



MAJOR REQUIREMENTS FOR AGRICULTURAL SCIENCES

Students majoring in Agricultural Sciences must complete the following requirements, or equivalents taken at other institutions, in subject matter areas determined by the faculty to be essential for the major.

INTRODUCTORY BIOLOGY – **Minimum 6 cr.** from the following list or equivalents:

- BIOG 1101-1103, 1102-1104
- BIOG 1105, 1106
- **BIOG 1109, 1110 (recommended)**
- BIOG 1107, 1108 (summer)

CHEMISTRY – **Choose from the two following sequences:**

- **CHEM 1560**; *fall, 4 credits*
- CHEM 1560/2070-2080-2570 (recommended for students with interests in the life sciences)

MATHEMATICS – For mathematics proficiency, all students must complete one 3-4 credit course in **introductory statistics** at Cornell, or elsewhere.

One of the following courses is recommended:

- AEM 2100, Introductory Statistics, *spring, 4 credits*
- BTRY 3010/NTRES 3130, Biological Statistics I, *fall, 4 credits*
- PAM 2100, Introduction to Statistics, *fall or spring, 4 credits*
- STSCI 2100, Introductory Statistics, *spring, 4 credits*

CORE (REQUIRED) COURSES

Minimum of 39 credits + concentration (12 credits)

AGSCI 4010, Seminar in Agricultural Sciences, *1 credit each of 4 semesters*

Students in major come together once each week to learn about current debates and hot issues in the agricultural sciences today from invited guest speakers. Includes internship and capstone seminar presentations. Students must enroll in this seminar 4 times during the course of their program amounting to 4 total credits. First-year students are required to enroll. Seniors must enroll in this course the spring semester to present their senior capstone results.

AGSCI 4950, Senior Capstone, *fall of senior year, 3 credits*

Designed for seniors, this course involves team identification and analysis of agricultural problems through design, evaluation, synthesis, and a written and oral report of the end product.

AGSCI 4960, Internship Experience, 1-6 credits

In this experiential learning opportunity, students participate in structured, on-the-job learning under supervision of qualified professionals in a cooperating external organization. Internships and learning goals are arranged by the student in conjunction with a faculty advisor and the internship host.

ANSC 1120, Sustainable Animal Husbandry, *summer, 3 credits*, OR

ANSC 1160, Animal Agriculture and Society—From Food to Medicine, *fall, 4 credits*

CSS 1900, Sustainable Agriculture: Food, Farming, and the Future, *fall, 3 credits*

CSS 2110, Field Crops Systems, *fall, 4 credits*

CSS 2600, Soil Science, *fall, 4 credits*

ENTOM/CSS 4440, Integrated Pest Management, *fall, 4 credits*

HORT 1101, Horticultural Science and Systems, *fall, 4 credits*

SELECT at least one AEM course from below:

AEM 1200, Introduction to Business Management, *fall, spring, summer 3 credits*

AEM 3020, Farm Business Management, *fall, 4 credits*

SELECT at least one EDUC or COMM course from below:

COMM 2630, Organizational Writing, *fall, spring, summer, 3 credits* [Fullfills 3 CALS English writing credits]

COMM 2850, Communication in the Life Sciences, *spring, 3 credits* [SBA]

COMM 4210, Communication and the Environment, *spring, 3 credits* [SBA]

COMM 4860, Risk Communication, *fall, 3 credits* [SBA]

EDUC 2400, The Art of Teaching, *fall and spring, 3 credits* [CA]

EDUC 3310, Careers in Agriculture, Extension, and Adult Education, *fall, 3 credits*

EDUC 3350, Youth Organizations, *spring, 3 credits* [CA]

EDUC 3110, Educational Psychology, *fall, 3 credits* [KCM] [CA]

SELECT at least one Food Science course from below:

FDSC 1500, Food Choices and Issues, *spring, 2 credits*

FDSC 2000, Introductory Food Science, *fall, 3 credits*

SELECT at least **one Genetics** course from below:

ANSC 2210, Introductory Animal Genetics, *spring, 3 credits* [recommended for students in the Animal Science concentration]

BIOGD 2810, Genetics, *fall, spring, or summer, 5 credits*

PLBR 2250, Plant Genetics, *spring, 3 or 4 credits*

SELECT at least **one International Agriculture** course from below:

AEM 3290 International Agribusiness Study Trip, *fall, 2 credits*

IARD 3000 Perspectives in International Agriculture and Rural Development, *fall, 2 credits*

IARD/FDSCI 4020 Agriculture in Developing Nations, *fall, 2 credits*
(study guide for enrollment requirements)

CSS/IARD 4140 Tropical Cropping Systems: Biodiversity, Social and Environmental Impacts, *fall, 3 credits*

IARD 4800(ALS 4800/EDUC 4800) Global Seminar: Building Sustainable Environments and Secure Food Systems, *spring, 3 credits*

CONCENTRATIONS

Students are required to **select one** of five concentrations from below and complete **at least 12 credits** in the concentration.

- A. Animal Science
- B. Applied Economics and Management
- C. Education and Communication
- D. Crop Production and Management
- E. Sustainable Agriculture

A. ANIMAL SCIENCE CONCENTRATION

SELECT at least **6 credits** in **each** of the **two categories** below:

Category 1:

ANSC 1100, Domestic Animal Biology I, *fall, 4 credits*

ANSC 2120, Animal Nutrition, *fall, 4 credits*

ANSC 2400, Animal Reproduction and Development, *spring, 3 credits*

ANSC 2410, Animal Reproduction and Development Lab, *spring, 1 credit*

Category 2:

ANSCI 2140, Captive Raptor Management and Propagation, *summer, 3 credits*

ANSC 2150, Exotic Avian Husbandry and Propagation, *fall, 2 credits*

ANSC 2500, Dairy Cattle Principles, *fall, 3 credits*

ANSC 2650 Equine Biology and Management, *fall, 3 credits*

ANSC/FDSC 2900, Meat Science, *fall, 2 credits*

ANSC 3600, Beef Cattle, *spring, 3 credits* (A=even)

ANSC 3800, Sheep, *spring 3 credits* (A=odd)

B. APPLIED ECONOMICS AND MANAGEMENT CONCENTRATION

Two focus options are possible – (1) Corporate Business or (2) Proprietorships/ Partnerships

SELECT ONE of the two options below:

(1) Corporate Business:

AEM 2210, Financial Accounting, *fall, 3 credits*
AEM 2400, Marketing, *fall, 3 credits*
AEM 3200, Business Law I, *fall, summer, 3 credits*
AEM 4270, Agribusiness Strategy, *fall, 3 credits*

(2) Proprietorships/Partnerships:

AEM 2400, Marketing, *fall, 3 credits*
AEM 3020, Farm Business Management, *fall, 4 credits*
AEM 4050, Agricultural Finance, *spring, 4 credits*
AEM 4270, Agribusiness Strategy, *fall, 3 credits*

OPTIONAL:

AEM 3290, International Agribusiness Study Trip, *fall 2 credits*
(by application only)
AEM 4030, Farm Management Study Trip, *spring, 1 credit*
(by application only, AEM 3020 is a prerequisite)
AEM 4040, Advanced Agricultural Finance Seminar, *spring, 3 credits*
(by application only, AEM 3020 & 4050 are prerequisites)
AEM 4310, Agricultural and Food Policy, *spring, 3 credits*

C. EDUCATION AND COMMUNICATION CONCENTRATION

Two focus options are possible – (1) Teaching or (2) Communication/Extension.

SELECT ONE of the two options below:

Teaching Option:

EDUC 3350, Youth Organizations, *fall, 3 credits* [CA]
EDUC 4040, Learning and Teaching I, *fall, 4 credits*
EDUC 4050, Learning and Teaching II, *spring, 4 credits*
EDUC 3110, Educational Psychology, *fall, 4 credits* [KCM] [CA]

Communication/Extension Option:

COMM 4210, Communication and the Environment, *spring, 3 credits*
COMM 4860, Risk Communication, *fall, 3 credits*
EDUC 2400, The Art of Teaching, *fall, spring, 3 credits*
EDUC 3110, Educational Psychology, *fall, 4 credits* [KCM] [CA]

D. CROP PRODUCTION AND MANAGEMENT CONCENTRATION

SELECT at least 2 credits in each of the four categories below;
at least **6 credits** must be 300 level or above

- A. Field Crops
- B. Horticulture
- C. Pest Management
- D. Soil Science

A. Field Crops

AGSCI 3800, Organic Food and Agriculture, *fall, 3 or 4 credits*
CSS 2940 Introduction to Agricultural Machinery, *fall, 2 credits*
CSS/HORT 3170, Seed Science and Technology, *fall, 3 credits*
CSS 4100, The GMO Debate: Environmental Impacts, *spring, 3 credits*
CSS 4130, Physiology and Ecology of Yield, *spring, 3 credits*
CSS/IARD 4140, Tropical Cropping Systems: Biodiversity, Social, and Environmental Impacts, *fall, 3 credits*
CSS 4910, Food, Farming and Personal Beliefs, *spring, 1 credit*
PLBR 2010, Plants, Genes, and Global Food Production, *fall, 2 credits*

B. Horticulture

HORT 2200, Practicing Sustainable Land Care, *fall 2 or 3 credits*
HORT 3100, Production and Marketing of Greenhouse Crops, *spring, 4 credits*
HORT 4000, Principles of Plant Propagation, *spring, 3 credits*
HORT 4200, Nursery-Crop Production, *fall, 3 credits*
HORT 4250, Postharvest Biology of Horticultural Crops, *fall, 3 credits*
HORT 4251, Postharvest Biology of Horticultural Crops Lab, *fall, 1 credit*
HORT 4420, Berry Crops: Culture and Management, *fall, 3 credits*
HORT 4450, Ecological Orchard Management, *spring, 3 credits*
HORT 4500, Principles of Vegetable Production, *fall, 3 credits*
HORT/CSS 4551-4555, Mineral Nutrition of Crops and Landscape Plants, *spring, 1-5 credits (5 modules, 1 credit each) (offered even years only)*
HORT 4600 Cropping Systems Ecology, *spring, 3 credits (offered even years only)*

C. Pest Management

CSS 3150, Weed Biology and Management, *fall, 4 credits*
ENTOM 2410, Insect Pest Management for Practitioners, *spring, 3 credits*
ENTOM/TOX 3700, Pesticides, the Environment, and Human Health, *fall, 2 credits*
ENTOM/TOX 4900, Insecticide Toxicology, *spring, 3 credits (offered altern. yrs.)*
PLPA 3010, Plant Diseases and Disease Management, *fall, 4 credits*
PLPA/ENTOM 4430, Pathology and Entomology of Trees and Shrubs, *fall, 4 credits*

D. Soil Science

ANSC 4120, Whole-Farm Nutrient Management, *spring, 4 credits*
CSS 3210, Soil Management for Sustainability, *spring, 2 credits*
CSS 3231, Geographic Information Systems, *fall, 4 credits*
CSS 3720, Nutrient Management in Agro-Ecosystems, *spring, 4 credits*
CSS/HORT 4660, Soil Ecology, *spring, 4 credits*
CSS/EAS 4830, Land, Water, Agriculture, and Environment, *fall 4 credits*

E. SUSTAINABLE AGRICULTURE CONCENTRATION

Required:

D SOC 3400, Agriculture, Food and Society, *fall, 3 credits*, **AND**
HORT/BIOEE 4730, Ecology of Agricultural Systems, *fall, 3 credits* (**offered even years only**), **OR**
HORT 2200, Practicing Sustainable Land Care, *fall, 3 credits*, **OR**
HORT 4600, Cropping Systems Ecology, *spring, 3 credits* (**offered even years only**)

Choose 6 credits from the following list:

AEM 4310 Agriculture and Food Policy, *spring, 3 credits*
AGSCI 3800, Organic Food and Agriculture, *fall, 3 or 4 credits*
BEE 4010, Renewable Energy Systems, *spring, 3 credits*
BIOEE 2610, Ecology and the Environment, *fall or summer (3wk), 4 credits*
CSS 2940 Introduction to Agricultural Machinery, *fall, 2 credits*
CSS/HORT/NTRES 4260, Practicum in Forest Farming as an Agroforestry System
fall, 2 credits
CSS/HORT 4660, Soil Ecology, *spring, 4 credits*
CSS 4910, Food, Farming and Personal Beliefs, *spring, 1 credit*
DSOC 3240, Environment and Society, *fall or summer, 3 credits* [SBA]
EDUC 6820, Community Education and Development, *fall, 3 credits*
FDSC 4050, Managing Food Waste without Trashing the Environment, *spring, 2 credits*
HORT 2200, Practicing Sustainable Land Care, *fall, 2-3 credits*,
HORT 4450 Ecological Orchard Management, *spring, 3 credits*
HORT 4600 Cropping Systems Ecology, *spring, 3 credits* (**offered even years only**)
HORT/BIOEE 4730, Ecology of Agricultural Systems, *fall, 3 credits* (**offered even years only**)
IARD 4800, Global Seminar: Building Sustainable Environments and Secure Food Systems for a Modern World, *spring, 3 credits*
NS 6500, Assessing Food and Nutrition in a Social Context, *fall, 4 credits*
(prerequisite: any social science course)

ADDITIONAL CALS DISTRIBUTION REQUIREMENTS

- **SOCIAL SCIENCES & HUMANITIES**
(at least **12 credits**; 4 courses of 3 or more credits)

Categories:

CA =	Cultural Analysis
HA =	Historical Analysis
KCM =	Knowledge, Cognition, and Moral Reasoning
LA =	Literature and the Arts
SBA =	Social and Behavioral Analysis
FL =	Foreign Language
D =	Human Diversity

Specifications: (1) At least **one course** must be completed from **three different categories** listed above.

(2) **No more than two courses in the same department** will be counted toward the distribution requirement.

(3) One of the courses needs to have **“D” diversity** designation.

- **WRITTEN AND ORAL EXPRESSION**
(**9 credits**, including at least **6 credits** written expression)

Suggested **ORAL expression** courses:

COMM 2010, Oral Communication, *fall, spring, or summer, 3 credits*

COMM 2030, Argumentation and Debate, *fall, spring, or summer, 3 credits*

ENTOM 3350, Naturalist Outreach Practicum, *fall, 3 credits*

- **PHYSICAL AND LIFE SCIENCES (18 credits total in 3 or more disciplines)**

CREDIT DISTRIBUTION FOR AGRICULTURAL SCIENCES MAJOR

REQUIREMENT	CREDIT TOTAL
College Distribution Requirement	39
Required Credits for Major	39
Minimum Required Credits for Concentration	12-14
Animal Science = 12 credits	
Applied Economics and Management = 12 or 14 credits	
Education and Communication = 12 or 14 credits	
Crop Production and Management = 12 credits	
Sustainable Agriculture = 12 credits	
Elective Credits	28-33
TOTAL Credits	120