

## Science and Decision-making for a Complex World (SCIL 101) Syllabus

**Lead Instructor:** Jenny Dauer

**Instructors:** Dennis Ferraro, Cory Forbes, Thomas Powers, Elizabeth VanWormer, Brandi Sigmon

\*Office location, contact information and office hours will be included in the syllabus, but vary by instructor and semester

**About the Course:** Introduction to the scientific, social, economic, political, cultural and ethical dimensions of current issues related to food, energy, water and landscape systems. Students will work with their peers to access and evaluate popular and scientific media, and engage in science-informed decision-making.

Science and Decision-making for a Complex World meets **ACE Student Learning Outcome 8: Explain ethical principles, civics, and stewardship, and their importance to society.** In this course, students will practice structured decision-making about relevant topics, using 1) scientific information and 2) values related to ethics, culture or economics to support an argument about a solution to these issues.

**Course Topics:** Each semester, salient topics will be chosen by the instructor team which illustrate challenges in the region related to different facets of agriculture and natural resources and provide an opportunity for students to problem solve in a domain that involves science of the environment and of agriculture, economics, politics/culture, and ethics. These topics may change in the future. For example:

- Water is a finite resource, should we limit certain uses of water in the state?
- We need a sustainable transportation fuel, is corn ethanol the best option?
- Nebraska is losing native habitats; should we conserve species like the prairie dog, which is seen as both a threatened keystone-species and an agricultural pest?
- What should we do to alleviate food insecurity in Nebraska and in the U.S.?

### **Course Objectives:**

Upon successful completion of the course, student should have the ability to:

1. Distinguish between (a) scientific information and (b) values, ethics, culture, economics, or politics, and use both to support position about what should be done about complex socioscientific issues using proficient written and oral communication skills.
2. Explain and evaluate complex socioscientific issues in Nebraska using “systems-thinking” that includes an understanding of science, economics, politics/culture and ethics using proficient written and oral communication skills.
3. Access and identify scientific information in popular media and peer-reviewed science media that is relevant to a socioscientific issue, and understand the implications of the scientific information for decision-making. Including:

- Making judgments on credibility based on professional reputation, publication venue, institutional affiliation, and potential conflicts of interest,
  - Understanding the creation of scientific information including the peer-review process, research funding and publication, and perspectives of research organizations,
  - Identify and evaluate claims and evidence in popular media articles
4. Engage in teamwork and problem-solving with peers to use consensus values and scientific information to make a case for the best solution to an important and complex socioscientific problem and defend the position during a final poster session.

### **Course Activities:**

The course will involve a variety of methods and activities including, group discussions, clicker questions, reading, lecture, guest speakers and individual and team research. Students will be organized into small groups at the beginning of the semester to build community and stimulate peer-to-peer learning. The same student groups will work together on a final project. Each lecture will have associated recitation sections that are lead by a Learning Assistant. The recitation will include smaller group discussions, learning activities, critical feedback on assignments and development of the final project.

### **Assessment Plan:**

Students will be evaluated on the basis of the quality of their:

In-class activities and homework	20%
Unit Assessments	30%
Quizzes	10%
Final project	30%
Final exam	10%

#### **In-Class Activities and Homework**

In-class activities consist of responding to clicker questions or turning in a sheet of paper with a written response to in-class discussion. In-class points may also be associated with assigned reading for homework and comprehension questions to prepare for that day's lecture.

#### **Unit Assessments**

During each of the Units in the class there will be a written assignment asking you to evaluate media and scientific journal articles as well as work through a decision-making model for problem-solving about an issue. These assignments are central to demonstrating your critical thinking about the issues in the class.

#### **Quizzes and Final Exam**

Quizzes and the Final Exam will likely be a mixture of multiple-choice and free response questions. They are test of comprehension of science content covered in the class. Quizzes will be approximately 15-20 minutes. The Final exam will be comprehensive covering both the skills and science content knowledge gained in the course. Quizzes and the Final Exam will take place on the day scheduled without exception. The final exam will take place on \_\_\_\_ at \_\_\_\_ in 107 Hardin Hall and there will be no option for taking the final earlier unless you have 3 finals

scheduled for the day of the exam.

### Final Project

You will work with your assigned group for the final project. Your group will pick a big question related to a problem about food, energy, water and landscape systems, gather scientific information about the issue, work through a decision-making process to determine possible solutions to the problem, and create a poster that demonstrates your research and thinking. There are a series of assignments due during the last four weeks of class that will help you do your research and prepare for the final poster session. You will display your poster during a public poster session the last week of class. The points for the project include 30 individual points and 60 group points.

Letter grades will be assigned based on straight percentages of 100 - 90% A range, 89 - 80% B ranges, etc.

### SCALE

100 – 98 A+	89 - 87 B+	79 - 77 C+	69 – 67 D+	Below 59 F
97 – 94 A	86 - 83 B	76 - 73 C	66 – 63 D	
93 – 90 A-	82 - 80 B-	70 - 72 C-	62 – 60 D-	

**Required Material/Textbooks:** None

**Prerequisites:** None

### Students with Disabilities:

Students with disabilities are encouraged to contact me for a confidential discussion of their individual needs for academic accommodation. It is the policy of the University of Nebraska-Lincoln to provide flexible and individualized accommodation to students with documented disabilities that may affect their ability to fully participate in course activities or to meet course requirements. To receive accommodation services, students must be registered with the Services for Students with Disabilities (SSD) office, 132 Canfield Administration, 472-3787 voice or TTY.

### CASNR Policy on Academic Dishonesty

All students and faculty should be familiar with the UNL Policy regarding Academic Dishonesty that may be found in the Student Code of Conduct (<http://stuafs.unl.edu/ja/code/three.shtml>).

When a student is notified by an instructor of an alleged act of Academic Dishonesty, they should discuss the matter with the instructor to determine if redress is possible. If the instructor decides to move forward with the allegation of Academic Dishonesty and the result is a lower grade, the instructor shall make a report in writing of the facts of the case and the academic sanction imposed against the student to the instructor's Academic Unit Chair, Head or Director

and to the UNL Judicial Officer. Both the instructor and academic unit should maintain copies of the relevant documents on file for at least two years.

If the student feels that the allegations of the instructor regarding Academic Dishonesty, or the proposed penalty to be imposed, are unjust or not warranted, the student should contact their academic advisor and the Unit/Program Chair/Head/Director to discuss the matter. This process must be initiated within one month of the class grade assignment. The Unit/Program should then initiate a review of the matter consistent with its written policy. If the Unit/Program agrees with the Instructor that the evidence indicates that the student has violated the Academic Dishonesty policy, they should forward the documentation and paperwork to the CASNR Associate Dean for Student Affairs for review by the College. If the Unit/Program determines that there is not sufficient evidence of Academic Dishonesty to warrant action against the student, the paperwork should be forwarded to the CASNR Dean with the student's name deleted so that there is a record of the incident, but no potential future bias toward the student.

Once received by the CASNR Associate Dean for Student Affairs, the file alleging student Academic Dishonesty should be considered by a Panel consisting of the CASNR Associate Deans. If the Panel decides that there is sufficient evidence to support the allegation of Academic Dishonesty made by the instructor, the student will be notified. If the student desires to appeal this decision, the file will be forwarded to the CASNR Dean for transfer to the UNL Judicial Officer.

### **Emergency Response**

- **Fire Alarm (or other evacuation):** In the event of a fire alarm: Gather belongings (Purse, keys, cellphone, N-Card, etc.) and use the nearest exit to leave the building. Do not use the elevators. After exiting notify emergency personnel of the location of persons unable to exit the building. Do not return to building unless told to do so by emergency personnel.
- **Tornado Warning:** When sirens sound, move to the lowest interior area of building or designated shelter. Stay away from windows and stay near an inside wall when possible.
- **Active Shooter:**
  - Evacuate: if there is a safe escape path, leave belongings behind, keep hands visible and follow police officer instructions.
  - Hide out: If evacuation is impossible secure yourself in your space by turning out lights, closing blinds and barricading doors if possible.
  - Take action: As a last resort, and only when your life is in imminent danger, attempt to disrupt and/or incapacitate the active shooter.
- **UNL Alert:** Notifications about serious incidents on campus are sent via text message, email, unl.edu website, and social media. For more information go to: <http://unlalert.unl.edu>.
- Additional Emergency Procedures can be found here:  
[http://emergency.unl.edu/doc/Emergency\\_Procedures\\_Quicklist.pdf](http://emergency.unl.edu/doc/Emergency_Procedures_Quicklist.pdf)