ANSC*6550 - Systematic Review and Meta-Analysis for Animal Biosciences
Winter 2025 Course Outline
Section: 01
Credits: 0.50

Land Acknowledgement: Guelph

The University of Guelph resides on the ancestral lands of the Attawandaron people and the treaty lands and territory of the Mississaugas of the Credit. We recognize the significance of the Dish with One Spoon Covenant to this land and offer respect to our Anishinaabe, Haudenosaunee and Métis neighbours. Today, this gathering place is home to many First Nations, Inuit, and Métis peoples and acknowledging them reminds us of our important connection to this land where we work and learn**.**

Calendar Description

Major topics and methods in the systematic review of the scientific literature, meta-analysis, and empirical modeling for animal sciences will be covered. Students learn via hands-on 'doing' with reflection on their work via the execution of a meta-analysis in their topic area and preparation of a meta-analysis manuscript.
Department(s): Department of Animal Biosciences

Course Description

Major topics and methods in the systematic review of the scientific literature, meta-analysis and empirical modelling for animal sciences will be covered. Topics include strategies for systematically locating and extracting data from the literature, database development and management, model development and statistical analysis, model evaluation and scientific paper writing. This is an experiential learning-based course where students, in partnership with their advisor, identify a topic for which the student will conduct a meta-analysis and draft a scientific paper during the course.

Lecture Schedule

TuTh 1pm-2:20pm in ANNU*030 (1/6 to 4/21)

Instructor Information

Jennifer Ellis (St-Pierre)
Associate Professor, Animal Systems Modelling
Email: jellis@uoguelph.ca
Office: 234b

Additional Support

This course will be delivered in-person. PDFs of the lecture slides will be provided ahead of each lecture.

The instructor will lecture in an interactive discussion-based manner, provide feedback to students on individual projects, help with project direction if needed, oversee/prepare applied learning exercises and mark assignments.

Communicating with your instructor:

During the course, your instructor will interact with you on various course matters on the course website using the following ways of communication:

Announcements: *The instructor will use 'announcements' on the course homepage to provide you with reminders and updates. Please check this section frequently for course updates from your instructor.*

Email: *If you have a conflict that prevents you from completing course requirements, or have a question concerning a personal matter, you can send your instructor a private message by email. If you email the course instructor, keep in mind that the instructor receives many emails every day. The instructor of this course is involved in other courses and research commitments, just as you are. In order to facilitate a response to your email, please consider the*

following guidelines: allow 24 to 48 hrs for a response (if you send an email late at night, we may not even see it until the next day). The instructor will attempt to respond to your email within 24-48 hrs.

Meetings/Video conferencing: *If you have a complex question you would like to discuss with your instructor* **(1) related to course content** *- please use the bookable office hours excel file,* **(2) related to a personal issue** *- please reach out via email to book a 1on1 meeting. Meetings depend on availability and are booked on a first come first served basis.*

Learning Resources

Required Resources

CourseLink (Website)

https://courselink.uoguelph.ca/d2l/home/742282

Microsoft Teams (Software)

https://www.microsoft.com/en-ca/microsoft-365/microsoft-teams/group-chat-software

Cost of Textbooks and Learning Resources

Textbook / Learning Resource	Required / Recommended	Cost
NA	NA	$0

Course Learning Outcomes

1. Conduct a systematic literature review.
2. Critically analyze published literature.
3. Construct a database from a systematic literature review.
4. Apply meta-analysis methods for modelling of categorical, linear and non-linear data types collected from the literature.
5. Assess and measure the appropriateness of method options used in meta-analysis.
6. Assess model goodness-of-fit and troubleshoot data and coding problems.
7. Evaluate and compare models (extant and developed)
8. Interpret and judge the biological significance of equations developed.
9. Accurately and effectively communicate scientific analyses in written and oral form.
10. Proficiently use terminology common in statistical modelling.

Schedule of Topics and Assignments

Day	Date:	Topic	Activities	Due
Tue	1/7	Module 1: Introduction		
Thu	1/9	Module 1: Conducting a systematic literature review		
Tue	1/14	student presentations		Students present research topic idea (3 slides)
Thu	1/16	Module 2: Data visualization & Exploration		
Tue	1/21	Module 2: Data visualization & Exploration		
Thu	1/23	Module 2: Data visualization and exploration		
Tue	1/28	Module 2: Data visualization and exploration		
Thu	1/30	Module 2: Data visualization and exploration		
Tue	2/4	Module 3: Mixed models for meta-analysis: linear regression		
Thu	2/6	Module 3: Mixed models for meta-analysis: linear regression		Assignment A1 due
Tue	2/11	Module 4: Mixed model fitting		

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Thu	2/13	Module 4: Mixed model fitting	
Tue	2/18	Winter Break	
Thu	2/20	Winter Break	
Tue	2/25	Module 5: mixed models for meta-analysis: categorical data	
Thu	2/27	student consultation	Assignment A2 due
Tue	3/4	Module 6: database splitting for model development and evaluation	
Thu	3/6	Module 7: Mixed models for meta-analysis: non-normal data	
Tue	3/11	Module 8: Mixed models for meta-analysis - non-linear regression	
Thu	3/13	student consultation	Assignment A3 due
Tue	3/18	1 Module 9: Model evaluation - statistical and graphical	
Thu	3/20	Review and consult	
Tue	3/25	Module 10: Writing a meta-analysis paper	Assignment A4 due
Thu	3/27	Review and consult	
Tue	4/1	Final presentations	Student Final Presentations
Thu	4/3	Final presentations	Student Final presentations
Thu	4/17		Final papers due

Assessments

Assignments A1-A4 will encompass an oral presentation or written submission of findings and submission of statistical code. Assignment code and outcomes will be made available to the instructor the day before any presentation.

The final Project Presentation will be 15 minutes long, plus a 10 minute question period.

Presentation slides will be made available to the instructor and students the day before the presentation.

The final Project Paper will be structured as a journal article using an example/template from a relevant journal, and will be submitted approx. one week after the presentation. This will allow students to integrate feedback from the presentation into their report. The reports will be written and evaluated individually. The topic of each project will be decided between the student and their advisor and shared with the instructor in the 3rd week of class.

Assessment Breakdown

Description	Weighting (%)	Due Date
Assignment A1	7.5%	Feb 8
Assignment A2	7.5%	Mar 1
Assignment A3	7.5%	Mar 14
Assignment A4	7.5%	Mar 26
Final Presentation	30%	Apr 2/4
Final Paper (manuscript draft)	40%	Apr 18

Assessment Details

Assignment
Assignment A1   **7.5%**
Date: Feb 6

Learning Outcome: 1, 2, 3, 9

Assignment 1 (A1)

Presentation of literature search strategy/search terms, literature funnel and database template populated with at least 10 studies

Assignment A2   7.5%
Date: Feb 27th

Learning Outcome: 4, 5, 6, 9

Assignment 2 (A2)

Presentation of mixed-model analysis of sample dataset, identification of optimal fixed and random structure & outliers

Assignment A3   7.5%
Date: Mar 13th

Learning Outcome: 4, 5, 6, 9

Assignment 3 (A3)

Presentation of data analysis proposal, including assessment of data type, appropriate analysis approach, and planned comparisons

Assignment A4   7.5%
Date: Mar 27th

Learning Outcome:7, 9

Assignment 4 (A4)

Presentation of model evaluation (statistical and graphical)

Presentation
Final Presentation   30%
Learning Outcome: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Paper
Final Paper   40%
Learning Outcome: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Last Day to Drop Course

The final day to drop Winter 2025 courses without academic penalty is the last day of classes: April 04

After this date, a mark will be recorded, whether course work is completed or not (a zero is assigned for missed tests/assignments). This mark will show on the student's transcript and will be calculated into their average.

Course Grading Policies

Submission of Assignments

Assignments should be submitted electronically via the online Dropbox tool. When submitting your assignments using the Dropbox tool, do not leave the page until your assignment has successfully uploaded. To verify that your submission was complete, you can view the submission history immediately after the upload to see which files uploaded successfully. The system will also email you a receipt. Save this email receipt as proof of submission.

Be sure to keep a back-up copy of all of your assignments in the event that they are lost in transition. In order to avoid any last-minute computer problems, your instructor strongly recommend you save your assignments to a cloud-based file storage (e.g., OneDrive), or send to your email account, so that should something happen to your computer, the assignment could still be submitted on time or re-submitted.

It is your responsibility to submit your assignments on time as specified on the Schedule. Be sure to check the technical requirements and make sure you have the proper computer, that you have a supported browser, and that you have reliable Internet access. Remember that technical difficulty is not an excuse not to turn in your assignment on time. Don't wait until the last minute as you may get behind in your work.

If, for some reason, you have a technical difficulty when submitting your assignment electronically, please contact your instructor or CourseLink Support. http://spaces.uoguelph.ca/ed/contact-us/

Late Assignment

If you choose to submit assignments to the Dropbox tool late, the full allocated mark will be reduced by 25% per day after the deadline for the submission of the assignment to a limit of three days at which time access to the Dropbox folder will be closed. Submitting work on time is an important life skill, and when you enter the workforce.

Extensions will be considered for medical reasons or other extenuating circumstances. If you require an extension, discuss this with the instructor as soon as possible and well before the due date. Barring exceptional circumstances, extensions will not be granted once the due date has passed. These rules are not designed to be arbitrary, nor are they inflexible. They are designed to keep you organized, to ensure that all students have the same amount of time to work on assignments, and to help to return marked materials to you in the shortest possible time.

Course Standard Statements

Netiquette Expectations

The course website is considered an extension of the classroom and the same protections, expectations, guidelines, and regulations used in face-to-face settings apply, plus other policies and considerations that come into play specifically because these courses are online.

Inappropriate online behaviour will not be tolerated. Examples of inappropriate online behaviour include:

· Posting inflammatory messages about your instructor or fellow students;

· Using obscene or offensive language online;

· Copying or presenting someone else's work as your own;

· Adapting information from the Internet without using proper citations or references;

· Buying or selling term papers or assignments;

· Posting or selling course materials to course notes websites;

· Having someone else complete your quiz or completing a quiz for/with another student;

· Stating false claims about lost quiz answers or other assignment submissions;

· Threatening or harassing a student or instructor online;

· Discriminating against fellow students, instructors, and/or TAs;

· Using the course website to promote profit-driven products or services;

· Attempting to compromise the security or functionality of the learning management system;

· Sharing your username and password; and

· Recording lectures without the permission of the instructor.

Courselink System Requirements

You are responsible for ensuring that your computer system meets the necessary system requirements. (https://opened.uoguelph.ca/student-resources/system-and-software-requirements/) Use the browser check (https://courselink.uoguelph.ca/d2l/systemCheck/) tool to ensure your browser settings are compatible and up to date. (Results will be displayed in a new browser window)

Microsoft Teams System Requirements

This course may use **Microsoft Teams** as a video communication tool. A Webcam, a microphone to record video, and headphones/speakers to play back the recording are also needed. In order to use Microsoft Teams, you must meet the following technical requirements:

1. An internet connection – broadband wired or wireless (3G or 4G/LTE);

2. Speakers and a microphone – built-in or USB plug-in or wireless Bluetooth;

3.   A webcam or HD webcam - built-in or USB plug-in;

Supported mobile platforms: Android 4.4 or later and iOS 10.0 or later.

Technical Skills

As part of your online experience, you are expected to use a variety of technology as part of your learning:

· Manage files and folders on your computer (e.g., save, name, backup, rename, delete, and check properties);

· Install software, security, and virus protection;

· Use office applications (e.g., Word, PowerPoint, Excel, or similar) to create documents;

· Be comfortable uploading and downloading saved files;

· Communicate using email (e.g., create, receive, reply, print, send, download, and open attachments);

· Navigate the CourseLink learning environment and use the essential tools, such as **Dropbox, Quizzes, Discussions,** and **Grades** (the instructors for this are given in your course);

· Access, navigate, and search the internet using a web browser (e.g., Chrome, Firefox, Microsoft Edge, Safari, etc.);

· Perform online research using various search engines (e.g., Google) and library databases.

Technical Support

If you need any assistance with the software tools or the CourseLink website, contact CourseLink Support.

Courselink Support
University of Guelph
Day Hall, Room 211
Email: courselink@uoguelph.ca (https://calendar.uoguelph.ca/syllabi/commontext/detechnology/email%20to:courselink@uoguelph.ca)
Tel: 519-824-4120 ext. 56939
Toll-Free (CAN/USA): 1-866-275-1478

Walk-In Hours (Eastern Time):
Monday thru Friday: 8:30 am-8:30pm

Phone/Email Hours (Eastern Time):
Monday thru Friday: 8:30am-8:30pm
Saturday: 10:00am - 4:00pm
Sunday: 12:00pm - 6:00pm

Standard Statements for Graduate Courses

Academic Integrity

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community – faculty, staff, and students – to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy (https://calendar.uoguelph.ca/graduate-calendar/general-regulations/academic-misconduct/) is outlined in the Graduate Calendar.

Accessibility

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required; however, interim accommodations may be possible while that process is underway.

Use of the SAS Exam Centre requires students to make a booking at least 10 business days in advance, and no later than the first business day in November, March or July as appropriate for the semester. Similarly, new or changed accommodations for online quizzes, tests and exams must be approved at least a week ahead of time. For students at the Guelph campus, information can be found on the SAS website. (https://www.uoguelph.ca/sas/)

Accommodation of Religious Obligations

If you are unable to meet an in-course requirement due to religious obligations, please email the course instructor within two weeks of the start of the semester to make alternate arrangements.

See the Academic calendar for information on regulations and procedures for Academic Accommodation of Religious Obligations (https://calendar.uoguelph.ca/graduate-calendar/general-regulations/academic-accommodation-religious-obligations/)

Copies of Out-of-class Assignments

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

Drop Date

Courses that are one semester long must be dropped by the end of the last day of classes; two-semester courses must be dropped by the last day of classes in the second semester. The regulations and procedures for Dropping Courses (https://calendar.uoguelph.ca/graduate-calendar/general-regulations/registration/) dropping courses are available in the Graduate Calendar (https://calendar.uoguelph.ca/graduate-calendar/general-regulations/registration/).

Email Communication

As per university regulations, all students are required to check their <uoguelph.ca> e-mail account regularly: e-mail is the official route of communication between the University and its students.

Health and Wellbeing

The University of Guelph provides a wide range of health and wellbeing services at the Vaccarino Centre for Student Wellness (https://wellness.uoguelph.ca/). If you are concerned about your mental health and not sure where to start, connect with a Student Wellness Navigator (https://wellness.uoguelph.ca/navigators/) who can help develop a plan to manage and support your mental health or check out our mental wellbeing resources. (https://wellness.uoguelph.ca/shine-this-year/) The Student Wellness team are here to help and welcome the opportunity to connect with you.

Illness

Medical notes will not normally be required for singular instances of academic consideration, although students may be required to provide supporting documentation for multiple missed assessments or when involving a large part of a course (e.g., final exam or major assignment).

Recording of Materials

Presentations that are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a student, or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

Resources

The Academic Calendars (http://www.uoguelph.ca/registrar/calendars/?index) are the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate, graduate and diploma programs.

When You Cannot Meet a Course Requirement

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. See the Graduate Calendar for information on regulations and procedures for Academic Consideration (https://calendar.uoguelph.ca/graduate-calendar/general-regulations/grounds-academic-consideration/).