



The University of Georgia

Office of the Vice President for Instruction

March 13, 2007

UNIVERSITY CURRICULUM COMMITTEE – 2006-2007

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Dear Colleagues:

The attached proposal for an Undergraduate Certificate Program in Agrosecurity will be an agenda item for the March 23, 2007, Full University Curriculum Committee meeting.

Sincerely,

Dr. William K. Vencill, Chair
University Curriculum Committee

cc: Dr. Arnett C. Mace, Jr.
Professor Jere W. Morehead

Proposal for an

Undergraduate Interdisciplinary Certificate Program in

Agrosecurity

**From the College of Agricultural and Environmental
Sciences**

At

The University of Georgia

January 5, 2007

I. Basic Information

1. Institution: The University of Georgia **Date:** January 4, 2007

2. School/College: College of Agricultural and Environmental Sciences

3. Departments/Divisions:

- a. Animal and Dairy Science
- b. Crop and Soil Science
- c. Food Science and Technology
- d. Plant Pathology
- e. Poultry Science

4. Level: Undergraduate

5. Proposed starting date for program: Fall, 2007

6. Abstract of the Program:

The importance of protecting our nation's food supply has heightened since the terror events of September 11, 2001. The United States produces more food than any other country in the world and we are also the world's largest exporter of agricultural products (Brown et al., 2005). Today's students bear the responsibility for the future safety and health of our food. It is imperative that our students be educated on the issues surrounding Agrosecurity and the protection of the world's largest food supply.

Agriculture is the largest sector of Georgia's economy with an annual economic impact of \$56 billion. Approximately 15% of Georgians are employed in agriculture, forestry and related fields. In 2003, Georgia ranked 15th among states for total value of agricultural products sold (Brown et al., 2005). Protecting agriculture in Georgia is, in effect, protecting the economy of Georgia.

The Department of Homeland Security has defined the following four levels of training to prepare our country to respond to emergencies including terrorism events. They are:

- Level 1 – Awareness (Recognize, Assess)
- Level 2 – Defensive (Contain, Early Response)
- Level 3 – Offensive (Response and Recover)
- Level 4 – Command and Control (Overseeing all response efforts)

(Brown et al., 2005).

The UGA certificate in Agrosecurity will prepare students of diverse disciplines to satisfy the requirements of Level 1. The objectives of the certificate will be to:

- (1) Provide students with a broad overview of US agriculture and food including the plant, animal and food industries;
- (2) Provide students with an understanding of terrorism and terrorist organizations, specifically as they relate to agrosecurity;
- (3) Provide students with a basic understanding of emergency management and homeland security programs related to agriculture and the food industry;
- (4) Allow students to focus on one of the following areas as they relate to agrosecurity:
 - a. Animal agriculture,
 - b. Plant agriculture,
 - c. The food processing industry.

The certificate in Agrosecurity will be open to all UGA students. There is considerable flexibility in the program to accommodate students interested in the protection of plants, animals, or the food processing industry.

7. Letters of support from the academic unit heads.

Attached.

II. Response to the Criteria for all Programs

1. The purpose and educational objective of the program:

A. (1) Purpose

The purpose of the Agrosecurity certificate is to prepare students of various disciplines to assist in protecting our state and country's food supply. Students will focus on one of three areas: animal agriculture, plant agriculture, or the food processing industry. The program complements the role, scope, and long-range development plan of the institution. The Strategic Plan of the University of Georgia clearly supports the protection of the state's largest industry and states:

"Agriculture remains the single largest segment of Georgia's economy. Clearly, agriculture is important to the future of our state and the various and many programs at the University of Georgia which support and enlarge the agriculture of Georgia will continue to be of paramount priority"
(<http://www.uga.edu/strategicplanning/part3/index.html>, p. 8).

(2) Educational Objectives

Students will learn and understand:

- a. Fundamentals of agrosecurity including the legal description of terrorism, the nature and incentives of international and national terrorist groups, how agriculture is vulnerable to terrorist attack, the infrastructure required to provide security to the food production

sector, natural pests that could be used as agents of terror; and interactive scenarios of terrorism.

- b. Basic emergency incident response training and agriculture emergency response training.
- c. Agrosecurity as it relates to students' discipline of interest including the protection of animals, plants, or the food processing industry.

The Agrosecurity Certificate will support the goals of the institution to enhance the economic well-being of the state of Georgia. Agriculture is one of the most vulnerable sectors for terrorist attack, and an attack on the food supply would cripple our state's economy. Graduates of this program will help maintain the health and viability of the leading sector of our state economy.

B. Interdisciplinary Nature of the Program

The following units were involved in the planning and execution of this certificate:

- Plant Pathology Department
- Crop and Soil Science Department
- Poultry Science Department
- Animal Science Department
- Entomology Department
- Food Science & Technology
- College of Veterinary Medicine
- College of Agricultural and Environmental Sciences Office of Global Programs
- UGA Office of Security and Emergency Preparedness

The Certificate will be open to all UGA students, and it is expected to be fully functional with at least 20 students in 5 years.

2. Demonstrated Need for Program

A. Necessity of Program

Since the terrorist attacks in 2001, the US Department of Homeland Security was created and now employs 183,000 workers, making it one of the largest federal agencies (OOQ, Summer, 2006). Other federal agencies such as the Central Intelligence Agency, the Department of Labor, and the Department of Agriculture, as well as many state and local governments, private industries and nonprofits employ workers to protect our nation from terrorist attacks. Agrosecurity is a sector of the overall mission of the Department of Homeland Security. Agriculture is the largest industry in Georgia and it is in the best interest of Georgians to protect the safety and security of this industry.

B. Implementation Plan

1. **Semester/Year of Program Initiation:** Fall, 2007
2. **Semester/Year Full Implementation of Program:** Fall, 2007
3. **Semester/Year First Certificates will be awarded:** Spring, 2009
4. **Annual Number of Graduates expected (once the program is established):** 10
5. **Projected Future Trends for numbers of students enrolled in the program:** It is expected to increase by 3 to 5 students per year until it reaches approximately 30 students.

3. Evidence for student demand

- A. **Student Interest:** To the best of our knowledge, there is not another institution that is offering a similar program. We have polled and contacted other institutions and have found programs focused on Homeland Security, but not Agrosecurity, so there are not comparable numbers to report. However, because of the national interest in this area, we predict this will be a popular certificate program. Interest in the introductory course CRSS 2001 "Terror and the Food Supply" is very high from students in many different majors across campus and in fact, attracts more students from outside of the College of Agricultural and Environmental Sciences.
- B. **Minority enrollment** is predicted to be equivalent to the proportion of minority students in the total student body.

4. Curriculum

Required Courses:

Courses	Credit:
CRSS 2001 – Terror and the Food Supply	3
Agriculture Incident Response Preparedness (new course)	3
Capstone Seminar (new course)	2

Select 9 hours from the following courses:

Course:	Credits:
AAEC 3100 – Food and Fiber Marketing	3
AAEC 3400 – Introduction to Agricultural Policy	3
AAEC(AFST) 4720 - Food Security, Economic Development, and the Environment	3
ADSC(FDST) 3650-3650L - Introductory Meat Science	3
Food Animal Health (new course)	3
ENTO 3650-3650L - Medical Entomology	4
ENTO(CRSS)(PATH) 4250/6250-4250L/6250L - Pesticides and Transgenic Crops	3
ENTO(CRSS)(PATH) 4740/6740-4740L/6740L - Integrated Pest Management	3
FDST(EHSC)(MIBO) 4320/6320-4320L/6320L – Hazard Analysis	3

Critical Control Point in the Food Industry	
FDST 3000 – Introduction to Food Science and Technology	3
FDST 4090/6090-4090L/6090L - Food Quality Control	3
FDST 4100/6100 – Governmental Regulation of Food Safety and Quality	2
FDST(MIBO) 4030/6030-4030L/6030L - Food Microbiology	3
MIBO 3000-3000L – Introduction to Food Science and Technology	4
MIBO 3500 - Introductory Microbiology	3
PATH 3530-3530L - Introductory Plant Pathology	3
PATH 3830-3830L - Forest Pathology	2
PATH 4280/6280-4280L/6280 Diagnosis and Management of Plant Diseases	4
PATH 4300/6300 - Clinical Plant Pathology	2
POUL(FDST) 4860/6860-4860L/6860L – Poultry Processing	3
Select no more than one of the following courses:	
ADSC 2000-2000L – Practicum in Animal and Dairy Science	3
CRSS 2010-2010L – Crop Science	4
FDST 2010 - Food Issues and Choices	3
PATH(FDST) 2030 – Marvelous and Malevolent Microbes	2
MIBO 2500-2500L – Microbiology and Health Care	4
POUL 2020-2020L - Introductory Poultry Science	3
Select no more than one of the following courses:	
ADSC 3600-3600L - Beef Cattle Production and Management	3
ADSC 3620-3620L - Dairy Cattle Production and Management	3
ADSC 3610-3610L - Pork Production and Management	3
POUL 3600 - Poultry Production	3
POUL 4010 – Advanced Poultry Production	3

Model Programs: To the best of our knowledge, there is currently not another certificate, minor, or major in agrosecurity being offered at other institutions that offers comprehensive study of the plant, animal, and food industries. North Carolina State University is offering a minor in Plant Protection and Regulatory Sciences. This program focuses on plants and does not include protection of animal agriculture or the food processing industry. Pennsylvania State University offers a Master's Degree in Homeland Security which includes one course in Agricultural Biosecurity. Purdue University offers a graduate certificate in Veterinary Homeland Security.

5. Faculty Resources

A. Faculty demographics

Faculty in many different disciplines are needed to implement this program and include:

Plant Pathology Department

Crop and Soil Science Department
Poultry Science Department
Animal Science Department
Entomology Department
Food Science & Technology
College of Veterinary Medicine
College of Agricultural and Environmental Sciences Office of Global
Programs
UGA Office of Security and Emergency Preparedness

Because of the comprehensive nature of the College of Agricultural and Environmental Sciences and the College of Veterinary Medicine, we currently have the expertise to offer all the courses proposed to be included in the program. Three new courses need to be developed, but we believe we have the faculty to teach them. Approximately 30 faculty will provide direct instructional support for this program.

C. Faculty qualifications

1. **Qualifications:** Because such a large number of faculty are involved in this program, approximately 30, we are not listing the name, rank, degrees, academic specialty, and educational background of all faculty. All the faculty involved in teaching existing and proposed courses have a terminal degree in their field and have expertise in the specific subject matter.

2. **Special qualifications:** Because the field of agrosecurity is so new, none of our faculty have had graduate training in this area. They are qualified to teach in this area, however, because they have studied this field on their own or sought additional training. Don Hamilton, Director of Homeland Security for the UGA Cooperative Extension Service, has served as the coordinating committee advisor.

3. **Program responsibility:** Staff in the Office of Academic Affairs in the College of Agricultural and Environmental Sciences will be the provisional directors of the program. Once the program is established, a faculty member in one of the participating departments will be appointed as director.

D. No new additional faculty hires are required.

6. Library, computer, and other instructional resources

A. **Current library resources:** adequate.

B. **Equipment resources:**

Additional instructional and laboratory equipment will be needed for the new course "Agriculture Incident Response Preparedness." These materials will

be used to simulate chemical, biological, radiological, nuclear, and explosive scenarios. Materials will include Personal Protective Equipment, mock Improvised Explosive Devices, biological and radiological sensor devices, general laboratory analysis devices, and other peripheral supplies to create a realistic instructional scenario.

7. Physical facilities are adequate. Courses will be taught in campus classrooms. The Agriculture Incident Response Preparedness class will be taught at the UGA Livestock Arena on Milledge Avenue.

8. Expense to the institution:

Laboratory supplies will need to be purchased for the new course, Agriculture Emergency Response Preparedness. We are currently in the process of preparing a grant that will be submitted to the USDA Higher Education Challenge Grant program on Feb. 1, 2007, to secure funding for these supplies.

A. Detailed funding to initiate the program and subsequent annual additions required to fully implement the program are needed below. Estimates should be based upon funding needed to develop an effective and successful program and not upon the minimal investment required to mount and sustain a potentially marginal program.

	First Year	Second Yr.	Third Year
(1) Personnel	_____	_____	_____
(2) Operating costs	<u>20,000</u>	<u>2,000</u>	<u>2,000</u>
(3) Capital outlays	_____	_____	_____
(4) Library Acquisitions	_____	_____	_____
(5 Total	_____	_____	_____

B. Student support (fellowships, assistantships, scholarships, etc.) available for this program and the adequacy of this support:

There are currently no scholarships available, but we will seek external support for this program.

9. Financial support

A. Identify the sources of additional funds needed to support the program and the probability of their availability.

There is not a need for additional financial commitment for the courses already being taught, but the instructors will be expected to add information relative to agrosecurity to these courses. A USDA Higher Education Challenge grant proposal is being developed to fund the initial materials needed for the new course. Development of curriculums on plant and animal biosecurity is one of the high priorities of this program, so we are fairly confident that it will be funded.

B. Continued support.

Laboratory fees will be charged in future years to support the activities of the Agriculture Incident Response Preparedness class.

10. Structure for the administration of the program.

The undergraduate advisors of departments listed in I.3 will counsel students for this certificate program.

REFERENCES

Brown, C., E. Choueke, and L. Myers. 2005. Agrosecurity: Protecting America's Agriculture and Food. Boca Publishing Group, Boca Raton, FL.

Occupational Outlook Quarterly, Summer, 2006, US Department of Labor, US Labor Statistics, Washington, DC,
www.bls.gov/opub/ooq/2006/summer/art01.pdf.