

Agricultural Business Management (BS)

To see more about what you will learn in this program, visit the Learning Outcomes website (<https://apps.oirp.ncsu.edu/pgas/>)!

The Bachelor of Science degree in Agricultural Business Management prepares graduates for increasing opportunities to enter managerial positions in ag-related businesses. The academic program combines core courses in agricultural business and economics with courses in science and technology. Students learn to apply the concepts, principles and terminology of business and economics to real-world issues and opportunities.

The Agricultural Business Management Program prepares graduates for careers in management, marketing, sales, finance, supply chain, entrepreneurship, and related fields. The program has sufficient flexibility to provide more extensive course work in science and math for those students desiring to prepare for advanced graduate study. The concentration in biological sciences prepares graduates for management, marketing, and sales careers in fields such as biotechnology, pharmaceuticals, health care, environmental protection, and food processing. Graduates specializing in agribusiness entrepreneurship are trained in value creation and prepared to address the strong demand in agtech, biotech, and foodtech.

For more information about this program, including contact information, visit our website (<https://cals.ncsu.edu/agricultural-and-resource-economics/students/undergraduate/#undergraduate-offerings>).

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Plan Requirements

Code	Title	Hours	Counts towards
Orientation			
ALS 103	Freshman Transitions and Diversity in Agriculture & Life Sciences	1	
or ALS 303	Transfer Transitions and Diversity in Agriculture & Life Sciences		
Communications & Tech Fluency			
COM 110	Public Speaking	3	
Select one of the following:		3	
COM 112	Interpersonal Communication		
COM 211	Argumentation and Advocacy		
COM 226	Introduction to Public Relations		
ENG 332	Communication for Business and Management		

AEE 226	Computer Applications and Information Technology in Agricultural & Extension Ed	3
or CSC 200		

Mathematical Sciences

Select one of the following: 3

MA 121	Elements of Calculus	
MA 131	Calculus for Life and Management Sciences A	
MA 141	Calculus I	

Select one of the following: 3

MA 114	Introduction to Finite Mathematics with Applications	
MA 231	Calculus for Life and Management Sciences B	
MA 241	Calculus II	

Statistics - Select one of the following: 3

BUS 350	Economics and Business Statistics	
ST 311	Introduction to Statistics	
ST 350	Economics and Business Statistics	

Natural Sciences

Select one of the following: 4

BIO 105 & BIO 106	Biology in the Modern World and Biology in the Modern World Laboratory	
BIO 181	Introductory Biology: Ecology, Evolution, and Biodiversity	
PB 200	Plant Life	

Natural Science Electives (p. 2) 7

Department Course Requirements

ARE 201	Introduction to Agricultural & Resource Economics ¹	3
or EC 201	Principles of Microeconomics	
EC 202	Principles of Macroeconomics	3

ACC 220	Introduction to Managerial Accounting	3
or ACC 210	Concepts of Financial Reporting	
ARE 303	Farm Management	3
or ARE 304	Agribusiness Management	
ARE 306	Agricultural Law	3
or ARE 309	Environmental Law & Economic Policy	
ARE 311	Agricultural Markets	3
or ARE 312	Agribusiness Marketing	
Select one of the following:		3
ARE 321	Agricultural Financial Management	
ARE 323	Agribusiness Finance	
BUS 320	Financial Management	
ARE 301	Intermediate Microeconomics	3
or EC 301	Intermediate Microeconomics	
ARE 433	U.S. Agricultural Policy	3
ARE 490	Career Seminar in Agriculture & Resource Economics	1
ARE 336	Introduction to Resource and Environmental Economics	3
ARE 400-level Electives (p. 3)		6
ARE Electives (p. 3)		6
Restricted Electives		
Technical Electives (p. 4)		9
Select 9 units from either of the following:		9
Technical Electives (p. 4)		
Departmental Electives (p. 29)		
GEP Courses		
ENG 101	Academic Writing and Research ¹	4
GEP Humanities (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/)		6
GEP Social Sciences (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-social-sciences/)		3
GEP Health and Exercise Studies (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/)		2

GEP US Diversity, Equity, and Inclusion (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-usdei/)	3
GEP Interdisciplinary Perspectives (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/)	2
GEP Global Knowledge (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-global-knowledge/) (verify requirement)	
Foreign Language Proficiency (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/foreign-language-proficiency/) (verify requirement)	
Free Electives	
Free Electives	9
Select courses with enough credits to meet the minimum graduation requirement of 120 total credit hours.	
Total Hours	120

¹ A grade of C- or higher is required.

Natural Science Electives

Code	Title	Hours	Counts towards
CH 100	Chemistry and Society	4	
CH 101	Chemistry - A Molecular Science	3	
CH 102	General Chemistry Laboratory	1	
CH 201	Chemistry - A Quantitative Science	3	
CH 202	Quantitative Chemistry Laboratory	1	
CH 220	Introductory Organic Chemistry	3	
CH 221	Organic Chemistry I	3	
CH 222	Organic Chemistry I Lab	1	

MEA 100	Earth System Science: Exploring the Connections	4
MEA 101	Geology I: Physical	3
MEA 110	Geology I Laboratory	1
MEA 130	Introduction to Weather and Climate	3
MEA 135	Introduction to Weather and Climate Laboratory	1
MEA 150	Environmental Issues in Water Resources	4
MEA 200	Introduction to Oceanography	3
PY 131	Conceptual Physics	4
PY 205	Physics for Engineers and Scientists I	3
PY 206	Physics for Engineers and Scientists I Laboratory	1
PY 208	Physics for Engineers and Scientists II	3
PY 209	Physics for Engineers and Scientists II Laboratory	1
PY 211	College Physics I	4
PY 212	College Physics II	4

ARE 400-level Electives

Code	Title	Hours	Counts towards
ARE 492 and ARE 493 do not count in this requirement.			
ARE 404	Advanced Agribusiness Management	3	
ARE 412	Advanced Agribusiness Marketing	3	
ARE 413	Applied Agribusiness Marketing	3	
ARE 415	Introduction to Commodity Futures Markets	3	

ARE 420	Taxation in Agriculture, Production, and Agribusiness	3
ARE 425	Contracts and Organizations in Agriculture	3
ARE 433	U.S. Agricultural Policy	3
ARE 444	Ethics in Agribusiness	3
ARE 448	International Agricultural Trade	3
ARE 455	Agribusiness Analytics	3
ARE 470	Agribusiness Entrepreneurship Clinical Skills Development	3
ARE 475	Food Policy	3
ARE 490	Career Seminar in Agriculture & Resource Economics	1
ARE 494	Agribusiness Study Abroad	1-6
ARE 495	Special Topics in Agricultural and Resource Economics	1-6

ARE Electives

Code	Title	Hours	Counts towards
ARE 301	Intermediate Microeconomics	3	
ARE 303	Farm Management	3	
ARE 304	Agribusiness Management	3	
ARE 306	Agricultural Law	3	
ARE 309	Environmental Law & Economic Policy	3	
ARE 311	Agricultural Markets	3	
ARE 312	Agribusiness Marketing	3	
ARE 321	Agricultural Financial Management	3	
ARE 323	Agribusiness Finance	3	
ARE 332	Human Resource Management for Agribusiness	3	

ARE 336	Introduction to Resource and Environmental Economics	3
ARE 345	Global Agribusiness Management	3
ARE 370	Agribusiness New Venture Development	3
ARE 395	Special Topics in Agricultural and Resource Economics (300 level)	1-6
ARE 404	Advanced Agribusiness Management	3
ARE 412	Advanced Agribusiness Marketing	3
ARE 413	Applied Agribusiness Marketing	3
ARE 415	Introduction to Commodity Futures Markets	3
ARE 420	Taxation in Agriculture, Production, and Agribusiness	3
ARE 425	Contracts and Organizations in Agriculture	3
ARE 433	U.S. Agricultural Policy	3
ARE 444	Ethics in Agribusiness	3
ARE 448	International Agricultural Trade	3
ARE 455	Agribusiness Analytics	3
ARE 470	Agribusiness Entrepreneurship Clinical Skills Development	3
ARE 475	Food Policy	3
ARE 490	Career Seminar in Agriculture & Resource Economics	1
ARE 494	Agribusiness Study Abroad	1-6
ARE 495	Special Topics in Agricultural and Resource Economics	1-6

EC 301	Intermediate Microeconomics	3
EC 336	Introduction to Resource and Environmental Economics	3

Technical Electives

Code Title Hours Counts towards

For a technical elective, select a course from among the following set of course listings with prefixes of : AEE, ANS, BAE, BEC, BIO, CH, CS, ENT, ES, ET, FOR, FS, FW, GN, HS, MB, MEA, NR, NTR, PB, PO, PY, SSC, TOX, VMP. (Before registering for these courses students should check to make sure they have met the necessary prerequisites and that credit restrictions do not apply- e.g. credit is not allowed for both BIO 105 and BIO 181)

AEC 360	Ecology	4
AEC 380	Water Resources: Global Issues in Ecology, Policy, Management, and Advocacy	3
AEC 419	Freshwater Ecology	4
AEC 420	Introduction to Fisheries Science	3
AEC 423	Introduction to Fisheries Sciences Laboratory	1
AEC 441	Biology of Fishes	3
AEC 442	Biology of Fishes Laboratory	1
AEC 460	Field Ecology and Methods	4
AEC 509	Ecology and Conservation of Freshwater Invertebrates	3
AEC 515	Fish Physiology	3
AEC 519	Freshwater Ecology	4
AEC 586	Aquaculture	3
AEC 587	Aquaculture Laboratory	1
AEC 761	Conservation and Climate Science	3

AEE 101	Introduction to Career and Technical Education	1	AEE 424	Planning Agricultural Educational Programs	3
AEE 103	Fundamentals of Agricultural and Extension Education	1	AEE 426	Methods of Teaching Agriculture	3
AEE 208	Agricultural Biotechnology: Issues and Implications	3	AEE 427	Student Teaching in Agriculture	8
AEE 226	Computer Applications and Information Technology in Agricultural & Extension Ed	3	AEE 433	Leadership and Management of Volunteers in Agricultural and Extension Education	3
AEE 230	Introduction to Cooperative Extension	3	AEE 435	Professional Presentations in Agricultural Organizations	3
AEE 303	Administration and Supervision of Student Organizations	3	AEE 460	Organizational Leadership Development in Agriculture and Life Sciences	3
AEE 311	Communication Methods and Media	3	AEE 478	Advanced Issues in Extension Education	3
AEE 322	Experiential Learning in Agriculture	3	AEE 490	Seminar in Agricultural and Extension Education	1
AEE 323	Leadership Development in Agriculture and Life Sciences	3	AEE 491	Seminar in Agricultural Education	1
AEE 325	Planning and Delivering Non-Formal Education	3	AEE 492	External Learning Experience in Agricultural and Extension Education	1-6
AEE 326	Teaching Diverse Learners in AED	3	AEE 493	Special Problems in Agriculture and Extension Education	1-6
AEE 327	Conducting Summer Programs in Agricultural Education	1	AEE 495	Special Topics in Agricultural and Extension Education	1-3
AEE 350	Personal Leadership Development in Agriculture and Life Sciences	3	AEE 500	Agricultural Education, Schools and Society	3
AEE 360	Developing Team Leadership in Agriculture and Life Sciences	3	AEE 501	Foundations Of Agricultural and Extension Education	3
AEE 423	Practicum in Agricultural Extension/ Industry	8	AEE 503	Youth Program Management	3

AEE 505	Trends and Issues in Agricultural and Extension Education	3	AEE 577	Evaluation in Agricultural and Extension Education	3
AEE 507	Comparative Agricultural and Extension Education	3	AEE 578	Scientific Inquiry in Agricultural and Extension Education	3
AEE 521	Program Planning in Agricultural and Extension Education	3	AEE 579	Research Design in Agricultural and Extension Education	3
AEE 522	Occupational Experience in Agriculture	3	AEE 595	Special Topics in Agricultural and Extension Education	1-6
AEE 523	Adult Education in Agriculture	3	ALS 103	Freshman Transitions and Diversity in Agriculture & Life Sciences	1
AEE 524	Coordinating the High School Agricultural Education Program	3	ALS 303	Transfer Transitions and Diversity in Agriculture & Life Sciences	1
AEE 526	Information Technologies in Agricultural and Extension Education	3	ANS 105	Introduction to Companion Animal Science	3
AEE 529	Curriculum Development in Agricultural and Extension Education	3	ANS 110	Introduction to Equine Science	3
AEE 533	Leadership and Management of Volunteers in Agricultural and Extension Education	3	ANS 150	Introduction to Animal Science	3
AEE 535	Teaching Agriculture in Secondary Schools	3	ANS 151	Introduction to Animal Science Lab	1
AEE 545	Methods of Change in Agricultural and Human Sciences		ANS 201	Techniques of Animal Care	2
AEE 550	Leadership Theory	3	ANS 205	Physiology of Domestic Animals	3
AEE 560	Organizational Behavior and Administrative Leadership in Agricultural & Human Science	3	ANS 206	Anatomy of Domestic Animals Lab	1
AEE 565	Community Leadership	3	ANS 208	Agricultural Biotechnology: Issues and Implications	3
			ANS 215	Agricultural Genetics	3
			ANS 220	Reproductive Physiology	3
			ANS 221	Reproductive Physiology Lab	1
			ANS 225	Principles of Animal Nutrition	3
			ANS 230	Animal Nutrition	3

ANS 231	Animal Nutrition Lab	1	ANS 330	Laboratory Animal Science	3
ANS 240	Livestock Merchandising	3	ANS 395	Animal Science Study Abroad	1-6
ANS 240A	Livestock Merchandising	3	ANS 400	Companion Animal Management	3
ANS 260	Basic Swine Science	2	ANS 402	Beef Cattle Management	3
ANS 261	Swine Health and Biosecurity	1	ANS 403	Swine Management	3
ANS 262	Swine Breeding and Gestation Management	1	ANS 404	Dairy Cattle Management	3
ANS 263	Farrowing Management	1	ANS 408	Small Ruminant Management	3
ANS 264	Swine Nursery and Finishing Management	1	ANS 410	Equine Breeding Farm Management	3
ANS 265	Contemporary Issues in the Swine Industry	1	ANS 411	Management of Growing and Performance Horses	3
ANS 266	Swine Environment Management	1	ANS 415	Comparative Nutrition	3
ANS 267	Swine Manure and Nutrient Management	1	ANS 425	Feed Manufacturing Technology	3
ANS 268	Employee Management for the Swine Industry	1	ANS 440	Animal Genetic Improvement	3
ANS 269	Internship in the Swine Industry	1	ANS 452	Comparative Reproductive Physiology and Biotechnology	3
ANS 270	Pork Export Markets from a Swine Production Perspective	1	ANS 453	Physiology and Genetics of Growth and Development	3
ANS 271	Swine Nutrition	1	ANS 454	Lactation, Milk and Nutrition	3
ANS 281	Professional Development of PreVeterinary Track Students	1	ANS 480	Judging Team	1
ANS 290	Professional Development for Animal Science Careers	2	ANS 492	Professional Internship Experience in the Animal Sciences	1-3
ANS 303	Principles of Equine Evaluation	2	ANS 493	Research Experience in the Animal Sciences	1-3
ANS 304	Dairy Cattle Evaluation	2	ANS 494	Teaching Experience in the Animal Sciences	1-3
ANS 309	Livestock Evaluation	3	ANS 495	Special Topics in Animal Science	1-3
ANS 322	Muscle Foods and Eggs	3	ANS 515	Comparative Nutrition	3
ANS 324	Milk and Dairy Products	3	ANS 525	Feed Manufacturing Technology	3
			ANS 530		3

ANS 531		1	BAE 361	Analytical Methods in Engineering Design	3
ANS 540	Animal Genetic Improvement	3	BAE 371	Fundamentals of Hydrology for Engineers	3
ANS 550	Applied Ruminant Nutrition	3	BAE 376	Watershed Assessment and Water Quality Protection	3
ANS 552	Comparative Reproductive Physiology and Biotechnology	3	BAE 401	Sensors and Controls	3
ANS 553	Physiology and Genetics of Growth and Development	3	BAE 425	Industrial Microbiology and Bioprocessing	3
ANS 554	Lactation, Milk and Nutrition	3	BAE 435	Precision Agriculture Technology	3
ANS 561	Equine Nutrition	3	BAE 451	Engineering Design I	2
ANS 571	Regulation of Metabolism	3	BAE 452	Engineering Design II	2
ANS 575		3	BAE 462	Machinery Design and Applications	3
ANS 590	Topical Problems in Animal Science	1-3	BAE 472	Irrigation and Drainage	3
BAE 100	Introduction to Biological and Agricultural Engineering and Technology	1	BAE 473	Introduction to Hydrologic and Water Quality Modeling	3
BAE 200	Computer Methods in Biological Engineering	2	BAE 474	Principles and Applications of Ecological Engineering	3
BAE 202	Introduction to Biological and Agricultural Engineering Methods	4	BAE 478	Agricultural Waste Management	3
BAE 203	Introduction to AutoCAD Civil 3D for Environmental & Ecological Engineers	2	BAE 481	Structures & Environment	3
BAE 204	Introduction to Environmental and Ecological Engineering	2	BAE 488	Postharvest Engineering	3
BAE 302	Transport Phenomena	3	BAE 492	External Learning Experience	1-6
BAE 305	Biological Engineering Circuits	4	BAE 493	Special Problems in Biological and Agricultural Engineering	1-6
BAE 321	Bioprocessing Engineering Fundamentals	3	BAE 495	Special Topics in Biological and Agricultural Engineering	1-3
BAE 322	Introduction to Food Process Engineering	3	BAE 501	Sensors and Controls	3
BAE 325	Introductory Geomatics	3	BAE 502	Instrumentation for Hydrologic Applications	3

BAE 525	Industrial Microbiology and Bioprocessing	3	BAE 585		1
BAE 528	Biomass to Renewable Energy Processes	3	BAE 590	Special Problems	1-6
BAE 535	Precision Agriculture Technology	3	BAE 591	Master's Research Methods I	1
BAE 536	GIS Applications in Precision Agriculture	1	BAE 592	Master's Research Methods II	1
BAE 560	Aerosol Science and Engineering	3	BAE 593	Introduction to Research Communications	1
BAE 561	Agricultural Air Quality	3	BBS 325	Introduction to Brewing Science and Technology	3
BAE 572	Irrigation and Drainage	3	BBS 426	Upstream Biomanufacturing Laboratory	2
BAE 573	Introduction to Hydrologic and Water Quality Modeling	3	BBS 526	Upstream Biomanufacturing Laboratory	2
BAE 574	DRAINMOD: Theory and Application	3	BCH 101	Introduction to Microbiology and Biochemistry Laboratory Practices	3
BAE 575	Design of Structural Stormwater Best Management Practices	3	BCH 571	Regulation of Metabolism	3
BAE 576	Watershed Monitoring and Assessment	3	BEC 220	Introduction to Drug Development and Careers in Biomanufacturing	1
BAE 577	Wetlands Design and Restoration	3	BEC 330	Principles and Applications of Bioseparations	2
BAE 578	Agricultural Waste Management	3	BEC 363		2
BAE 580	Introduction to Land and Water Engineering	3	BEC 426	Upstream Biomanufacturing Laboratory	2
BAE 581	Open Channel Hydraulics for Natural Systems	3	BEC 436	Introduction to Downstream Process Development	2
BAE 582	Risk and Failure Assessment of Stream Restoration Structures	1	BEC 440		3
BAE 583	Stream Corridor 3 Es: Ecohydraulics, Engineering and Ethics	3	BEC 441		3
BAE 584	Introduction to Fluvial Geomorphology	3	BEC 462	Fundamentals of Bio-Nanotechnology	3
			BEC 463	Fermentation of Recombinant Microorganisms	2
			BEC 475	Global Regulatory Affairs for Medical Products	3
			BEC 480	cGMP Fermentation Operations	2

BEC 483	Tissue Engineering Technologies	2	BIO 105	Biology in the Modern World	3
BEC 485	cGMP Downstream Operations	2	BIO 106	Biology in the Modern World Laboratory	1
BEC 488	Animal Cell Culture Engineering	2	BIO 140	Survey of Animal Diversity	3
BEC 495	Special Topics in Biomanufacturing	1-4	BIO 141	Animal Diversity Laboratory	1
BEC 497	Biomanufacturing Research Projects	1-3	BIO 165	Introduction to Environmental Research	5
BEC 515	Biopharmaceutica Product Characterization Techniques	2	BIO 181	Introductory Biology: Ecology, Evolution, and Biodiversity	4
BEC 526	Upstream Biomanufacturing Laboratory	2	BIO 183	Introductory Biology: Cellular and Molecular Biology	4
BEC 532	Foundations of Downstream Processing and Formulation	2	BIO 227	Understanding Structural Diversity through Biological Illustration	3
BEC 536	Introduction to Downstream Process Development	2	BIO 230	The Science of Studying Dinosaurs	3
BEC 540		3	BIO 240	Principles of Human Anatomy & Physiology (A): Nervous, Skeletal, Muscular, & Digestive Systems	4
BEC 541		3	BIO 245	Principles of Human Anatomy & Physiology (B): Endocrine, Cardiovascular, Respiratory & Renal Systems	4
BEC 562	Fundamentals of Bio-Nanotechnology	3	BIO 267	Research in the Life Sciences I: Research Skills	3
BEC 563	Fermentation of Recombinant Microorganisms	2	BIO 269	Research in the Life Sciences II: Guided Research	3
BEC 575	Global Regulatory Affairs for Medical Products	3	BIO 310	Quantitative Approaches to Biological Problems	3
BEC 577	Advanced Biomanufacturing and Biocatalysis	3	BIO 315	General Parasitology	3
BEC 580	cGMP Fermentation Operations	2	BIO 325	Paleontological Field Methods	4
BEC 583	Tissue Engineering Technologies	2	BIO 330	Evolutionary Biology	3
BEC 585	cGMP Downstream Operations	2			
BEC 590	Industry Practicum in Biomanufacturing	3			
BEC 595	Special Topics in Biomanufacturing	1-6			

BIO 361	Developmental Biology	3	BIT 210	Phage Hunters	3
BIO 370	Developmental Anatomy of the Vertebrates	3	BIT 211	Phage Genomics	2
BIO 375	Developmental Anatomy Laboratory	2	BIT 463	Fermentation of Recombinant Microorganisms	2
BIO 405	Functional Histology	3	BIT 466	Animal Cell Culture Techniques	2
BIO 414	Cell Biology	3	BIT 476	Applied Bioinformatics	2
BIO 416	Cancer Cell Biology	3	BIT 481	Plant Tissue Culture and Transformation	2
BIO 418	Cell Biology Research Lab	2	BIT 563	Fermentation of Recombinant Microorganisms	2
BIO 424	Endocrinology	3	BIT 566	Animal Cell Culture Techniques	2
BIO 432	Evolutionary Medicine	3	BIT 572	Proteomics	3
BIO 434	Hormones and Behavior	3	BMA 560	Population Ecology	3
BIO 440	The Human Animal: An Evolutionary Perspective	3	BME 483	Tissue Engineering Technologies	2
BIO 444	The Biology of Love and Sex	3	BME 583	Tissue Engineering Technologies	2
BIO 481	Senior Capstone Project	1	BSC 295	Special Topics in Biological Sciences	1-6
BIO 482	Capstone Course in Molecular, Cellular, and Developmental Biology	3	BSC 492	Professional Experience	1-3
BIO 483	Capstone Course in Integrative Physiology and Neurobiology	3	BSC 493	Research Experience	1-3
BIO 484	Capstone Course in Human Biology	3	BSC 495	Special Topics in Biological Sciences	1-6
BIO 485	Capstone Course in Ecology, Evolution, and Conservation Biology	3	CE 435	Engineering Geology	3
BIO 488	Neurobiology	3	CE 479	Air Quality	3
BIO 498	Honors Project Part I	3	CE 581	Fluid Mechanics in Natural Environments	3
BIO 499	Honors Project Part 2	3	CH 100	Chemistry and Society	4
BIO 518		3	CH 101	Chemistry - A Molecular Science	3
BIO 560	Population Ecology	3	CH 102	General Chemistry Laboratory	1
BIO 570	Evolutionary Ecology	3	CH 103	General Chemistry I for Students in Chemical Sciences	3
BIO 572	Proteomics	3			
BIO 588	Neurobiology	3			
BIO 592	Topical Problems	1-3			

CH 104	General Chemistry Laboratory I for Students in Chemical Sciences	1	CH 230	Computational Chemistry Lab I	1
CH 111	Preparatory Chemistry	3	CH 232	Computational Chemistry Lab II	1
CH 201	Chemistry - A Quantitative Science	3	CH 295	Special Topics in Chemistry	1-3
CH 202	Quantitative Chemistry Laboratory	1	CH 315	Quantitative Analysis	3
CH 203	General Chemistry II for Students in Chemical Sciences	3	CH 316	Quantitative Analysis Laboratory	1
CH 204	General Chemistry Laboratory II for Students in Chemical Sciences	1	CH 331	Introductory Physical Chemistry	4
CH 220	Introductory Organic Chemistry	3	CH 335	Principles of Green Chemistry	4
CH 221	Organic Chemistry I	3	CH 345	Chemistry and War	3
CH 222	Organic Chemistry I Lab	1	CH 401	Systematic Inorganic Chemistry I	3
CH 223	Organic Chemistry II	3	CH 403	Systematic Inorganic Chemistry II	3
CH 224	Organic Chemistry II Lab	1	CH 415	Analytical Chemistry II	3
CH 225	Organic Chemistry I for Students in Chemical Sciences	3	CH 431	Physical Chemistry I	3
CH 226	Organic Chemistry Laboratory I for Students in Chemical Sciences	1	CH 433	Physical Chemistry II	3
CH 227	Organic Chemistry II for Students in Chemical Sciences	3	CH 435	Introduction to Quantum Chemistry	3
CH 228	Organic Chemistry Laboratory II for Students in Chemical Sciences	1	CH 437	Physical Chemistry for Engineers	4
			CH 441	Forensic Chemistry	3
			CH 442	Advanced Synthetic Techniques	4
			CH 444	Advanced Synthetic Techniques II	4
			CH 452	Advanced Measurement Techniques I	4
			CH 454	Advanced Measurement Techniques II	4
			CH 463	Molecular Origins of Life	3
			CH 495	Special Topics in Chemistry	1-4
			CH 499	Undergraduate Research in Chemistry	1-3

CH 563	Molecular Origins of Life	3	CS 418	Introduction to Regulatory Science in Agriculture	3
CH 572	Proteomics	3	CS 424	Seed Physiology	3
CHE 462	Fundamentals of Bio-Nanotechnology	3	CS 430	Advanced Agroecology	4
CHE 463	Fermentation of Recombinant Microorganisms	2	CS 465	Turf Management Systems and Environmental Quality	3
CHE 488	Animal Cell Culture Engineering	2	CS 470	Advanced Turfgrass Pest Management	2
CHE 562	Fundamentals of Bio-Nanotechnology	3	CS 480	Sustainable Food Production (capstone)	1
CHE 563	Fermentation of Recombinant Microorganisms	2	CS 502	Plant Disease: Methods & Diagnosis	2
CHE 577	Advanced Biomanufacturing and Biocatalysis	3	CS 518	Introduction to Regulatory Science in Agriculture	3
CS 200	Introduction to Turfgrass Management	4	CS 524	Seed Physiology	3
CS 210	Lawns and Sports Turf	3	CS 541	Plant Breeding Methods	3
CS 211	Plant Genetics	3	CS 565	Turf Management Systems and Environmental Quality	3
CS 213	Crop Science	3	CS 590	Special Topics	1-6
CS 214	Crop Science Laboratory	1	CS 591		1-6
CS 216	Southern Row Crop Production - Cotton, Peanuts, and Tobacco	3	CSSC 290	Professional Development in Crop & Soil Sciences	1
CS 218	Southern Row Crop Production - Corn, Small Grains and Soybeans	3	CSSC 490	Senior Seminar in Crop Science and Soil Science	1
CS 224	Seeds, Biotechnology and Societies	3	CSSC 492	Professional Internship Experience in Crop and Soil Sciences	1-3
CS 230	Introduction to Agroecology	3	CSSC 493	Research Experience in Crop and Soil Sciences	1-3
CS 312		3	CSSC 495	Special Topics in Crop and Soil Sciences	1-6
CS 400	Turf Cultural Systems	3	ECE 488	Systems Biology Modeling of Plant Regulation	3
CS 410	Community Food Systems	3			
CS 411	Crop Ecology	3			
CS 413	Plant Breeding	2			
CS 414	Weed Science	4			
CS 415	Integrated Pest Management	3			

ECE 489	Solid State Solar and Thermal Energy Harvesting	3
ECE 588	Systems Biology Modeling of Plant Regulation	3
ECE 589	Solid State Solar and Thermal Energy Harvesting	3
ECI 424	Student Teaching in Modern Foreign Languages	12
ENT 201	Insects and People	3
ENT 203	An Introduction to the Honey Bee and Beekeeping	3
ENT 207	Insects and Human Disease	3
ENT 212	Basic Entomology	1
ENT 305	Introduction to Forensic Entomology	3
ENT 401	Honey Bee Biology and Management	3
ENT 402	Forest Entomology	3
ENT 425	General Entomology	3
ENT 470	Advanced Turfgrass Pest Management	2
ENT 492	External Learning Experience	1-6
ENT 493	Special Problems in Entomology	1-6
ENT 495	Special Topics in Entomology	1-3
ENT 502	Insect Diversity	4
ENT 503	Insect Morphology and Physiology	3
ENT 504	Professional Development for Agriculture and the Life Sciences	2
ENT 506	Principles of Genetic Pest Management	3
ENT 509	Biology of Aquatic Insects	3

ENT 510	Writing Proposals in Agriculture, Biology, and Ecology	2
ENT 520	Insect Behavior	3
ENT 526	Organic Agriculture: Principles and Practices	3
ENT 550	Fundamentals of Arthropod Management	3
ENT 560		3
ENT 582	Medical and Veterinary Entomology	3
ENT 591	Special Topics In Entomology	1-6
ES 100	Introduction to Environmental Sciences	3
ES 111	Applications of Environmental Sciences	1
ES 113	Earth from Space	3
ES 150	Water and the Environment	3
ES 200	Climate Change and Sustainability	3
ES 295	Special Topics in Environmental Science	1-4
ES 300	Energy and Environment	3
ES 400	Analysis of Environmental Issues	3
ES 449	Human Dimensions of Natural Resources in Australia/New Zealand	3
ES 450	Sustaining Natural Resources in Australia/New Zealand	3
ES 495	Special Topics in Environmental Science	1-6
ES 496	Environmental Science Internship	1-3
ES 497	Professional Development in Environmental Science	1-3

ES 498	Research in Environmental Science	1-3	ET 320	Fundamentals of Air Pollution	3
ES 499	Thesis in Environmental Science	3	ET 330	Environmental Technology Practicum	3
ET 105	Introduction to Environmental Regulations	1	ET 401	Environmental Technology Laboratory V	1
ET 120	Introduction to Renewable Energy Technologies and Assessments	3	ET 455	Adaptive Management and Governance	3
ET 201	Environmental Technology Laboratory I	1	ET 460	Practice of Environmental Technology	3
ET 202	Environmental Technology Laboratory II	1	ET 493	Independent Study in Environmental Technology & Management	1-6
ET 203	Pollution Prevention	1	ET 494	Independent Study in Environmental Technology & Management	1-6
ET 220	Solar Photovoltaics Assessment	3	ET 495	Special Topics in Environmental Technology & Management	1-6
ET 255	Hydro, Wind, and Bioenergy Assessment	3	FM 425	Feed Manufacturing Technology	3
ET 262	Renewable Energy Adoption: Barriers and Incentives	3	FM 426	Feed Manufacturing Technology Laboratory	1
ET 293	Independent Study in Environmental Technology & Management	1-6	FM 525	Feed Manufacturing Technology	3
ET 294	Independent Study in Environmental Technology & Management	1-6	FM 580	Feed and Ingredient Quality Assurance	3
ET 295	Special Topics in Environmental Technology & Management	1-6	FOR 150	Critical Thinking and Data Analysis	2
ET 301	Environmental Technology Laboratory III	1	FOR 172	Forest System Mapping and Mensuration I	2
ET 302	Environmental Technology Laboratory IV	1	FOR 204	Silviculture	2
ET 303	Laboratory Safety Systems and Management	1	FOR 248	Forest History, Technology and Society	3
ET 310	Environmental Monitoring and Analysis	3	FOR 250	Professional Development II: Communications in Natural Resources	1
			FOR 252	Introduction to Forest Science	3

FOR 260	Forest Ecology	4	FOR 411	Forest Tree Genetics and Biology	3
FOR 261	Forest Communities	2	FOR 414	World Forestry	3
FOR 264	Forest Wildlife	1	FOR 415	World Forestry Study Tour	1
FOR 265	Fire Management	1	FOR 420	Watershed and Wetlands Hydrology	4
FOR 273	Forest System Mapping and Mensuration II	3	FOR 422	Consulting Forestry	3
FOR 293	Independent Study in Forest Management	1-6	FOR 430	Forest Health and Protection	3
FOR 294	Independent Study in Forest Management	1-6	FOR 434	Forest Operations and Analysis	3
FOR 295	Special Topics in Forestry	1-6	FOR 472	Forest Soils	4
FOR 303	Silvics and Forest Tree Physiology	3	FOR 491	Special Topics in Forestry and Related Natural Resources	1-4
FOR 304	Theory of Silviculture	4	FOR 493	Independent Study in Forest Management	1-6
FOR 318	Forest Pathology	3	FOR 494	Independent Study in Forest Management	1-6
FOR 319	Forest Economics	3	FOR 501	Dendrology	3
FOR 330	North Carolina Forests	3	FOR 502	Forest Measurements	1
FOR 334	Operations Research Applications in Natural Resources	1	FOR 503	Tree Physiology	1
FOR 339	Dendrology	4	FOR 504	The Practice of Silviculture	3
FOR 350	Professional Development III: Ethical Dilemmas in Natural Resource Management	1	FOR 505	Forest Management	4
FOR 353	GIS and Remote Sensing for Environmental Analysis and Assessment	3	FOR 506	Silviculture Laboratory	1
FOR 374	Forest Measurement, Modeling, and Inventory	3	FOR 507	Silviculture Mini Course	1
FOR 402	Forest Entomology	3	FOR 508	Applied Forest Ecology: Natural Forest Silviculture	3
FOR 405	Forest Management	4	FOR 509	Forest Resource Policy	1
FOR 406	Forest Inventory, Analysis and Planning	4	FOR 510	Introduction to GPS	1
FOR 408	Applied Forest Ecology: Natural Forest Silviculture	3	FOR 513	Silviculture for Intensively Managed Plantations	3
			FOR 514	Woodland Stewardship	3
			FOR 519	Forest Economics	3

FOR 520	Watershed and Wetlands Hydrology	4
FOR 522	Consulting Forestry	3
FOR 531	Wildland Fire Science	3
FOR 532	Wildland Firefighter	3
FOR 534	Forest Operations and Analysis	3
FOR 540	Advanced Dendrology	3
FOR 561	Forest Communities of the Southeastern Coastal Plain	1
FOR 562	Forest Communities of the Southern Appalachians	1
FOR 565	Plant Community Ecology	4
FOR 574	Forest Mensuration and Modeling	3
FOR 575	Advanced Terrestrial Ecosystem Ecology	3
FOR 583	Tropical Forestry	3
FOR 595	Special Topics	1-6
FS 201	Introduction to Food Science	3
FS 231	Principles of Food and Bioprocess Engineering	4
FS 250	Basics of Food Safety & Quality	3
FS 290	Careers in Food and Bioprocessing Sciences	1
FS 295	Special Topics in Food Science	1-4
FS 301	Introduction to Human Nutrition	3
FS 322	Muscle Foods and Eggs	3
FS 324	Milk and Dairy Products	3
FS 325	Introduction to Brewing Science and Technology	3
FS 330	Science of Food Preparation	3

FS 352	Introduction to Microbiological Food Safety Hazards	3
FS 354	Food Sanitation	3
FS 401	Advanced Nutrition and Metabolism	3
FS 402	Chemistry of Food and Bioprocessed Materials	4
FS 403	Analytical Techniques in Food & Bioprocessing Science	4
FS 405	Food Microbiology	3
FS 406	Food Microbiology Lab	1
FS 416	Quality Control in Food and Bioprocessing	3
FS 421	Food Preservation	3
FS 426	Upstream Biomanufacturing Laboratory	2
FS 435	Food Safety Management Systems	3
FS 453	Food Laws and Regulations	3
FS 462	Postharvest Physiology	3
FS 471	Professionalism & Project Preparation in Food & Bioprocessing Science	1
FS 475	Problems and Design in Food and Bioprocessing Science	3
FS 481	Research Experience in Food and Bioprocessing Sciences	3
FS 492	Professional Internship Experience in Food Science	1-6

FS 493	Research Experience in Food Science	1-6	FSA 520	Pre-Harvest Food Safety	3
FS 495	Special Topics in Food Science	1-3	FSA 530	Post-Harvest Food Safety	3
FS 501	Advanced Nutrition and Metabolism	3	FSA 540	Food Safety and Public Health	3
FS 502	Chemistry of Food and Bioprocessed Materials	4	FSA 580	Professional Development and Ethics in Food Safety	1
FS 505	Food Microbiology	3	FW 221	Conservation of Natural Resources	3
FS 506	Food Microbiology Lab	1	FW 293	Independent Study in Fisheries, Wildlife, and Conservation Biology	1-6
FS 516	Quality Control in Food and Bioprocessing	3	FW 294	Independent Study in Fisheries, Wildlife, and Conservation Biology	1-6
FS 520	Pre-Harvest Food Safety	3	FW 311	Piedmont Wildlife Ecology and Management	3
FS 521	Food Preservation	3	FW 312	Fisheries Techniques and Management	1
FS 522	Food Packaging	3	FW 313	Mountain Wildlife Ecology and Management	1
FS 526	Upstream Biomanufacturing Laboratory	2	FW 314	Coastal Ecology and Management	1
FS 530	Post-Harvest Food Safety	3	FW 333	Conservation Biology in Practice	3
FS 535	Food Safety Management Systems	3	FW 353	Wildlife Management	3
FS 540	Food Safety and Public Health	3	FW 373	Vertebrate Natural History	3
FS 550	Food Industry Study Tour	2	FW 403	Urban Wildlife Management	3
FS 553	Food Laws and Regulations	3	FW 404	Wildlife Habitat Management	3
FS 554	Lactation, Milk, and Nutrition	3	FW 405	Tropical Wildlife Ecology	3
FS 555	Exercise Nutrition	3	FW 411	Human Dimensions of Wildlife and Fisheries	3
FS 557	Nutraceuticals and Functional Foods	3			
FS 562	Postharvest Physiology	3			
FS 567	Sensory Analysis of Foods	3			
FS 580	Professional Development and Ethics in Food Safety	1			
FS 591	Special Problems In Food Science	1-6			
FS 592	Special Research Projects in Food Science	1-6			

FW 415	Professional Development in Fisheries, Wildlife, and Conservation Biology	1	GES 506	Principles of Genetic Pest Management	3
FW 444	Mammalogy	3	GIS 512	Introduction to Environmental Remote Sensing	3
FW 445	Human Dimensions of Conservation Biology in the Bahamas	3	GIS 515	Cartographic Design	2
FW 453	Principles of Wildlife Science	4	GIS 530	Spatial Data Foundations	3
FW 460	International Wildlife Management and Conservation	3	GIS 550	Geospatial Data Structures and Web Services	3
FW 465	African Ecology and Conservation	4	GIS 582	Geospatial Modeling	3
FW 492	External Learning Experience	1-6	GN 301	Genetics in Human Affairs	3
FW 493	Independent Study in Fisheries, Wildlife, and Conservation Biology	1-6	GN 311	Principles of Genetics	4
FW 494	Independent Study in Fisheries, Wildlife, and Conservation Biology	1-6	GN 312	Elementary Genetics Laboratory	1
FW 495	Special Topics in Fisheries and Wildlife Science	1-3	GN 421	Molecular Genetics	3
FW 511	Human Dimensions of Wildlife and Fisheries	3	GN 423	Population, Quantitative and Evolutionary Genetics	3
FW 515	Fish Physiology	3	GN 425	Advanced Genetics Laboratory	2
FW 544	Mammalogy	3	GN 427	Introductory Bioinformatics	3
FW 553	Principles of Wildlife Science	3	GN 428	Introduction to Machine Learning in Biology	3
FW 560	International Wildlife Management and Conservation	3	GN 434	Genes and Development	3
FW 565	African Ecology and Conservation	4	GN 441	Human and Biomedical Genetics	3
FW 586	Aquaculture	3	GN 451	Genome Science	3
FW 587	Aquaculture Laboratory	1	GN 453	Personal Genomics	3
FW 595	Special Topics in Fisheries and Wildlife Sciences	1-6	GN 456	Epigenetics, Development, and Disease	3
			GN 461	Advanced Bioinformatics	3
			GN 490	Genetics Colloquium	1
			GN 496	Genetics Research Experience	3
			GN 497	Genetics Teaching Experience	3

GN 521	Molecular Genetics	3	HS 410	Community Food Systems	3
GN 541	Human and Biomedical Genetics	3	HS 411	Nursery Management	3
HS 131	Fruit & Vegetable Production	3	HS 416	Planting Design	4
HS 144	Weeds & Diseases of Ornamentals	3	HS 418	Digital Media Graphic for Landscape Designers	3
HS 200	Home Horticulture	3	HS 420	Green Infrastructure	3
HS 201	The World of Horticulture: Principles and Practices	3	HS 421	Temperate-Zone Tree Fruits: Physiology and Culture	3
HS 202	Home Plant Identification	3	HS 422	Small Fruit Production	3
HS 203	Home Plant Propagation	3	HS 423		3
HS 204	Home Landscape Maintenance	3	HS 428	Service-Learning in Urban Agriculture Systems	1
HS 205	Home Food Production	3	HS 431	Vegetable Production	4
HS 215	Agricultural Genetics	3	HS 432	Introduction to Permaculture	3
HS 242	Introduction to Small Scale Landscape Design	3	HS 433	Public Garden Administration	3
HS 250	Home Landscape Design: Creating Garden Spaces	3	HS 440	Greenhouse Management	3
HS 252	Landscape Graphic Communication	2	HS 442	Floriculture Crop Production	3
HS 272	Landscape Design/Build	6	HS 451	Plant Nutrition	3
HS 280	Hands-On-Horticulture	3	HS 462	Postharvest Physiology	3
HS 290	Horticulture: Careers and Opportunities	1	HS 471	Landscape Ecosystem Management	4
HS 301	Plant Propagation	4	HS 475	Horticulture Entrepreneurship	3
HS 302	Gardening with Herbaceous Perennials	3	HS 476	Crop Physiology and Production in Controlled Environments	3
HS 303	Ornamental Plant Identification I	3	HS 480	Sustainable Food Production (capstone)	1
HS 304	Ornamental Plant Identification II	3	HS 491	Sustainable Agriculture Entrepreneurship Study Abroad	3
HS 357	Landscape Grading and Drainage	4	HS 492	Horticulture Internship	1-3
HS 400	Residential Landscaping	6	HS 493	Research Experience in Horticultural Science	1-3

HS 494	Teaching Experience in Horticultural Science	1-3
HS 495	Experimental Courses in Horticultural Science	1-6
HS 502	Plant Disease: Methods & Diagnosis	2
HS 516	Planting Design	4
HS 520	Green Infrastructure	3
HS 521	Temperate-Zone Tree Fruits: Physiology and Culture	3
HS 523		3
HS 532	Introduction to Permaculture	3
HS 533	Public Garden Administration	3
HS 541	Plant Breeding Methods	3
HS 550	Environmental Nursery Production	3
HS 551	Plant Nutrition	3
HS 562	Postharvest Physiology	3
HS 576	Crop Physiology and Production in Controlled Environments	3
HS 583		3
HS 590	Special Problems in Horticultural Science	1-6
IDS 303	Humans and the Environment	3
MA 315	Mathematics Methods in Atmospheric Sciences	4
MA 555	Introduction to Manifold Theory	3
MB 101	Introduction to Microbiology and Biochemistry Laboratory Practices	3
MB 103	Introductory Topics in Microbiology	1
MB 180	Introduction to Microbial Bioprocessing	3

MB 200	The Fourth Horseman: Plagues that Changed the World	3
MB 210	Phage Hunters	3
MB 211	Phage Genomics	2
MB 351	General Microbiology	3
MB 352	General Microbiology Laboratory	1
MB 354	Inquiry-Guided Microbiology Lab	1
MB 360	Scientific Inquiry in Microbiology: At the Bench	3
MB 405	Food Microbiology	3
MB 406	Food Microbiology Lab	1
MB 411	Medical Microbiology	3
MB 412	Medical Microbiology Laboratory	1
MB 414	Microbial Metabolic Regulation	3
MB 420	Fundamentals of Microbial Cell Biotransformation	2
MB 435	Bacterial Pathogenesis	3
MB 441	Immunology	3
MB 451	Microbial Diversity	3
MB 452	Microbial Diversity Lab	2
MB 455	Microbial Biotechnology	3
MB 461	Molecular Virology	3
MB 470	Emerging and Re-emerging Infectious Diseases	3
MB 480	Current Issues in Microbiology	1
MB 492	External Learning Experience	1-6
MB 501	Biology of Plant Pathogens	3
MB 505	Food Microbiology	3
MB 506	Food Microbiology Lab	1

MB 520	Fundamentals of Microbial Cell Biotransformations	2	MEA 252	Biology of Marine Mammals	3
MB 532	Soil Microbiology	4	MEA 300	Environmental Geology	4
MB 535	Bacterial Pathogenesis	3	MEA 312	Atmospheric Thermodynamics	4
MB 555	Microbial Biotechnology	3	MEA 315	Mathematics Methods in Atmospheric Sciences	4
MB 575	Introduction to Mycology	4	MEA 320	Fundamentals of Air Pollution	3
MB 585	Industry Case Studies in Microbial Biotechnology	3	MEA 321	Fundamentals of Air Quality and Climate Change	3
MB 590	Topical Problems	1-3	MEA 323	Geochemistry of Natural Waters	3
MEA 100	Earth System Science: Exploring the Connections	4	MEA 350	Marine Conservation Biology	3
MEA 101	Geology I: Physical	3	MEA 369	Life on Earth: Principles of Paleontology	3
MEA 110	Geology I Laboratory	1	MEA 409	Watershed Forensics	3
MEA 130	Introduction to Weather and Climate	3	MEA 410	Introduction to Mineralogy	4
MEA 135	Introduction to Weather and Climate Laboratory	1	MEA 411	Marine Sediment Transport	3
MEA 150	Environmental Issues in Water Resources	4	MEA 412	Atmospheric Physics	3
MEA 200	Introduction to Oceanography	3	MEA 415	Climate Dynamics	3
MEA 202	Geology II: Historical	3	MEA 421	Atmospheric Dynamics I	3
MEA 210	Oceanography Lab	1	MEA 422	Atmospheric Dynamics II	3
MEA 211	Geology II Laboratory	1	MEA 425	Introduction to Atmospheric Chemistry	3
MEA 215	Introduction to Atmospheric Sciences	4	MEA 440	Igneous and Metamorphic Petrology	4
MEA 217	Introduction to Computing in the Geosciences	3	MEA 443	Synoptic Weather Analysis and Forecasting	4
MEA 220	Marine Biology	3	MEA 444	Mesoscale Analysis and Forecasting	4
MEA 240	The Planets of Our Solar System	3	MEA 449	Principles of Biological Oceanography	3
MEA 250	Introduction to Coastal Environments	3	MEA 450	Introductory Sedimentology and Stratigraphy	4
MEA 251	Introduction to Coastal Environments Laboratory	1	MEA 451	Structural Geology	4

MEA 454	Marine Physical-Biological Interactions	3	MEA 495	Junior Seminar in the Marine, Earth, and Atmospheric Sciences	1
MEA 455	Micrometeorology	3	MEA 498	Internship in MEAS	1-6
MEA 458	Introduction to Tropical Meteorology	3	MEA 507	Discipline-based Education Research in the Geosciences	3
MEA 459	Field Investigation of Coastal Processes	5	MEA 510	Air Pollution Meteorology	3
MEA 460	Principles of Physical Oceanography	3	MEA 511	Introduction to Meteorological Remote Sensing	3
MEA 462	Observational Methods and Data Analysis in Marine Physics	3	MEA 514	Advanced Physical Meteorology	3
MEA 463	Fluid Physics	3	MEA 515	Climate Dynamics	3
MEA 464	Ocean Circulation Systems	3	MEA 517	Fundamentals of Climate Change Science	3
MEA 465	Geologic Field Camp	4	MEA 518	Adaptation to Climate Change	3
MEA 466	Preparatory Course for Field Camp	1	MEA 519	Barriers to Climate Change Literacy	3
MEA 467	Marine Meteorology	3	MEA 525	Introduction to Atmospheric Chemistry	3
MEA 469	Ecology of coastal Resources	3	MEA 540	Principles of Physical Oceanography	3
MEA 470	Introduction to Geophysics	3	MEA 549	Principles of Biological Oceanography	3
MEA 471	Exploration and Engineering Geophysics	3	MEA 553	Estuarine Biogeochemistry	3
MEA 473	Principles of Chemical Oceanography	3	MEA 554	Marine Physical-Biological Interactions	3
MEA 476	Worldwide River and Delta Systems: Their Evolution and Human Impacts	3	MEA 562	Marine Sediment Transport	3
MEA 479	Air Quality	3	MEA 570	Geological Oceanography	3
MEA 481	Geomorphology: Earth's Dynamic Surface	3	MEA 573	Principles of Chemical Oceanography	3
MEA 485	Introduction to Hydrogeology	3	MEA 574	Advanced Igneous Petrology	3
MEA 488	Meteorology for Media	3	MEA 577	Electron Microprobe Analysis of Geologic Material	2
MEA 493	Special Topics in MEAS	1-6			

MEA 579	Principles of Air Quality Engineering	3	NR 350	International Sustainable Resource Use	4
MEA 580	Air Quality Modeling and Forecasting	4	NR 360	Internship Experience	3
MEA 581	Fluid Mechanics in Natural Environments	3	NR 400	Natural Resource Management	4
MEA 582	Geospatial Modeling	3	NR 406	Conservation of Biological Diversity	3
MEA 585	Physical Hydrogeology	3	NR 420	Watershed and Wetlands Hydrology	4
MEA 591	Special Topics in Marine Science	1-6	NR 421	Wetland Science and Management	3
MEA 592	Special Topics in Earth Sciences	1-6	NR 460	Renewable Natural Resource Management and Policy	3
MEA 593	Special Topics in Atmospheric Science	1-6	NR 484	Environmental Impact Assessment	4
MEA 599	Regional Geology of North America	1-6	NR 491	Special Topics in Forestry and Related Natural Resources	1-4
MSE 489	Solid State Solar and Thermal Energy Harvesting	3	NR 493	Independent Study in Natural Resources	1-6
MSE 589	Solid State Solar and Thermal Energy Harvesting	3	NR 494	Independent Study in Natural Resources	1-6
NE 528	Introduction to Plasma Physics and Fusion Energy	3	NR 500	Natural Resource Management	4
NE 529	Plasma Physics and Fusion Energy II	3	NR 510	Military Land Sustainability	3
NR 219	Natural Resource Markets	3	NR 511	Managing Natural Resources in an Arena of Conflict	3
NR 293	Independent Study in Natural Resources	1-6	NR 512	Land Use Policy & Management	3
NR 294	Independent Study in Natural Resources	1-6	NR 520	Watershed and Wetlands Hydrology	4
NR 295	Special Topics in Natural Resources	1-3	NR 521	Wetland Science and Management	3
NR 300	Natural Resource Measurements	4	NR 548	Historical Environments	3
NR 301	Practicum for Professional Development I	1	NR 554	Introduction to Data Analysis in Natural Resources	3
NR 303	Humans and the Environment	3	NR 560	Renewable Natural Resource Management and Policy	3

NR 571	Current Issues in Natural Resource Policy	3	NTR 515	Comparative Nutrition	3
NR 595	Special Topics in Natural Resources	1-6	NTR 521		3
NTR 210	Introduction to Community Food Security	3	NTR 525	Feed Manufacturing Technology	3
NTR 220	Food and Culture	3	NTR 550	Applied Ruminant Nutrition	3
NTR 301	Introduction to Human Nutrition	3	NTR 554	Lactation, Milk, and Nutrition	3
NTR 302	Introduction to Nutrition Research, Communication, and Careers	3	NTR 555	Exercise Nutrition	3
NTR 320		3	NTR 557	Nutraceuticals and Functional Foods	3
NTR 330	Public Health Nutrition	3	NTR 561	Equine Nutrition	3
NTR 401	Advanced Nutrition and Metabolism	3	NTR 594	Special Topics in Nutrition	1-6
NTR 410	Maternal and Infant Nutrition	3	PB 103	Perspectives on Botany	1
NTR 415	Comparative Nutrition	3	PB 200	Plant Life	4
NTR 419	Human Nutrition and Chronic Disease	3	PB 205	Our Green World	3
NTR 420		3	PB 208	Agricultural Biotechnology: Issues and Implications	3
NTR 421		3	PB 213	Plants and Civilization	3
NTR 425	Feed Manufacturing Technology	3	PB 215	Medicinal Plants	3
NTR 454	Lactation, Milk and Nutrition	3	PB 219	Plants in Folklore, Myth, and religion	3
NTR 490	Senior Capstone Experience in Nutrition	4	PB 220	Local Flora	3
NTR 492	Professional Internship Experience in Nutrition Science	1-3	PB 250	Plant Biology	4
NTR 493	Research Experience in Nutrition Science	1-3	PB 277	Space Biology	3
NTR 495	Special Topics in Nutrition	1-6	PB 295	Special Topics in Botany	1-4
NTR 500	Principles of Human Nutrition	3	PB 321	Introduction to Whole Plant Physiology	3
NTR 501	Advanced Nutrition and Metabolism	3	PB 325	Culinary Botany	3
NTR 510	Maternal and Infant Nutrition	3	PB 345	Economic Botany	3
			PB 346	Economic Botany Lab	1
			PB 360	Ecology	4
			PB 400	Plant Diversity and Evolution	4
			PB 403	Systematic Botany	4
			PB 413	Plant Anatomy	2
			PB 421	Plant Physiology	3
			PB 445	Paleobotany	4
			PB 464	Rare Plants of North Carolina	3
			PB 480	Introduction to Plant Biotechnology	3

PB 481	Plant Tissue Culture and Transformation	2	PO 212	Poultry and People	3
PB 488	Systems Biology Modeling of Plant Regulation	3	PO 215	Applied Avian and Aquaculture Nutrition	3
PB 492	External Learning Experience	1-6	PO 290	Poultry Seminar	1
PB 493	Plant Biology Supervised Undergraduate Research Experience	1-6	PO 322	Muscle Foods and Eggs	3
PB 495	Special Topics in Plant Biology	1-6	PO 340	Live Poultry and Poultry Product Evaluation, Grading, and Inspection	3
PB 501	Biology of Plant Pathogens	3	PO 404	Avian Anatomy and Physiology	4
PB 503	Systematic Botany	4	PO 406	Physiological Aspects of Poultry Management	3
PB 513	Plant Anatomy	2	PO 407	Physiological Aspects of Poultry Management Laboratory	1
PB 545	Paleobotany	4	PO 410	Production and Management of Game Birds in Confinement	3
PB 559	Plant Water Relations	2	PO 411	Agrosecurity	3
PB 564	Rare Plants of North Carolina	3	PO 412	Emerging Topics in Poultry Science	3
PB 570	Plant Functional Ecology	3	PO 415	Comparative Nutrition	3
PB 575	Introduction to Mycology	4	PO 421	Commercial Egg Production	3
PB 580	Introduction to Plant Biotechnology	3	PO 424	Poultry Meat Production	3
PB 588	Systems Biology Modeling of Plant Regulation	3	PO 425	Feed Manufacturing Technology	3
PB 595	Special Topics in Plant Biology	1-6	PO 426	Feed Manufacturing Technology Laboratory	1
PHY 452	Comparative Reproductive Physiology and Biotechnology	3	PO 433	Poultry Processing and Products	3
PHY 524	Comparative Endocrinology	3	PO 435	Poultry Incubation & Breeding	4
PHY 552	Comparative Reproductive Physiology and Biotechnology	3	PO 466	Animal Cell Culture Techniques	2
PO 201	Poultry Science and Production	3	PO 492	External Learning Experience	1-6
PO 201A	Poultry Science and Production	3			
PO 202	Poultry Science and Production Laboratory	1			
PO 202A	Poultry Science and Production Laboratory	1			

PO 493	Special Problems in Poultry Science	1-6	PRT 450	Sustaining Natural Resources in Australia/New Zealand	3
PO 495	Special Topics in Poultry Science	1-3	PSE 335	Principles of Green Chemistry	4
PO 504	Avian Anatomy and Physiology	4	PY 123	Stellar and Galactic Astronomy	3
PO 506	Physiological Aspects of Poultry Management	3	PY 124	Solar System Astronomy	3
PO 510	Poultry Product Safety: An On-Farm Model	3	PY 125	Astronomy Laboratory	1
PO 515	Comparative Nutrition	3	PY 131	Conceptual Physics	4
PO 524	Comparative Endocrinology	3	PY 201	University Physics I	4
PO 525	Feed Manufacturing Technology	3	PY 202	University Physics II	4
PO 533	Poultry Processing and Products	3	PY 203	University Physics III	4
PO 566	Animal Cell Culture Techniques	2	PY 205	Physics for Engineers and Scientists I	3
PO 580	Feed and Ingredient Quality Assurance	3	PY 206	Physics for Engineers and Scientists I Laboratory	1
PO 590	Special Problems in Poultry Science	1-6	PY 208	Physics for Engineers and Scientists II	3
PP 144	Weeds & Diseases of Ornamentals	3	PY 209	Physics for Engineers and Scientists II Laboratory	1
PP 222	Kingdom of Fungi	3	PY 211	College Physics I	4
PP 318	Forest Pathology	3	PY 212	College Physics II	4
PP 470	Advanced Turfgrass Pest Management	2	PY 251	Introduction to Scientific Computing	3
PP 501	Biology of Plant Pathogens	3	PY 252	Instrumental and Data Analysis for Physics	2
PP 502	Plant Disease: Methods & Diagnosis	2	PY 299	Special Problems in Physics	1-3
PP 575	Introduction to Mycology	4	PY 301	Introduction to Quantum Mechanics	3
PRT 449	Human Dimensions of Natural Resources in Australia/New Zealand	3	PY 328	Stellar and Galactic Astrophysics	3
			PY 341	Relativity, Gravitation and Cosmology	3
			PY 401	Quantum Physics I	3

PY 402	Quantum Physics II	3	PY 570	Polymer Physics	3
PY 407	Introduction to Modern Physics	3	PY 581	Matter & Interactions for Teachers I	3
PY 411	Mechanics I	3	PY 582	Matter & Interactions for Teachers II	3
PY 412	Mechanics II	3	PY 589	Solid State Solar and Thermal Energy Harvesting	3
PY 413	Thermal Physics	3	PY 590	Special Topics In Physics	1-6
PY 414	Electromagnetism I	3	PY 599	Special Topics in Physics	1-6
PY 415	Electromagnetism II	3	SMT 202	Anatomy and Properties of Renewable Materials	3
PY 452	Advanced Physics Laboratory	3	SSC 185	Land and Life	3
PY 489	Solid State Solar and Thermal Energy Harvesting	3	SSC 200	Soil Science	3
PY 495	Special Topics in Physics	1-4	SSC 201	Soil Science Laboratory	1
PY 499	Independent Research in Physics	1-6	SSC 332	Environmental Soil Microbiology	3
PY 501	Quantum Physics I	3	SSC 341	Soil Fertility and Nutrient Management	3
PY 502	Quantum Physics II	3	SSC 342	Soil and Plant Nutrient Analysis	1
PY 506	Nuclear and Subatomic Physics	3	SSC 410	Soil Judging for Land Evaluation	1
PY 507	Elementary Particle Physics	3	SSC 421	Role of Soils in Environmental Management	3
PY 509	General Relativity	3	SSC 427	Biological Approaches to Sustainable Soil Systems	3
PY 511	Mechanics I	3	SSC 428	Service-Learning in Urban Agriculture Systems	1
PY 512	Mechanics II	3	SSC 440	Geographic Information Systems (GIS) in Soil Science and Agriculture	3
PY 514	Electromagnetism I	3	SSC 442	Soil and Environmental Biogeochemistry	3
PY 515	Electromagnetism II	3	SSC 452	Soil Classification	4
PY 516	Physical Optics	3	SSC 455	Soils, Environmental Quality and Global Challenges	3
PY 517	Atomic and Molecular Physics	3			
PY 519	Biological Physics	3			
PY 525	Computational Physics	3			
PY 528	Introduction to Plasma Physics and Fusion Energy	3			
PY 529	Plasma Physics and Fusion Energy II	3			
PY 543	Astrophysics	3			
PY 552	Condensed Matter Physics I	3			

SSC 461	Soil Physical Properties and Plant Growth	3
SSC 462	Soil-Crop Management Systems	3
SSC 470	Wetland Soils	3
SSC 473	Introduction to Hydrologic and Water Quality Modeling	3
SSC 511	Soil Physics	4
SSC 521	Soil Chemistry	3
SSC 532	Soil Microbiology	4
SSC 540	Geographic Information Systems (GIS) in Soil Science and Agriculture	3
SSC 541	Soil Fertility	3
SSC 545	Remote Sensing Applications in Soil Science and Agriculture	3
SSC 551	Soil Morphology, Genesis and Classification	3
SSC 562	Environmental Applications Of Soil Science	3
SSC 570	Wetland Soils	3
SSC 573	Introduction to Hydrologic and Water Quality Modeling	3
SSC 590	Special Problems in Soil Science	1-6
TE 570	Polymer Physics	3
TOX 201	Poisons, People and the Environment	3
TOX 401	Principles of Toxicology	4
TOX 415	Environmental Toxicology and Chemistry	4
TOX 501	Principles of Toxicology	4
TOX 515	Environmental Toxicology	4
TOX 595	Special Topics	1-6
USC 291	Service Learning Program Leader Development I	1
USC 292	Service Learning Program Leader Development II	2

VMP 401	Poultry Diseases	4
VMP 420	Disease of Farm Animals	3
ZO 233	Human-Animal Interactions	3
ZO 250	Animal Anatomy and Physiology	4
ZO 317	Primate Ecology and Evolution	3
ZO 333	Captive Animal Biology	3
ZO 350	Animal Phylogeny and Diversity	4
ZO 402	Invertebrate Biology	4
ZO 410	Introduction to Animal Behavior	3
ZO 486	Capstone Course in Zoology	3
ZO 524		3
ZO 553		3
ZO 582	Medical and Veterinary Entomology	3

Departmental Electives

Code Title Hours Counts towards

For a departmental elective, select a course from the following set of course listings with prefixes of: ARE, ACC, BUS, EC, MIE or MA 105. (Before registering for these courses students should check to make sure they have met the necessary prerequisites and that credit restrictions do not apply — e.g. credit is not allowed for both ARE 201 and either EC 201 or EC 205).

ACC 200	Introduction to Managerial Accounting	3
ACC 210	Concepts of Financial Reporting	3
ACC 220	Introduction to Managerial Accounting	3
ACC 230	Individual Income Taxation	3
ACC 280	Survey of Financial and Managerial Accounting	3
ACC 295	Special Topics in Accounting	1-6

ACC 310	Intermediate Financial Accounting I	3	ACC 562	Forecasting Effective Tax Rates and Scenario Analysis - Introduction	1
ACC 311	Intermediate Financial Accounting II	3	ACC 563	Forecasting Effective Tax Rates and Scenario Analysis - Advanced Application	1
ACC 330	An Introduction To Income Taxation	3	ACC 564	Project Management and Process Documentation in Tax	1
ACC 340	Accounting Information Systems	3	ACC 565	Visual Analytics in Tax	1
ACC 411	Business Valuation	3	ACC 566	Database Management Applications in Tax	1
ACC 420	Cost Accounting for Effective Management	3	ACC 567		1
ACC 440	Enterprise Resource Planning Systems	3	ACC 568		1
ACC 450	Auditing and Assurance Services	3	ACC 569	Advanced Visual Analytics in Tax	1
ACC 451	Internal Auditing	3	ACC 570	Data Security and Warehousing in Tax	1
ACC 460	Governmental and Nonprofit Accounting	3	ACC 571		1
ACC 495	Special Topics in Accounting	1-6	ACC 588	Special Topics in Accounting	1-6
ACC 498	Independent Study in Accounting	1-6	ARE 215	Small Business Accounting	3
ACC 499	Internship in ACC	1-6	ARE 260	Marketing and Risk Management in the Pork Industry	1
ACC 508	Advanced Commercial Law	3	ARE 270	Principles of Agribusiness Entrepreneurship	3
ACC 510	Advanced Financial Accounting	3	ARE 295	Special Topics in Agricultural & Resource Economics (200 Level)	1-6
ACC 519	Applied Financial Management	3	ARE 301	Intermediate Microeconomics	3
ACC 520	Advanced Management Accounting	3	ARE 303	Farm Management	3
ACC 530	Advanced Income Tax	3	ARE 304	Agribusiness Management	3
ACC 533	Accounting and Tax Research	3	ARE 306	Agricultural Law	3
ACC 540	IT Risks and Controls	3	ARE 309	Environmental Law & Economic Policy	3
ACC 550	Advanced Auditing	3			
ACC 560	Tools for Tax Analytics	1			
ACC 561	Database Management in Tax	1			

ARE 311	Agricultural Markets	3	ARE 475	Food Policy	3
ARE 312	Agribusiness Marketing	3	ARE 490	Career Seminar in Agriculture & Resource Economics	1
ARE 321	Agricultural Financial Management	3	ARE 492	External Learning Experience	1-6
ARE 323	Agribusiness Finance	3	ARE 493	Special Problems/ Research Exploration	1-6
ARE 332	Human Resource Management for Agribusiness	3	ARE 494	Agribusiness Study Abroad	1-6
ARE 336	Introduction to Resource and Environmental Economics	3	ARE 495	Special Topics in Agricultural and Resource Economics	1-6
ARE 345	Global Agribusiness Management	3	ARE 590	Special Topics in ARE	1-99
ARE 370	Agribusiness New Venture Development	3	BUS 225	Personal Finance	3
ARE 395	Special Topics in Agricultural and Resource Economics (300 level)	1-6	BUS 295	Special Topics in Business Management	1-6
ARE 404	Advanced Agribusiness Management	3	BUS 320	Financial Management	3
ARE 412	Advanced Agribusiness Marketing	3	BUS 340	Information Systems Management	3
ARE 413	Applied Agribusiness Marketing	3	BUS 350	Economics and Business Statistics	3
ARE 415	Introduction to Commodity Futures Markets	3	BUS 351	Predictive Analytics for Business	3
ARE 420	Taxation in Agriculture, Production, and Agribusiness	3	BUS 360	Marketing Methods	3
ARE 425	Contracts and Organizations in Agriculture	3	BUS 370	Operations and Supply Chain Management	3
ARE 433	U.S. Agricultural Policy	3	BUS 420	Financial Management of Corporations	3
ARE 444	Ethics in Agribusiness	3	BUS 422	Investments and Portfolio Management	3
ARE 448	International Agricultural Trade	3	BUS 425	Advanced Personal Financial Management	3
ARE 455	Agribusiness Analytics	3	BUS 426	International Financial Management	3
ARE 470	Agribusiness Entrepreneurship Clinical Skills Development	3	BUS 428	Financial Analytics	3
			BUS 429	Financial Modeling	3
			BUS 440	Database Management	3

BUS 441	Business Data Communications and Networking	3	BUS 479	Supply Chain Management Undergraduate Practicum	3
BUS 442	Information Systems Development	3	BUS 495	Special Topics in Business Management	1-6
BUS 443	Web Development for Business Applications	3	BUS 498	Independent Study in Business Management	1-6
BUS 444	Systems Analysis and Design	3	BUS 501	Strategic Management Foundations	3
BUS 449	Information Technology Capstone	3	BUS 554	Project Management	3
BUS 458	Analytics: From Data to Decisions	3	BUS 571	High Growth Entrepreneurship	3
BUS 459	Business Analytics Practicum	3	BUS 585		3
BUS 460	Consumer Behavior	3	BUS 590	Special Topics In Business Management	1-6
BUS 461	Channel and Retail Marketing	3	EC 202	Principles of Macroeconomics	3
BUS 462	Marketing Research	3	EC 301	Intermediate Microeconomics	3
BUS 464	International Marketing	3	EC 302	Intermediate Macroeconomics	3
BUS 465	Traditional and Digital Brand Promotion	3	EC 305	A Closer Look at Capitalism	3
BUS 466	Personal Selling	3	EC 336	Introduction to Resource and Environmental Economics	3
BUS 467	Product and Brand Management	3	EC 348	Introduction to International Economics	3
BUS 468	Marketing Strategy	3	EC 351	Econometrics I	3
BUS 469	Digital Marketing Practicum	3	EC 404	Money, Financial Markets, and the Economy	3
BUS 470	Operations Modeling and Analysis	3	EC 410	Public Finance	3
BUS 472	Operations Planning and Control Systems	3	EC 413	Industrial Organization	3
BUS 473	Supply Chain Strategy	3	EC 431	Labor Economics	3
BUS 474	Logistics Management	3	EC 437		3
BUS 475	Purchasing and Supply Management	3	EC 449	International Finance	3
BUS 476	Decision Modeling and Analysis	3	EC 451	Econometrics II	3
			EC 468	Game Theory	3
			EC 474	Economics of Financial Institutions and Markets	3
			EC 480		3

EC 490	Research Seminar in Economics	3
EC 495	Special Topics in Economics	1-6
EC 498	Independent Study in Economics	1-6
ECG 512		3
FTM 482	Global Brand Management in Textiles and Apparel	3
M 100	Personal and Professional Identity Development	1
MA 105	Mathematics of Finance	3
MBA 577	Technology Entrepreneurship and Commercialization II	3
MIE 201	Introduction to Business Processes	3
MIE 295	Special Topics in MIE	1-6
MIE 305	Legal and Regulatory Environment	3
MIE 306	Managing Ethics in Organizations	3
MIE 310	Introduction to Entrepreneurship	3
MIE 330	Human Resource Management	3
MIE 335	Organizational Behavior	3
MIE 410	Business Opportunity Analysis	3
MIE 411	Managing the Growth Venture	3
MIE 412	Finance and Accounting for Entrepreneurs	3
MIE 413	New Venture Planning	3
MIE 416	The Legal Dynamics of Entrepreneurship	3
MIE 418	Social Entrepreneurship Practicum	3
MIE 419	Entrepreneurship Practicum	3

MIE 430	Teamwork in Organizations	3
MIE 432	Labor and Employee Relations	3
MIE 434	Compensation Systems	3
MIE 435	Leadership and Management	3
MIE 436	Training and Development	3
MIE 438	Staffing	3
MIE 439	Human Resources Practicum	3
MIE 480	Business Policy and Strategy	3
MIE 495	Special Topics in MIE	1-6
MIE 498	Independent Study in MIE	1-6
MSE 577	Technology Entrepreneurship and Commercialization II	3
PRT 406	Sports Law	3
ST 350	Economics and Business Statistics	3
TTM 585	Market Research In Textiles	3

Semester Sequence

This is a sample.

First Year

Fall Semester		Hours
ALS 103	Freshman Transitions and Diversity in Agriculture & Life Sciences	1
ARE 201 or EC 201	Introduction to Agricultural & Resource Economics ¹ or Principles of Microeconomics	3
Biology Requirement (p. 1)		4
ENG 101	Academic Writing and Research ¹	4
GEP Humanities (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/)		3

Hours

15

Spring Semester

EC 202	Principles of Macroeconomics	3
COM 110	Public Speaking	3
CS 200 or AEE 226	Introduction to Turfgrass Management or Computer Applications and Information Technology in Agricultural & Extension Ed	3
Mathematics Requirement (p. 1)		3

GEP Social Sciences (<http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-social-sciences/>) 3

Hours 15

Second Year

Fall Semester

ACC 220 Introduction to Managerial Accounting 3
or ACC 210 or Concepts of Financial Reporting

Mathematics Requirement (p. 1) 3

Science Requirement (p. 1) 4

GEP Humanities (<http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/>) 3

GEP Health and Exercise Studies (<http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/>) 1

Hours 14

Spring Semester

ARE 303 Farm Management 3
or ARE 304 or Agribusiness Management

ARE 306 Agricultural Law 3
or ARE 309 or Environmental Law & Economic Policy

Science Requirement (p. 1) 3

GEP Interdisciplinary Perspectives (<http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/>) 2

GEP US Diversity, Equity, and Inclusion (<http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-usdei/>) 3

GEP Health and Exercise Studies (<http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/>) 1

Hours 15

Third Year

Fall Semester

ARE/EC 301 Intermediate Microeconomics 3

BUS/ST 350 Economics and Business Statistics 3
or ST 311 or Introduction to Statistics

Communication Requirement (p. 1) 3

ARE 400 level elective (p. 3) 3

Free Elective ² 3

Hours 15

Spring Semester

ARE 311 Agricultural Markets 3
or ARE 312 or Agribusiness Marketing

ARE 336 Introduction to Resource and Environmental Economics 3

Free Elective ² 3

Technical Elective (p. 4) 3

Select 3 units from either of the following: 3

Departmental Electives (p. 29)

Technical Elective (p. 4)

ARE 490 Career Seminar in Agriculture & Resource Economics 1

Hours 16

Fourth Year

Fall Semester

Select one of the following: 3

ARE 321 Agricultural Financial Management

ARE 323 Agribusiness Finance

BUS 320 Financial Management

ARE 433 U.S. Agricultural Policy 3

Technical Elective (p. 4) 3

Select 3 units from either of the following: 3

Departmental Electives (p. 29)

Technical Elective (p. 4)

ARE Elective (p. 3) 3

Hours 15

Spring Semester

ARE Elective (p. 3) 3

Technical Elective (p. 4) 3

Select 3 units from either of the following: 3

Departmental Electives (p. 29)

Technical Elective (p. 4)

ARE 400 Level Elective (p. 3) 3

Free Elective ² 3

Hours 15

Total Hours 120

¹ A grade of C- or higher is required.

² For free electives, select courses with enough credits to meet the minimum graduation requirement of 120 total credit hours.