Basic Soil Science
AGRN 2043/2044
Off Campus Syllabus

Credit Hours: 04
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Virtual Hours: 9-10 AM on Monday, Wednesday, and Friday

Pre-requisites: CHEM 1010 and CHEM 1011

Required Materials:


Course Material: Additional course material will be available on the course Web site in Blackboard.

Recommended Materials:


Additional Non-Essential Resources:


Course Overview:

This course is designed to provide students with knowledge about soil formation, classification, biophysical properties, management and conservation. It also deals with the relation of soil with air-water-plant continuum and soil degradation.
Course Description:

AGRN 2043/2044 is a 4-credit hour course composed of 4 modules of instruction. These modules will cover the topics listed in the Course Topics Section of this syllabus. This course also consists of a Lab that will ask students to perform various experiments of soil science. In this course the students will learn about soil formation, classification, biophysical properties, management and conservation. It also deals with relation of soil to plant growth and soil degradation. Each student will be required to complete a series of assignments, quizzes, three examinations and a final examination.

Course Objectives:

- Introduce fundamental concepts of soil science disciplines
- Discuss basic soil physical and chemical properties, and soil taxonomy
- Discuss soil water, gas, temperature and their movements
- Discuss major chemical reactions in the soil
- Discuss soil as a medium for plant growth, microbial activity and nutrient cycle
- Discuss major soil degradation and pollution problems
- Introduce application of geographic information system and remote sensing to soil science

Course Content:

There are 17 topics spread across four units including three open book exams and a proctored final examination. You are expected to read the assigned textbook readings, lecture outlines, watch lecture presentations in the form of Microsoft PowerPoint, take self-quizzes, work on and watch videos of laboratory demonstrations. More information is given about these activities in the Course Requirements section in this document. The proctored final examination is taken under the supervision of an approved proctor. The Distance Learning & Outreach Technology (DLot) office of Auburn University verifies the proctors for the examinations. More information about the proctors is given in the Examination Process section in this document.

A variety of media provided by Blackboard are used for communication among class members and the instructor. These are online submission of assignments, email, and discussion board.

Course Topics:

I. Soil Genesis and Components
   a. Soil Basics (2 hours)
   b. Soil Genesis (2 hours)
   c. Soil Classification (2 hours)
   d. Soil Structure and Physical Properties (2 hours)
II. Soil Physico-Chemical Properties
   a. Soil Water (2 hours)
   b. Soil and Water Cycle (2 hours)
   c. Soil Aeration and Temperature (1.5 hours)
   d. Soil Colloids (2 hours)
   e. Soil Acidity (2 hours)
   f. Soil Alkalinity, Salinity and Sodicity (1.5 hours)
   g. Soil Organisms (2 hours)

III. Soil Biology and Fertility
   a. Soil Organic Matter (2 hours)
   b. Nitrogen, Sulfur, Potassium, and Phosphorus (4 hours)
   c. Micronutrients and Practical Nutrient Management (3 hours)

IV. Soil Erosion and Geographic Information
   a. Geographic Soils Information (2 hours)
   b. Soil Erosion and Degradation (2 hours)

Course Laboratory Sessions

   1. Soil Parent Materials (2 hours)
   2. Soil Survey and Soils of Alabama (2 hours)
   3. Soil Physical Properties (2 hours)
   4. Soil Water (2 hours)
   5. Soil Colloids (2 hours)
   6. Soil Acidity (2 hours)
   7. Soil Organisms and Respiration I (2 hours)
   8. Soil Organisms and Respiration II (2 hours)
   9. Fertilizers and Liming Materials (2 hours)
  10. A Field Study of Soils (2 hours)
  11. Soil Testing (2 hours)

Study Suggestion:

Students approach independent study courses and distance learning courses in a variety of ways and probably no one approach works best for everyone. I suggest that you begin by reading through the textbook assignment first and then the entire interactive lesson/lecture material with emphasis on the lesson objectives. Reading through the lesson material will “sensitize” you to the important points and will help you to retain the material more readily. You may find it useful to make notes on the lecture material. I believe that taking notes helps in the retention.

As with many other science courses, Soil Science contains a lot of new vocabularies. It is necessary that you learn the meaning of any new word before you can understand the material. Taking distance learning and independent study courses require special
discipline. To be successful, you must be organized and consistent in your study habits. I suggest that you schedule definite times to work on the course and adhere to that schedule. I also recommend that you complete each week’s work as per the course schedule.

Course Requirements:

Lectures:

The “lecture” materials for the lessons are available through the course Web site in Blackboard. These materials will require Flash Player to view. If you do not have Flash Player, it can be downloaded for free by visiting Adobe’s Web site (www.adobe.com).

Class Participation:

Class participation is essential to the success of this course. Therefore, class discussions are required. Class discussions will be conducted through the discussions forum on Blackboard. Each student is expected to participate in class discussions throughout the week. Discussions will be graded based upon the quantity and quality of the discussions posted as determined by the instructor.

Problem Sets:

There will be three problem sets to be completed throughout the semester. Each of these problem sets will be available on the course Web site in Blackboard. The assignments will also be submitted through Blackboard.

Quizzes:

There will be 10 quizzes throughout the semester. These quizzes are available on the course Web site in Blackboard. Each quiz is timed and may only be taken one time. Each quiz is open-book and open-note.

Lab:

Exercises will cover a number of topics related to the lectures. Videos of field exercises will provide an opportunity to experience a “hands-on” application of principles relating to subjects such as soil parent materials, soil physical properties, soil organisms, and soil testing. Lab quizzes will be given before the lab is released to insure understanding of the lab procedures as stated in the lab manual. The quizzes and homework / lab assignments will be worth 50% of the total lab grade.
Final Grades will be based on the following rubric:

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<tr>
<th>Component</th>
<th>Points</th>
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<tr>
<td>Test 1</td>
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<td>Test 2</td>
<td>100 pts</td>
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<tr>
<td>Test 3</td>
<td>100 pts</td>
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<tr>
<td>Final Exam</td>
<td>350 pts</td>
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<tr>
<td>Problem Sets</td>
<td>60 pts</td>
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<tr>
<td>Online Quizzes</td>
<td>100 pts</td>
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<tr>
<td>Labs</td>
<td>150 pts</td>
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<tr>
<td>Participation</td>
<td>40 pts</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1000 pts</strong></td>
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The following criteria are used in assessing the letter grades:

A: Shows that the work is superior and exemplary. You have demonstrated that you have mastered the material and have successfully conveyed your mastery in your responses.

B: Shows that the work is good. You have demonstrated that you have a good understanding of the material and can apply that understanding.

C: Shows that you have responded satisfactorily. A response that meets the basic requirements will receive a C grade.

D: Shows that you have responded unsatisfactorily.

F: You have failed to respond correctly.

Equipment and Technical Skills:

The following are necessary for this course:

- A computer with an Internet connection (high speed Internet is recommended)
- Knowledge of basic computer skills and experience using email and the internet

Class Parameters, Resources and Limitations:

You are expected to stay on track, especially since the examinations will be focused on each unit’s topics. This type of course allows quite a bit of freedom, for instance, in determining at what time of day and where you do your coursework. It does, however, entail quite a bit of self-discipline and determination in order to keep up with the assignments. There are grade penalties for late work.

Attendance Policy
1. Students are expected to review all lectures and laboratory sessions.
2. Failure to complete assignments or to take exams at designated times without an acceptable excuse will result in a zero for that assignment or exam.
3. Illness may be discussed with the instructor and prior permission received. Excuses for the following reasons should be discussed prior to submission:
   a. Illness of the student or serious illness of a member of the student’s immediate family.
   b. Death of a member of the student’s immediate family.
   c. Subpoena for court appearance.
   d. Participation in intercollegiate athletic events (verified by letter from professor, Dean or Athletic Department official).
   e. Religious holidays.
   f. Other reasons the instructor deems appropriate, e.g. job interview.

Late Submissions:

As a distance education learner, it is your responsibility to share a significant responsibility for preparing and discussing course material. If a serious situation arises and you anticipate that you will not be able to meet a deadline, it should be discussed with the instructor, before the due date. If the instructor is contacted, regarding the problem at least several days before the due date, and judges it to warrant special consideration (usually due to illness or injury) the instructor and you will negotiate an alternate due date. If the instructor has not been contacted and special consideration has not been granted, all material turned in after the due date will be penalized 10% of total possible points for each day late on the written assignments and discussion questions. Late exams will be penalized 5 points a day for each day late.

Make-up Examinations:

Make-up exams will only be given with a valid university excuse. This means a Doctor’s statement or other documentation must be provided. You are responsible for informing the instructor prior to missing an examination or no later than one week after the examination’s official date with an official excuse. The student must initiate arrangements to take the make-up immediately after returning to the class. A Make-up must occur within 1 week from the time that the student initiates arrangements for it or the student will receive a zero grade. Exam make-ups (either given before or after the regularly scheduled exam) are essay question exams designed to cover the material.

Learners with Disabilities:

Auburn University is committed to providing accommodations and services to learners with documented disabilities. Any learner with a qualified disability which requires accommodations should contact The Program for Learners with Disabilities, 1244 Haley Center, Auburn University, AL 36849, 334-844-2096.
PH, 334-844-2099 FAX, haynemd@auburn.edu. More information is available on their website at www.auburn.edu/disability. The office will fax or mail the required forms to learners to apply for services. Learners who have questions to participate in this course should contact the above office in advance to ensure proper accommodations.

References

Additional resources supporting course topics (those not made available by the required text) will be provided to each student or be available in the Auburn University Library or in Blackboard. The list of references is made available in the course website on Blackboard.

The Auburn University Oath of Honor

“In Accordance with those virtues of Honesty and Truthfulness set forth in the Auburn Creed, I, as a student and fellow member of the Auburn Family, do hereby pledge that all work is my own, achieved through personal merit and without any unauthorized aid. In the promotion of integrity, and for the betterment of Auburn, I give honor to this, my oath and obligation.”

Plagiarism and Academic Dishonesty:

Plagiarism is the act of presenting directly or indirectly someone else’s work as your own. Plagiarism is a major type of academic dishonesty and will not be tolerated. Similarly cheating on tests in any way, falsifying bibliographies, fraudulent quotes, and similar practices are intolerable forms of academic dishonesty. The University’s policy for academic misconduct in the Learner Code of Conduct will be followed for this course (see the Tiger Cub). If any questions regarding its contents, the learners are expected to contact the instructor.

You are expected to sign a plagiarism creed online in your course on Blackboard.