7-Jan-16

University of Guelph
College of Biological Science
Department of Molecular and Cellular Biology (MCB)
COURSE OUTLINE
Methods in Microbial Culture & Physiology, MICR*2430
Fall 2016

Course description (1.5-3) [0.50]
This course uses a hands-on approach to investigate microbial growth and factors that impact growth and the interactions of microbes with biotic and abiotic environments. This course will explore the ecological diversity of microorganisms of selected environments. Students will develop a wide range of microbiology-related laboratory skills.
Prerequisite(s): MICR*2420

Teaching Team

1. Dr. Wendy J. Keenleyside, Course Instructor/Coordinator. Office SSC3506 (Summerlee Science Complex), wkeenley@uoguelph.ca
2. Rohan van Twest, Lab Coordinator/Demonstrator. Office SSC4113, rvantwes@uoguelph.ca
3. Ashley Brott, Graduate Teaching Assistant (GTA), abrott@uoguelph.ca
4. Nicole Kelly, GTA, nkelly02@uoguelph.ca
5. Alex Stirling, GTA, astirl01@uoguelph.ca
6. Samantha Watt, GTA, swatt@uoguelph.ca
7. Francesca Herlihey, GTA, fherlihe@uoguelph.ca
8. Richard Preiss, GTA, rpreiss@uoguelph.ca

Course Schedule

1. Seminars Tues. 11:30 - 12:50 pm, **MACN113 – this room may change**
2. Labs Wed., Thurs. & Fri. 2:30-5:30 pm, SSC4102
   - **labs begin Week 1 (Jan. 13-15) and continue through the last week of classes**

Course Goals
The learning outcomes for this course are listed below; these will be assessed through the various graded components of the course. They may be updated periodically, through deletion or addition, depending upon the pace and depth of coverage of a given topic. Note that categories A-D and their associated outcomes are discipline-specific. The last category, E: SELF-REGULATED LEARNING, specifically relates to your learning skills, self-awareness of your knowledge as well as behaviours and environmental conditions for enhancing learning, both individually and in a learning team. All of the learning outcomes will be taught, modelled and assessed. The material in this course will also further develop the broader MCB Program Learning Outcomes (MCB Learning Outcomes) and the University of Guelph learning outcomes (UofG Learning Outcomes).

A. ENERGY IN BIOLOGICAL SYSTEMS; METABOLIC PATHWAYS
By the end of the course, successful students will:
A1. Demonstrate an understanding that chemical transformations of biological molecules are catalyzed by enzymes organized in metabolic pathways
A2. Demonstrate an understanding that metabolic pathways are regulated
A3. Demonstrate an understanding that metabolic diversity exists among eukaryotes, prokaryotes and archaea

A4. Demonstrate an understanding of how thermodynamically unfavourable processes occur
A5. Demonstrate an understanding of the synthesis, storage and transformation of macromolecules

B. STRUCTURE-FUNCTION RELATIONSHIPS IN BIOLOGICAL SYSTEMS

By the end of the course, successful students will:

B1. Demonstrate an understanding of macromolecular interactions, structure and function
B2. Demonstrate an understanding that the properties of cells are a function of the chemical structures of their constituent macromolecules
B3. Demonstrate a deep understanding of the roles of cells as the fundamental unit of life
B4. Demonstrate an understanding of how cells, organelles and all major metabolic pathways evolved from early prokaryotic cells
B5. Demonstrate an understanding of communication within and between cells and their environment

C. EVOLUTION AND THE FLOW OF GENETIC INFORMATION

By the end of the course, successful students will:

C1. Demonstrate an understanding of the molecular structure, function and regulation of genes and genomes
C2. Demonstrate an understanding of the factors that affect the frequency of genotypes and phenotypes in a population over time

D. SCIENTIFIC METHOD

By the end of the course, successful students will:

D1. Successfully design and explain experiments for the isolation, identification and enumeration of microbes or assess such proposals
D2. Perform experiments using appropriate safety precautions, and microbiological techniques for the isolation, identification and enumeration of representative groups of bacteria and fungi
D3. Use appropriate and accurate mathematical calculations and statistical analyses and assess the reliability of data using biological and technical replicates
D4. Successfully interpret and communicate scientific data in laboratory reports, group assignments and tests

E. SELF-REGULATED LEARNING

Over the course of the semester, successful students will:

E1. Develop an understanding of what is required to learn, and the relationship between understanding and remembering
E2. Identify and plan the behaviours necessary for deep learning
E3. Set learning goals and periodically assess progress towards attaining those goals
E4. Critically assess performance on course assessments, and draw connections between performance, learning strategies and effort
E5. Accurately interpret peer and instructor feedback on assignments, and make appropriate revisions
E6. Develop an effective learning team, recognize the differences between group work and teamwork and the value of team skills beyond course work

Course Content - A

Seminar #[a, b]	Seminar Topic # and description	Readings[c]
Term 1 – lecture-based with active learning component		
S1-S2 (Jan. 12-19)	1. Cellular composition and nutrition: molecular composition of bacterial cells; macronutrients, micronutrients, growth factors; growth media, oligotrophy vs copiotrophy, diazotrophy (Lectures) ➢ S1: ~15 min discussion of university learning expectations, metacognition & self-regulated learning	Sect. 1.4-1.5, 3.1, 4.1 & 4.3, p. 152, pp. 270—272, Sect. 15.5 Leamnson (2002) – on Courselink
S2-S3 (Jan. 19-26)	2. Microbial growth and enumeration: batch culture & growth curve; continuous culture; cellular enumeration methods (Lectures) ➢ S2: ~15 min discussion about learning outcomes (LOs), Bloom's taxonomy and PeerWise	Sect. 4.4 & 4.5
S3-S4 (Jan. 26-Feb. 2)	3. The cell membrane and transport: fluid mosaic membrane; diffusion, primary and secondary transport systems (Lectures) ➢ S3: ~15 min discussion of the SQ4R process for active/critical reading	Sect. 3.2 & 4.2
S4-S5 (Feb. 2-9)	4. Environmental influences on microbial growth: temperature, water activity and salt, pH, oxygen, antimicrobials (Lectures) ➢ S4: ~15 min discussion on how to study and assess your knowledge ➢ S5: ~20 min. discussion on learning teams & the "Team Charter"	Sect. 5.1-5.2, 5.4-5.6, 5.8, Ch. 27 & Case study[c]
Feb. 15	**BREAK WEEK – NO CLASSES**	
S6 Feb. 23	**2-stage midterm[d]** ➢ short lecture may follow	
Term 2 –seminars are "flipped" with active learning, graded REEF Qs & *ad hoc* mini-lectures		
S7 Mar. 1	4. (completion) Environmental influences on microbial growth: temperature, water activity and salt, pH, oxygen, antimicrobials (active learning)	
S8 - S9 (Mar. 8 – 15)	5. The biochemistry of catabolism: energy and entropy, energy carriers and electron transfer, energy acquisition in bacteria and archaea	Ch. 13 & 14, Case study[c]
S10 - S12 (Mar. 22 – Apr. 5)	6. Microbial diversity and ecology: microbes in ecosystems, biogeochemical cycling	Ch. 21 & 22 (+ parts of Ch. 18 & 19) & Case study[c]

[a] these are approximate dates and are subject to minor alteration.

[b] Seminars 1 → 5 begin with short discussions on different aspects of self-regulated learning

[c] Readings beyond the textbook are identified in the case study (in the lab manual) and provided via link or pdf on Courselink

[d] Individual (shortened) test followed by group test with IF-AT cards, the latter involving 10 MCQs from individual test and done in case study teams

Course Content - B

Week	Lab Topic	Readings[a]
Term 1		
1 Jan. 13-15	Exp. 1 - Soil microbiology: - growth media, isolation and enumeration techniques, enrichment cultivation	Laboratory 1
2 Jan. 20-22	Exp. 2 - Bacterial physiological diversity: - effect of environmental & nutrient conditions on growth, enrichment cultivation	Laboratory 2
3 Jan. 27-29	Exp. 3 - Water quality testing: - diagnostic media and tests for identification and enumeration of coliforms, fecal coliforms & enterococci	Laboratory 3
4 Feb. 3-5	Exp. 4 - Comparative cell counting & *E. coli* growth curve	Laboratory 4
5 Feb. 10-12	Exp. 5 – Microbial catabolism & diagnostic tests	Laboratory 5
Feb. 16-19	**BREAK WEEK – NO LABS**	
Term 2 – case study concept questions & lab exercises complement seminar topics		
6 Feb. 24-26	Case study: *Delicate Balance, Deadly Obsession* Lab exercise CS1 - Triclosan in aquatic environment, selection of triclosan resistance	Lab manual: Introduction to Microbial ecology & the Winogradsky column; Case Study Ch. 1 & Ch. 1 readings
7 Mar. 2-4	IF-AT quiz (Ch. 1 concept questions) Case study Ch. 2 Lab exercise CS2 - Microbial catabolic & physiological diversity; isolations from Winogradsky columns	Lab manual: Case Study Ch. 2 & Ch. 2 readings
8 Mar. 9-11	Case study Ch. 1 – CS1 conclusions & team discussion Case Study Ch. 2 – CS2 conclusions & team discussion	Lab manual: Case Study Ch. 2 & Ch. 2 readings
9 Mar. 16-18	Team discussion of Ch. 2 concept question draft answers & peer review comments Case Study Ch. 3 – team work/discussions	Lab manual: Case Study Ch. 3 & Ch. 3 readings
Mar. 23-25	**FRIDAY HOLIDAY – NO LABS**	
10 Mar. 30- Apr. 1	→ Lab exam - individual bell-ringer + team written component → Team presentations of answer to Ch. 2 concept questions (1 per team, chosen by instructor)	
11 Apr. 6-8	Case Study Ch. 3 – team discussion of concept question answers, followed by IF-AT quiz on answers	Lab manual: Case Study Ch. 1-3 & all associated readings

[a] Case study readings are given in the case study, published in the course manual. Other readings are provided via link or pdf on Courselink

b. Method of presentation - Students will learn the techniques and concepts through lab sessions and seminars and will use a combination of independent reading, lectures, screencasts (PowerPoint with audio), laboratory exercises, online reading quizzes (for the labs), group/team discussions (online and face-to-face), team work on an interrupted case study, REEF polling questions (a cloud-based "clicker" system) and collaborative tests/test questions. Lectures in term 1 (prior to midterm) will be recorded and made available after the lecture. "Lecture material" for the "flipped" term 2 (after the midterm) will be provided via screencasts, as described below.

   Team-work - This is a major component of the course, particularly in term 2 (after the midterm), and will facilitate the documented advantages of peer discussion and instruction to facilitate deeper learning. During term 1, students will work in pairs in the lab, and *ad hoc* groups for group discussions in the seminar. During term 2, students will continue to work in the seminars in *ad hoc* groups for group discussions/activities, which will comprise the majority of the class period, but will work on the case study in teams of 6 – 7 in the lab and outside of class time. Teams will be constructed following best practices while attempting wherever possible to combine 3 preexisting lab pairs. In instances of odd lab numbers, or dysfunctional lab pairs, 1 or more pairs may be split.

   Flipped term 2 – A flipped course has students learning the traditional "lecture material" outside of class, then doing the traditional "homework" in groups, in class. Following the midterm, students will be responsible for covering the basic concepts in advance of seminars and labs, using screencasts and readings. Students will work in teams, including their assigned case study teams, on the case study questions, lab exercises and, in the seminars, on "homework" questions. Individual preparedness for seminars will be ensured through graded REEF polling (marks for accuracy as well as participation). Team member accountability for the case study teams will be ensured through a Team-written "Team Charter", an initial "Team Effectiveness" group report, and finally, through anonymous peer evaluations using the UofG PEARTool. **The average scores from those anonymous assessments will be used to assign individual grades from the group grade.**

Course Resources

Textbook – the required textbook for this course is "Microbiology - An evolving Science", 3rd edition by J L Slonczewski and JW Forster (WW Norton Inc, ISBN 0- 393-91929-5). This is available from the bookstore, in hard copy or as an E-book (6 months, 12 months or permanent access) or in the library on 2h reserve (http://www.bookstore.uoguelph.ca/courselistbuilder.aspx).

Laboratory manual – this is required and may be purchased from SSC2302 Jan. 11-13; 10:00am-12:00pm and 1:00-3:00pm cash only (approx. $20.00)

Courselink – the course website will be used extensively and will include all relevant course materials, including lecture videos, online quizzes, discussion boards, group lockers, links for additional readings, a course calendar and group drop boxes.

Lab schedule & Information handout – detailed, colour-coded breakdown of weekly activities, due dates, marking schemes, (specifically for the case study). This will also be posted.

Instructor's office hours - times tba or by appointment

REEF Polling – You will be required to purchase a 1-semester subscription to REEF Polling R 2.3.0 (by iclicker), to allow participation in class polling (marks for participation + accuracy). This is a cloud-based platform that allows you to use your laptop or digital device to respond to MCQs or short answer questions. The cost is $9.99 USD. Register at http://support.reef-education.com. The first 14 days are a free trial, after which you will be prompted to purchase a subscription. Any problems purchasing a subscription online can be resolved by purchasing through the bookstore.

PEARTool – UofG online platform for **P**eer **E**valuation, **A**ssessment and **R**eview. This will be used for the peer evaluation component of the Case Study Ch. 2 concept questions, and for the final anonymous evaluation of the distribution of effort among team members.
https://www.uoguelph.ca/peartool/user/signon.cfm?destination=index%2Ecfm

PeerWise – this is a free online tool for authoring, answering, commenting on and rating student-authored multiple-choice questions. A site for MICR*2430 W16 has been set up and the class list imported. You will need to create an account (assuming you have not used the tool before) and then select the course. The tool is simple to use but instructions for creating, and for answering, questions, are provided in text as well as video and screencasts. Dr. Keenleyside will provide a few introductory/review questions to the MICR*2430 repository, to help you get started and seminar 2 will include a brief discussion of Bloom's taxonomy and what makes good, higher level MCQs will be. There are no grades attached to using PeerWise, however any good quality, higher Bloom's level questions, will be considered for inclusion in the midterm and final exams, with no upper limit! So you will derive double benefits from authoring and answering/providing feedback on, other questions: you will be learning as you do both, and you raise the likelihood that you will know some questions AND THEIR ANSWERS on the midterm and final exam!
https://peerwise.cs.auckland.ac.nz/docs/

Methods of Assessment -

Form of Assessment	Weight of Assessment	Due Date of Assessment	Course Content /Activity	Learning Outcomes Addressed
REEF polling	a. 1.0% b. 2.0% TOTAL: 3.0%	a. Seminars 1-12 b. Seminars 7-12	a. Participation in polling[a] b. Performance in polling (accuracy)[a]	A-E
Pre-lab quizzes[b]	1.5%	Weeks 1-5	Laboratory exercises 1-5	A1-5; B1-3, B5; C2; D1, D3 See "Lab Schedule & Information"
Laboratory quizzes[c]	1.5%	Weeks 1-3, 5-6 lab periods	Safety; Dilutions; biochemical tests (from lab manual)	A1, A5, D3 See "Lab Schedule & Information"
Laboratory reports I-V[d]	18.0%	Weeks 3-7 lab periods	Laboratory exercises	A1-5; B1-3, B5; C2; D1, D3-4 See "Lab Schedule & Information"

Form of Assessment	Weight of Assessment	Due Date of Assessment	Course Content /Activity	Learning Outcomes Addressed
Laboratory skills tests	1.5%	Weeks 2, 6 & 8	Streak plate & Gram stain	D2
Midterm[e] (in class)	10% (8.5% individual + 1.5% group)	Feb. 23	Lecture topics (1-4)	A1-4; B1-3; B5; C1-2; D1, D4; E1-5
Case study	20%	Weeks 6-12	Case study	A1, 3-4; B1-3; C1-2; D1-D4; E1-7 See "Lab Schedule & Information"
Laboratory exam[f]	14.5%	Week 10 lab period	Techniques/ concepts from lab exercises & case study lab exercises	A1-5; B1-3, B5; C2; D1-D4
Final exam[g] Location tba	30% (25.5% individual + 1.5% group)	Fri. Apr. 15 7:00-9:00pm	Cumulative	All but D2-3

[a] Polling: each lecture will include multiple polling questions which, depending upon the difficulty level, may be polled, discussed, then re-polled, prior to revealing answers. Students must answer at least 50% of the polled questions to qualify for the participation and performance grades. Grades are NOT rounded up. Questions in term 2 have an additional grade component for getting the correct answer (1 mark per question – polling may or may not follow group discussions). An average of ~10 questions will be asked in each term 2 seminar. Given the likelihood that circumstances may conspire to prevent students from always arriving prepared, or being able to attend all classes or respond to all questions, at the end of the semester, **each student will be given an additional 10 marks towards their grade for REEF performance (accuracy).** Students may therefore score more than the 2/2 for this component.

[b] through CourseLink, available M-F, on that week's lab. 30 min. for each of 2 attempts, best mark counts.

[c] written during 1st few minutes of lab period; see "Lab Schedule & Information" for details on specific topics and dates

[d] due at beginning of lab, reports include marks for flow charts (e.g. lab report III includes marks for flow chart 3 for week 3)

[e] 2-stage midterm: consists of individual, followed by group test using IF-AT cards (http://www.epsteineducation.com/home/). Group grade will only be used if it is no lower than the individual grade. **Students writing in SAS need to talk to Dr. Keenleyside ASAP**

[f] individual bell-ringer + written (in case study groups)

[g] cumulative 2-stage final exam (with IF-AT cards). Group grade will only be used if it is no lower than the individual grade. **Students writing in SAS need to talk to Dr. Keenleyside ASAP**

7-Jan-16

Important Dates

- these are also identified in the Courselink calendar & "Lab Schedule & Information"

	DATE	DESCRIPTION
1	Jan. 12	Seminar 1: Introduction to course, self-regulated learning, topic 1
2	Jan. 13-15	First lab period: lab exercise 1, LQ1
3	Jan. 27-29	Lab Report I due @ 2:30
4	Feb. 3-5	Lab Report II due @ 2:30
5	Feb. 10-12	Lab Report III due @ 2:30 - introduction to team members
6	Feb. 16-19	**Winter break week**
7	Feb. 23	2-stage midterm
8	Feb. 24-26	Lab Report IV due @ 2:30; signed team charter due
9	Mar. 2-4	Lab Report V due @ 2:30; Case study Ch. 1 concept questions draft/final answers due to dropbox by 9:00am of lab period; IF-AT quiz in lab
10	Mar. 9-11	Team effectiveness feedback due to dropbox - Case study Ch. 2 draft concept questions answers due to PEARTool by 2:30 of lab period
11	Mar. 11	**40th class day – drop deadline**
12	Mar. 12	Peer reviews assigned
13	Mar. 15	Peer reviews due by 9:00am
14	Mar. 22	Case study Ch. 2 concept questions draft/final answers due to dropbox by 9:00am
15	Mar. 23-**25**	Labs cancelled; Fri. Mar. 25 is holiday
14	Mar. 30-Apr. 1	Lab exam; Case study Ch. 2 concept question group presentations
15	Apr. 6-8	Case study Ch. 3 concept questions draft/final answers due to dropbox by 9:00am of lab period; IF-AT quiz in lab
16	Fri. Apr. 8	Last day of classes; team distribution of effort assessments due via PEARtool
17	Fri. Apr. 15 7:00-9:00pm	Final exam

Course and University Policies

Grading:

1. *Midterm* - students who miss the *midterm* write an 80% (cumulative) final exam. For students who **DO** write the midterm, but perform better on the final, the midterm grade will be dropped and the grade weight transferred to the final exam.
2. *Assignments/reports* – lab reports are due by 2:30 pm on the due date; the time for submission of other assignments is identified above. For lab reports, deductions for late submissions will be 10% per day (the weekend counts as a 20% grade reduction), up to a 30% deduction. After 3 days, the submission will not be accepted.
3. *Quizzes* - pre-lab quizzes (PLQs) are online, available M-F and students are expected to complete all 5. Each quiz has a 30 minute time limit and two attempts are given with the best mark counting. Students who fail to write 1 or more of these must provide documentation in support of academic consideration in order to obtain an adjustment to their distribution of marks. Lab quizzes (LQs) are written at the

beginning of 5 of the lab periods, as identified above. Students with valid grounds for being unable to complete one or more of these must talk with the lab coordinator about either writing the quiz at another time, or, provided with appropriate documentation, may have that quiz dropped from the calculation of the lab quiz grade.

4. *Collaborative tests* (midterm & final exams) - the individual grade will contribute 100% of that grade item if higher than the collaborative component. Students who choose to write the individual component only will similarly have that count as 100% of that grade item. *Students registered with SAS* may a) write early so that they can join the class for the collaborative portion, or b) write a 100% individual test or c) get the class average of the group test as their group component.

Student responsibilities:

1. Lab attendance is mandatory. If you cannot attend a laboratory session, and have valid grounds, please e-mail the lab coordinator to provide your documentation and enquire about making up the missed activities. Academic accommodations for instances where a student cannot meet a course requirement, are discussed below.
2. Laboratory preparedness: You must have read the relevant laboratory exercise in advance of the lab, and completed the online quiz for that week, prior to coming to the lab. A flow chart for what you will be doing in the lab is to be provided for grading at the beginning of the lab. These flow charts will ensure you finish in less then 3h. You must bring with you: closed-toed shoes, a lab coat, your lab manual, an elastic band for long hair, and a notebook. If you wear contact lenses, you must also bring safety glasses.
3. Working in pairs or teams: Lab partners are expected to work collaboratively, to communicate effectively with each other and the GTAs/lab coordinator, and to hand in independent lab reports. During term 2, the teams of 6-7 will negotiate and sign the terms of a team charter and will discuss and provide preliminary feedback ("Team Effectiveness Feedback") and final anonymous distribution of effort evaluations of their team members. The team as a whole will use the individual results of the early evaluation to identify and report their agreed-upon steps for improving performance. The final evaluation is done individually and will be used to assess individual grades based on the team mark. The individual grade may go UP or DOWN, relative to the group grade, within limits. As with work-place teams (which are generally the norm), the development of an effective team requires effort, communication and skill but results in a synergy that leads to performance, creativity and productivity that are superior to what a single member working alone can accomplish.
4. REEF polling: students are expected to resolve any connectivity issues with their device immediately and inform the instructor when such issues arise. These issues have always been the result of the wireless function of the device, and not the university's wireless signal. If you cannot attend a seminar and have valid grounds, please e-mail the instructor to provide your documentation. Academic accommodations for instances where a student cannot meet a course requirement, are discussed below.

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, and be prepared to provide supporting documentation. See the undergraduate calendar for information on regulations and procedures for Academic Consideration: http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml

Accessibility

The University of Guelph is committed to creating a barrier-free environment. Providing services for

students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact the Centre for Students with Disabilities as soon as possible.

For more information, contact CSD at 519-824-4120 ext. 56208 or email csd@uoguelph.ca or see the website: http://www.csd.uoguelph.ca/csd/

Academic Misconduct
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 advisort.

The Academic Misconduct Policy is detailed in the Undergraduate Calendar:
http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml

E-mail 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.

Dr. Keenleyside will not respond to e-mail enquiries when the answer is readily available in the course outline or on courselink. She also will not respond to e-mail enquiries or complaints about online quizzes while the quiz window remains open. If there is a problem, it will be addressed after the window closes.

Drop Date
The last date to drop one-semester courses, without academic penalty, is the 40th class day. To confirm the actual date please see the schedule of dates in the Undergraduate Calendar. For regulations and procedures for Dropping Courses, see the Undergraduate Calendar:
http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml

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.

Recording of Materials
Presentations which are made in relation to course work—including lectures—cannot be recorded or copied

without the permission of the presenter, whether the instructor, a classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

Campus Resources

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

If you are concerned about any aspect of your academic program:

- make an appointment with a program counsellor in your degree program. http://www.bsc.uoguelph.ca/index.shtml or https://www.uoguelph.ca/uaic/programcounsellors

If you are struggling to succeed academically:

- There are numerous academic resources offered by the Learning Commons including, Supported Learning Groups for a variety of courses, workshops related to time management, taking multiple choice exams, and general study skills. You can also set up individualized appointments with a learning specialist. http://www.learningcommons.uoguelph.ca/

If you are struggling with personal or health issues:

- Counselling services offers individualized appointments to help students work through personal struggles that may be impacting their academic performance. https://www.uoguelph.ca/counselling/
- Student Health Services is located on campus and is available to provide medical attention. https://www.uoguelph.ca/studenthealthservices/clinic
- For support related to stress and anxiety, besides Health Services and Counselling Services, Kathy Somers runs training workshops and one-on-one sessions related to stress management and high performance situations. http://www.uoguelph.ca/~ksomers/

If you have a documented disability or think you may have a disability:

- The Centre for Students with Disabilities (CSD) can provide services and support for students with a documented learning or physical disability. They can also provide information about how to be tested for a learning disability. For more information, including how to register with the centre please see: https://www.uoguelph.ca/csd/

Accessibility

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment

to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact the Centre for Students with Disabilities (soon to be re-named Student Accessibility Services) as soon as possible.

For more information, contact CSD at 519-824-4120 ext. 56208 or email csd@uoguelph.ca or refer to the CSD website. The standard statements are available on the AVPA website (undergraduate courses) or from the Office of Graduate Studies (Graduate Courses).