

ENVS*2210 - Apiculture and Honey Bee Biology

Fall 2024 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

This course is designed to acquaint the student with the broad field of beekeeping. It will include honey bee biology and behaviour, management for honey production, products of the hive, pests and enemies and the value of bees as pollinators of agricultural crops.

Department(s): School of Environmental Sciences

Course Description

The teaching approach is to combine lectures, a written assignment and field activities. The course will be composed of up to 20 lectures, 1 field session, 1 review session, 2 midterms and 1 final exam. Students will be provided with outlines for most of the lectures, and will be given reading assignments. Exams will consist of multiple choice questions, short answer or essay questions and diagrams to label. The following tips will help you succeed in this course: a) read the information assigned in advance of each lecture (from the textbook), b) attend all lectures and pay attention during lectures, c) do not hesitate to ask questions during or after lectures, d) participate in field sessions, e) comply with your written assignment according to topic and specific instructions (that will be provided to you), f) study for midterm and final exams

Lecture Schedule

TuTh 8:30am-9:50am in LA*204 (9/5 to 12/13)

Instructor Information

Ernesto Guzman

Professor

Email: eguzman@uoguelph.ca

Office: 3240 Bovey building

Office Hours:

TBA

Wissarut Sukhaket

TA

Email: wsukhake@uoguelph.ca

Office: TBA

Office Hours:

TBA

Chantal Berezcki

TA

Email: cberezck@uoguelph.ca

Office: TBA

Office Hours:

TBA

Textbooks

Group	Title	Author	ISBN
Required	The Beekeeper's Handbook	D. Sammataro and A. Avitabile	9781501752612

Library Course Reserve (Ares)

For this course, you will be required to access course reserve materials through the University of Guelph McLaughlin Library. To access these items, select **Ares** on the navbar in CourseLink. Note that you will need your Central Login ID and password in order to access items on reserve.

For further instructions on accessing reserve resources, visit [How to Get Course Reserve Materials \(https://www.lib.uoguelph.ca/find/course-reserves-ares/\)](https://www.lib.uoguelph.ca/find/course-reserves-ares/).

If at any point during the course you have difficulty accessing reserve materials, please contact the e-Learning Operations and Reserve Services staff at:

Tel: 519-824-4120 ext. 53621 | Email: libres2@uoguelph.ca | Location: McLaughlin Library, First Floor, University of Guelph

Course Learning Outcomes

1. The fundamentals and scientific basis of beekeeping
2. Key biological principles using the honey bee as a model organism
3. The importance of honey bees as beneficial insects involved in food production and in ecosystem sustainability
4. Management practices involved in keeping honey bees healthy and productive
5. To search, interpret, discuss and communicate in writing aspects of scientific literature relating to honey bee biology

Open Text Field

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Schedule of Topics and Assignments

Week of	Topic	Activities	Due
9/5	Introduction to the course		
9/10	Why study honey bees?, Evolution and classification of honey bees, History of beekeeping, Life stages: from egg to adult bee	Textbook pp 5-7, 16-18	
9/17	Functional honey bee morphology, Life in the hive (colony cycle), Honey bee division of labour, Foraging behaviour	Textbook pp 11-15, 301-305, 18-24, 26-38	
9/24	The dance language, Mating behaviour, Swarming behaviour	Textbook pp 38-39, 150-151, 185-192	
10/1	Species and subspecies of honey bees, Honey bee genetics and sex determination	Textbook pp 7-10 Guzman-Novoa (2019)	Midterm 1
10/8	Africanized honey bees, Starting beekeeping	Assigned article Textbook pp 56-59	
10/15		Fall Study Break	
10/22	Beekeeping equipment, Apiary considerations Inspection and seasonal management Commercial beekeeping	Textbook pp 42-55, 64-66, 278-279 Textbook pp 74-75, 77-86, 117-126, 131-135, 145	

10/29	Honey, Other hive products, Queen rearing	Textbook pp 135-136, 139-142, 143-144, 204-214, 217-225, 113-114, 167-176	Written assignment due
11/5	Pollination of crops, Honey bee diseases - 1	286-290, 299-300, 238-246	Midterm - 2
11/12	Honey bee diseases 2 and 3	Textbook pp 228-232, 250-258, 262, 246-248	
11/19	Honey bee pests, Honey bees and pesticides, Venom and allergies	Textbook pp 264-269, 272-273, 234-237, 3, 86-87, 309-311	
11/26	Bees into the future		
12/3	Review session		

Lab / Seminar Schedule

Assessment Breakdown

{NOTE: instructor can add another row by hitting "TAB" button when they are at the end of the row}

Description	Weighting (%)	Due Date
Visit to the HBRC	5%	Week 4 (Sept)
Midterm - 1	25%	Week 5 (Oct)
Written assignment	10%	Week 9 (Nov)
Midterm - 2	25%	Week 10 (Nov)
Final exam	35%	TBA (Dec)

Assessment Details

Final Exam

Date: Dec 3

Time: Tu 11:30am-1:30pm

Location: TBA *Please see Web Advisor closer to the date of scheduled final for location.*

To understand rules and regulations regarding Examinations students are encouraged to read Student's Responsibilities (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/examinations/>)

If the student is unable to meet the final exam requirements due to medical, psychological or compassionate circumstances they are encouraged to review Student's Responsibilities in the Academic Consideration, Appeals and Petitions (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/academic-consideration-appeals-petitions/>) section of the Academic Calendar.

Last Day to Drop Course

The final day to drop Fall 2024 courses without academic penalty is the last day of classes: November 29

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

Written Assignment: This is an individual assignment. The format should be: 2 pages double-spaced excluding title page and references. No figures allowed. 12 pt. font, 1" margins on all sides, page number in top centre of page. October 31, 2024 is the last day to hand in the hard copy of the assignment.

Group work is not allowed; all assignments must be completed individually. Additionally, no artificial intelligence tools should be used to write the assignment

Late Assignment

Late assignments will be penalized 20% from the final mark for each day of delay in handing them to the instructor.

Standard Statements for Undergraduate 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/undergraduate-calendar/undergraduate-degree-regulations-procedures/academic-misconduct/>) is outlined in the Undergraduate 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.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability. Use of the SAS Exam Centre requires students to make a booking at least 10 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 Accommodations of Religious Obligations (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/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

Students will have until the last day of classes to drop courses without academic penalty. The deadline to drop two-semester courses will be the last day of classes in the second semester. This applies to all undergraduate students except for Doctor of Veterinary Medicine and Associate Diploma in Veterinary Technology (conventional and alternative delivery) students. The regulations and procedures for course registration are available in the Undergraduate Calendar - Dropping Courses (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/dropping-courses/>).

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 Undergraduate Calendar for information on regulations and procedures for Academic Consideration. (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/academic-consideration-appeals-petitions/>)