

BS HORT - DEGREE PLAN - Catalog 139

Name _____ Emphasis Area _____
 UIN # _____ Todays date _____

University Graduation Requirements

Writing Requirement (2 courses) _____ Foreign Language (2 yrs HS OR 2 semesters University) ⁴ _____
 International & Cultural Diversity (6 hrs) _____ 36 hrs of 300-400 level coursework at TAMU _____

	Credit Hours	Grade	Projected Date		Credit Hours	Grade	Projected Date
University Core Curriculum				Horticultural Sciences Core Courses (Cont.)			
Communication (6)				Horticultural Crop Production			
Communication Elective ¹	3			HORT 319, 325, 418, 419, 420,	3		
Communication Elective ¹	3			423 or 431			
Mathematics (MATH Prefix)¹ (6)				Horticulture Management & Marketing			
	3			HORT 309, 425, 426, 428 or 431	3		
	3			Plant ID/ Characterization	3		
Life & Physical Sciences (9)				HORT 306, 308 or 309			
BIOL 101 or 111 or 113 (BIOL 1411or1406)	4			Horticulture Elective²	6		
CHEM 101 & 111 (CHEM 1411)	4			Any 300 to 499 level HORT course			
HORT 202 -- Hort Sciences Lab	1			Total	28		
Language, Philosophy & Culture¹ (3)							
	3			Supporting Field Requirements			
Creative Arts¹ (3)				CHEM 222 (CHEM 2323) Org. Chem			
	3			ENTO 201-- Gen. Entomology	3		
Social & Behavioral Sciences ¹ (3)				GENE310/315/320--Genetics			
	3			MEPS 313-- Intro Plant Physiology	3		
American History¹ (6)				PLPA 301 & 303--Plant Path. & Lab			
HIST (American) (HIST 1301)	3			SCSC 301-- Soil Science	4		
HIST (Amer. /TX) (HIST 1302 or 2301)	3			RENR 205-- Fund. Of Ecology	3		
Government & Political Science¹ (6)							
				Directed Electives³	23		
POLS 206 (GOVT 2305)	3						
POLS 207 (GOVT 2306)	3						
Total Core Curriculum	42						
Horticultural Sciences Core Courses							
HORT 281--Horticulture as a Profession	1						
HORT 201-- Hort Science (AGRI 1315)	3						
HORT 315--Issues in Horticulture (900sect) ¹	3						
HORT 326 -- Plant Propagation	3						
HORT 481-- Seminar (900section) ¹	2						
High Impact Learning:	1				27		
HORT 400, 484, 485, 491 or HORT Study Abroad							
				TOTAL HOURS			
				120			

¹Approved requirements outlined in TAMU catalog. Students must complete 6 credit hours of International and Cultural Diversity courses and two courses in their major that are designated as writing intensive (W) 900 section number .

²Hours to be selected based on the emphasis area chosen in consultation with their academic advisor.

³Hours to be selected from the approved "Directed Electives" to include HORT courses as indicated by the Departmental Curriculum Committee chosen in consultation with their academic advisor.

⁴Some proficiency in a foreign language met by: 2 full years in high school, 2 semesters at college level or exam. See TAMU catalog for full details.

Bachelor of Science Emphasis Areas **[Minor Optional]**

FRUIT AND VEGETABLE PRODUCTION

More people today are aware of the importance of fresh fruits and vegetables in their diets than at any time in history. As a result, the production of these crops is increasing for domestic use and export.

The emphasis area of fruit and vegetable production specializes in the science and practice of growing, harvesting, handling, storing, processing, and marketing fruits and vegetables. This emphasis area provides students with the knowledge and skills needed to be current on new varieties, cultural practices, mechanization, weed and pest control, harvesting, storage, processing, marketing, and personnel and financial management. Students graduating in this emphasis area are prepared for careers as growers and farm managers; as production field advisors for fresh market, processing, and vegetable seed companies; or as field advisors for allied industries that manufacture production and harvest machinery, fertilizers, and agricultural chemicals. They can also find careers in fruit and vegetable marketing as managers of produce firms; as supervisors of storage; or as sales people, field advisors, buyers, brokers or managers of marketing and promotional organizations. Fruit and vegetable majors also enter the field of international horticulture as overseas supervisors for commercial companies, as participants in Peace Corps and other humanitarian endeavors, or technical assistants with USAID or international food production, research or teaching programs.

Career Opportunities (Not limited to):

- Orchard Manager
- Vegetable Farm Manager
- Technician or field representative for fruit or vegetable processor
- Federal or state inspector for fruit and vegetables
- Producer of fruits, nuts, vegetables, herbs
- Commercial Seed Producer
- Border, Port and Homeland Security Agents
- Sales or technical representative for seed companies, horticultural supply firms and chemical companies
- Wholesale or retail purchaser/ sales/technical service dealing with fresh or processed fruits and vegetables for chain stores, garden centers, government institutions and wholesale distributors
- Marketing and Sales Representative of Fruits & Vegetables
- Marketing and Sales Representative of any product associated with the production of fruits and vegetables

NURSERY/FLORAL CROP PRODUCTION

Production of floral and nursery crops has been a rapidly expanding industry and has become a major contributor to the economy of Texas and the nation. This industry requires college graduates who understand the basics of ornamental plant production and use, and have a keen sense of business and management skills.

Greenhouses provide a protected environment for producing potted and bedding plants, cut flowers, transplants for field production and out-of-season fresh vegetables and berries. Excellent career opportunities exist for graduates specializing in greenhouse crop production.

Nursery production includes field and/or container growing of the many woody and herbaceous species utilized in landscapes or planted in orchards and vineyards. Crops types include shade and flowering trees, narrow-leafed evergreens, broad-leafed evergreens, deciduous shrubs, tree and small fruits, vines and ground covers and herbaceous perennials.

In addition, the demands for plants for environment enhancement and the need for personnel trained in the requirements of production, maintenance, marketing and utilization of these plant materials are creating exciting career opportunities. Students who study production are employed as growers and production managers in greenhouses and nurseries and as research technicians, extension specialists, and teachers. Students with interests in marketing may work with producers, wholesale suppliers, garden centers and other retail outlets.

Career Opportunities (Not limited to):

- Producer of nursery/floral crops, cut flowers, herbs
- Greenhouse Crop Manager
- Wholesale Nursery Manager
- Plant Propagator
- Sales or technical representative for seed companies, horticultural supply firms and chemical companies
- Wholesale or retail purchaser/ sales/technical service dealing, cut flowers, nursery/floral crops for chain stores, garden centers, government institutions and wholesale distributors
- Marketing and Sales representative of nursery/floral crops
- Marketing and Sales representative of any product associated with the production of nursery/floral crops
- Retail Garden Center Manager

Bachelor of Science Emphasis Areas Continued [Minor Optional]

LANDSCAPE MANAGEMENT

Landscape trees, shrubs, bedding plants, foliage and flowering potted plants and cut flowers have long been valued for their contributions to the quality of the environment in which we live, work and play. Successful landscape management companies provide an integrated approach to landscape contracting and managing landscape projects from inception through maintenance. The Landscape Management emphasis area focuses on plants and landscape materials, plant identification and culture, plant installation, and landscape construction and maintenance. Students in this emphasis area gain knowledge and skills to prepare them to create preliminary landscape designs, install plantings and steward their creations. Job opportunities are plentiful for individuals with targeted educational backgrounds and experience in landscape management including careers in installation, management and maintenance of interior as well as exterior landscapes. Landscape management careers span from hotels and resorts, planned communities, corporate campuses, private estates, municipal properties, golf courses, theme parks, retail and entertainment centers, sports complexes and residential developments.

Career Opportunities (*Not limited to*):

- Development and maintenance supervisor of landscapes in parks, recreation areas, residential homes, businesses, estates, botanical gardens, public and private gardens
- Landscape supervisor
- Lawn and grounds maintenance manager
- Landscape contractor
- Arborist
- Landscape Construction manager
- Landscape Installation manager
- Botanical gardens research scientist- plant identification and research
- Horticulturist in city, state or national parks
- Horticulturist in golf courses or other recreational parks
- Environmental consultant
- Corps of Engineers employee

SCIENCE & BIOTECHNOLOGY

The Science and Biotechnology emphasis area is intended for, but not limited to, those students who feel they will go to graduate school and provides these students with a strong foundation in basic sciences. Career opportunities for graduates in this area who complete advanced graduate degrees include teaching and research at universities and private industry research. Graduates with good communication skills may also have career opportunities with consulting firms and the Cooperative Extension Service communicating scientific research findings to the public in an applicable and understandable format. Students graduating with a BS and MS degrees, with research experience and skills, will be very competitive for lab bench positions, but the MS will facilitate promotions to supervisor and leadership positions. In addition to larger companies, there are many smaller companies and start-ups looking for recent biotechnology graduates. Skills in tissue culture and transformation, recombinant DNA and molecular biology, protein and nucleic acid biochemistry, genomics, proteomics, and bioinformatics are particularly useful.

Career Opportunities (*Not limited to*):

- Research scientist or technician at a university, government agency or lab (USDA, NSF, germplasm resource centers)
- Industry research scientist (agrochemical, pharmaceutical, food, seed and nursery)
- Professor, lecturer, instructor or teacher in a college or university, K-12 or museums, parks, nature centers
- Science writing and communication
- Science advisor for patent law, public policy, lawmakers

HORTICULTURE DIRECTED ELECTIVES FOR BS HORT

HORTICULTURE COURSE OFFERINGS:

HORT	306 (3)	Woody Ornamental Plants (<i>fall</i>)
HORT	308 (3)	Landscape Plant Materials (<i>spring</i>)
HORT	311 (3)	Principles of Food Processing (<i>fall</i>)
HORT	319 (3)	Fruit and Nut Production (<i>fall</i>)
HORT	325 (3)	Vegetable Crop Production (<i>fall</i>)
HORT	332 (2)	Horticulture Landscape Graphics (<i>fall</i>)
HORT	404 (3)	Plant Breeding (<i>spring even</i>)
HORT	418 (3)	Nut Culture (<i>spring odd</i>)
HORT	419 (3)	Grape and Small Fruit Culture (<i>spring even</i>)
HORT	420 (3)	Concepts in Wine Production (<i>fall & s. odd</i>)
HORT	421 (3)	Enology (<i>fall</i>)
HORT	423 (3)	Tropical Horticulture (<i>fall odd</i>)
HORT	425 (3)	Landscape Maintenance and Construction (<i>spring</i>)
HORT	426 (3)	International Floriculture Marketing (<i>sp.odd</i>)
HORT	428 (3)	Commercial Greenhouse Management (<i>fall</i>)
HORT	429 (3)	Floriculture Crop Production
HORT	432 (3)	Horticulture Landscape Design (<i>fall</i>)
HORT	440 (3)	International Horticulture (<i>spring even &</i> <i>study abroad</i>)
HORT	442 (3)	Horticulture Landscape Design II (<i>spring</i>)
HORT	451 (3)	Retail Floristry (<i>fall</i>)
HORT	484	Internship

**HORT 332 must be taken prior to or in conjunction with HORT 432. HORT 442 requires 332 and 432 the semester prior.*

RECOMMENDED COURSES FOR THE FOLLOWING EMPHASIS AREAS:

FRUIT & VEGETABLE PRODUCTION:

HORT 319 (3) Fruit and Nut Production (*fall*)
HORT 325 (3) Vegetable Crop Productions (*fall*)

NURSERY/FLORAL CROP PRODUCTION:

HORT 306 (3) Woody Ornamental Plants (*fall*)
HORT 308 (3) Landscape Plant Materials (*spring*)
HORT 428 (3) Commercial Greenhouse Management (*fall*)

LANDSCAPE MANAGEMENT:

HORT 306 (3) Woody Ornamental Plants (*fall*)
HORT 308 (3) Landscape Plant Materials (*spring*)
HORT 425 (3) Landscape Maintenance and Construction (*spring*)

SCIENCE AND BIOTECHNOLOGY:

HORT 404 (3) Plant Breeding (*spring even*)
HORT 428 (3) Commercial Greenhouse Management (*fall*)
HORT 491 (3) Research (Research in Faculty Lab)*

**Must enroll in course 1 year prior to antic. grad. date*

BS Horticulture Directed Elective Options

Any HORT Course	EHRD 479 Grants and Contracts
ACCT 209 Survey of Accounting Principles or ACCT 229 Introductory Accounting	ENGL 210 Technical and Business Writing
ACCT 210 Survey of Managerial and Cost Accounting Principles or ACCT 230 Intro. Accounting	ENGL 320 Technical Editing and Writing
AGCJ 105 Intro to Agricultural Communications	ENTO 315 Biotechnology and Society
AGCJ 306 Theory and Practice of Agricultural Public Relations	ENTO 320 Honey Bee Biology
AGEC 105 Intro to Agricultural Economics	ENTO 401 Principles of Integrated Pest Management
AGEC 314 Marketing Agricultural and Food Products	ENTO 402 Field-Crop Insects
AGEC 315 Food and Agricultural Sales	FINC 201 Personal Finance
AGEC 325 Principles of Farm and Ranch Management	FINC 409 Survey of Finance Principles
AGEC 330 Financial Management in Agriculture	FRSC 420 Arboriculture
AGEC 340 Agribusiness Management	FRSC 421 Urban Forestry
AGEC 344 Food and Agricultural Law	FSTC 201 Food Science
AGEC 350 Environmental and Natural Resource Economics	GENE/MEPS 411 Biotechnology for Crop Improvement
AGEC 413 Agricultural Cooperatives	GENE: Any Genetics Course (example, GENE 450 Introduction to Genomics)
AGEC 452 International Trade and Agriculture	GEOG 435 Principles of Plant Geography
AGEC 453 International Agribusiness Marketing	MGMT 105 Intro to Business
AGLS 101 Modern Agri. Systems and Renewable Natural Resources	MGMT 209 Business, Government and Society
AGLS 105 Research in Agriculture and Life Sciences	MGMT 212 Business Law
AGLS 125 Life Sciences Learning Community I	MGMT 309 Survey of Management
AGSM 201 Agricultural Energy and Power Systems	MKTG 409 Principles of Marketing
AGSM 301 Systems Analysis in Agriculture	NUTR 202 Fundamentals of Human Nutrition
AGSM 335 Water and Soil Management	NUTR 203 Scientific Principles of Human Nutrition
AGSM 360 Occupational Safety Management	PHIL 314 Environmental Ethics
AGSM 435 Irrigation Principles and Management	PHYS: Any Physics Course
AGSM 461 GIS for Resource Management	RENr 215 Fundamentals of Ecology- Laboratory
ALED 340 Survey of Leadership Theory	RENr 410 Ecosystem Management
ATMO 201 Atmospheric Science	SCSC 105 World Food and Fiber Crops
BESC 201 Intro to Bioenvironmental Sciences	SCSC 302 Recreation Turf and/or SCSC 312 Introductory Turfgrass Management Laboratory
BESC 314 Pathogens, the Environment and Society	SCSC 303 Crop Ecology
BICH: Any Biochemistry Course (example, BICH 410/411 Comprehensive Biochemistry)	SCSC 422 Soil Fertility and Plant Nutrient Management
BIOL 111 and 112 Introductory Biology	SCSC 428 Advanced Turf Ecology and Physiology
BIOL 206 Introductory Microbiology	SCSC 429 Turf Management Systems
BIOL 213 Molecular Cell Biology	SCSC 430 Turfgrass Maintenance
BIOL 328 Plants and People	SCSC 435 Ecology of Agricultural Chemicals in Field Crops and Turf
BIOL 401 Critical Writing in Biology	SCSC 450 Chemical Weed Control and/or SCSC 452 Chemical Weed Control Laboratory
BIOL 451 Bioinformatics	SCSC 455 Environmental Soil and Water Science
CHEM: Any Chemistry Course	SOMS *Up to 3 hours of SOMS Leadership coursework
COMM 203 Public Speaking	SPAN 101 Beginning Spanish I
COMM 205 Communication for Technical Professions	SPAN 102 Beginning Spanish II
COMM 210 Group Communication and Discussion	STAT 302 Statistical Methods
Computer Course – Choose from: ISYS 209 Business Information Systems Concepts or RENr 201 Computer Applications in Agriculture	STLC 101 Application of Learning Theories to College Studies
COSC 253 Construction Materials and Methods I	UGST 181 First Year Seminar
COSC 254 Construction Materials and Methods II	GIS Course – Choose from: AGSM 461 Geographic Information Systems for Resource Management or ESSM 351 Geographic Information Systems for Resource Management or RENr 405 GIS for Environmental Problem Solving
ECON 202 Principles of Economics	
ECON 203 Principles of Economics	

**ESSM 203 & LAND 329 removed fall 2016*