Basic Crop Science
AGRN 1003/1004
Off Campus Syllabus

Credit Hours: **04**
Instructor: **Dr. David Weaver**
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Virtual Hours: 1-2 PM on Monday, Tuesday, Thursday, and Friday

**Pre-requisites:** None

**Required Materials:**


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

- **Lab Manual:** Available on Blackboard. Lab Manual is required.

**Course Overview:**

This course is designed to provide students with knowledge about crop plants; those plants that provide our food, fiber, shelter, and fuel. Their historical and botanical origins, growth and development, management, and processing and utilization are discussed in detail. It also deals with the relationships between the environment and crop production.

**Course Description:**

AGRN 1003-1004 is a 4-credit hour course composed of 19 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 in relation to crop science. In this course the students will learn about crop origins, the history of crop production, how crop plants grow, their morphological and anatomical features, management techniques, and how crops are harvested and utilized. It also deals with relationships between crops and the environment, and how each is affected. Each student will be required to complete a series of assignments, quizzes, three examinations and a final examination.

**Course Objectives:**
• Understand how and why crops grow
• Understand why crops are important
• Understand how crops affect the environment
• Understand how the environment affects crops
• Learn simple agronomic calculations
• Learn the historical and future aspects of crop production

Course Content:

There are 19 topics spread across four units including three closed-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. History of Agriculture and Importance in Today’s World
   a. Definition of a Crop
   b. Pre-agricultural Procurement of Food
   c. Origins of Agriculture
   d. Agricultural Revolution and its Consequences

II. Human Population Dynamics
    a. History
    b. Malthusian Concept
    c. World Population Growth

III. Resources Available for Crop Production
    a. Land Use and Classification
    b. Land Resources

IV. Classification and Structure of Higher Plants
    a. Agronomic and Use Classifications
    b. Taxonomic Classifications
    c. Morphology
d. Anatomy

V. Plant Growth and Metabolism
   a. Photosynthesis
   b. Respiration
   c. Transpiration
   d. Translocation
   e. Light and Temperature Effects on Crop Growth

VI. Soils
   a. Definition
   b. Composition
   c. Formation
   d. Properties
   e. Profile

VII. Rainfall

VIII. Water
   a. Properties
   b. Functions in Plant Growth
   c. Biological Importance of Water Stress
   d. Water Use Efficiency
   e. Management Practices to Increase Water Use Efficiency

IX. Mineral Nutrition and Fertilizers
   a. Essential Elements and Their Discovery
   b. Functions of Essential Elements in the Plant
   c. Composition and Formulation of Fertilizers

X. Tillage and Cropping Systems
   a. Purposes of Tillage
   b. Tillage Methods
   c. Cropping Systems

XI. Pests and Their Control
   a. Weeds
   b. Diseases
   c. Insects

XII. Plant Breeding
   a. Goals
   b. Methods

XIII. Evaluation of Agricultural Products and Practices
XIV. Corn and Sorghum
   a. Origin and Botany
   b. Production
   c. Harvest
   d. Utilization

XV. Peanut
   a. Origin and Botany
   b. Production
   c. Harvest
   d. Utilization

XVI. Cotton
   a. Origin and Botany
   b. Production
   c. Harvest
   d. Utilization

XVII. Soybean
   a. Origin and Botany
   b. Production
   c. Harvest
   d. Utilization

XVIII. Wheat and Small Grains
   a. Origin and Botany
   b. Production
   c. Harvest
   d. Utilization

XIX. Forages
   a. Types
   b. Quality
   c. Production
   d. Utilization

Course Laboratory Sessions:

1. Introduction to Laboratory
2. Crop Terminology and Classification
3. Lab Report Preparation
4. Crop Nutrition
5. Crop Seeds and Germination
6. Crop Vegetative Characteristics
7. Crop Growth
8. Crop Flowers and Fruits
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, Crop 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. During the semester, 11 discussion questions will be posed and a minimum of one response will be required of each student. Answers to ten of the questions will earn up to 5 points each toward the class participation score, depending on the quality of the answers.

Problem Sets:

There will be three problem sets and two worksheets (both connected to laboratory topics) to be completed throughout the semester. Each of these
problem sets will be available on the course Web site in Blackboard and in the
textbook. 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 laboratory lectures and field exercises will provide an opportunity to experience a “hands-on” application of principles relating to subjects such as seed germination and emergence, plant nutrition, plant growth, and pesticide application and equipment calibration. Lab quizzes will be given before the lab is released to insure understanding of the lab procedures as stated in the lab manual. Some laboratories will involve experiments, and will require the submission of a laboratory report at the end of the experiment. A laboratory examination will be given at mid-term and during the final lab period and will cover material presented in laboratory. Together, the quizzes, homework, lab reports, and examinations will be worth 250 points out of a possible 800 points for the total course grade.

**Exams:**

The three exams will be available in Blackboard. These are timed exams and they are open book examinations. The final examination is a proctored, closed book examination. More information on the final examination is located below.

**Final Examination:**

The proctored final examination is at the end of course and will be available in the course website on Blackboard. This examination gives you an opportunity to assess your assimilation of the learning objectives of the course. The examination will include material from the assigned text book readings, lecture outline, quizzes, lecture presentations and laboratory assignments. It will consist of multiple-choice questions. This is NOT an open book examination. More information about the proctors is given in the Examination Process section in this document.

**Examination Process:**

After the first session, you must select a proctor to supervise the final examination. Examples of approved proctors are academic administrators in
the learner’s locale: school superintendents or principals, academic deans or department heads at colleges, or an independent learning office test supervisor at another college, or an education officer at a military installation. All proposed proctors are verified for appropriateness by Distance Learning and Outreach Technology (DLOT) student services staff at 334-844-3106 or audl@auburn.edu. At the time of the final examination, the proctor and the student fill out the Examination Information Verification form. This form along with any written material is mailed in a confidential self-addressed sealed envelope to DLOT office.

**Grading and Final Examination:**

The grade for this course will be based upon four timed exams during the semester (including the final), graded problem sets, quizzes, lab reports, lab quizzes and exams, and class participation. Grades on all quizzes, laboratory reports, homework and exams are determined by the following scale:

- 90-100% = A (Superior)
- 80-89%  = B (Good)
- 70-79%  = C (Acceptable)
- 60-69%  = D (Passing, but unsatisfactory)
- Below 60% = F (Failure)

Final Grades will be based on the following rubric:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 exams during semester @ 100 pts</td>
<td>300 pts</td>
</tr>
<tr>
<td>10 lecture quizzes @10 pts</td>
<td>100 pts</td>
</tr>
<tr>
<td>1 final exam @ 100 pts</td>
<td>100 pts</td>
</tr>
<tr>
<td>Class Participation</td>
<td>50 pts</td>
</tr>
<tr>
<td>Lab grade</td>
<td>200 pts</td>
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<tr>
<td>Lab Homework (5 @ 4 pts)</td>
<td>20 pts</td>
</tr>
<tr>
<td>Experiment 1 Report</td>
<td>20 pts</td>
</tr>
<tr>
<td>Experiment 2 Report</td>
<td>20 pts</td>
</tr>
<tr>
<td>Experiment 3 Report</td>
<td>20 pts</td>
</tr>
<tr>
<td>Crop Seed ID Exam</td>
<td>20 pts</td>
</tr>
<tr>
<td>Weed ID Exam</td>
<td>20 pts</td>
</tr>
<tr>
<td>Midterm Lab Exam</td>
<td>25 pts</td>
</tr>
<tr>
<td>Final Lab Exam</td>
<td>25 pts</td>
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<tr>
<td>Lab entrance Quizzes (6 @ 5 pts)</td>
<td>30 pts</td>
</tr>
<tr>
<td>Total Lab Points</td>
<td>200 pts</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>750 pts</strong></td>
</tr>
</tbody>
</table>

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, scw0005@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.