

CASNR Core College General Education Requirements (those separate or related to ACE)
EFFECTIVE 2026-2027 CATALOG YEARS

Hours
3

College Integrative Course and ACE 8

[SCIL 101](#) Science and Decision-Making for a Complex World

Mathematics and Statistics (beyond college algebra) (ACE 3)

5-6

Students need to understand mathematics and statistics because these skills are essential for collecting and analyzing data, making informed decisions, and solving real-world problems. Advanced math and statistics help students collect, analyze and interpret research findings, optimize resource management, and improve efficiency in food, energy, water, health, environmental, and societal systems.

Key applications include:

- **Statistical analysis** (evaluating experimental data, interpreting research results)
- **Economics and business applications** (budgeting, risk assessment, market analysis)
- **Precision agriculture** (using data to improve crop yield and resource efficiency)
- **Genetics and breeding** (predicting outcomes in plant and animal breeding programs)
- **Environmental modeling** (assessing climate impacts, tracking ecological changes)

A strong foundation in these areas equips students with the analytical skills needed to excel in research, industry, and policy-making.

Select from: [MATH 102](#), [MATH 103](#), [MATH 104](#), [MATH 106](#), [MATH 203](#), and [STAT 218](#).

NOTE: Proficiency at the college algebra level must be demonstrated either by a placement exam or through course work. If [MATH 103](#) is taken, only 3 credit hours can be counted toward this requirement.

Communications

6

Written Communication (ACE 1)

3

Students should develop their written communication skills for conveying scientific research and communicating with diverse audiences, including other professionals, producers, policymakers, and the general public. Strong writing skills enhance professionalism, improve career prospects, and ensure accurate information dissemination in the field.

Types of writing students should perform include:

- **Scientific reports** (e.g., lab reports, research papers)
- **Grant proposals** (for funding research and projects)
- **Technical documents** (such as manuals or protocols)
- **Policy briefs** (to inform decision-makers on agricultural or environmental issues)
- **Extension publications** (to educate producers and the public)
- **Business communication** (emails, resumes, and reports for agribusiness)

Select from: [ALEC 120](#); [ENGL 150](#), [ENGL 151](#), [ENGL 254](#)

Communication and Interpersonal Skills electives (ACE 2)

Students need strong oral communication and interpersonal skills to effectively collaborate with peers, engage with industry professionals, and educate diverse audiences. Whether working in research, agribusiness, natural resource management, or extension services, the ability to clearly present ideas, listen actively, and adapt communication to different groups is essential for professional success.

Types of communication students may be required to perform include:

- **Presentations** (research findings, project proposals, extension talks)
- **Interviews** (for internships, jobs, or media interactions)
- **Networking and collaboration** (building relationships with professionals and stakeholders)
- **Public speaking** (advocating for agricultural policies or educating communities)
- **Team discussions** (working with colleagues in labs, fieldwork, or business settings)
- **Conflict resolution** (managing disputes in workplace or industry settings)

Select from: [ALEC 102](#); [COMM 101](#), [COMM 210](#), [COMM 215](#), [COMM 209](#), [COMM 283](#),
[COMM 286](#), [COMM 311](#); [MRKT 257](#); [NRES 301](#); [TMFD 121](#)

Natural Sciences (ACE 4)

7-9

Natural sciences are sciences that study the natural world through observation and measurement. CASNR has identified four categories of natural sciences relevant to programs offered by the college.

1. Chemistry focuses on what constitutes matter at the atomic and molecular levels, and reactions involving matter.
2. Physics examines the natural laws governing the behavior of matter and energy at multiple scales.
3. Life sciences involve the study of living systems at scales ranging from sub-cellular to organism.
4. Earth sciences are the study of Earth structure, properties, and processes that relate to the cycling of matter and flow of energy through Earth systems.

For a course to be considered as meeting the natural sciences requirement, they must fit one of the four categories above, be ACE 4 certified, and the syllabus and course materials should demonstrate the explicit use of the scientific method and processes to study the natural world. These courses are intended to be foundational science courses for students to build upon. A course that has substantial emphasis on human-driven impacts on the natural world (e.g., social, economic, cultural) would not be considered a natural sciences course. **CASNR requires all students to complete at least two natural science courses for 7-9 hours.** Both courses cannot be from the same category. A laboratory is required for life science and chemistry.

Select two from the following four areas/courses:

CASNR Approved Life Sciences (must include laboratory)

4

Select one from:

[PLAS 131](#) Plant Science & [PLAS 132](#) & Agronomic Plant Science Lab **or** [PLAS 133](#)
Horticultural Plant Science Lab **or** [PLAS 134](#) Plant Sciences Laboratory or
[PLAS 135](#) Experiments in Plant Science (4 cr)
[BIOS 101](#) & [BIOS 101L](#) General Biology & Lab (4 cr)
[ENTO 115](#) Insect Biology & [ENTO 116](#) Insect Identification (4 cr)
[LIFE 120](#) & [LIFE 120L](#) Fundamentals of Biology I and Lab (4 cr)
[ASCI 120](#) Animal Biology (4 cr)

Chemistry (must include laboratory)

4

Select one from:

[CHEM 105A](#) & [CHEM 105L](#) Chemistry in Context I and Lab
[CHEM 109A](#) & [CHEM 109L](#) General Chemistry I and Lab

Physics

4-5

Select one from:

[AGST 109](#) Physical Principles in Agriculture and Life Sciences (4 cr)
[PHYS 141](#) Elementary General Physics (5 cr)
[PHYS 151](#) Elements of Physics (4 cr)
[PHYS 211](#) General Physics (4 cr)

Earth Sciences

3-4

Select one from:

[ENSC 220](#) Energy Systems and Sustainability (3 cr)
[GEOG 155](#) Elements of Physical Geography (4 cr)
[GEOL 101](#) Dynamic Earth (4 cr)
[GEOL 109](#) Oceanography (3 cr)
[METR 100](#) Weather and Climate (4 cr)
[METR 180](#) Climate Change, Energy, and the Environment (3cr)
[NRES 115](#) Introduction to Environmental Science (4 cr)

ACE Courses

Select one course each from ACE outcomes 5, 6, 7 and 9.

12

Capstone Course (ACE 10)

3

Total CASNR Core Requirements

36-39

Degree Program Requirements and Electives

81-84

Minimum Credit Hours Required for Graduation

120