

CROP SCIENCE – DUAL CREDIT/ONLINE FALL 2025

Nebraska College of Technical Agriculture

Course Number: AGR 1103

Credit Hours: 3

Instructor: Dr. Brad Ramsdale

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PROGRAM (DEGREE) OUTCOME SUPPORT

AGR 1103 Crop Science is an elective course that supports the Technical Competence learning outcomes in the Agricultural Production Systems degrees and certificates. Specifically, the outcome of applying economically sound and environmentally sustainable agricultural crop production practices in the Great Plains.

COURSE DESCRIPTION:

Students will develop a global understanding of the food, feed, and fiber system. An overview of major and minor crops produced in the Great Plains will be provided. Basic principles and technologies used for crop management. Strategies to develop crop varieties and hybrids.

COURSE PURPOSE

Crop Science is an elective agronomy course for NCTA and other institutions.

CANVAS RESOURCES AND LECTURE NOTES

All resources needed for this course are provided on the Canvas Learning Management System page for the course. Lecture PowerPoints with Voiceovers will be posted. Course notes will also be posted on Canvas. These will include a general outline of material presented in lecture as well as pertinent tables, graphs, and illustrations. Students should have these printed out prior to the lecture in which they will be utilized. Assignments, study questions, and other resources are also provided.

STUDENT LEARNING OUTCOMES

1. Students will recognize crop classification terminology and will be able to identify major crops that meet our food, feed and fiber needs.
2. Students will develop a working knowledge of characteristics of major and minor crops produced in Nebraska and the Midwest.
3. Students will differentiate how crop rotations, tillage practices and utilization of cover crops influence yields, profitability, and sustainability of crop production.
4. Students will be able to analyze differences between subsistence, conventional and organic crop production practices.
5. Students will be able to interpret major seed laws and methods of variety development.
6. Students will be able to calculate seeding rates and quantify plant populations.

LECTURE OUTLINE

1. Overview of crop production
 - i. importance of agriculture
 - ii. food and nutritional requirements and crop supply
 - iii. overview of crop production in the U.S. and the world
2. Crop terminology and classification
 - i. agronomic classifications
 - ii. specialty and miscellaneous classifications
3. Overview of cereal grain crops
 - i. corn
 - ii. wheat and other small grain crops
 - iii. sorghum crops
4. Overview of oilseed crops
 - i. soybean
 - ii. others: sunflower, canola, safflower
5. Overview of major forage crops
 - i. alfalfa
 - ii. millets, sudangrass and sorghum-sudangrass hybrids
6. Overview of alternative crops
 - i. sugarbeets
 - ii. dry edible beans
 - iii. proso millet
7. Cropping systems
 - i. Tillage practices
 - ii. Crop rotations and cover crops
8. Seeds and Planting
 - i. Variety Development and Seed Laws
 - ii. Seeding and Planting Calculations
9. Crop Production and Marketing Strategies
 - i. Subsistence, Conventional and Organic Methods
 - ii. Farmer's Markets and CSA's
10. Major Developments in Crop Production
 - i. Technology advances
 - ii. Government Programs and Conservation

ASSESSMENT

Academic assessment is the process for *ongoing improvement of student learning and success*.

The assessment program at NCTA has four specific interrelated purposes:

1. To improve student learning
2. To improve teaching strategies
3. To document successes and identify opportunities for improvement
4. To provide evidence for institutional effectiveness

Criteria for Assessment:

| | |
|--------------|-----|
| Exams: | 55% |
| Final Exam: | 15% |
| Assignments: | 30% |

Exams

A full schedule of topics and exams is provided on the last page of this syllabus. The topics from the lecture outline are divided into 6 exam sections. Exams will be emailed to the facilitator/instructor at your school and they will administer the exam.

Examinations will consist of a combination of fill in the blank, short answer essay, matching, and multiple choice questions. The Final Exam will be comprehensive.

Assignments

There are five major assignments for students to complete for this course. Due dates are listed below. Full descriptions of these assignments are provided on Canvas. Attach completed assignments to an email. bramsdale2@unl.edu

General Assignment Schedule

| | |
|--|----------------------------|
| Assignment 1 – Alternative Crops | due prior to taking Exam 2 |
| Assignment 2 – Alternative Uses of Major Crops | due prior to taking Exam 3 |
| Assignment 3 – Crop Processing Facilities | due prior to taking Exam 4 |
| Assignment 4 – Youtube Equipment Investigation | due prior to taking Exam 5 |
| Assignment 5 – Seeding and Planting Calculations | due prior to taking Exam 6 |

Grading Scale: the college maintains a uniform grading scale which is provided below.

| <i>Letter</i> | <i>Range</i> | <i>Points</i> | <i>Letter</i> | <i>Range</i> | <i>Points</i> |
|----------------------|----------------------|----------------------|----------------------|---------------------|----------------------|
| A+ | 100.0 – 100.0 | 4.00 | C+ | 73.3 – 76.3 | 2.33 |
| A | 90.0 – 99.9 | 4.00 | C | 70.0 – 73.3 | 2.00 |
| A- | 86.7 – 90.0 | 3.67 | C- | 66.7 – 70.0 | 1.67 |
| B+ | 83.3 – 86.7 | 3.33 | D+ | 63.3 – 66.7 | 1.33 |
| B | 80.0 – 83.3 | 3.00 | D | 60.0 – 63.3 | 1.00 |
| B- | 76.3 – 80.0 | 2.67 | F | 00.0 – 60.0 | 0.00 |

ACADEMIC DISHONESTY POLICY

Plagiarism on assignments will not be tolerated. A copy of NCTA's plagiarism policy is included on the Canvas LMS site for the course. The policy includes descriptions of what qualifies as plagiarisms. Assignments that are plagiarized will be assigned a score of 0. A failure for the course will result after the second documented plagiarism offense.

IDENTITY VERIFICATION

All courses offered through an online format must document identification of the student completing the course. Only registered students are granted access to the course utilizing the MyNCTA username and password. Student identity during exams is determined through the use of an exam proctor.

COMMUNICATION

The instructor will be maintaining weekly communication with the student to ensure students are progressing properly. Unless extenuating circumstances occur, all emails will be responded to within 24 hours. Exams and assignments will be graded and posted on Canvas within 72 hours.

TECHNOLOGY REQUIREMENTS/ACCESSIBILITY

The course content that students will be utilizing on the Canvas Learning Management System will function best utilizing a desktop or laptop computer. Some files are not fully compatible with iPad systems. Students will need to be able to view the following file types:

- Adobe PDF
- Microsoft Word
- Adobe Flash

Students also need to have an email account as this will be the primary tool for communication in the course. The ability to attach completed assignments to emails is also necessary.

DISABILITY

Students with disabilities are encouraged to contact Kevin Martin, ADA/504 Compliance Officer, 308-367-5217, Education Center Room 113E, for a confidential discussion of their individual needs for academic accommodation. It is the policy of the Nebraska College of Technical Agriculture to provide individualized accommodations to students with documented disabilities that may affect their ability to fully participate in course activities or to meet course requirements.

TITLE IX

Title IX is a Federal civil rights law that prohibits discrimination on the basis of sex or gender in all programs and activities. The Nebraska College of Technical Agriculture will not discriminate on grounds of race, color, sex, national origin, or any other factor prohibited by law in providing any educational or other benefits or services. For more information or to report a Title IX incident, please contact Jennifer McConville, Title IX Coordinator, 308-367-5259, Ag Hall 25.

Crop Science Schedule

Exams must be taken within 1 week of the scheduled date. With my approval, students may take the exam earlier if working ahead.

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| Module 1 |
| • Crop Importance, Nutrition and U.S. Production Overview |
| • Crop Classifications |
| • Exam 1 – September 11 |
| Module 2 |
| • Corn Overview |
| • Soybean Overview |
| • Exam 2 – September 30 (Assignment 1) |
| Module 3 |
| • Wheat and Other Small Grains |
| • Sorghum Crops |
| • Millet Crops |
| • Exam 3 – October 16 (Assignment 2) |
| Module 4 |
| • Sunflower and Other Oilseed Crops |
| • Alfalfa |
| • Dry Beans and Field Peas |
| • Sugarbeet |
| • Exam 4 – November 4 (Assignment 3) |
| Module 5 |
| • Cover Crops |
| • Crop Management and Crop Rotations |
| • No-till Systems |
| • Strip-till Systems |
| • Exam 5 – November 20 (Assignment 4) |
| Module 6 |
| • Plant Population and Seeding Rate Calculations |
| • Crop Variety Development and Seed Laws |
| • Types of Agriculture |
| • Top 10 Ag Developments |
| • Exam 6 – December 9 (Assignment 5) |
| Comprehensive Final Exam – December 16 |

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| | |
|--|----------------------------|
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| Assignment 3 – Crop Processing Facilities | due prior to taking Exam 4 |
| Assignment 4 – Youtube Equipment Investigation | due prior to taking Exam 5 |
| Assignment 5 – Seeding and Planting Calculations | due prior to taking Exam 6 |