



# AVS 402: Capstone in Animal Science II

## Instructor

**Dr. Sue Ishaq (she/her);** [sue.ishaq@maine.edu](mailto:sue.ishaq@maine.edu), 207-581-2770, office: 108 Rogers Hall.

I do not have pre-scheduled office hours, but I am happy to meet anytime to answer questions or help you navigate your project. You can [book me in Google Calendar using this link](#).

## Time and mode of instruction

Tuesday/Thursdays.

## Location

106 Murray Hall, [campus map](#), accessible entrance located at the back of the building.

All classes may be attended in person or virtually on Zoom, though in person is preferred.

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### Description of course and prerequisites

Students will draw together the knowledge and experiences they have gathered in their undergraduate program to create a Capstone experience. This takes the form of a project which reflects the culmination of their degree and the work typical of their academic field of study. Students will participate in collaborative research as part of the class, or opt to identify a faculty mentor to supervise their project, which investigates a problem in animal or veterinary science, aquaculture, or a related field. The investigation may include scientific research in a laboratory, farm, or field site; literature review; meta-analysis; survey; design problem solving; or other hypothesis-driven testing. For the 402 course, students are required to submit a written project report and present an oral report to faculty and students. AVS 401 and 402 collectively serve as the Capstone experience for Animal and Veterinary Sciences students. This course fulfills a Writing Intensive requirement.

### Credit hours: 2

**Prerequisites:** Senior Standing and ENG 315 or ENG 317; or instructor's permission to take ENG concurrently

### Course materials and digital services used.

- Textbook: There is no required textbook for this class.
- Lecture slides: All lectures are provided at the beginning of the semester as pdfs with annotated speaker notes included as comments in the document. These will be updated as needed with corrections.
- Lecture recordings: All lectures are recorded, and audio-only and video files added to Brightspace after class.
- Readings: Reading material will be provided as electronic journal articles or readings.
- Assignments: All assignments can be submitted through Brightspace, and each assignment portal has more detailed instructions, grading rubrics, and the proposal assignment has an optional document template.
- Brightspace Online Learning Software
  - [Log into Brightspace](#). Read the [tutorial](#). Download the [Pulse app](#).
  - Brightspace is the online learning management system used at the University of Maine. In our course Brightspace site, you will be able to access course materials, assignment descriptions, this syllabus, and the course schedule. You will submit your work through Brightspace and will be able to access your grades and feedback as well. You can download a "Brightspace Pulse" app for most mobile devices from your regular app store. Be aware: Some functions in Brightspace work better when accessed through a laptop/desktop than through a mobile device. Support for the website and mobile apps includes video tours, IT Help Desk, and other resources. If you continue to have problems with Brightspace, please let me know as soon as possible.
  - If you wish to retain a personal copy of course materials, please do so before the end of the semester. **You will not have access to a course's Brightspace site after you complete the course.** You can store copies of material you wish to retain on Google Drive, your hard drive, or other media of your choosing. Other materials posted by your faculty may be found at the library.
- Zoom Online Conferencing Software
  - Read the [UMaine tutorial](#).
  - Zoom is an online conference software that students can use to attend class remotely as needed. Students may invite friends and family to watch their presentation using Zoom.

I am happy to provide accommodation to the way course materials are formatted or provided to make them easier to access and understand. Please let me know if you have suggestions to improve the course materials.

## Course goals

The student will conduct a research/problem solving project, which can be performed under the supervision of a faculty member, as a group, or independently. In AVS 402, students will complete a written project report that will explain the project objectives and the context behind the proposal, the methods, and results/outcomes. Students will present the report/project results to faculty and students. Students completing the general education area of Capstone experience will be able to:

1. Synthesize knowledge, skills, and dispositions gained throughout the student's major of study.
2. Demonstrate competence within the discipline through professional conduct and, as appropriate, critical reasoning, analytical ability, and creativity.
3. Demonstrate effective communication skills.

## Student learning outcomes and objectives to meet them:

At the conclusion of this course, students will have the skills to perform the following numbered tasks. Course objectives specific to each learning outcome are provided as lettered explanations.

1. How to find and assess the quality of scientific information.
  - a. In assembling background information about their topic, students will learn how to perform a search of scientific databases, how to read scientific literature, and how to assess information for validity and generalizability.
  - b. In peer-reviewing other student research reports, students will learn how to peer-reviews manuscripts, including reviewing, editing, and scientific critique.
2. How to create a research report.
  - a. Students will learn how to write a short, informal summary of their project.
  - b. Students will learn how to write a scientific project report, including how to format documents according to a pre-specified scientific format.
  - c. Students will learn how to incorporate instructor and peer-review comments and revisions, and how to progress the maturity of concepts and writing with each successive draft. (Writing Intensive objective)
  - d. Students will learn how to explain their process and controls to ensure the project is rigorously designed, how to present information in a logical and scientific manner
  - e. Students will learn how to build a citation database and use it to create relevant in-line citations and a bibliography.
3. How to conduct research.
  - a. Through their participation in research under the guidance of the instructor or another a faculty mentor, students will learn broadly about scientific research, including ethical standards and institutional approval, identifying research questions and hypotheses to test, designing robust experiments which incorporate experimental controls to test the hypotheses, data collection and curation, data analysis and evaluation, statistical validity, and interpretation of results.
  - b. Students chose a project in AVS 401, and presumably the work is ongoing during AVS 402 or has been completed. If projects have not progressed or have mitigating circumstances for why work has not been accomplished, adjustments to the project scope or mentor can be made. Specifics on choosing a project may be found in the syllabus for AVS 401.
4. How to present scientific information.
  - a. Students will learn how to create an oral presentation using software tools and present to a technical audience.

## Expectations of students and university policies

### Attendance and Participation

Students are expected to attend lectures, but it is understood that life often precludes this and that students may be performing field work or are located off-campus. Students may attend class virtually, through Zoom, which will be offered for each class. Students who will miss a significant number of classes, or who require additional accommodation, may contact me to make alternate arrangements. Students who are lactating or caring for young children may bring them to class (see section on Pregnancy, lactation, and parenting).

Students are expected to participate in discussions in class, or on Brightspace. I strive to create inclusive discussions, but if students still find it challenging to participate, please notify me and I will alter the discussion format as needed. Supporting inclusion and community is an active process that involves both invitation, and support to ensure that the learning community is and remains an equitable and inclusive place. Students are expected to conduct themselves in a professional, courteous manner and abide by university policies.

### Late Assignments

I will accept assignments for a certain period of time after the due date, however, the assignments in this class build on one another and their due dates are specifically set to help you achieve the end goals of this class. You will not receive a grade reduction for late assignments, but you waive the right to receive feedback which might impact the quality of successive drafts and your next grade. Regular assignments will not be accepted after the last day of class and the final draft will not be accepted after the finals period of the semester. If you cannot complete all assignments within the semester, please contact me about taking an Incomplete instead of a letter grade and setting up deadlines to complete the coursework after the semester in order to receive a letter grade.

### Campus Policies

“The University of Maine is an EEO/AA employer, and does not discriminate on the grounds of race, color, religion, sex, sexual orientation, transgender status, gender expression, national origin, citizenship status, age, disability, genetic information or veteran’s status in employment, education, and all other programs and activities.” Follow the links for more information.

[Academic Honesty Statement\\*](#)

[Students Accessibility Services Statement\\*](#)

[Course Schedule Disclaimer\\*](#)

[Observance of Religious Holidays/Events\\*](#)

[Sexual Discrimination Reporting \(Long\)\\*](#)

[Sexual Discrimination Reporting \(Short\)\\*](#)

[UMaine Land Acknowledgement](#)

### Students Accessibility Services (SAS) Statement

If you are requesting an accommodation to the course or assignments, please [contact SAS](#), 121 East Annex, (207) 581-2319, as early as possible in the term. Students who have already been approved for accommodation by SAS and have a current accommodation letter should contact me as soon as possible.

## Assignments and Assessment: Detailed instructions (written and audio) and rubrics on Brightspace.

<p><b>55 points</b> <b>(20 pts for first draft, 35 pts for final draft)</b></p>	<p><i>Project report</i> – The proposal in AVS 401 may form the basis of the final paper in AVS 402 if you ended up working on a similar topic. If your project was different from your proposal, you do not need to write a new proposal – simply start from scratch to write your report. You will create a final report in the style of a scientific report or research manuscript. Information on the structure and content of different types of project reports/manuscripts will be given in class but will include the following:</p> <ol style="list-style-type: none"> <li>1) title, authors, departmental affiliations, and 5 – 6 keywords,</li> <li>2) abstract, which has been updated to include results</li> <li>3) introduction/background on previously-published, relevant research,</li> <li>4) a methods section detailing the experimental approach, information dissemination and outreach,</li> <li>5) results (including photos, figures, graphs, tables),</li> <li>6) discussion and reflection, and impacts to stakeholders</li> <li>7) bibliography/references list with consistent formatting.</li> </ol> <p>If you are doing a literature review, you can use Intro, Methods, sections named after whatever you are looking into, Conclusions, Bibliography. If you are doing a design project or other style which includes a lot of reflection, you may have a combined Results and Discussion section. You may use the Honors Thesis, CUGR report, or other funding report format, but you must mention this as a note when you submit your assignment online. Students may opt to submit their final paper early. However, once it is graded by the instructor you may not opt to turn in a third draft/version.</p> <p>Two drafts of the paper will be submitted for grading, with more specific directions on Brightspace. You will receive instructor and peer review feedback on the first draft but not on the final draft. If you have a mentor for this project, students are responsible for having their mentors read and provide feedback on their final draft prior to submission.</p> <ul style="list-style-type: none"> <li>• Draft 1: This should be about 50% complete, and have updated things from the proposal, including verb tenses from future to past tense. Give more detailed information on the background, your research question, your methodology, and what your results were. Include some figures/tables or at least a note about figures in development. You will receive detailed instructor and peer review feedback.</li> <li>• Final draft: This will be a polished version of your report. You will not receive detailed instructor or peer feedback.</li> </ul>
<p><b>20 points total:</b> <b>15 pts for reviews, 5 pts for submitting yours for review</b></p>	<p><i>Peer review</i> – Students will perform three reviews of other students’ research report draft one. Details on performing a review will be provided in class, but generally reviewers should comment on how well the information is presented: if the proposal makes sense, if the objectives of the study are clear, if the scientific approach is easy to understand, and if you notice spelling, grammatical, or formatting errors.</p>
<p><b>25 points</b></p>	<p><i>Oral presentation</i> – Give a 20-minute (15 min for the talk and 5 min for questions) professional oral presentation of your project report to the class at the end of the semester. This will outline the portions of your written report, including the title, authors,</p>

	background information, hypothesis, project objectives, methods, results, conclusions, and relevant impacts or outcomes.  You may use the same length and format as a CUGR or Student Research Symposium format (which are shorter) if you will also be presenting at the symposium.
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**Grading (out of 100 points):** A = 93–100; A- = 90–92; B+ = 87–89; B = 83–86; B- = 80–82; C+ = 77–79; C = 73–76; C- = 70–72; D+ = 67–69; D = 63–66; D- = 60–62; F = 0–59. The completion of both AVS 401 and 402 with grades of C minus or higher is required for graduation.

## Schedule of lectures and assignments.

Each section is one class, and all the associated materials (lecture notes, readings, assignments, assessments, links) are included in a Brightspace module which corresponds to the name of the lecture and the order they are presented in.

Day	Title, Description, Assignments for each module
Week 1	
T 1/17	Lecture 0: <i>“Intro to the class”</i> , syllabus and course expectations, finding course materials.
T 1/17	Lecture 1: <i>“Writing your report when your project changes or fails”</i> Did your project change? Fail? Not happen at all? No worries. This lecture focuses on how to refocus your project or report, or how to talk about null results.  ➤ <b>Reading:</b> <a href="#">“How to Write About Negative (Or Null) Results in Academic Research”</a> , Aug 2, 2021. <b>Suggested Reading:</b> if needed, revisit lectures from AVS 401 provided again in this course
R 1/19	Lecture 2: <i>“Scientific writing: going from a proposal to a paper”</i> Overview of formatting, content, and the scientific writing process. This includes learning to condense information, stacking citations, writing in third person, etc.  ➤ <b>Reading:</b> “Credit Where Credit Is Due: Respecting Authorship and Intellectual Property” ➤ <b>Reading:</b> Watling_2017_tuning_your_writing ➤ <b>Reading:</b> Ecartot_2015_writing_scientific_article
Week 2	
T 1/24	Lecture 3: <i>“The art of scientific figures”</i> How to make graphs and figures that make sense. A brief overview of how to report statistics and format tables.  ➤ <b>Reading:</b> Rougier_2014_10_rules_scientific_figures ➤ <b>Reading:</b> <a href="#">“I’m a lip-reading scientist, here’s how I can discuss science with you”</a> , Denis Meuthen, Jan 28, 2022. ➤ <b>Suggested Reading:</b> if needed, revisit AVS401_scientific_presentations for information on creating dynamic oral presentations
R 1/26	Open working time to go over our results/data and work through design of our graphs. Students are encouraged to share their graphs in development, and the group can provide feedback. Students can also draw out future graphs. You may attend this remotely; a Zoom link will be provided during the semester.
Week 3	

T 1/31	No class – work on your project
R 2/2	No class – work on your project
Week 4 - 8	
	No class – work on your project
	No class – work on your project
Week 9	
T 3/14	No class – spring break
R 3/16	No class – spring break
Weeks 10 - 15	
T 3/21	<p><b><i>Student report presentations in class (15 pts) from now until end of semester</i></b></p> <ul style="list-style-type: none"> <li>➤ <b>Assignment due (5 pts):</b> First draft of report (a more polished but not finished draft) for peer review. Submit to the Google Workspace page for this class, which can be accessed through Brightspace. Putting them on Google Docs means that all the reports are visible to the rest of the class and it is easy for everyone to make comments.</li> <li>➤ <b>Assignment (15 pts):</b> Peer review. Choose three report drafts to read, and add comments or suggested edits to those three google docs. When you are done, write up a short paragraph for each of the reports you read, in which you describe the project, what you liked best, and what you thought could be improved. Detailed instructions for making comments and for writing summaries can be found on Brightspace. You have 1.5 weeks to make comments and submit the summaries to Brightspace.</li> </ul>
R 3/23	<i>Student report presentations in class</i>
T 3/28	<i>Student report presentations in class</i>
R 3/30	<p><i>Student report presentations in class</i></p> <ul style="list-style-type: none"> <li>➤ <b>Assignment due:</b> Peer review comments due on Google Docs, and summaries due on Brightspace, by midnight.</li> </ul>
T 4/4	<p><i>Student report presentations in class</i></p> <ul style="list-style-type: none"> <li>➤ <b>Assignment due (15 pts):</b> Report Draft 1 for grading, submit on Brightspace by midnight</li> </ul>
R 4/6	<i>Student report presentations in class</i>
T 4/11	<i>Student report presentations in class</i>
R 4/13	<i>Student report presentations in class</i>
F 4/14	(Optional but recommended) UMaine Student Research Symposium, 9 am – 4 pm, posters and presentations in the New Balance Center
T 4/18	<i>Student report presentations in class</i>
R 4/20	<i>Student report presentations in class</i>
T 4/25	<i>Student report presentations in class</i>
R 4/27	<i>Student report presentations in class – last day of this class</i>
F 4/28	<b>Last day of classes and last day late assignments will be accepted (not including the final draft)</b>
R 5/5	<p><u>Finals week</u></p> <p><b>Assignment due (20 pts):</b> Final Draft of Project Report Due by 9 am</p>

### UMaine resources related to research, statistics, writing, and careers:

- Career Center, <https://umaine.edu/career/>; help with resumes, applications for vet/grad/med school, interviews, and job negotiations.

- Biomedical specialist: Samantha M. Wheeler, M.Ed., CCSP, GCDF (she, her, hers), Career Counselor, STEM/Health Professions, Career Center, University of Maine, 300 Memorial Union, Orono, ME 04469, Work: 207-581-2587; [samantha.wheeler1@maine.edu](mailto:samantha.wheeler1@maine.edu)
- CUGR research fellowships, <https://cugr.umaine.edu/fellowship-opportunities/>, money for salary or supplies
- Fogler Library
  - OneSearch, <https://library.umaine.edu/>; find scientific literature.
  - Research Data Management: <https://libguides.library.umaine.edu/datamanagement>
  - Creating a research poster: <https://libguides.library.umaine.edu/confposters>
  - Creating a research presentation: <https://libguides.library.umaine.edu/confposters/presentations>
  - Presentation Practice Room, <https://library.umaine.edu/use/presentation-practice-room/>
- Statistics Consultation, <https://umaine.edu/tasc/stats/> (may have a cost associated with this service, talk to your research mentor before setting up a consultation)
- Writing Center, <https://umaine.edu/wcenter/>; tutoring, editing, skills development

## There is always someone on campus to help you

My door is always open and I am always willing to help students, however, as a university employee I am also required to keep the community safe by disclosing information on crimes. This means I am a “mandatory reporter”. If you disclose something to me, including in assignments, I am obligated to provide this information to the campus Title IX office. The Title IX Office will contact you discretely, and offer you support services, guidance, and help you choose if you want to take action.

For confidential resources on campus:

- Counseling Center: (207) 581-1392
- Cutler Health Center: (207) 581-4000.
- Rape Response Services: 1-800- 871-7741
- Partners for Peace: 1-800-863-9909.

For support services on campus which may have to report the incident to others who can help:

- (Emergency and non-emergency) [Title IX Student Services](#), (207) 581-1406,
- (emergency and non-emergency) University of Maine Police: (207) 581-4040 or 911.
- (non-emergency) Office of Community Standards: (207) 581-1409.

Support services off campus:

- [Mabel Wadsworth Center](#), Bangor: reproductive health care, abortion, addiction help, etc.

## Free food and clothing

- [Black Bear Exchange's Food Pantry](#), Orono campus
- Old Town Crossroads Ministry

## University Rainbow Resource Center

[The Rainbow Resource Center](#) located in Memorial Union, Room 224, empowers and increases the visibility of Lesbian, Gay, Bisexual, Transgender, and Queer (LGBTQ) people by promoting equality and inclusiveness. We strive to maintain an open, safe, and supportive environment for students, staff, faculty and alumni and provide educational opportunities, information, and advocacy services.

### **Pregnancy, lactation, and parenting**

I am happy to provide accommodation for students based on pregnancy, lactation, and parental needs, as well as work with the Office of Equal Opportunities (E.O.). The state of Maine and UMaine policies allow students to breastfeed in any space, including in class. If a lactation space is required, please contact E.O. for arrangements. The [Pregnant on Campus Initiative](#) provides pregnancy and parenting resources in Orono.

### **University Veterans Education and Transition Services (VETS)**

[University of Maine's VETS Center](#) serves student veterans as they apply to, attend and advance beyond UMaine. The Veterans Center connects student veterans with the resources they need to successfully transition from combat to classroom to career. This includes help navigating the admissions process, applying for financial aid and U.S. Department of Veterans Affairs education benefits, academic assistance and preparing to re-enter the workforce. The VETS Center is located in Room 143 of the Memorial Union.

### **University Counseling Services**

If you are experiencing a mental health emergency: Dial 911. You can also call campus Police Services at (207) 581-4040. For urgent help, please check this page for your options: <https://umaine.edu/counseling/need-urgent-help/>.

Over the course of our time at the University, we may face a variety of concerns – depressed mood, anxiety, stress, family concerns, body image, substance use, sexuality and many others – that may interfere with their ability to focus on their studies. [Counseling Services](#) provides mental health and social support for all currently enrolled students. Staff follow strict legal and ethical guidelines concerning the confidentiality of counseling. Counseling services is located in Cutler Health Center, Room 125 and can be reached by phone at (207) 581-1392.

### **Acknowledgement**

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