

**PLANT HEALTH MANAGEMENT
(ALS 5932)
3 Credit Hours**

Coordinator

Charles R. Semer IV, Assistant –in-Plant Medicine

Office Hours TBA

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Location

Fifield Hall Room 2318

The class will meet two times per week Once on Tuesday Periods 6 & 7 for lecture and the other meeting will be scheduled to provide time to conduct field and greenhouse experiments. The class meetings will provide time for lectures and for carrying out plot in the field, greenhouse of laboratory.

COURSE DESCRIPTION

This multidisciplinary internship course will be applicable to all UF-IFAS, CALS graduate students. It will also be a core internship requirement for the Doctor of Plant Medicine (DPM) degree. The course will provide practical and applied experience for students to develop the competencies required to effectively conduct, analyze and interpret field, greenhouse and laboratory experiments in plant health management. Model systems for instruction may include pest management (weeds, arthropods, plant pathogens) and nutrient management using both conventional and alternative practices. It is possible that a plant breeding component may also be included in future.

Each student will conduct an agricultural experiment either in the laboratory, the greenhouse or the field. The choice of experiment will depend on what studies the clinical trials and its cooperators are currently undertaking and student interest. These experiments are not classroom exercises but experiments conducted in association with corporate or other clientele groups. In addition to laying out the experiment the student will be expected to collect data related to the experimental purpose on a daily or weekly basis, as appropriate. The data collected will be entered into classroom files using Excel ® and the data will be analyzed using SAS ®. At the conclusion of the experiment the student will prepare a report summarizing the experimental design, the procedures used throughout the experiment, and present the results and conclusions of the experiment using appropriate data analysis. Each report will discuss the implications of the results as they affect the stated purpose of the experiment. The following addenda to the report will also be presented: copies of all raw data, and photos taken during the experiment .

COURSE RATIONALE

Many of our graduate students will routinely conduct, analyze, and interpret applied research targeted at plant health management in academia and the private sector. For example, they will find employment as independent consultants, technical/sales representatives with agrichemical companies, plant health managers with production companies and extension faculty who will either conduct research themselves or contract with others for its completion. These graduates will also need to evaluate plant health management research published in various forms including scientific journals.

No single UF academic course currently provides this kind of educational information. The proposed course will aid in synthesizing topics that describe how to set up, analyze and interpret experiments on plant health management. Students will have a “hands on” opportunity to learn the basic methods of applied agriculture research.

It has been estimated that within the next 5-10 years there will be a $\geq 50\%$ turnover of leadership positions in many segments of agriculture. It is hoped that this course will help to better prepare students to assume leadership roles in plant health management.

COURSE OBJECTIVES

Competencies that students will achieve may vary depending on the nature of the research project but they are expected to:

- Be knowledgeable of the basic experimental designs used in agricultural research
- Be able to design, analyze and interpret data
- Be able to use basic SAS programs to analyze data
- Be able to calibrate pesticide equipment
- Be able to apply pesticides in a safe and effective manner

COURSE PREREQUISITES

Prerequisite for class attendance is STA 2023 Introduction to Statistics and Introduction to SAS workshop. Senior level undergraduates and graduate students in good standing will be accepted in the course with the instructor’s approval. First class meeting will cover course objectives, supplemental material available for study, grading and assignment of experiment to be conducted.

COURSE SCHEDULE

Spring Semester begins Jan 5, 2010 and ends April 21, 2010.

Spring break Begins March 8, 2010 and ends March 14, 2010.

Last Class Wednesday April 21, 2010

Final Exam scheduled April 24-30, 2010 Location TBA

Class room/field days

Lecture

Tuesday Jan 5, 2010

Charles Semer- Introduction & Background on Field plots

Thursday Jan ,7 2010

Charles Semer- Lab discussion and scheduling

Tuesday Jan 12, 2010

Charles Semer- Plot replication and field plot sizes & Principles of experimental design

Tuesday Jan 19, 2010

Charles Semer- Types of experimental designs & when an experimental design is used

Tuesday Jan 26, 2010

Charles Semer-Introduction to SAS and it use.

Tuesday Feb 2, 2010

Charles Semer-SAS continued

Tuesday Feb 9, 2010

Tom Obreza- Review of statistics associated with each plot design-

Tuesday Feb 16, 2010

P.Kuhn- What Does Industry expect from field plots

Mid-Term Exam -Tuesday Feb 23, 2010

Tuesday March 2 , 2010

Phil Harmon-Turf plots: What, Why, and How?

SPRING BREAK

Tuesday March 16, 2010

Gary Liebee-Insect plots in vegetables

Tuesday March 23, 2010

Paul Fisher- Greenhouse experiments

Tuesday March 30, 2010

Greg Macdonald-Weed plots in the field

Tuesday April 6, 2010

Fred Fishel- Small Plot Equipment Calibration and Pesticide Applications in test plots

Tuesday April 13, 2010

Review

Tuesday April 20 , 2010

Experiment Final report Presentation/ Course review

Final-TBA

TEXT: Agricultural Experimentation: Design and Analysis.
Thomas M. Little and F. Jackson Hills. 1978 John Wiley and Sons, Inc.
(available on Amazon.Com)

READING ASSIGNMENTS:

- Basic Concepts –Chapter 2 –Complete by January 12, 2010
- Analysis of Variance- Chapter 3 Complete by January 12, 2010-
- Data transformations- Chapter 12 Complete by January 12, 2010-
- Linear Correlation and Regression-Chapter 13 Complete by January 12, 2010-
- Means Separation- Chapter 6 Complete by January 12, 2010-
- Experimental Designs 1 Chapter 4- Complete by January 19, 2010
 - Completely Randomized design- Complete by January 19, 2010
- Experimental Designs 2- Chapter 5- Complete by January 19, 2010
 - Randomized Complete Block design- Complete by January 19, 2010
- Experimental Designs 3- Chapter 7- Complete by January 19, 2010
 - Latin Square
- Experimental designs 4- Chapters 8, 9, & 10 Complete by January 19, 2010-
 - Split Plot and Variations- Complete by January 19, 2010

ATTENDANCE / PARTICIPATION: Students are expected to participate in classroom and field activities and discussions. **Please notify the course instructor as soon as possible** if you will have to miss a class due to an emergency.

GRADING CRITERIA

The course grade will be determined from the level of class and Examination results and the Experiment final written report). The following is a percentage breakdown of how the final course grade is calculated:

<u>Activity</u>	<u>Percentage of grade</u>
Participation	10
Mid Term Exam	25
Final Exam	25
Experimental written report and field presentation	40
Total	100

Grading: 90 and above A; 85 to <90 B+; 80 to <85 B; 75 to <80 C+; 70 to <75 C

UF COUNSELING SERVICES: Resources are available on campus for students having personal problems or lacking clear career and academic goals which interfere with their academic performance. These resources include: 1.University Counseling Center, 301 Peabody Hall, 392-1575, personal and career counseling; 2. Student Mental Health, Student Health Center, 392-1171, personal counseling; 3. Sexual Assault Recovery Services (SARS), Student Health Care Center, 392-1161, sexual assault counseling; and 4) Career Resource Center, Reitz Union, 392-1601, career development assistance and counseling.

ACCOMMODATION: Students requesting classroom accommodation must first register with the Dean of Students Office (Students with Disabilities Office, Peabody 202 at 352-392-1261). The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation. Further information is available from the Disability Resource Center at <http://www.dso.ufl.edu/OSD/>.

SOFTWARE USE / COPYRIGHT: All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate.

ACADEMIC HONESTY: As a result of completing the registration form at the University of Florida, every student has signed the following statement: "I understand that the University of Florida expects its students to be honest in all their academic work. I agree to adhere to this commitment to academic honesty and understand that my failure to comply with this commitment may result in disciplinary action up to and including expulsion from the University." We agree to comply with the new Honor Code, which specifies that "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity."

University policy regarding "Academic Honesty" is available from the Dean of Students Office at: <http://www.dso.ufl.edu/judicial/academic.php>

Further information on academic honesty and integrity is available from the Graduate Student Handbook, p. 48, available online at:
<http://gradschool.rgp.ufl.edu/students/introduction.html>

The minimum consequence for cheating and/or plagiarism is getting a zero on the assignment and possibly failing this course. Exams and written assignments should represent your own work. If you are not sure what constitutes plagiarism, please refer to the webpages cited above and ask your instructor to clarify before beginning a project.

UF POLICY ON E-MAIL: "Official University business email will be communicated to students using the University GatorLink email account. That is, official email will be sent exclusively to GatorLinkUserName@ufl.edu. The preferred email address recorded for all students will be the GatorLink address. This is the email address displayed in the online phonebook. Students may continue to use the forwarding mechanism to deliver their email to other mail services, if they wish. However, it is the student's responsibility to insure that the forwarding address is current so that they receive official communications from the University."