PLANT SCIENCES UNDERGRADUATE CURRICULUM
March 2011

1. Required courses

General Education	**Course**	**Units**
First Year Composition 1	ENGL 101	3
First Year Composition 2	ENGL 102	3
General Education, Tier 1	TRAD 1	3
General Education, Tier 1	TRAD 2	3
General Education, Tier 1	INDV 1	3
General Education, Tier 1	INDV 2	3
General Education, Tier 2	Humanities	3
General Education, Tier 2	Individuals & Societies	3
General Education, Tier 2	Arts	3
Foreign language	various	0-8
Total		27-35
Math, Computation, & Communication	**Course**	**Units**
Calculus	MATH 124	5
ISTA course	ISTA 100, 116, or 130	3
Introduction to Statistics and Biostatistics	MATH 263	3
Science Communication	see list	3
Total		14
Foundation Science	**Course**	**Units**
General Chemistry 1	CHEM 151	4
General Chemistry 2	CHEM 152	4
Organic Chemistry 1	CHEM 241A	3
Organic Chemistry Lab 1	CHEM 243A	1
Biochemistry	BIOC 384	3
Biochemistry	BIOC 385	3
Introductory Physics 1	PHYS 102	3
Introductory Physics Lab 1	PHYS 181	1
Introductory Biology 1	MCB 181R	3
Introductory Biology 2	MCB 182R	3
Introductory Biology Lab	MCB 181L or 182L	1
Total		29
Plant Science major	**Course**	**Units**
Plant Biology	PLS 240	4
Animal and Plant Genetics	PLS 312	4
Plant Growth and Physiology	PLS 360	3
Plant Cell Structure and Function	PLS 359	3
Colloquium	PLS 150	1
Senior Capstone	PLS 498	2
Core electives	see list	6
Free electives	see list	17
Total		40

Summary of degree requirements

Plant Science major requirements	40 units
Lab courses	7 units
Upper division courses	27 + electives
Total required units	110-118 units

2. Additional requirements

a. Science Communication courses (students choose 1)

Applied Organizational Communication	COMM 312
Business writing	ENGL 307
Technical writing	ENGL 308
Advanced Scientific Writing	ENGL 413
Scientific Writing for Environment, Agriculture and Life Sciences	SWES 408
Translating Environmental Science	SWES 415
Communicating Knowledge in Agriculture and The Life Sciences	AED 422

b. Core Electives (students choose 2)

Evolutionary Biology	ECOL 335
Genomics	ECOL 326
Mechanisms in Plant Development	PLS 440
Introductory Plant Pathology	PLP 305
Physiology of Plant Prod. under Controlled Environment	PLS 475A

3. Free Electives (students choose a minimum of 17 units upper division units)

*Core Electives

Course Title	**Course Number**	**Semester Offered**	**Units**
Genetics and Genomics			
Microbial Genetics	PLP 428R+L	F	3+2
Genomics*	ECOL 326	F	3
Evolutionary Biology*	ECOL 335	S	4
Molecular Genetics	MCB 304	S	5
Bioinformatics and Genomic Analysis	MCB 416A	F	3
Problem Solving with Genetic Tools	MCB 422	F, S	3
Population Genetics	ECOL 426	S	3
Plant Growth and Development			
Mechanisms in Plant Development*	PLS 440	F	3
Plant Biochemistry and Metabolic Engineering	PLS 448A	S	3
Cell and Developmental Biology	MCB 305	F	4
Cell Biology	MCB 410	F, S	3-4
Molecular Biology	MCB 411	F, S	3-4
Developmental Mechanisms	MCB 455	F	3

Plant Pathology and Microbiology

General Virology	PLS 333	F	3	
Introductory Plant Pathology*	PLP 305	F	3	
Microbial Diversity	PLP 329A		S	3
General Mycology	PLP 427R+L		F	3+2
Microbial Genetics	PLP428R+L		F	3+2
Biology & Characterization of Plant Pathogenic Agents	PLP 451	S	4	
Antibiotics - A Biological Perspective	PLP 452	F	3	

Plant Production

Crop Science and Production	PLS 306	F	3	
Prop I: Sexual and Asexual Reproduction	PLS 330	F	3	
Turfgrass Management	PLS 355	F	3	
Nursery Systems Management	PLS 339	F	3	
Landscape Horticulture	PLS 354	S Odd	3	
Weed Science	PLS 405	F	3	
Fundamentals of Crop Science	PLS 406	S	1	
Turfgrass Science: Environmental Stress	PLS 455	F	3	
Introductory Plant Pathology*	PLP 305	F	3	
Soil and Plant Nutrition	SWES 316		S	3
Turf and Landscape Technology	AGTM 330		S	3
Insect Pest Management	ENTO 468		F	3

Water and Soils

Soil and Plant Nutrition	SWES 316		S	3
Irrigation Principles and Management	SWES 404		F, S	3
Soil Genesis, Morphology and Classification	SWES 431		F	3
Water Harvesting	ECOL 454		S	3
Soil and Water Resources Engineering	ABE 455		F	3
Irrigation System Design	ABE 456		F	3
Soil and Water Conservation	SWES 461		Su1, Su2	3

Controlled Environment Production Systems

Nursery Systems Management	PLS 339	F	3	
Advanced GH Crop Production	PLS 397B		S	3
Physiology of Crop Production in CEA*	PLS 475A		S	3
Applied Instrumentation in CEA	ABE 479		S	3
Irrigation Engineering	ABE 455		F	3
Irrigation System Design	ABE 456		F	3
Engineering Biological Processes	ABE 481A		F	3
Controlled Environment Systems	ABE 483		F	3
GH Pest Management	ENT/ABE 497C	F	3	
Irrigation Principles and Management	SWES 404		F, S	3

Biodiversity

Systematic Botany	PLS 472	S	4	
Microbial Diversity	PLP 329		S	3
Evolution of Plant Form and Function	ECOL 340		F, S	3

Biodiversity and the Tree of Life	ECOL 345		S	3
Phylogenetic Biology	ECOL 465		F	3
Conservation Biology	ECOL 406R		F	3
Biotechnology				
Introduction to Biotechnology	PLS 340	F	3	
Recombinant DNA Methods and Applications	PLS 473	F, S	4	
Resource Management				
Economics, Ethics and Environmental Management	AREC 350		S	3
Water, Environment and Society	GEOG 304		F, S, Su1, Su2	3
Vegetation Management of Wildlands	RAM 446		S	4
Natural Resources Ecology	RNR 316		F	3
Natural Resources Measurements	RNR 321		S	3
Noxious, Invasive Plants of Arizona	RNR 400		Su1, Su2	3
Useful Wild Plants of Arizona	RNR 401		Su1, Su2	3
Sustainable Management of Arid Lands & Salt Affected Soils	SWES 401		S	3
Air and Water	WSM 402		F	3
Natural Resources Management Practices	RNR384	S	3	
Scientific Philosophy/Education				
Medicinal Plants	PLS 480	F	3	
Philosophy of the Biol. Sciences	ECOL 421		S	3
Sonoran Desert Discovery	ECOL 464		F, S	3
Art of Scientific Discovery	ECOL 479		F, S	3
Additional Courses				
Directed Research	PLS 392	F, S Su1, Su2	1-6	
Internship	PLS 393	F, S Su1, Su2	1-6	
Independent Study	PLS 399	F, S Su1, Su2	1-3	
Honors Independent Study	PLS 399H		F, S	1-3
Preceptorship	PLS 491	F, S	1-8	
Honors Preceptorship	PLS 491H		F, S	1-3
Directed Research	PLS 492	F, S Su1, Su2	1-6	
Internship	PLS 493	F Su1, Su2	1-6	
Honors Thesis	PLS 498H		F, S Su1, Su2	3
Independent Study	PLS 499	F, S Su1, Su2	1-5	
Honors Independent Study	PLS 499H		F, S Su1, Su2	3