

SOIL, PLANT AND WATER DIAGNOSTIC TESTING & INTERPRETATION

Course Number: SWS 6932 Sec 005F
Credit hrs: 2.0
Duration: 80 hrs.
Location: Wallace Bldg.
Class Schedule:
In-class Instruction: May 11- May 22, M-F- 1pm - 5pm
Assigned Project Work: May 26 onwards- at your own pace
Instructor: Dr. Rao Mylavarapu, raom@ufl.edu; 352-294-3113, G171 McCarty Hall A; Soil & Water Science Department

Course description:

The SOIL, PLANT AND WATER DIAGNOSTIC TESTING & INTERPRETATION course is a “hands-on” practicum with two weeks of intensive class-room teaching followed by project work and report to be completed at the student’s own pace by the end of Summer A.

All the soil properties, analysis, interpretation and application for sustainable agriculture and environment will be thoroughly discussed in this course to prepare students for successful careers in the private and public sectors in agriculture, natural resources and environment.

This course is hosted by the Nutrient Management Program at the IFAS Analytical Services Laboratories (ANSERV Labs) in the Soil & Water Science Department. A background in basic soil science and soil fertility is required.

Textbook: None

Course Schedule:

Each class session is 4 hr in duration

Class 1: Introduction to soils, plants and diagnostics and nutrient management; essentiality criteria for plant nutrients, input:yield relationships, soil physical and chemical properties, significance, management

Class 2: Soil physical properties- determination, management, applications

Class 3 and 4: Soil chemical properties, macro- and micronutrients - determination, forms and sources, management and applications

Class 5: Soils of Florida, characteristics and management; crop nutrient requirements, deficiencies, diagnostics, irrigation water quality, sample collections and procedures, interpretations

Class 6: Tour of the soil testing lab, submissions and forms, sample preparation, extractions and methods, instrumentations, QA/QC protocols

Class 7: Calculations of nutrients from various sources- organic and inorganic, nutrient budgeting and sourcing; nutrient management plans; water management and plant uptake

Class 8: Remote sensing techniques for soil nutrient diagnostics, data scaling and applications; water quantity and quality, parameters for diagnostics, nutrient impacts and management

Class 9: Land application of manures, composts and sludges; assessment tools- phosphorus index, nitrogen uptake efficiency and modeling, nutrient management plans and monitoring, sustainability; agronomic-environmental and urban-rural interface management

Class 10: Written Exam (50%)

Topics:

1. Introduction to Soil Testing and Nutrient Management
2. Soil physical and chemical properties
3. Basics of soil fertility
4. Soils of Florida and management
5. Crop nutrient requirement and nutrient deficiency symptoms
6. Soil, plant and water sampling, analytical procedures and remote sensing techniques
7. Interpretations and applications
8. Laboratory and field QA/ QC protocols and Instrumentation
9. Nutrient Management and Water Quality

Student Responsibilities and Expectations:

Class Attendance: Required. Students will be responsible for all material covered in lectures and all reading assignments.

Students are expected to be engaged each class by answering questions, providing input for discussions.

Readings will be assigned that will supplement class lecture and discussion material. Students are expected to read the materials. Discussions and some exam questions will come from the reading material.

Grading:

The following grading procedure will be used for the course:

- A 90 – 100%
- B 80 – 89%
- C 70 – 79%
- D 60 – 69%
- E < 60%

Academic Honesty

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: *“We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.”* You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: *“On my honor, I have neither given nor received unauthorized aid in doing this assignment.”*

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code>.

Software Use:

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.

Services for Students with Disabilities

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation

services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation

0001 Reid Hall, 352-392-8565, www.dso.ufl.edu/drc/

Campus Helping Resources

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- *University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, www.counseling.ufl.edu/cwc/*
 - Counseling Services
 - Groups and Workshops
 - Outreach and Consultation
 - Self-Help Library
 - Wellness Coaching
- *Career Resource Center, First Floor JWRU, 392-1601, www.crc.ufl.edu/*