

Introduction of Ecology, Evolution, and Biodiversity (Biology 1051 WDF)

Course Syllabus (Winter 2025)

Course description: An introduction to fundamental evolutionary and ecological concepts with reference to biodiversity and the dynamics of species interactions. Emphasis will be placed on understanding the diversity of life, and the characteristics, behaviour, and classification of prokaryotes, unicellular eukaryotes, fungi, and multicellular plant and animal species. Lecture concepts are reinforced through hands-on exercises in laboratory sessions. Students who have previous credit for Biology 1110 cannot take Biology 1051 for credit.

Faculty Information:

Professor: Dr. Janice M. Hughes

Email: jmhughes@lakeheadu.ca

Zoom office hours: Monday at 1 pm

Other times available by appointment; please email me. Office hours link can be found on D2L.

Lab Technician: Chase Moser

Office: A 150A (Georgian College, Barrie Campus)

Phone: (705) 728-1968 ext. 1839

Email: cmoser@lakeheadu.ca

Course Learning Outcomes:

Upon satisfactory completion of this course, the student will be able to:

- Understand the fundamental concepts and underlying processes of evolution.
- Understand the basic principles of phylogenetics and classification.
- Categorize the diversity of major lineages of microbes, fungi, and protists, and understand the primary characteristics of each lineage.
- Categorize the diversity of major lineages of plants and understand the primary characteristics of each lineage.
- Categorize the diversity of major lineages of animals and understand the primary characteristics of each lineage.
- Remember the basic properties of populations and ecological interactions among different types of living organisms within ecosystems and biomes.
- Understand the importance of these biotic and abiotic interactions in ecosystem functioning and providing the services upon which all life exists.
- Understand the effects that humans have had on ecological systems and biodiversity, and identify important remediation actions.

Program information is on the Desire to Learn (D2L) Lakehead University-Georgian College partnership course shell. Students are encouraged to review the program information.

Class Schedule:

Lecture	Monday and Wednesday	11:00 am – 12:30 pm	Zoom
Lab	Thursday	8:00 am – 11:00 am	M313

Important dates:

First day of classes:	Monday, January 6
Study week (no classes):	Monday, February 24 – Friday, February 28
Final date to withdraw:	Friday, March 7
Family Day (no classes):	Monday, February 17
Exam study days:	Saturday, April 5 and Sunday, April 6
Final exam period:	Monday, April 7 – Saturday, April 19 (Contingency day: April 20)

Marking Scheme (Lectures):

There are two midterm tests held on February 5 and March 10. These tests will be run online through the D2L course webpage at the scheduled lecture time. Additional instructions are posted on the course webpage. The final exam is also online and will occur during the April exam period. The tests and final exam are not cumulative.

Midterm Test 1	Unit 1 (Evolution 1) through Unit 10 (Flowering Plants)	15%
Midterm Test 2	Unit 11 (Intro to Animals) through Unit 15 (Deuterostomes)	15%
Final Exam	Unit 16 (Fishes) through Unit 25 (Biodiversity/Conservation)	30%

Marking Scheme (Labs):

There are two lab tests that will occur in your regularly scheduled lab on February 13 and April 3. There are also five lab quizzes, and a mini report. More information about the lab test, quizzes, and report will be provided on the lab outline and in the lab.

Lab Test 1	Lab 1 (Evolution/Classification) to Lab 5 (Angiosperms)	10%
Lab Test 2	Lab 6 (Porifera/Cnidaria/Lophotrochozoans) to Lab 10 (Ecology)	10%
Lab Quizzes	See lab schedule	10%
Mini Report	Due March 20	10%

Course Resources:

Lecture Notes: *Introduction to Ecology, Evolution, and Biodiversity Lecture Notes*
 (download from the D2L course webpage)

Lab Manual: *Exploring Biology in the Laboratory, 3rd edition*. MP Pendarvis and JL Crawley. Morton Publishing.

Optional Text: *Biology 2e* from OpenStax (Custom edited version available on D2L; complete textbook available free at <https://openstax.org>)

Textbook Costs: Lab manual is available from the bookstore for \$139.95. However, please note that this is the same manual that is used for BIOL 1050. The optional text is available free of charge from D2L or the link above.

Schedule of Lecture Topics:

This is a tentative schedule of topics and is subject to change.

Week/Date	Key Topics	Tests/Comments
Week One January 6/8	Introduction to the Course Unit 1: Evolution – Darwin and Before	
Week Two January 13/15	Unit 2: Evolution – Populations and Species Unit 3: Classification Unit 4: Prokaryotes	
Week Three January 20/22	Unit 5: Protists Unit 6: Fungi Unit 7: Rise of Land Plants Unit 8: Seedless Plants	
Week Four January 27/29	Unit 9: Gymnosperms Unit 10: Flowering Plants Unit 11: Introduction to Animals	
Week Five February 3/5	Unit 12: The First Animals (February 3)	Midterm 1 (February 5) Covers units 1 – 10
Week Six February 10/12	Unit 13: Lophotrochozoans Unit 14: Ecdysozoans	
Week Seven February 17/19	Unit 15: Introduction to Deuterostomes Unit 16: Fishes	No classes (February 17)
Study Week February 24/26	No classes	
Week Eight March 3/5	Unit 17: Amphibians Unit 18: Reptiles	
Week Nine March 10/12	Unit 19: Birds	Midterm 2 (March 10) Covers units 11 – 15
Week Ten March 17/19	Unit 20: Mammals	
Week Eleven March 24/26	Unit 21: Introduction to Ecology/ Biosphere Unit 22: Population Ecology	
Week Twelve March 31/April 2	Unit 23: Communities Unit 24: Ecosystem Unit 25: Biodiversity and Conservation	
Exam Period April 7 – April 19	Date and time to be announced	Final exam Covers units 16 – 25

Schedule of Lab Topics:

This is a tentative schedule of topics and is subject to change.

Week/Date	Key Topics	Assignments/Tests/Activities
Week One January 9	Lab 1: Understanding Evolution and Classification Chapters 16 and 17	
Week Two January 16	Lab 2: Protists and Fungi Chapters 20 and 26	Experiment Setup
Week Three January 23	Lab 3: Seedless Plants Chapters 21 and 22	Quiz 1
Week Four January 30	Lab 4: Gymnosperms Chapter 22	Quiz 2
Week Five February 6	Lab 5: Angiosperms Chapters 24 and 25	Quiz 3
Week Six February 13		Lab Test 1 Covers labs 1 – 5
Week Seven February 20	Lab 6: Porifera, Cnidaria, and Lophotrochozoans Chapters 28 and 29	
Study Week	No lab	
Week Eight March 6	Lab 7: Molluscs and Experiment Conclusion	Quiz 4
Week Nine March 13	Lab 8: Ecdysozoans Chapter 30	
Week Ten March 20	Lab 9: Deuterostomes Chapter 31	Quiz 5 Mini report due
Week Eleven March 27	Lab 10: Understanding Ecology Chapter 39	On-campus field trip
Week Twelve April 3		Lab Test 2 Covers labs 6 – 10

Other Important Information:

Course delivery: The lectures will be delivered remotely through Zoom. Attendance in the lectures is highly recommended because it will allow you to ask questions, provide comments, and interact with other students in the chat. The labs will be delivered in-person.

Lecture recordings: Lecture recordings will be available after each lecture. The recordings are confidential and are intended for the use of students and instructors only. They may not be shared, viewed, or disclosed to anyone who is not registered in this course during the Winter 2025 term. To protect the privacy of others, please ensure that no one else is present in the

room/area where you are located during recording. If this is a concern, make sure that your camera is off and that your microphone is muted during the lecture.

Accessibility: I am fully committed to providing all recommended accommodations for students with disabilities who are registered with Student Accessibility Services. Please feel free to make an appointment with me to discuss these options.

Expectations for Successful Participation:

- Attend every class. If you miss a class, ask a learning partner to help you catch up.
- Check D2L regularly for announcements and course updates.
- Ask questions if you need clarification either in class or lab, or by email. Please use your lakehead.ca email address to send the message and mention the course name or number in your email.
- Keep up with your course work. Read the designated material and complete any assigned work so that you can come to class prepared.
- Submit your assignments by the deadline! You are strongly advised not to wait until the last minute to submit your assignments in case you have computer problems.

Course Policies:

Absence due to Illness: If you miss a test or quiz due to illness, you must inform me by email within 24 hours of the scheduled test time; otherwise, you may not be able to write a make-up test. Athletes who will miss a midterm due to competitions must provide a letter or email from their coach in advance that shows the dates of their competitions. No other excuses (e.g., vacations, sleeping in, or non-university related activities) for missing tests will be accepted.

Online exams: According to the Student Code of Conduct on Academic Integrity, any collaboration on online exams and quizzes in this course is considered cheating. You must do the online tests alone with no help from friends, family, or classmates! The minimum penalty for collaboration or cheating is a mark of zero on the test. Not reading these instructions is not an excuse for not knowing them!

Final exams: I cannot reschedule a final exam so please wait until the exam schedule comes out in February before you plan any activities during the final exam period.

If you miss the final exam, you must follow the procedures outlined by Enrolment Services before a make-up exam can be rescheduled. More information can be found at <https://www.lakeheadu.ca/studentcentral/exams-grades/exam-central>.

Special exam: If you fail the course with a final grade between 40 and 49 (or if you qualify based on other circumstances, see link below), you may be eligible to write the special exam in June. The mark on the special exam will replace the mark that you received on the final exam in April. It is your responsibility to sign up for the special exam through Student Central before the deadline in May. It is advisable that you take the special exam very seriously because if you do poorly on it, your final grade may go down. We do not pick the highest of the two exam grades.

You can find information regarding the special exam here:

<https://www.lakeheadu.ca/studentcentral/exams-grades/special-exam-criteria>

<https://www.lakeheadu.ca/studentcentral/exams-grades/special-exam-deadline-dates>

More information: Please see the *Frequently Asked Questions* posted on D2L.

Use of AI Programs: The use of any AI programs (such as ChatGPT) on exams, quizzes, and assignments in this course is considered a breach of academic integrity and, as such, the minimum penalty will be a grade of zero on the work.

Generative artificial intelligence (Generative AI or GenAI) is a category of AI systems capable of generating text, images, or other media in response to prompts. These systems include ChatGPT and its variant Bing (built by OpenAI) and Bard (built by Google) among several others. Other Generative AI models include artificial intelligence art systems such as Stable Diffusion, Midjourney, and DALL-E. Any use of GenAI systems to produce assignments or exam answers for this course is not permitted. All work submitted for evaluation in this course must be the student's original work. The submission of any work containing AI generated content will be considered a violation of academic integrity ("Use of Unauthorized Materials").

Academic and Student Code of Conduct Policies

- Academic and student policies and procedures for those enrolled in the Lakehead-Georgian programs can be found on the [Lakehead-Georgian Student Portal](#).
- All Lakehead-Georgian programs will follow the Lakehead Regulations as list in the Lakehead University Academic Calendar (<http://csdc.lakeheadu.ca/Catalog/ViewCatalog.aspx?pageid=viewcatalog&loaduserredits=False>). The University Regulations include but are not limited to Registration, Examinations, Reappraisals and Academic Appeals, Special Examinations, Academic Misconduct, Withdrawal, and Timely Feedback. Additional Faculty Regulations may also apply. Please review the Academic Calendar.
- The Lakehead University Student Code of Conduct - Academic Integrity (<https://www.lakeheadu.ca/students/student-life/student-conduct>) will apply to all Lakehead-Georgian students regardless of campus of study.
- The Lakehead University Student Code of Conduct - Appeals (<https://www.lakeheadu.ca/students/student-life/student-conduct>) will apply to all Lakehead-Georgian students regardless of campus of study.

- The Georgian College Student Code of Conduct (<http://www.georgiancollege.ca/student-code-of-conduct/>) will apply to the Lakehead-Georgian students studying at the Barrie campus. Additional campus policies of Sexual Violence Procedure and Protocol (<https://www.georgiancollege.ca/about-georgian/campus-safety-services/tab/sexual-violence>), Alcohol, Drugs and Tobacco (<https://www.georgiancollege.ca/about-georgian/campus-safety-services/tab/alcohol-drugs-and-tobacco>), and Information Technology Acceptable Use Procedure (<http://www.georgiancollege.ca/wp-content/uploads/2-117IT-acceptable-use.pdf>) also apply.
- The Lakehead University Student Code of Conduct – Non-Academic (<https://www.lakeheadu.ca/students/student-life/student-conduct>) will apply to the Lakehead-Georgian students studying at the Orillia campus.

Plagiarism and Academic Dishonesty

A breach of Academic Integrity is a serious offence. The principle of Academic Integrity, particularly of doing one's own work, documenting properly (including use of quotation marks, appropriate paraphrasing, and referencing/citation), collaborating appropriately, and avoiding misrepresentation, is a core principle in university study. Students should view the Student Code of Conduct: Academic Integrity (<https://www.lakeheadu.ca/students/student-life/student-conduct>) for a full description of academic offences, procedures when Academic Integrity breaches are suspected and sanctions for breaches of Academic Integrity.

Whom to Contact

STUDENT ADVISING (NON-ACADEMIC)		
Heather Harrison Student Success Advisor		heather.harrison@georgiancollege.ca (Georgian, Barrie) Room A143AA
APPLIED LIFE SCIENCES		
Lakehead University Program Coordinator	Dr. David Law	Tel: 705-330-4010, Ext. 2646 dlaw@lakeheadu.ca (Lakehead, Orillia) Room OA 3018
Georgian College Program Coordinator	Dr. Sean Madorin	Tel: 249-388-1116 sean.madorin@georgiancollege.ca (Georgian, Barrie) Room M320E
ENVIRONMENTAL SUSTAINABILITY		
Lakehead University Department Chair	Dr. Sree Kurissery	Tel: 705-330-4010, Ext. 2629 skurisse@lakeheadu.ca (Lakehead, Orillia) Room OA 3010
Georgian College Program Coordinator	Rhonda Bell-Allen	Tel: 249-388-1702 rhonda.bell-allen@georgiancollege.ca (Georgian, Barrie) Room A143G

SCIENCE LABORATORY SUPPORT		
Lakehead University Laboratory Technician	Chase Moser	Tel: 249-388-1602 cmoser@lakeheadu.ca (Georgian, Barrie) Room A150A

Student Services and Supports

Student Advisors (<https://georgiancollege.sharepoint.com/sites/student/Student-Services/StudentAdvisors/SitePages/Home.aspx>)

- Help students build both academic and personal resilience so that they can flourish at Georgian and beyond
- Provide individual, group and web-based advising sessions
- Are housed within the academic areas
- To book an appointment with your advisor go to the <https://outlook.office365.com/book/StudentSuccessAdvisorFallonMiller@georgiancollege.onmicrosoft.com/>

Library (<http://library.georgiancollege.ca/main>)

Customer Service:

- Off campus access

Research help:

- Help finding books, articles and credible sources
- Using specialty databases
- Creating a search strategy

Academic Success (<https://library.georgiancollege.ca/help/contact-academic-success>)

Writing Centre (http://library.georgiancollege.ca/writing_centre)

- Improve your writing.
- Help with citing sources and laying out your paper.

Math Centre (http://library.georgiancollege.ca/math_centre)

- Make sense of math questions.
- Understand concepts and develop skills.

Tutors (<http://library.georgiancollege.ca/tutoring>)

- Further understand course content.
- Build your study practices.

Accessibility Services (<https://www.georgiancollege.ca/student-life/student-services/accessibility-services/>)

If you are a student experiencing a disability who may require academic accommodations and have not yet registered with Accessibility Services, please contact their office at 1-877-722-1523 email studentsuccess@georgiancollege.ca, or visit their offices in B110. You must be registered with Accessibility Services to access academic accommodations. Support for those students whose success at college may be affected by a disability include:

- Ongoing support from our Accessibility Advisors including arranging a confidential psychoeducational assessment where required
- Training in the use of specialized computer technology
- Classroom and test accommodations

Testing Services (<http://www.georgiancollege.ca/student-life/student-services/testing/>)

- Accommodated testing
- Missed/Makeup testing
- Proctoring services are also available for external and Ontario Learn exams

Counselling (<http://www.georgiancollege.ca/student-life/student-services/counselling/>)

- Free, confidential counselling is available to all students
- Walk in counselling is available daily Monday to Friday

Career Success (<http://www.georgiancollege.ca/student-life/student-services/co-op-and-career-services/>)

Career assessments and exploring options

- Job search workshops
- Labour market information
- Resume/cover letter help
- Interview practice
- Graduate employment information; links to job postings and online resource

Campus Safety and Security Syllabus Addendum**Emergency Evacuation** (<https://www.georgiancollege.ca/about-georgian/campus-safety-services/emergency-management/#fire>)

- Evacuate buildings when a fire alarm is activated or an official announcement is given. Review evacuation guidelines. (<https://www.georgiancollege.ca/about-georgian/campus-safety-services/emergency-management/#fire>)
- Students requiring assistance in emergency situations must inform their faculty during the first week of class.
- Familiarize yourself with all fire exit doors of classrooms and buildings you may occupy.

- Do not re-enter a building until instructions are given by the Fire Department or college personnel.

Lockdown (<https://www.georgiancollege.ca/about-georgian/campus-safety-services/tab/lockdown>)

- Lockdown is initiated when there is a potential or actual violent incident on campus that could result in a serious injury or threat to life.
- Students can download the new Safe@Georgian app to stay updated on Campus Safety and Security information including lockdown.
- Familiarize yourself with the College Lockdown procedure (<https://www.georgiancollege.ca/wp-content/uploads/Lockdown.pdf>)
- Lockdown tests occur each semester.

Resources:

- Get Out, Hide, Fight Lockdown video (<http://youtu.be/JA8cckMbVDk>)
- Lockdown quick reference sheet (http://www.georgiancollege.ca/wp-content/uploads/COM-15-416_LockdownProcedure_Signage_FVR3_print.pdf)
- Lockdown Model – Get Out, Hide, Fight: Lockdown Tools and Tactics and FAQs.

Unscheduled Campus Closure <https://content.georgiancollege.ca/wp-content/uploads/Unscheduled-Campus-Closure.pdf>

Resources:

- How to find out if your campus is closed (<https://www.georgiancollege.ca/about-georgian/campus-safety-services/emergency-management/#closure>)
- Unscheduled Campus Closure Procedure (<https://www.georgiancollege.ca/wp-content/uploads/2-102Unscheduled-college-closure-2018.02.10.pdf>)

Timing of Closures/Notification:

Closure	Decision	Communication / Notification*	Notes
College has made the decision to close a campus or location in the morning:	6:00 a.m.	By 6:30 a.m.	If re-opening for noon or evening classes is being considered, this will be mentioned in the message
College closes a campus(s) in the morning and <u>expects to re-open by 12:00 noon</u>	9:30 a.m.	By 10:00 a.m.	Only affects classes beginning at 12 noon or later
Closure expected to continue <u>past 12:00 noon</u>	9:30 a.m.	By 10:00 a.m.	

College intends to <u>re-open for evening classes</u> which commence at 5 p.m. or later	2:30 p.m.	By 3:00 p.m.	
College intends to <u>NOT re-open for evening classes:</u>	2:30 p.m.	By 3:00 p.m.	

***Notification will be made via:**

- Georgian social media (Facebook, Twitter)
- Safe@Georgian app
- Georgian website (homepage)
- Recorded message when you call into Barrie campus at 705-728-1968
- Student or employee portal
- Georgian email account
- Radio and television announcements through local and regional media

Note: We only announce the names of campuses that are closed. If your campus is not named in a closure, it is open.