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# The University of Georgia

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Office of the Vice President for Instruction

March 13, 2007

UNIVERSITY CURRICULUM COMMITTEE – 2006-2007

Dr. William K. Vencill, Chair  
Agricultural and Environmental Sciences - Dr. Amy B. Batal  
Arts and Sciences - Dr. Charles L. Platter (Arts)  
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Public Health – Dr. Stephen L. Rathbun  
Social Work - Dr. Patricia M. Reeves  
Veterinary Medicine - Dr. Paige Carmichael  
Graduate School - Dr. Malcolm R. Adams  
Undergraduate Student Representative – Ms. Alison Gibbons  
Graduate Student Representative – Ms. Lindsey Scott

Dear Colleagues:

The attached proposal for an Undergraduate Certificate Program in Integrated Pest Management 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 Integrated Pest Management at the University of Georgia

**I. Basic Information**

- 1 **Institution:** University of Georgia **Date:** November 7, 2006
- 2 **School/College:** College of Agricultural and Environmental Sciences
- 3 **Department/Division:** Crop and Soil Science, Entomology, and Plant Pathology
- 4 **Level:** Undergraduate
- 5 **Proposed starting date for program:** Semester following approval
- 6 **Abstract of the program for the University Council's agenda:**

The proposed Interdisciplinary Certificate Program in Integrated Pest Management will provide a broad-based educational experience in the three major areas of integrated pest management, including Entomology, Plant Pathology, and Weed Science. Further, the Certificate will document and recognize students graduating from other majors who have completed their educational backgrounds in these critical areas of knowledge. Integrated pest management is interdisciplinary by nature, and this program is an ideal vehicle for providing the required educational opportunities across existing departments. Other existing undergraduate programs in pest management, such as those found at the University of Arkansas, and Mississippi State University, are housed within single departments, and are only available to students with majors in those departments. This program would be unique, in that it would be available to students with majors as diverse as Horticulture, Entomology, Agricultural Education, and Landscape and Grounds Management. Pest management is a critical area of knowledge for future employment in the Cooperative Extension Service, the agricultural chemical industry, golf course management, ornamental and turf production, and pest management specialists in urban settings. The proposed Certificate Program would support and strengthen the long term goals and mission of the College of Agricultural and Environmental Sciences by better preparing students to contribute to excellence in the agricultural and urban pest management industries in Georgia, and to support the educational mission of the College by providing pest-management educational services to our clientele. The availability of this certificate will enhance recruitment and retention of students in related undergraduate majors because of the expectations of improved future employability.

The proposed Certificate Program is needed in part to address the loss of opportunities to undergraduate students resulting from the recent deactivation of majors in Plant Pathology and Crop and Soil Science. At this time, no major is available that would provide a broad-based educational opportunity in the critical area of Integrated Pest Management. The program will rely entirely on existing faculty and on courses that are already being taught in the major discipline areas of Crop and Soil Science, Entomology, and Plant Pathology. No additional costs will be accrued to the university, the college, or to the departments hosting the program. The program will be fully functional as soon as approved, and the first graduates would be expected in 2-3 years after approval. The number of students choosing to take advantage of the certificate may be limited to fewer than 10 in the first 5 years, but if the certificate enhances employability and excellence in service to the industry, as anticipated, interest should grow steadily as feedback is received from graduates. It is anticipated that minority enrollment in this program will reflect the proportion of minority students in the total student body.

Awarding of the Interdisciplinary Certificate Program in Integrated Pest Management would

require that students take one course each in the three basic areas of pest management, including Entomology, Plant Pathology, and Weed Science, along with any required prerequisites for those courses. A grade of C or better is required in each of the required pest management courses for award of the certificate. The certificate would only be awarded with completion of requirements for an undergraduate degree at UGA. Admission to the program would be open to undergraduate students enrolled in a degree program at UGA and in good academic standing. The program will be administered by a Director, selected from among a group of three advisors, representing each of the major program areas of Crop and Soil Science, Entomology, and Plant Pathology.

**7. Submit letters of support from the various academic unit heads involved in developing the program initiative or whose support is vital to its success.**

See appendix for signatures and letters.

**II. Criteria for proposed new program:**

**1. Purpose and educational objectives**

**A.** The purpose of the proposed program is to provide a broad-based education in Integrated Pest Management to students from a variety of different majors at UGA. The objective will be to provide students with an opportunity to learn and document their knowledge in this mission-critical area of service to Georgia's large and varied green industries. Preparing graduates to perform at a high level in this specialized area would be a critical component within the goals and mission of the College of Agricultural and Environmental Sciences to provide greater academic excellence in our students and service to our clientele.

**B.** Integrated Pest Management is interdisciplinary by its nature, encompassing Entomology, Plant Pathology, and Weed Science. Pest management specialists typically must manage all of these groups in order to successfully control real-world problems. To manage one group and not the others simply provides more opportunity for the remaining diseases, insects, or weeds. These three content areas are housed in the Crop and Soil Science, Entomology, and Plant Pathology departments within the College of Agricultural and Environmental Sciences. Only through an interdisciplinary approach can all three areas be combined into one program.

**2. Need for the program**

**A.** Professionals working in Georgia's plant, urban, and medical pest-related industries must use a comprehensive approach to successfully manage diseases, insects, and weeds. A critical need exists throughout the Southeastern U.S. for professionals who are capable of managing pests in a comprehensive framework. Broad-based knowledge of integrated pest management is important for Cooperative Extension Agents, agricultural chemical industry representatives, pest control operators, and private consultants, all of whom are relied upon for information and recommendations. There is presently no major available at UGA that provides students with a broad-based education in all three of the pest management areas. The proposed Certificate Program would provide the educational opportunity, and also documentation for the student, to provide a basis for employment decisions and a higher level of performance in integrated pest management positions.

**B.**

**1. Semester/Year of Program Initiation:** As soon as approved

**2. Semester/Year Full Implementation of Program:** As soon as approved

- 3. Semester/Year First Certificates will be awarded:** 2-3 years after program is approved
- 4. Annual Number of Graduates expected (once the program is established):** 5-10
- 5. Projected future trends for number of students enrolled in the program:** If the certificate enhances employability and provides excellence in service to the industry, as anticipated, interest should grow steadily as feedback is received from graduates.

### **3. Student Demand for the Program**

**A.** Approximately 130 undergraduates are enrolled in majors most likely to have an interest in the proposed certificate program (Entomology, Horticulture, Turfgrass Management, Landscape and Grounds Management, Agricultural Education). Additional students may enroll from other majors, but if 10% of the most closely aligned majors have an interest in the Integrated Pest Management Certificate, enrollment numbers greater than 10 per year should be sustainable. This would be an adequate number to maintain the significance of the certificate program in helping to meet the needs and goals of the College of Agricultural and Environmental Sciences' mission.

**B.** It is anticipated that minority enrollment in this program will reflect the proportion of minority students in the total student body.

### **4. Design and curriculum of the program**

**1.** Awarding of the certificate will require completion of the following courses, with a grade of C or better in each course, along with all the required prerequisites for the certificate courses. The Integrated Pest Management Certificate will only be awarded along with completion of requirements for an undergraduate degree at UGA. Admission to the program would be open to undergraduate students enrolled in a degree program at UGA, and who are in good academic standing.

#### **CRSS 4340/6340. Weed Science. 3 hours.**

Oasis Title: WEED SCIENCE.

Prerequisite: CHEM 1211 and CHEM 1211L.

Fundamentals of weed biology; cultural and chemical weed control; properties and uses of herbicides and herbicide application equipment; and current systems for weed management in cropping programs.

Non-traditional format: This course is also offered through University System of Georgia Independent Study (USGIS).

Offered fall semester every year.

#### **CRSS 4340L/6340L. Weed Science Laboratory. 1 hour. 2 hours lab per week.**

Oasis Title: WEED SCI LAB.

Undergraduate corequisite: CRSS 4340/6340.

Weed identification; symptomology of herbicide action; calibration of herbicide application equipment.

Offered fall semester every year

**ENTO 3740-3740L. Insect Pest Management. 4 hours. 3 hours lecture and 2 hours lab per week.**

Oasis Title: INSECT PEST MGT.

Prerequisite: (PBIO 1220 and PBIO 1220L) or (BIOL 1104 and BIOL 1104L) or BIOL 1108-1108L.

An introduction to entomological science as a foundation for recognition and management of insect pests in agriculture, landscape, and urban environments. Emphasis is on concepts of integrated pest management using a combination of cultural, biological, and chemical control strategies.

Offered fall semester every year.

**PATH 3530-3530L. Introductory Plant Pathology. 3 hours. 2 hours lecture and 2 hours lab per week.**

Oasis Title: INTRO PLANT PATH.

Prerequisite: (PBIO 1210 and PBIO 1210L and PBIO 1220 and PBIO 1220L) or (BIOL 1103 and BIOL 1103L and BIOL 1104 and BIOL 1104L) or (BIOL 1107-1107L and BIOL 1108-1108L).

Principles and concepts of plant pathology, including disease development, environmental interactions, microbial biology and life cycles, and disease control strategies. Broad concepts rather than diagnosis and control of specific diseases.

Offered fall and spring semesters every year.

A minimum of 6 hours of additional coursework will be required, selected from any 3000-4000 level courses in Crop and Soil Science, Entomology, Horticulture, Plant Biology, or Plant Pathology. The elective courses would be selected to reflect the individual interests of the students. For example, within the Entomology Department, students could take specialized courses in Urban entomology, Medical entomology, or in Crop-specific entomology. Similarly, within Plant Pathology, students can take courses in Ornamental Plants or Turf pathology.

- 1 All aspects of the proposed curriculum already exist. No new courses will be required.
- 2 Similar programs exist only as minors associated with individual majors, as offered at the University of Arkansas, and Mississippi State University. The basic requirements for these minors are similar to those for the proposed Interdisciplinary Certificate Program, and require completion of an undergraduate degree. The distinct advantage of the program as proposed at UGA would be the opportunity to earn the certificate from a large number of existing majors.
- 3 Program accreditation is not available for the proposed certificate.

**5. Faculty resources:** All faculty required to implement the proposed program are already in place. The core areas required for the certificate will be addressed by Dr. John N. All, Professor, Department of Entomology; Dr. William K Vencill, Professor, Department of Crop and Soil Science; and Dr. James P. Noe, Associate Professor, Department of Plant Pathology. These three faculty will also

comprise the advisory committee for the Integrated Pest Management Certificate Program, and a director will be selected from this committee. Implementation of this program should not require any adjustments to the current assignments of the faculty.

Faculty coordinating program	Department	Relevant courses taught
John N. All	Entomology	ENTO 3740-3740L, ENTO(CRSS)(PATH) 4250/6250-4250L/6250L ENTO(CRSS)(PATH) 4740/6740-4740L/6740L
James P. Noe	Plant Path	PATH 3530-3530L
William K. Vencill	Crop & Soil	CRSS 4340L/6340L, ENTO(CRSS)(PATH) 4250/6250-4250L/6250L ENTO(CRSS)(PATH) 4740/6740-4740L/6740L

6. **Library, computer, and other instructional resources:** Since the proposed program will rely entirely on courses and materials that are already being taught, no additional resources will be required for implementation.
  7. **Physical facilities:** No additional physical facilities will be required to implement the proposed certificate program.
  8. **Expenses to the institution:** No additional expenses will be required to fully implement the proposed certificate program. No additional student support is available for the program.
  9. **Financial support to initiate and fully develop the program:** No additional financial support will be required to initiate and fully develop the proposed Interdisciplinary Certificate Program.
  10. **Administration of the program:** The proposed certificate program will be administered by a Director, selected from among a group of three advisors, representing each of the major program areas of Crop and Soil Science, Entomology, and Plant Pathology. This level of administration is in keeping with similar certificate programs established at UGA. Admission to the program would be open to undergraduate students enrolled in a degree program at UGA, and who are in good academic standing, as for similar certificate programs at UGA.
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The University of Georgia

College of Agricultural and Environmental Sciences  
*Department of Entomology*

September 5, 2006

To whom it may concern:

**The Department of Entomology endorses the proposed Certificate Program in Integrated Pest Management. This collaborative effort between the Departments of Crop and Soil Sciences, Entomology and Plant Pathology will provide students with the necessary background to address complex and dynamic integrated pest management issues. Further, it will reinforce the necessity of using interdisciplinary approaches to finding appropriate solutions to pest management problems. This program should produce graduates who will have the skills and background to develop environmentally acceptable pest management tactics and strategies needed in today's agricultural production systems.**

Sincerely,

Ray Noblet

**Professor and Dept. Head**



# The University of Georgia

College of Agricultural and Environmental Sciences  
*Department of Plant Pathology*

July 10, 2006

To whom it may concern:

It is with great pleasure that I endorse the proposed Certificate Program in Integrated Pest Management that will be coordinated through the Departments of Crop & Soil Science, Entomology, and Plant Pathology in the College of Agricultural and Environmental Sciences. The implementation of this program will significantly enhance the involvement of the Department of Plant Pathology in the undergraduate experience at the University of Georgia. While the Department of Plant Pathology does offer a number of undergraduate courses which regularly meet enrollment goals, the deactivation of the undergraduate major in the department left students engaged in developing a strength in the science of plant health without documentation of this effort.

The proposed Interdisciplinary Certificate Program in Integrated Pest Management will permit students to develop the necessary multi-disciplinary skills to be competitive and effective in the workplace where pest management skills are needed. This will be a unique program as such programs at other universities tend to be housed in a single department. Students from a diversity of majors would be able to document a set of skills that will facilitate their success in positions in the Cooperative Extension Service, the agricultural chemical industry, golf course management, ornamental and turf production, and pest management specialists in urban settings.

In addition to meeting the needs of the Department of Plant Pathology, the Certificate Program will help meet a void that developed when a major in the Crop & Soil Science was deactivated. Thus, this Certificate Program will not duplicate any efforts underway in plant health at the University of Georgia. In addition, no new resources will be required for the implementation of this Certificate Program. It is anticipated that there will be steady growth in participation in this Certificate Program in conjunction with the continued increase in value of the plant production industries to Georgia's economy. Hence, I hope the program is endorsed and can be implemented as soon as possible.

Sincerely,

John L. Sherwood  
Professor and Head  
sherwood@uga.edu





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# The University of Georgia

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College of Agricultural and Environmental Sciences  
*Department of Crop and Soil Sciences*

## MEMORANDUM

August 7, 2006

To whom it may concern:

FROM: Donn Shilling

*DES*

RE: Certificate Program in Integrated Pest Management

I fully endorse the proposed Certificate Program in Integrated Pest Management. This interdisciplinary certificate program between Plant Pathology, Crop and Soil Sciences and Entomology will provide students with a unique educational experience and the skills and credential to enhance their professional development.