



# The University of Georgia

University Council  
Athens, Georgia 30602

October 10, 2014

## UNIVERSITY CURRICULUM COMMITTEE – 2014-2015

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Agricultural and Environmental Sciences - Dr. Robert B. Beckstead

Arts and Sciences - Dr. Roxanne Eberle (Arts)

Dr. Rodney Mauricio (Sciences)

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Ecology - Dr. James W. Porter

Education - Dr. Seock-Ho Kim

Engineering - Dr. Sidney Thompson

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Family and Consumer Sciences - Dr. Silvia Giraudo

Forestry and Natural Resources - Dr. W. Dale Green

Journalism and Mass Communication - Dr. Alison F. Alexander

Law - Ms. Elizabeth Weeks Leonard

Pharmacy - Dr. Cory Momany

Public and International Affairs - Dr. Robert Grafstein

Public Health - Dr. Katie D. Hein

Social Work - Dr. Kristina Jaskyte

Veterinary Medicine - Dr. Scott A. Brown

Graduate School - Dr. Timothy L. Foutz

Ex-Officio - Provost Pamela S. Whitten

Undergraduate Student Representative - Mr. William Heaton

Graduate Student Representative - Ms. Lauren E. Mullenbach

Dear Colleagues:

The attached proposal for the following new Areas of Emphasis under the major in Agriscience and Environmental Systems (B.S.A.) will be an agenda item for the October 17, 2014, Full University Curriculum Committee meeting:

Area of Emphasis in Plant Breeding/Genetics

Area of Emphasis in Precision Agriculture

Area of Emphasis in Sustainable Agriculture

Sincerely,

William K. Vencill, Chair

University Curriculum Committee

cc: Provost Pamela S. Whitten

Dr. Laura D. Jolly

## PROPOSAL FOR AREA OF EMPHASIS

School/College: College of Agricultural and Environmental Sciences

Department/Division: Crop and Soil Sciences

Major: Agriscience and Environmental Systems (B.S.A.)

If major has more than one area of emphasis, submit all areas of emphasis under one major together. A course may appear in more than one area of emphasis, but each area of emphasis should have a distinct focus.

### Major Requirements:

AESC 4520, Application of Technology in Production Agriculture

ADSC 3400, Physiology of Reproduction in Domestic Animals, or ADSC 3130, Animal Biotechnology, or ADSC 3300, Animal Nutrition and Metabolism, or POUL 3750, Poultry Nutrition, or BCMB(BIOL)(CHEM) 3100, Introductory Biochemistry and Molecular Biology

CRSS(FANR) 3060 and CRSS(FANR)3060L, Soils and Hydrology and Soils and Hydrology Lab

ENTO(CRSS)(PATH) 4250/6250, Pesticides and Transgenic Crops

ENTO(CRSS)(PATH) 4740/6740, Integrated Pest Management

Area of Emphasis Title (as it will appear in the Bulletin): Plant Breeding/Genetics

Proposed starting date: Fall 2015

Area of Emphasis Description: Courses and research in plant breeding address principles, procedures, and methodologies relating to improvement of yield, quality, and plant resistance to diseases and pests of agricultural crops.

Include prefixes, numbers and titles of required courses, number of credit hours required; residency requirements (if any); and grade requirements (if any). Graduate Areas of Emphasis may refer to groups of courses if necessary.

See attached

Proposal for Area of Emphasis in Plant Breeding/Genetics:

Required Major Courses (16 hours)

Area of Emphasis Requirements:

Course ID	Course Title	Credit Hours
GENE(BIOL) 3200	Genetics	3
PBGG(CRSS)(HORT) 4140/6140	Plant Breeding	3
CRSS 4300 or HORT(CRSS) 4430/6430	Crop Production and Management Plant Physiology	3 3
HORT(CRSS) 4800/6800 or PBIO(CRSS)(BIOL) 4500/6500	Agricultural Biotechnology Introduction to Gene Technology	3 3

Choose one course in Agribusiness

AAEC 3010	Farm Organization and Management	3
AAEC 3040	Agribusiness Marketing	3
ENVM 3060	Principles of Resource Economics	3

Choose one course in Production Management

ADSC 4350-4350L	Grazing Animal Production	3
CRSS 3270	Turf Management	3
CRSS 4260/6260	Forage Management and Utilization	3
CRSS 4300	Crop Production and Management	3
CRSS 4310/6310-4310L/6310L	Seed Technology	3
CRSS 4340/6340	Weed Science	3
CRSS 4340L/6340L	Weed Science Lab	1
HORT 3010	Introduction to Vegetable Crops	3
HORT 3020	Introduction to Fruit Crops	3
HORT(CRSS)(ENTO)(PATH) 3125	Organic Agricultural Systems	3
HORT(CRSS)(ENTO)(PATH) 3126	Fertility and Pest Management in Organic Agriculture	3 3
HORT 3300	Organic Gardening	3
HORT 4010/6010-4010L/6010L	Vegetable Culture	4
HORT 4020/6020-4020L/6020L	Fruit Production	3

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CRSS(FANR) 3060 and CRSS(FANR) 3060L, Soils and Hydrology and Soils and Hydrology Lab

ENTO(CRSS)(PATH) 4250/6250, Pesticides and Transgenic Crops

ENTO(CRSS)(PATH) 4740/6740, Integrated Pest Management

Area of Emphasis Title (as it will appear in the Bulletin): Precision Agriculture

Proposed starting date: Fall 2015

Area of Emphasis Description: The term precision agriculture implies improving the productivity of a field by optimizing the agronomic inputs applied uniquely to every square foot in a field based on real-time data of the variability found within a field. Students will focus on theory and equipment that can accurately apply crop inputs in the exact amounts and locations identified as needed.

Include prefixes, numbers and titles of required courses, number of credit hours required; residency requirements (if any); and grade requirements (if any). Graduate Areas of Emphasis may refer to groups of courses if necessary.

See attached

Proposal for Area of Emphasis in Precision Agriculture:

Required Major Courses (16 hours)

Area of Emphasis Requirements:

Course ID	Course Title	Credit Hours
CRSS 3030	Principles of Precision Agriculture	3
CRSS 4050/6050	Improving Nutrient and Energy Efficiency with GIS	3
CRSS 4010/6010	Principles of Sustainable Management	3
APTC(EHSC) 3080	Introduction to Environmental Sciences and Engineering	3
CRSS 4031*	Advanced Precision Agriculture	3

\* Course does not exist in the CAPA system

Choose one Agriculture Business Course

AAEC 3010	Farm Organization and Management	3
AAEC 3040	Agribusiness Marketing	3
ENVM 3060	Principles of Resource Economics	3

Choose two Production courses

ADSC 3660-3660L	Warmwater Aquaculture	3
ADSC 4350-4350L	Grazing Animal Production	3
CRSS 4300	Crop Production and Management	3
CRSS 4340/6340	Weed Science	3
HORT 3010	Introduction to Vegetable Crops	3

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ADSC 3400, Physiology of Reproduction in Domestic Animals, or ADSC 3130, Animal Biotechnology, or ADSC 3300, Animal Nutrition and Metabolism, or POUL 3750, Poultry Nutrition, or BCMB(BIOL)(CHEM) 3100, Introductory Biochemistry and Molecular Biology

CRSS(FANR) 3060 and CRSS(FANR)3060L, Soils and Hydrology, Soils and Soils and Hydrology Lab

ENTO(CRSS)(PATH) 4250/6250, Pesticides and Transgenic Crops

ENTO(CRSS)(PATH) 4740/6740, Integrated Pest Management

Area of Emphasis Title (as it will appear in the Bulletin): Sustainable Agriculture

Proposed starting date: Fall 2015

Area of Emphasis Description: The Sustainable Agriculture Area of Emphasis will provide students with an opportunity to take the agronomic courses of the Agriscience major and focus on issues of crop production while providing for the means to provide people with a healthy and affordable diet and protect environmental quality essential to the vitality of rural communities.

Include prefixes, numbers and titles of required courses, number of credit hours required; residency requirements (if any); and grade requirements (if any). Graduate Areas of Emphasis may refer to groups of courses if necessary.

See attached

Proposal for Area of Emphasis in Sustainable Agriculture:

Required Major Courses (16 hours)

Area of Emphasis Requirements:

Course ID	Course Title	Credit Hours
CRSS 4010/6010	Principles of Sustainable Management	3
CRSS 4260/6260	Forage Management and Utilization	3
CRSS 4580/6580	Soil Erosion and Conservation	3
CRSS(HORT)(ECOL) 4590/6590	Soil Fertility and Plant Nutrition	3
CRSS(HORT) 4590L/6590L	Soil Fertility and Plant Nutrition Lab	1
PATH 3530-3530L	Introductory Plant Pathology	3

Choose one course in Organic Agriculture

HORT(CRSS)(ENTO)(PATH) 3125	Organic Agricultural Systems	3
HORT(CRSS)(ENTO)(PATH) 3126	Fertility and Pest Management in Organic Agriculture	3
HORT 3300	Organic Gardening	3
HORT 4096	Organic Agriculture Seminar	1

Choose two courses in Environmental Policy

ENVM 3060	Principles of Resource Economics	3
ENVM 4380	Environmental Management	3
AAEC(ENVM) 4710/6710	Rural Economic Development and Growth	3
AAEC(AFST)(ENVM) 4720	Food Security, Economic Development and the Environment	3
ENVM(AAEC) 4930/6930	Environmental Law and Government Regulation	3

Choose one of the following courses in Human Aspects

SOCI 3400	Environmental Sociology	3
ANTH 4262/6262	Transitions from Foraging to Farming	3
ANTH 4060/6060	Agricultural Anthropology	3

Agriscience and Environmental Systems (B.S.A.)  
(also offered at Tifton)

**DRAFT**

**TOTAL DEGREE HOURS**                      **120 hours**

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**I. FOUNDATION COURSES (9 HOURS)**

ENGL 1101 or ENGL 1101E or ENGL 1101S

ENGL 1102 or ENGL 1102E or ENGL 1103 or ENGL 1050H or ENGL 1060H

MATH 1113 or MATH 2200 or MATH 2250 or MATH 2300H or MATH 2400 or MATH 2400H or MATH 2410 or MATH 2410H

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**II. SCIENCES (7-8 HOURS)**

At least one of the physical science or life science courses must include a laboratory.

**Physical Sciences (3-4 hours)**

**Preferred Course(s):** (CHEM 1211\*, CHEM 1211L\* or CHEM 1311H\*, CHEM 1311L\*) or PHYS 1111-1111L

\*In addition to meeting upper-level course prerequisites, this course can be used to satisfy the College of Agricultural and Environmental Sciences graduation requirements.

**Life Sciences (3-4 hours)**

**Preferred Course(s):** (BIOL 1107 BIOL 1107L)\* or (BIOL 2107H, BIOL 2107L)\* or ( PBIO(BIOL) 1210\*, PBIO(BIOL) 1210L)\* or (PBIO(BIOL) 1210, PBIO(BIOL) 1210H\* and PBIO(BIOL) 1210L)\*

\*In addition to meeting upper-level course prerequisites, this course can be used to satisfy the College of Agricultural and Environmental Sciences graduation requirements.

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### III. QUANTITATIVE REASONING (3-4 HOURS)

Preferred Course(s): STAT 2000 or STAT 2100H

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### IV. WORLD LANGUAGES AND CULTURE, HUMANITIES AND THE ARTS (12 HOURS)

#### World Languages and Culture (9 hours)

No preferred courses for this area. See Core Curriculum view.

#### Humanities and the Arts (3 hours)

Preferred Course(s): COMM 1100\* or COMM 2150H\*

\*In addition to meeting upper-level course prerequisites, this course can be used to satisfy the College of Agricultural and Environmental Sciences graduation requirements.

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### V. SOCIAL SCIENCES (9 HOURS)

- Students who have not met the Georgia and U.S. Constitution requirement by examination should enroll in POLS 1101.
- A passing grade on an examination on the history of the United States and Georgia is required to satisfy the United States and Georgia History Requirement for all persons receiving a baccalaureate degree from the University, unless exempted by one of the following courses: HIST 2111, HIST 2112. Examinations are given at University Testing Services. Reexamination is permitted. Contact University Testing Services at (706) 542-3183 for information.

Preferred Course(s): AAEC 2580

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## Area VI

ADSC 2010 or POUL 2020-2020L

(BIOL 1108, BIOL 1108L) or (BIOL 2108H, BIOL 2108L) or (PBIO(BIOL) 1220, PBIO(BIOL) 1220L) or  
(PBIO(BIOL) 1220, PBIO(BIOL) 1220H, PBIO(BIOL) 1220L)

(CHEM 1212, CHEM 1212L) or (CHEM 1312H, CHEM 1312L)

CRSS 2010-2010L or HORT 2000

Four hours of electives

If any of the courses in Area VI have been used to satisfy Areas I-V of the Core Curriculum, General Electives may be taken here. (Refer to College-wide requirements when selecting General Electives)

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## MAJOR REQUIREMENTS

A baccalaureate degree program must require at least 21 semester hours of upper division courses in the major field and at least 39 semester hours of upper division work overall.

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### Required Courses ~~(43-44 hours)~~ (34-44 hours)

Complete the following (16 hours):

AESC 4520

ADSC 3130 or ADSC 3300 or ADSC 3400 or POUL 3750 or ~~ADSC 4010\*~~ BCMB(BIOL)(CHEM) 3100

CRSS(FANR) 3060, CRSS(FANR) 3060L

ENTO(CRSS)(PATH) 4250/6250

ENTO(CRSS)(PATH) 4740/6740

~~\*Students on the Tifton Campus should select this course.~~

Students may choose to major in "General" Agriscience and Environmental Systems or major in Agriscience and Environmental Systems with an Area of Emphasis in Plant Breeding and Genetics, Precision Agriculture, or Sustainable Agriculture.

### ***Agriscience and Environmental Systems Major (General):***

Choose two from the following Agribusiness courses - 6 hours

AAEC 3010

AAEC 3040

ENVM 3060

Choose two from the following Agricultural Technology courses - 6-7 hours

ADSC 3130

AESC 3510

CRSS 3030\*  
CRSS 4050/6050  
CRSS 4340/6340  
CRSS 4340L/6340L  
GEOG 4300/6300  
GEOG 4370/6370-4370L/6370L  
HORT(CRSS) 4800/6800\*  
PBIO(CRSS)(BIOL) 4500/6500

\*Students on the Tifton Campus should select these courses.

Choose two from the following Environmental Sciences courses - 6 hours

APTC(EHSC) 3080\*  
CRSS(GEOL) 4540/6540-4540L/6540L  
CRSS(HORT)(ECOL) 4590/6590  
CRSS(HORT) 4590L/6590L  
CRSS 4670/6670  
CRSS 4580/6580-4580L/6580L\*  
EHSC 3060  
WASR(CRSS)(ECOL)(ENGR)(GEOG)(GEOL) 4700L/6700L  
HORT(CRSS) 4430/6430  
HORT(CRSS) 4440/6440-4440L/6440L  
WASR(CRSS)(ECOL)(ENGR)(GEOG)(GEOL) 4700L/6700L\*

\* Students of the Tifton Campus should select these courses.

Choose two from the following Production Management courses - 6 hours

ADSC 3600-3600L  
ADSC 3620-3620L  
ADSC 3630-3630L  
ADSC 3660-3660L\*  
ADSC 4350-4350L\*  
CRSS 3270  
CRSS 4260/6260  
CRSS 3270  
CRSS 4300\*  
CRSS 4310/6310-4310L/6310L\*  
CRSS 4340/6340  
CRSS 4340L/6340L  
HORT 3010\*  
HORT 3020  
HORT(CRSS)(ENTO)(PATH) 3125

HORT(CRSS)(ENTO)(PATH) 3126

HORT 3300

HORT 4010/6010-4010L/6010L

HORT 4020/6020-4020L/6020L

POUL 3600

POUL 3710

\* Students on the Tifton Campus should select these courses.

Choose one from the following Application courses - 3 hours

ADSC 3910

AESC 3920

AESC 4960

CRSS 3910

HORT 3910

PATH 3910

***Plant Breeding and Genetics Area of Emphasis:***

Complete the following (12 hours):

GENE(BIOL) 3200

PBGG(CRSS)(HORT) 4140/6140

CRSS 4300 or HORT(CRSS) 4430/6430

HORT(CRSS) 4800/6800 or PBIO(CRSS)(BIOL) 4500/6500

Choose one from the following Agribusiness courses – 3 hours

AAEC 3010

AAEC 3040

ENVM 3060

Choose one from the following Production Management courses – 3-4 hours

ADSC 4350-4350L

CRSS 3270

CRSS 4260/6260

CRSS 4300

CRSS 4310/6310-4310L/6310L

CRSS 4340/6340

CRSS 4340L/6340L

HORT 3010

HORT 3020

HORT(CRSS)(ENTO)(PATH) 3125

HORT(CRSS)(ENTO)(PATH) 3126

HORT 3300

HORT 4010/6010-4010L/6010L

HORT 4020/6020-4020L/6020L

**Precision Agriculture Area of Emphasis:**

Complete the following (15 hours):

CRSS 3030

CRSS 4050/6050

CRSS 4010/6010

APTC(EHSC) 3080

CRSS 4031

Choose one from the following Agriculture Business courses – 3 hours

AAEC 3010

AAEC 3040

ENVM 3060

Choose two from the following Production Management courses – 6 hours

ADSC 3660-3660L

ADSC 4350-4350L

CRSS 4300

CRSS 4340/6340

HORT 3010

**Sustainable Agriculture Area of Emphasis:**

Complete the following (16 hours):

CRSS 4010/6010

CRSS 4260/6260

CRSS 4580/6580

CRSS(HORT)(ECOL) 4590/6590

CRSS(HORT) 4590L/6590L

PATH 3530-3530L

Choose one from the following Organic Agriculture courses – 3 hours

HORT(CRSS)(ENTO)(PATH) 3125

HORT(CRSS)(ENTO)(PATH) 3126

HORT 3300

HORT 4096

Choose two from the following Environmental Policy courses – 6 hours

ENVM 3060

ENVM 4380

AAEC(ENVM) 4710/6710

AAEC(AFST)(ENVM) 4720

ENVM(AAEC) 4930/6930

Choose one from the following Human Aspects courses – 3 hours

SOCI 3400

ANTH 4262/6262

ANTH 4060/6060

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### Major Electives (9-12 hours)

AAEC(ENVM) 4710/6710

AAEC(AFST)(ENVM) 4720

AESC 3510

AESC 4530

ANTH 4060/6060

ANTH 4262/6262

CRSS 3070

CRSS 3270

CRSS 4010/6010

CRSS 4031

CRSS 4090

CRSS 4340/6340

CRSS 4340L/6340L

ENTO(EHSC) 3590-3590L

ENTO 3740-3740L

ENTO 4350-4350L

ENTO 4500/6500-4500L/6500L

ENVM 4380

ENVM(AAEC) 4930/6930

GENE(BIOL) 3200

HORT 4050/6050

HORT 4060/6060

HORT 4096

HORT 3300

PATH 3530-3530L

PATH 4280/6280-4280L/6280L

PATH 4300/6300

PBGG(CRSS)(HORT) 4140/6140

PBIO(CRSS)(BIOL) 4500/6500

SOCI 3400

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General Electives (~~4-8 hours~~) (4-17 hours)

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(This total does not include the 1-hour P.E. requirement)