

SYLLABUS – BSEN 100, Fall 2021

Catalog Description: BSEN 100. Description of careers in Biomedical, Environmental and Water Resources, Food and Bioproducts Engineering. The human, economic and environmental impacts of engineering in society. Communication, design, teamwork, and the role of ethics and professionalism in engineering work.

Credits: 1 Hour

Time and Place: Tuesday 2:00 - 3:15, Room 199, Plant Sciences Hall (PLSH)

Course Website: <https://canvas.unl.edu>

Instructors: Dr. Nicole Iverson
iverson@unl.edu

260 Morrison Life Sciences
(402) 472-0884

Office Hours: Th 1-4 pm in 231 Chase Hall

Dr. Roger Hoy

rhoy2@unl.edu

Splinter Laboratories
(402) 472-2442

by appointment

Dr. Santosh Pitla

sptila2@unl.edu

207 Chase Hall

(402) 472-1466

by appointment

Grading: Grades will be weighted as follows:

Assignments	40%
Attendance	25%
Final Project Performance	12.5%
Final Presentation (video)	10%
Team Performance and Feedback	5%
Final Report	7.5%

Assignments are due at the beginning of class each week and will receive a 50% reduction if turned in within 24 hours after the assignment is due. Assignments turned in more than 24 hours late will receive 0 credit. In addition to content, misspelled words and errors in sentence construction and format are graded.

Course Objectives: Upon completion of this course, you will be able to:

1. Enact professional behavior, including adhering to deadlines, following format requirements, and using proper grammar.
2. Seek out and apply new knowledge/skills to improve the quality of and performance during the final project. (ABET 7)
3. Describe the defining characteristics of one of the Biological Systems Engineering emphasis areas.
4. Apply an engineering problem solving process. (ABET 1)
5. Communicate clearly with an audience that has a broad range of engineering knowledge in both a formal and informal setting. (ABET 3)
6. Diagram the ethical implications of a real-life situation. (ABET 4)
7. Apply an engineering design process to the design of a solution for a problem of a biological nature. (ABET 2)
8. Demonstrate each of the five behaviors of an effective team member (contribute to the team's work, interact with teammates in a positive and supportive manner, keep the team on track, expect quality, and have relevant knowledge, skills and ability to help the team achieve its goals). (ABET 5)

ABET Outcomes: The course objectives will map to the following ABET outcomes:

- 1) An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
- 2) An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
- 3) An ability to communicate effectively with a range of audiences
- 4) An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
- 5) An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
- 7) An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Face Mask Requirement

An individual in this course has a documented need for face coverings to be required in this course. Without divulging personal or identifying information, such a documented need might be that a member of their household is unable to be vaccinated or has a health condition that makes vaccines less effective for them. As a result, the College of Engineering has determined that face coverings will be required in this course. If you are unwilling to comply with this requirement, please visit with your advisor about different sections or possible alternative courses that you might take in lieu of this one.

Diversity & Inclusion

The University of Nebraska-Lincoln does not discriminate on the basis of race, ethnicity, color, national origin, sex (including pregnancy), religion, age, disability, sexual orientation, gender identity, genetic information, veteran status, marital status, and/or political affiliation.

Trespass Policy (Regents' Policy 6.4.7)

The areas of University academic, research, public service, and administrative buildings of the University used for classrooms, laboratories, faculty and staff offices, and the areas of University student residence buildings used for student living quarters are not open to the general public. Any person not authorized to be or remain in any such building area will be deemed to be trespassing on University property and may be cited and subject to prosecution for criminal trespass in violation of Neb. Rev. Stat. 28-520 or 28-521.

Academic Honesty

Academic honesty is essential to the existence and integrity of an academic institution. The responsibility for maintaining that integrity is shared by all members of the academic community. The University's Student Code of Conduct addresses academic dishonesty. Students who commit acts of academic dishonesty are subject to disciplinary action and are granted due process and the right to appeal any decision. See Student Code of Conduct, Article III, Section B. at

<https://stuafs.unl.edu/DeanofStudents/Student%20Code%20of%20Conduct%20May%20Rev%202014%20a.pdf>

Services for Students with disabilities

The University strives to make all learning experiences as accessible as possible. If you anticipate or experience barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can discuss options privately. To establish reasonable accommodations, I may request that you register with Services for Students with Disabilities (SSD). If you are eligible for services and register with their office, make arrangements with me as soon as possible to discuss

your accommodations so they can be implemented in a timely manner. SSD contact information: 232 Canfield Admin. Bldg.; 402-472-3787; acontreras3@unl.edu

Fire, Internal Hazardous Materials Release

- Always evacuate if the fire alarm sounds.
- In the event of an evacuation, gather your personal belongings quickly (purse, keys, cell phone, NCard, etc.) and proceed to the nearest exit.
- Do not use the elevator.
- Move away from the problem, use alternative exits.
- Help those who need assistance moving.
- Be ready to be guided by additional instructions.

Tornado Warning: When sirens activate, move to the lowest, interior area of a building or designated tornado shelter.

- Stay away from windows.
- Stay near inside wall when possible.
- Keep calm. Even though a warning is issued, the chance of a tornado striking your building or location is slight.

Hostile Intruder:

- Remain calm.
- If it is possible to flee the area safely and avoid danger, do so.
- Notify anyone you encounter to exit the building immediately. Evacuate to a safe area away from the danger and take protective cover. Stay there until help arrives.
- Call UNL Police Department or 9-1-1 with your location if possible. If you cannot get through by phone and have text message capability, text University Police at 41513. Enter the letters **UNLPD** and then type your message. Dispatch will receive and respond to the message.
- If flight is impossible, secure yourself in your space. Barricade doors and block windows. Turn off all the lights, close blinds and close and lock all windows and lock and barricade all doors.
- Seek protective cover for yourself and any others (concrete walls, thick desks, filing cabinets may protect you from bullets).
- Keep calm, quiet and out of sight.
- Silence cell phones (mute or turn off cell phone ringer). Consider turning off radios and computer monitors.
- Do not answer the door. If you do not recognize the voice that is giving instructions, do not change your status (stay put). Unknown or unfamiliar voices may be false and designed to give false assurances.
- Place signs in exterior windows to identify the location of injured persons.
- **Do Not Approach Emergency Responders**—let them come to you.
- Remain where you are until an "all clear" instruction is given by an authorized known voice.

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](http://unlalert.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

Weekly Lecture Topics – BSEN 100 -2021

Date	Topic	Instructor	Location	Assignment Due (by 2 pm)
Aug 24	Introduction	Dr. Iverson	PLSH 199	
Aug 31	Bioenergy and Food Engineering	Dr. Wilkins	PLSH 199	Letter to the instructor
Sept 7	Biomedical Engineering	Dr. Iverson	PLSH 199	
Sept 14	Environmental and Water Resources	Dr. Franti	PLSH 199	
Sept 21	Team Assignments and Teamwork discussion Introduction of Autonomous Vehicle assignment	Dr. Iverson		Virtual tours assignment
Sept 28	Design Skills – Basic Mechanical and Electrical	Dr. Iverson	PLSH 199	Paper discussing emphasis area
Oct 5	Car – Testing and Redesign	Dr. Hoy Dr. Pitla	Prairie Suite (ECU)	Code of Cooperation Car ready for testing
Oct 12	Arduino 1	Dr. Pitla	Prairie Suite (ECU)	
Oct 19	No class (Fall Break)	XXXXXX	XXXXXX	
Oct 26	Arduino 2 ¹	Dr. Pitla	Prairie Suite (ECU)	Arduino 1 Assignment
Nov 2	Arduino Car Testing/Redesign		Prairie Suite (ECU)	Arduino 2 Assignment
Nov 9	VidGrid Arduino Car Testing/Redesign	Dr. Hoy Dr. Iverson Dr. Pitla	Prairie Suite (ECU)	
Nov 16	Ethics/Academic Integrity	Dr. Hoy	PLSH 199	
Nov 23	Arduino Car Testing/Redesign	Dr. Iverson	Prairie Suite (ECU)	Ethics Assignment Slide for E-day (due Monday 11/29 at 8 am)
Nov 30	Vehicle Competition – Eday!		Great Plains Room (ECU)	Signature Sheet
Dec 7	Design videos	Dr. Iverson	PLSH 199	Design videos (due Monday 12/6 at 8 am)
Dec 15	During Final Exam Time Slot of 3:30 – 5:30 pm		PLSH 199	Final Report Team member performance Course Evaluations (due 12/20)