

COURSE SYLLABUS

COURSE TITLE:	BIOL 342 Fungi, Environment and People		
COURSE CODE:	87181	TERM:	Fall 2023
COURSE CREDITS:	3.0	DELIVERY:	In Person Lecture and Lab
CLASS SECTION:	01	START DATE:	September 6 th , 2023
CLASS LOCATION:	Geology 161	LAB LOCATION:	Thorvaldson 132
CLASS TIME:	TTh 10:00 AM to 11:20 AM	LAB TIME:	Wed 1:30 PM to 5:20 PM

Course Description

Often overlooked due to their small size, or wrongly considered to be 'lower plants', fungi are more closely related to animals. They have major impacts on human health, biotechnology, the environment, and agriculture. We will examine fungal diversity, cell biology and development, reproductive and genetic strategies, symbioses, and biotechnology applications in this diverse and successful group.

Prerequisites: Biology 120 and Biology 121

Land Acknowledgement

As we gather here today, we acknowledge that the Saskatoon campus of the University of Saskatchewan is on Treaty Six Territory and the Homeland of the Métis. We pay our respect to the First Nation and Métis ancestors of this place and reaffirm our relationship with one another. We recognize that in the course of your studies you will spend time learning in other traditional territories and Métis homelands. We wish you safe, productive, and respectful encounters in these places.

Instructor Information

Contact Information

Jacey Bell (she/her)

Email: jacey.bell@usask.ca

Office: Murray 91

Phone/WhatsApp Messaging: 1(306)966-4493

Note: Your instructor will attempt to answer any email communications or WhatsApp messages during working hours, within one business day whenever possible. She does not regularly check messages outside of work time.

Office Hours

The instructor works in multiple buildings across campus and is unable to hold regular office hours. Therefore, students are welcome to make appointments for office hours, either for in-person meetings or zoom web conferences.

Instructor Profile

Jacey completed her B.Sc. (hon) in biology at the University of Saskatchewan in 2010 and all requirements for her Master of Educational Technology from the University of British Columbia, to be conferred in November 2023. She has previously worked as a botanist, market gardener, and research assistant, and has been a Usask Biology Departmental Assistant since September 2015. Jacey is cofounder of the Saskatchewan Mycological Working Group, a collection of volunteers who aim to document as many species observations of provincially-occurring lichens and fungi as possible.

Required and Recommended Resources

Required Resources

Required readings will be open-source materials with links provided in the course tool (Canvas). The lab manual will be posted weekly in the appropriate Canvas module.

Supplementary Resources

Supplementary resources will be provided or linked to in the course Canvas. If you are keen to continue studying mycology and enjoy print material, *The Fifth Kingdom: An Introduction to Mycology* by Bryce Kendrick is highly recommended.

Learning Outcomes

By the completion of this course, students will be expected to:

1. Define and discuss cellular and genetic characteristics of fungi and fungus-like organisms.
2. Classify major groups of true fungi, with examples.
3. Describe modes of fungal growth and nutrition, reproduction, and genetic exchange.
4. Describe symbiotic and pathogenic relationships of fungi with plants and animals.
5. Describe and discuss the importance of fungi as detritivores.
6. Describe fungal roles in agriculture: crop yields, food production and storage.
7. Describe and explain how fungi are used in industrial and traditional biotechnology.
8. Describe and explain how fungi can be used in bioremediation.

Information on literal descriptors for grading at the University of Saskatchewan and more can be found in the Academic Courses Policy on course delivery, examinations and assessment of students learning: <http://students.usask.ca/academics/grading/grading-system.php>

Please note: There are different literal descriptors for undergraduate and graduate students.

The University of Saskatchewan Learning Charter is intended to define aspirations about the learning experience that the University aims to provide, and the roles to be played in realizing these aspirations by students, instructors and the institution. A copy of the Learning Charter can be found at: <https://teaching.usask.ca/about/policies/learning-charter.php>

Assessment Types

Assessment Details

Grading Scheme

Midterm exam	20
Final exam	35
Laboratory assignments	25
Research paper and presentation	20
Total	100%

Evaluation Components

Laboratory Assignments

Value: 25%

Due Date: Weekly during lab time

Type: Writing and/or drawing & labeling as instructed

Description: Students are encouraged to keep a detailed laboratory notebook, either on paper or electronically for their own records. Each week, students will be assigned a specific drawing and/or piece of writing directly related to the week's lab material that must be uploaded to the course Canvas before the end of the lab period.

Research Paper and Presentation

Value: 20%

Due Date: Presentations will occur Nov 29 & Dec 6; Paper due Dec 7, 2023

Type: Academic research, writing, and oral presentation

Description: Students will be given the opportunity to choose a focused topic related to fungi that interests them. They may work independently or in pairs to conduct a miniature literature review of the topic and present what they have learned to the class during one of the last two scheduled laboratory sessions. Assessment for this assignment will be conducted by the instructor, teaching assistants, and peers. Further information and rubrics will be posted to the course Canvas.

Submitting Assignments

Assignments must be submitted to the appropriate page on the course Canvas *on or before* the deadline.

Late Assignments

Late assignments will be accepted up to seven (7) days beyond the due date. The penalty for your delay is 10 percent per day of lateness from the value of the assignment, including weekend days. Extensions may be granted in exceptional circumstances (e.g., illness or emergency). If you must request an extension, please do so before the deadline has passed.

Midterm Assessment

Value: 20% of final grade

Date: During lecture time on October 19, 2023.

Length: 80 min

Type: Combination of short and long answer questions.

Description: Based on all lecture topics before the mid-term exam. **Note that no phone, laptop, tablet or other electronic or textbook are allowed.** Students should bring their valid U of S student identify card with pencils and erasers. This exam must be completed by students, individually (any remote or on-line exam will not be available to students).

Final Assessment

Value: 35% of final grade

Date: Consult Final Exam Schedule

Length: 3 hours

Type: Combination of short and long answer questions.

Description: The final exam is comprehensive in that it will cover all lecture materials. However, lecture topics delivered after the midterm exam will be emphasized. **Note that no phone, laptop, tablet or other electronic or textbook are allowed.** Students should bring their valid U of S student identify card with pencils and erasers. This exam must be completed by students, individually (any remote or on-line exams will not be available to students). Students must avoid making prior travel, employment, or other commitments for this period.

Midterm and Final Assessment Scheduling

Midterm and final assessments must be written on the date scheduled.

Midterm Exam Review	Oct 17
Midterm Exam	Oct 19

Final assessments may be scheduled at any time during the examination period (**Dec 9 – Dec 23, 2023**); students should therefore avoid making prior travel, employment, or other commitments for this period. If a student is unable to write an exam through no fault of his or her own for medical or other valid reasons, documentation must be provided and an opportunity to write the missed exam may be given. Students are encouraged to review all examination policies and procedures: <http://students.usask.ca/academics/exams.php>

Length and Mode of Final Examination

The final examination will be 3 hours in length and consists of short answer questions (including multiple choice, fill in the blanks, drawing and labeling diagrams, matching) and long answer written questions (including paragraph and essay-style).

Criteria to Pass

Students must complete writing both the **Midterm exam** and **Final exam** in order to pass this course and achieve a minimum overall course grade of 50%. The final grade will be adjusted only when the student writes the Deferred Lecture Final Exam.

Course Overview

This course is comprised of an 80 minute lecture, twice per week, **beginning on September 6th, 2023**, and a **weekly lab session, starting on September 13th, 2023**. In addition, there will be a field trip on **September 23rd, 2023** from 9:00 AM – 3:00 PM.

Class Schedule

Week	Date	Topics / Module	Learning Activities Including Homework	Assessments Due Date
1	Sep 4-8	Introduction Course structure, history of mycology	-	-
2	Sep 11-15	Taxonomy & Biodiversity Classification, relationships, phyla, taxonomic change and uncertainty	Intro Lab – Equipment and Skills	Lab Assignment 1 Sept 13
3	Sep 18-22	Characteristics of Fungi Morphology, anatomy and physiology, feeding types,	Lab 1 – Slimes & Microfungi I Sept 23 Field Trip	Lab Assignment 2 Sept 20
4	Sep 25-29	Characteristics of Fungi Life cycles, reproduction strategies	Lab 2 – Microfungi II	Submit Topic for Approval Sept 26 Lab Assignment 3 Sept 27
5	Oct 2-6	Ecology Decomposers, nutrient cycling, symbiotic relationships	Lab 3 – Macrofungi I	Lab Assignment 4 Oct 4
6	Oct 9-13	Ecology Carbon sequestration, climate change, animal pathogens	Lab 4 – Macrofungi II	Lab Assignment 5 Oct 11
7	Oct 16-20	Review and Midterm Exam		Midterm Exam Oct. 19
8	Oct 23-28	Medicine Mycotoxins, hallucinogens, secondary metabolites, pharmaceuticals, human pathogens	Lab 5 – Macrofungi III	Lab Assignment 6 Oct 25

9	Oct 30- Nov 3	Economics Mushroom growing/gathering, agricultural applications, plant pathology	Lab 6 – Lichens & <i>Fungi imperfecti</i>	Lab Assignment 7 Nov 1
10	Nov 6-10	Midterm Break		
11	Nov 13-17	Economics Products, nutritional properties, food processing, food spoilage	Lab 7 – Fungi and Food	Lab Assignment 8 Nov 15
12	Nov 20-24	No Lectures or Lab – Wrap Up Term Projects		
13	Nov 27- Dec 1	Applied Mycology Restoration, biocontrol, bioremediation	-	Presentations Nov 29
14	Dec 4-8	Review Week	-	Presentations Dec 6 Term Paper Dec 7
Final Exam – Date TBD				

Student Feedback

You will be provided opportunities throughout the term to provide feedback about the course. This will include the use of the University administered course feedback system, SLEQ, both partway through the class and at the end of term, and less formal methods. I value this feedback and use it to modify and improve the course to best meet student learning needs.

Experiential Learning Outcomes

By the completion of this course, students will have hands-on experience with:

1. Sterile culturing methods of fungi
2. Proper collection and documentation of specimens for identification purposes
3. DNA extraction and analysis
4. Slide preparation and microscopic examination of fungal structures using immersion oil

Activities Outside of Class Time or Usual Location

A field trip is scheduled for **Saturday, September 23 from 9:00 AM – 3:00 PM**. We will travel to the Nisbet forest just south of MacDowall, SK to gain firsthand experience in the documentation and collection of fungal specimens for identification. Students are responsible for providing their

own lunch and appropriate footwear/outerwear for the conditions. Transportation and collection materials will be provided.

Students will gain firsthand experience in correct mushroom specimen documentation and collection for future identification activities. The goal is for students to experience forest fungi *in situ* and practice their field identification and collection skills. By scheduling the trip for a Saturday, we will have enough time to fully practice field skills.

If they are unable to attend for a valid reason (e.g., illness, prior commitment), students will be provided with specimens and photos from the field trip so that they can participate in later laboratory activities that require use of collected specimens. Alternatively, they may be able to collect fungi on campus during their own time for use in the course.

Attendance

Students are expected to attend all scheduled lectures and lab times. Please contact the instructor as soon as possible if you have any extenuating circumstances that require you to be absent.

Use of Technology – Recording the Course

This course will not be recorded and students are prohibited from recording the course. Students with approval from Access and Equity Services should discuss a plan with the instructor to access lecture materials.

Use of Technology – Other Student Uses

The lab room is equipped with computers and microscope-compatible cameras for student use. Students are welcome to bring their own devices if preferred.

Copyright Information

Course material created by your professors and instructors is their intellectual property and **cannot be shared without written permission**. This includes exams, PowerPoint/PDF lecture slides and other course notes. If materials are designated as open education resources (with a creative commons license) you can share and/or use them in alignment with the [CC license](#). Other copyright-protected materials created by textbook publishers and authors may be provided to you based on license terms and educational exceptions in the [Canadian Copyright Act](#).

You are responsible for ensuring that any copying or distribution of materials that you engage in is permitted by the University's "[Use of Materials Protected By Copyright](#)" Policy. For example, posting others' copyright-protected materials on the open internet is not permitted by this policy unless you have copyright permission or a license to do so. For more copyright information, please visit <https://library.usask.ca/copyright/students/index.php> or contact the University Copyright Coordinator at copyright.coordinator@usask.ca or 306-966-8817.

University of Saskatchewan Grading System (for undergraduate courses)

Exceptional (90-100) A superior performance with consistent evidence of

- a comprehensive, incisive grasp of the subject matter;
- an ability to make insightful critical evaluation of the material given;
- an exceptional capacity for original, creative and/or logical thinking;
- an excellent ability to organize, to analyze, to synthesize, to integrate ideas, and to express thoughts fluently.

Excellent (80-90) An excellent performance with strong evidence of

- a comprehensive grasp of the subject matter;
- an ability to make sound critical evaluation of the material given;
- a very good capacity for original, creative and/or logical thinking;
- an excellent ability to organize, to analyze, to synthesize, to integrate ideas, and to express thoughts fluently.

Good (70-79) A good performance with evidence of

- a substantial knowledge of the subject matter;
- a good understanding of the relevant issues and a good familiarity with the relevant literature and techniques;
- some capacity for original, creative and/or logical thinking;
- a good ability to organize, to analyze and to examine the subject material in a critical and constructive manner.

Satisfactory (60-69) A generally satisfactory and intellectually adequate performance with evidence of

- an acceptable basic grasp of the subject material;
- a fair understanding of the relevant issues;
- a general familiarity with the relevant literature and techniques;
- an ability to develop solutions to moderately difficult problems related to the subject material;
- a moderate ability to examine the material in a critical and analytical manner.

Minimal Pass (50-59) A barely acceptable performance with evidence of

- a familiarity with the subject material;
- some evidence that analytical skills have been developed;
- some understanding of relevant issues;
- some familiarity with the relevant literature and techniques;
- attempts to solve moderately difficult problems related to the subject material and to examine the material in a critical and analytical manner which are only partially successful.

Failure <50 An unacceptable performance

Academic Integrity

The University of Saskatchewan is committed to the highest standards of academic integrity. <https://academic-integrity.usask.ca/>

Students are urged to read the [Regulations on Academic Misconduct](#) and to avoid any behaviours that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence.

For help developing the skills for meeting academic integrity expectations, see: <https://academic-integrity.usask.ca/students.php>

Students are encouraged to ask their instructors for clarification on academic integrity requirements.

Generative Artificial intelligence tools are permitted in this course following specific guidance on proper use as provided with assessment instructions. Improper use of such tools will be considered academic misconduct in this course.

Students wanting to connect their assessment in this course to assessments they have completed in another course must get explicit permission of the instructor in order to avoid potential academic misconduct or self-plagiarism.

Access and Equity Services (AES)

Access and Equity Services (AES) is available to provide support to students who require accommodations due to disability, family status, and religious observances.

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Access and Equity Services (AES) if they have not already done so. Students who suspect they may have disabilities should contact AES for advice and referrals at any time. Those students who are registered with AES with mental health disabilities and who anticipate that they may have responses to certain course materials or topics, should discuss course content with their instructors prior to course add / drop dates.

Students who require accommodations for pregnancy or substantial parental/family duties should contact AES to discuss their situations and potentially register with that office.

Students who require accommodations due to religious practices that prohibit the writing of exams on religious holidays should contact AES to self-declare and determine which accommodations are appropriate. In general, students who are unable to write an exam due to a religious conflict do not register with AES but instead submit an exam conflict form through their PAWS account to arrange accommodations.

Any student registered with AES, as well as those who require accommodations on religious grounds, may request alternative arrangements for mid-term and final examinations by submitting a request to AES by the stated deadlines. Instructors shall provide the examinations for students who are being accommodated by the deadlines established by AES.

For more information or advice, visit <https://students.usask.ca/health/centres/access-equity->

[services.php](#), or contact AES at 306-966-7273 (Voice/TTY 1-306-966-7276) or email aes@usask.ca.

Student Supports

Academic Help – University Library

Visit the [University Library](#) and [Learning Hub](#) to find supports for undergraduate and graduate students with first-year experience, study skills, learning strategies, research, writing, math and statistics. Students can attend [workshops](#), access [online resources and research guides](#), book [1-1 appointments](#) or hire a [subject tutor](#) through the [USask Tutoring Network](#)

Connect with library staff through the [AskUs](#) chat service or visit various [library locations](#) on campus.

Enrolled in an online course? Explore the [Online Learning Readiness Tutorial](#).

Teaching, Learning and Student Experience

Teaching, Learning and Student Experience (TLSE) provides developmental and support services and programs to students and the university community. For more information, see the students' website <http://students.usask.ca>.

Financial Support

Any student who faces unexpected challenges securing their food or housing and believes this may affect their performance in the course is urged to contact Student Central <https://students.usask.ca/student-central.php>.

Gordon Oakes Red Bear Student Centre

The Gordon Oakes Red Bear Student Centre) is dedicated to supporting Indigenous student academic and personal success. The Centre offers personal, social, cultural and some academic supports to Métis, First Nations, and Inuit students. The Centre is an intercultural gathering space that brings Indigenous and non-Indigenous students together to learn from, with and about one another in a respectful, inclusive, and safe environment. Visit <https://students.usask.ca/indigenous/index.php> or students are encouraged to visit the ASC's website <https://students.usask.ca/indigenous/gorbosc.php>

International Student and Study Abroad Centre

The International Student and Study Abroad Centre (ISSAC) supports student success and facilitates international education experiences at USask and abroad. ISSAC is here to assist all international undergraduate, graduate, exchange, and English as a Second Language students in their transition to the University of Saskatchewan and to life in Canada. ISSAC offers advising and support on matters that affect international students and their families and on matters related to studying abroad as University of Saskatchewan students. Visit <https://students.usask.ca/international/issac.php> for more information.