathology; Environmental and Soil Sciences; Forestry; Plant Sciences; and English 295*, 360*.

*Courses marked with an * meet the University General Education Requirement.*

PLANT SCIENCES MAJOR

BIOENERGY CONCENTRATION

The bioenergy concentration is intended for students who are interested in pursuing careers in the quickly-expanding biofuels and bioenergy fields. The graduate will have the background and internship experience to enter directly into the bioenergy workforce. The bioenergy industry primarily is concerned with converting plant feedstocks into liquid fuels such as ethanol and biodiesel. The great resurgence of industry and public support for research and development in this field will require a modern and multidisciplinary workforce. The student will have the opportunity to explore branch disciplines of bioenergy such as agronomy, biotechnology, business and economics, chemistry, engineering or microbiology. In addition, the need for scholars and scientists with advanced degrees (MS and PhD) will also grow exponentially in bioenergy as billions of dollars of federal funds is channeled towards new bioenergy solutions. The bachelor's degree will also prepare students for entrance into graduate programs.

Requirements for the Bachelor of Science in Plant Sciences • Plant Sciences Major - Bioenergy Concentration

First Year	Hours Credit
1Agriculture and Natural Resources 100 or First Year Studies 101	1
Biology 111*, 112* . . . . .	.8
Chemistry 120* and 130* . . . . .	.8
English 101*, 102* . . . . .	.6
Plant Sciences 250 . . . . .	.3
2,3Quantitative Reasoning Electives* . . . . .	.6
Second Year	
Agriculture and Natural Resources 290 . . . . .	.3
3Arts and Humanities Electives* . . . . .	.6

Communication Studies 210* or 240*	3
³ Cultures and Civilizations Elective*	3
⁴ Economics Elective*	3-4
Environmental and Soil Sciences 210	4
^{3,4} Social Sciences Elective*	3
Technical Electives	5-6
Third Year	
Agricultural Economics 212	3
Biochemistry and Cellular and Molecular Biology 321	4
³ Cultures and Civilizations Elective*	3
⁵ Agricultural and Extension Education 440* or English 295* or 360* or Journalism and Electronic Media 201*	3
Plant Sciences 353, 435	5
Technical Electives	13
Third Year Summer	
Plant Sciences 492	3
Fourth Year	
² Specialty Area	9-11
Environmental and Soil Sciences 334	3
Plant Sciences 331, 465, 475, 497	9
Technical Electives	3
Unrestricted Electives	4-6
Total	124

* Meets University General Education Requirement.

- 1 Required of freshmen only; requirement is waived for transfer students.
- 2 Choose one Specialty Area. Select Quantitative Reasoning Electives General Education courses based on prerequisites for courses in the Specialty Area.
- 3 Choose from the University General Education lists. Selection should be made in conference with academic advisor.
- 4 Economics 201 (4) Principles of Economics satisfies the University General Education-Social Science requirement and the major requirement for economics. If the student transfers ECON LD for 3 credits, it will satisfy the major requirement for economics but will not satisfy the General Education-Social Science requirement. In these cases, the student should take two courses from the approved General Education-Social Sciences list.
- 5 Meets the University General Education Requirement for Communicating through Writing (WC).

SPECIALTY AREAS

Specialty electives are grouped into specialty areas. Students must complete one specialty area, consisting of three courses (9-11 credit hours). Students wishing to expand on a specialty or complete more than one specialty area are welcome to do so, using Technical Electives for this purpose. A course may be counted in one specialty area only and may not be used to fulfill any other elective requirement. Check the *Undergraduate Catalog* for any prerequisites required for these courses.

Agronomy

Plant Sciences 457, 459; and select 6 hours from Environmental and Soil Sciences 300-level and above.

Biosystems Engineering

Biosystems Engineering 231; Biosystems Engineering Technology 326, 432, 434, 462.

Biotechnology

Biology 240; Plant Sciences 454 or Biochemistry and Cellular and Molecular Biology 404; Biochemistry and Cellular and Molecular Biology 401 or Microbiology 210.

Business

Accounting 200; Agricultural Economics 355, 470; Business Administration 201, Marketing 300; Statistics 201.

Chemistry

Chemistry 230 or 310; Chemistry 350, 360, 369; Food Science and Technology 410, 419.

Forestry and Wildlife

200-level and above from Forestry; 200-level and above from Forestry, Wildlife and Fisheries.

Microbiology

Microbiology 210 and above; Food Science and Technology 420, 429.

BIOTECHNOLOGY CONCENTRATION

The biotechnology concentration is designed for students wishing to pursue advanced degrees in plant molecular biology and biotechnology and/or careers in the plant biotechnology industry. For example, the curriculum will prepare students to be competitive for entrance into MS and PhD degree programs, which in turn, prepare students for life as professional scientists. Alternatively, the plant biotechnology industry and biotechnology-affiliated industries have recurrent demand for competent BS-level scientists. One hallmark of the degree is requirement for students to participate in research directly in an affiliated faculty member's lab. This hands-on experience is reported by students to be a highlight of their degree program.

Requirements for the Bachelor of Science in Plant Sciences • Plant Sciences Major • Biotechnology Concentration

First Year	Hours	Credit
¹ Agriculture and Natural Resources 100 or First Year Studies 101	1	1
² Arts and Humanities Elective*	3	3
Biology 111*, 112*	8	8
Chemistry 120* and 130*	8	8
English 101*, 102*	6	6
² Quantitative Reasoning Electives*	6	6
Second Year		
Agriculture and Natural Resources 290	3	3
Agricultural Economics 212	3	3
² Arts and Humanities Elective*	3	3
Communication Studies 210* or 240*	3	3
² Cultures and Civilizations Elective*	3	3
Environmental and Soil Sciences 210	4	4
³ Economics Elective*	3-4	3-4
Plant Sciences 210	3	3
^{2,3} Social Sciences Elective*	3	3
Unrestricted Electives	2-3	2-3
Third Year		
Biochemistry and Cellular and Molecular Biology 321	4	4
² Cultures and Civilizations Elective*	3	3
Chemistry 350	3	3
Entomology and Plant Pathology 313 or 321 or 410	3	3
Environmental and Soil Sciences 334	3	3
⁴ Plant Sciences Electives	9	9
Plant Sciences 457-458 or 457-459	3	3
Technical Electives	3	3
Fourth Year		
Plant Sciences 353, 454, 461 and 470	9	9
Plant Sciences 454 or Biochemistry and Cellular and Molecular Biology 404	3-4	3-4
Plant Sciences 492 or 497	3	3
Technical Electives	14-15	14-15
Total	124	

* Meets University General Education Requirement.

- 1 Required of freshmen only; requirement is waived for transfer students.
- 2 Choose from the University General Education lists. Selection should be made in conference with academic advisor.
- 3 Economics 201 (4) Principles of Economics satisfies the University General Education-Social Science requirement and the major requirement for economics. If the student transfers ECON LD for 3 credits, it will satisfy the major requirement for economics but will not satisfy the General Education-Social Science requirement. In these cases, the student should take two courses from the approved General Education-Social Sciences list.
- 4 Select any Plant Sciences courses beyond those that are required.

NOTE: Students must meet the University General Education Requirement for Communicating through Writing by selecting a course with a (WC) designation. This course may be in the major or from another discipline. Plant Sciences 410 and 448 satisfy the Communicating through Writing requirement.

HORTICULTURE SCIENCE AND PRODUCTION CONCENTRATION

The horticulture science and production concentration is designed to provide students with the knowledge and skills needed for production, management and marketing of horticultural crops. This concentration also prepares students with strong interests in science and/or technology to pursue opportunities in research-related fields, including graduate studies. Careful selection of departmental courses and other electives in consultation with the assigned academic advisor will prepare graduates for the career of their choice. Employment prospects range from managing nursery and greenhouse businesses, to consulting and education, to marketing fruits and vegetables for healthier lifestyles.

Requirements for the Bachelor of Science in Plant Sciences • Plant Sciences Major • Horticulture Science and Production Concentration

First Year	Hours	Credit
1Agriculture and Natural Resources 100 or First Year Studies 101	1	1
2Arts and Humanities Elective*	3	3
Biology 111*, 112*	8	8
Chemistry 100 and 110*, or 120* and 130*	8	8
English 101*, 102*	6	6
2Quantitative Reasoning Electives*	6	6
Second Year		
Agriculture and Natural Resources 290	3	3
2Arts and Humanities Elective*	3	3
Communication Studies 210* or 240*	3	3
2Cultures and Civilizations Elective*	3	3
Environmental and Soil Sciences 210	4	4
3Economics Elective*	3-4	3-4
Plant Sciences 210	3	3
Physics 101	3	3
2,3Social Sciences Elective*	3	3
Third Year		
Biochemistry and Cellular and Molecular Biology 321 or Forestry 414	3-4	3-4
2Cultures and Civilizations Elective*	3	3
English 295* or 360*	3	3
Entomology and Plant Pathology 313 or 321 or 410	3	3
Environmental and Soil Sciences 334	3	3
Plant Sciences 220, 230, 290 or 291	3	3
Plant Sciences 457-458 or 457-459	3	3
4Plant Sciences Electives	6	6
Technical Electives	4-5	4-5
Fourth Year		
Plant Sciences 331, 353, 410*, 430, 470	13	13
Plant Sciences 492 or 497	3	3
4Plant Sciences Electives	6	6
Technical Electives	4-5	4-5
Unrestricted Electives	5	5
		Total 124

- * Meets University General Education Requirement.
- 1 Required of freshmen only; requirement is waived for transfer students.
 - 2 Choose from the University General Education lists. Selection should be made in conference with academic advisor.
 - 3 Economics 201 (4) Principles of Economics satisfies the University General Education-Social Science requirement and the major requirement for economics. If the student transfers ECON LD for 3 credits, it will satisfy the major requirement for economics but will not satisfy the General Education-Social Science requirement. In these cases, the student should take two courses from the approved General Education-Social Sciences list.
 - 4 Select any Plant Sciences courses beyond those that are required.

NOTE: Students must meet the University General Education Requirement for Communicating through Writing by selecting a course with a (WC) designation. This course may be in the major or from another discipline. Plant Sciences 410 and 448 satisfy the Communicating through Writing requirement.

LANDSCAPE DESIGN AND CONSTRUCTION CONCENTRATION

Landscape designers create aesthetic concepts and practical designs for improved outdoor living. Students study fundamental and advanced landscape design, landscape design graphics, computer-aided landscape design, surveying, art, socio-economic impact of plants, field botany, professional practices, contracting, basic woody plant identification, landscape construction and maintenance methods. The development of comprehensive design projects helps students prepare for careers in landscape design or advanced studies in landscape architecture. Graduates in design and construction are prepared for employment in several professions in ornamental horticulture. Careful selection of departmental courses and other electives in consultation with the assigned academic advisor will allow graduates to pursue suitable career paths.

Requirements for the Bachelor of Science in Plant Sciences • Plant Sciences Major • Landscape Design and Construction Concentration

First Year	Hours	Credit
1Agriculture and Natural Resources 100 or First Year Studies 101	1	1
2Arts and Humanities Elective*	3	3
Biology 111*, 112*	8	8
Chemistry 100* or 120*	4	4
Computer Science 100*	3	3
English 101*, 102*	6	6
2Quantitative Reasoning Elective*	3	3
2,3Social Sciences Elective*	3-6	3-6
Second Year		
Communication Studies 210* or 240*	3	3
3Economics Elective*	3-4	3-4
Environmental and Soil Sciences 210	4	4
Plant Sciences 210, 220, 280	9	9
Technical Electives	8	8
Unrestricted Elective	2-4	2-4
Third Year		
1Cultures and Civilizations Elective*	3	3
Plant Sciences 350, 380	6	6
Select from Plant Sciences 226, 230, 240, 330, 348, 360, or 370	5-6	5-6
Plant Sciences 290 or 291	3	3
Technical Electives	6	6
Unrestricted Electives	3-8	3-8
Third Year – Summer		
Plant Sciences 492	3	3
Fourth Year		
2Arts and Humanities Elective*	3	3
2Cultures and Civilizations Elective*	3	3
Plant Sciences 421, 460, 480, 485	13	13
Select from Plant Sciences 348, 410*, 427, 429, 430, 434, 436, 437, 441, 446, 448*, 450, 469, 470, 493, or 497	5-6	5-6
Technical Electives	4-5	4-5
		Total 124

- * Meets University General Education Requirement.
- 1 Required of freshmen only; requirement is waived for transfer students.
 - 2 Choose from the University General Education lists. Selection should be made in conference with academic advisor.
 - 3 Economics 201 (4) Principles of Economics satisfies the University General Education-Social Science requirement and the major requirement for economics. If the student transfers ECON LD for 3 credit hours, it will satisfy the major requirement for economics but will not satisfy the University General Education-Social Science requirement. In these cases, the student should take two courses from the Social Sciences list.

NOTE: Students must meet the University General Education Requirement for Communicating through Writing by selecting a course with a (WC) designation. This course may be in the major or from another discipline.

PUBLIC HORTICULTURE CONCENTRATION

The public horticulture concentration is intended for students interested in professional careers that promote horticulture and emphasize people, their education and their enjoyment of plants. Such careers include director of a botanical garden or park; city or urban horticulturist; extension agent, teacher, educational director, or program coordinator; professional garden writer/editor or publication manager; horticulture therapist; public garden curator; and plant collections manager. Technical electives allow students to concentrate in specialties of their interest while encouraging the development of strong communication skills. Students are encouraged to earn a minor degree in a supportive field such as education, communications or journalism, or earn a Non-Profit Management Certificate.

Requirements for the Bachelor of Science in Plant Sciences • Plant Sciences Major • Public Horticulture Concentration

First Year	Hours Credit
¹ Agriculture and Natural Resources 100 or First Year Studies 101 . . . . .	.1
² Arts and Humanities Elective* . . . . .	.3
Biology 111*, 112* . . . . .	.8
Chemistry 100* or 120* . . . . .	.4
Computer Science 100* or 102* . . . . .	.3
English 101*, 102* . . . . .	.6
Environmental and Soil Sciences 210 . . . . .	.4
² Quantitative Reasoning Elective* . . . . .	.3
Second Year	
² Arts and Humanities Elective* . . . . .	.3
Communication Studies 240* . . . . .	.3
² Cultures and Civilizations Elective* . . . . .	.3
Plant Sciences 210 . . . . .	.3
Select from Plant Sciences 220, 226, 280, 290, or 291 . . . . .	.12
^{2,3} Social Sciences Elective* . . . . .	.3-6
³ Economics Elective* . . . . .	.3-4
Technical Electives . . . . .	.0-3
Third Year	
² Cultures and Civilizations Elective* . . . . .	.3
Plant Sciences 230, 240, 328, 330, 370, 410*, 434, 436 . . . . .	.21
Technical Electives . . . . .	.3-4
Third Year - Summer	
Plant Sciences 492 . . . . .	.3
Fourth Year	
Entomology and Plant Pathology 313 or 321 . . . . .	.3
Entomology and Plant Pathology 410 . . . . .	.3
Plant Sciences 448*, 470 . . . . .	.6
Select from Plant Sciences 427, 430, 437, 439, 446, or 469 . . . . .	.10
Technical Electives . . . . .	.3
Plant Sciences 421 or Unrestricted Electives . . . . .	.3
Total 124	

* Meets University General Education Requirement.

- Required of freshmen only; requirement is waived for transfer students.
- Choose from the University General Education lists. Selection should be made in conference with academic advisor.
- Economics 201 (4) Principles of Economics satisfies the University General Education-Social Science requirement and the major requirement for economics. If the student transfers ECON LD for 3 credit hours, it will satisfy the major requirement for economics but will not satisfy the University General Education-Social Science requirement. In these cases, the student should take two courses from the Social Sciences list.

NOTE: Students must meet the University General Education Requirement for Communicating through Writing by selecting a course with a (WC) designation. This course may be in the major or from another discipline.

TURFGRASS SCIENCE AND MANAGEMENT CONCENTRATION

The turfgrass science and management concentration is designed for the student desiring to pursue professions that include growing and managing turfgrasses used for golf courses, parks, athletic fields, sports complexes, and residential and commercial lawns. This concentration also prepares students for graduate studies in turfgrass science. Students are encouraged to earn a minor degree in a supportive field such as agricultural economics or environmental and soil sciences. Careful selection of departmental courses and other electives in consultation with the assigned academic advisor will prepare graduates for the career of their choice.

Requirements for the Bachelor of Science in Plant Sciences • Plant Sciences Major • Turfgrass Science and Management Concentration

First Year	Hours Credit
¹ Agriculture and Natural Resources 100 or First Year Studies 101 . . . . .	.1
² Arts and Humanities Elective . . . . .	.3
Chemistry 120* and 130* . . . . .	.8
² Cultures and Civilizations Elective* . . . . .	.3
English 101*, 102* . . . . .	.6
² Quantitative Reasoning Electives* . . . . .	.6
^{2,3} Social Sciences Elective* . . . . .	.3-6
Second Year	
Agriculture and Natural Resources 290 . . . . .	.3
Biology 111*, 112* . . . . .	.8
Communications Studies 210* or 240* . . . . .	.3
³ Economics Elective* . . . . .	.3-4
Environmental and Soil Sciences 210 . . . . .	.4
Plant Sciences 240, 241 . . . . .	.4
Select from Plant Sciences 210, 220, 280, or 290 . . . . .	.3
Unrestricted Electives . . . . .	.2-3
Third Year	
² Cultures and Civilizations Elective* . . . . .	.3
Select from Plant Sciences 210, 220, 280, 290 or 291 . . . . .	.3
Plant Sciences 330, 331, 341, 343, 348, 442, and 457-458 . . . . .	.13
Technical Electives . . . . .	.3
Unrestricted Electives . . . . .	.8
Third Year - Summer	
Plant Sciences 492 . . . . .	.3
Fourth Year	
¹ Arts and Humanities Elective* . . . . .	.3
Biology 250 or Biochemistry and Cellular and Molecular Biology 321 . . . . .	.4
Entomology and Plant Pathology 313 . . . . .	.3
Environmental and Soil Sciences 334 . . . . .	.3
Select from Plant Sciences 353, 360, 410, 421, 427, 429, 430, 434, 435, 436, 437, 446, 448*, 449, 451, 461, 469, or 494 . . . . .	.6
Plant Sciences 441, 470 . . . . .	.5
Technical Electives . . . . .	.4-5
Total 124	

* Meets University General Education Requirement.

- Required of freshmen only; requirement is waived for transfer students.
- Choose from the University General Education lists. Selection should be made in conference with academic advisor.
- Economics 201 (4) Principles of Economics satisfies the University General Education-Social Science requirement and the major requirement for economics. If the student transfers ECON LD for 3 credit hours, it will satisfy the major requirement for economics but will not satisfy the University General Education-Social Science requirement. In these cases, the student should take two courses from the Social Sciences list.

NOTE: Students must meet the University General Education Requirement for Communicating through Writing by selecting a course with a (WC) designation. This course may be in the major or from another discipline.

Minor in Plant Sciences

Required Courses	Hours Credit
A minimum of 18 semester hours of upper-division plant sciences courses . . . . .	.18
Total 18	