



# MBG\*3060 Quantitative Genetics

Winter 2023

Section(s): C01

Department of Animal Biosciences

Credit Weight: 0.50

Version 1.00 - January 11, 2023

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## 1 Course Details

### 1.1 Calendar Description

This course examines the nature of Mendelian inheritance when extended to quantitative traits that are jointly influenced by the environment and the simultaneous segregation of many genes. Prediction of response to natural and artificial selection in populations will also be studied.

**Pre-Requisites:** MBG\*2400, 0.50 credits in statistics.

### 1.2 Course Description

Quantitative Genetics is not a new subject by any means. With the rediscovery of Mendel's work in the early 1900's, geneticists started to try to figure out why they observed similarities and differences in populations of plants and animals, both in simple characteristics like coat colour, seed colour etc and complex characteristics like size, growth, drought tolerance, temperament, speed and strength. Since no tools existed to study this, they invented them and many early quantitative geneticists were also very good statisticians. Along the way, as quantitative geneticists figured out alleles, genetic variation and selection response, new fields of genetics were spawned - population genetics and evolutionary genetics. But Quantitative Genetics is the grandparent of them all.

So why the heck are we devoting a whole course to dusty theory that is over 100 years old? Because it isn't dusty! Early quantitative geneticists figured out a lot of stuff without the benefit of all of the molecular genetics tools and techniques we have now. And it turns out they got it right! So now that the molecular geneticists are catching up to us, we have an extensive toolkit of methods to figure out what the molecular labs are puzzling over. So welcome to the new old subject of Quantitative Genetics.

### 1.3 Timetable

Classes are scheduled Monday, Wednesday and Friday 2:30 to 3:20 p.m. in ALEX 200. The

focus of the delivery method in this course is live, in-person lectures. However, it is possible to follow this course in a hybrid format keeping in mind that the in-person lecture in the classroom is the primary mode of delivery. Lectures will be recorded and simulcast using Zoom including screen annotations, live transcript and recording.

## 1.4 Final Exam

Final exam Friday April 14, 2023 11:30AM - 1:30PM. The final exam is an in-person, on-campus, closed-book exam, room location TBA.

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## 2 Instructional Support

### 2.1 Instructional Support Team

<b>Instructor:</b>	Andy Robinson
<b>Email:</b>	mbg3060@uoguelph.ca
<b>Telephone:</b>	+1-519-824-4120 x53679
<b>Office:</b>	ANNU 122
<b>Office Hours:</b>	Office hours will be virtual all semester via Zoom. Links will be posted on CourseLink. <b>Mondays</b> 10:00am-noon. Why only Mondays? Weekly quizzes typically open on Sundays and are due the following Monday night, 8 days later. Experience has shown that Monday office hours are perfectly placed to give you a chance to ask about the new quiz due next week and/or the quiz that is due that night.

### 2.2 Teaching Assistants

<b>Teaching Assistant (GTA):</b>	Madeline Borland
<b>Email:</b>	mborland@uoguelph.ca
<b>Teaching Assistant (GTA):</b>	Michelina Crosbie
<b>Email:</b>	crosbiem@uoguelph.ca
<b>Teaching Assistant (GTA):</b>	Shannon Beard
<b>Email:</b>	sbeard@uoguelph.ca

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## 3 Learning Resources

### 3.1 Additional Resources

#### Course Notes (Notes)

There is no textbook officially for this course. The primary source of reference material for the course is the lecture slides posted on CourseLink.

The presentation of the course material generally follows the notation and approach in the landmark textbook "Introduction to Quantitative Genetics" by Douglas Falconer originally

published in 1962 and available still from Pearson Publishing with Trudy McKay as co-author on more recent editions (retail price is around \$100 on amazon.ca). Falconer's book was itself based on over 50 years of various folks teaching quantitative genetics with strong ties to Prof. J.L. Lush and others at Iowa State University. Throughout the world, this is the *de facto* standard way of presenting this material and Falconer's book has been translated into many, many languages.

Recorded lectures will be available through Zoom including the screen annotations added during the presentation. Sporadically, links to relevant information from the media or scientific literature to provide background on topics we discuss in class will be posted on CourseLink also.

## 3.2 Course Technology and Technical Support

### CourseLink

This course is being offered using CourseLink (powered by D2L's Brightspace), the University of Guelph's online learning management system (LMS). By using this service, you agree to comply with the University of Guelph's Access and Privacy Guidelines. Please visit the D2L website to review the Brightspace privacy statement and Brightspace Learning Environment web accessibility standards.

<http://www.uoguelph.ca/web/privacy/> <https://www.d2l.com/legal/privacy/>  
<https://www.d2l.com/accessibility/standards/>

### Technical Support

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

Email: [courselink@uoguelph.ca](mailto:courselink@uoguelph.ca)

Tel: 519-824-4120 ext. 56939 Toll-Free (CAN/USA): 1-866-275-1478

### Support Hours (Eastern Time):

Monday thru Friday: 8:30 am–8:30 pm, Saturday: 10:00 am–4:00 pm, Sunday: 12:00 pm–6:00 pm. Note that extended support hours are often available during final exams.

### Zoom

This course will use Zoom for synchronous online virtual classes. Check your system requirements to ensure you will be able to participate.

<https://opened.uoguelph.ca/student-resources/system-and-software-requirements>

## 3.2 Technical Skills

As part of your learning experience, you are expected to use a variety of technologies for assignments, lectures, teamwork, and meetings. In order to be successful in this course you will need to have the following technical skills:

- Manage files and folders on your computer (e.g., save, name, copy, 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 Quizzes, Discussions, and Grades (the instructions for this are given in CourseLink help);
  - Access, navigate, and search the Internet using a web browser (e.g., Firefox, Chrome, Safari etc);
  - Perform online research using various search engines (e.g., Google) and library databases; and
  - Interact with your fellow learners, teaching assistants and instructors using online tools such as Microsoft Teams and Zoom with and without the use of a webcam and microphone.
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## 4 Learning Outcomes

### 4.1 Course Learning Outcomes

By the end of this course, you should be able to:

1. Analyze how allele frequency can fluctuate within a population over time, describe factors that affect these fluctuations and analyze how these factors affect genetic variation
2. Estimate levels of genetic variation within a population and demonstrate how that variation may be exploited to make genetic change in populations over time
3. Demonstrate how an individual locus can contribute to quantitative genetic variation involving many loci in the same individual or in many individuals in the population
4. Demonstrate how genetic variation can be gained or lost through selection of mates, combining different populations and other mechanisms
5. Demonstrate why the mating of close relatives leads to a loss of genetic variation and how to recover lost genetic variation

### 4.2 Overall Course Learning Outcome

Genetic variation is the engine that drives natural and artificial selection. Quantitative Genetics focuses on quantifying and measuring characteristics about animals called traits and variation in those traits. By the end of this course, you will be able to think like a quantitative geneticist and analyze and quantify genetic variation, showing how it can be

influenced and manipulated, both by natural and artificial means.

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## 5 Teaching and Learning Activities

### 5.1 Topic Schedule

As noted lectures will be live and recorded via Zoom. Zoom recordings typically show up on Courselink within a day after the class. The list of planned lecture topics is shown below. Actual topics and dates may deviate from the plan depending on the pace through the material and potential changes to scheduling by the university due to changes to the pandemic restrictions. In other words, this is a best guess based on what is known when the outline is being created.

<b>Week</b>	<b>Monday Class</b>	<b>Wednesday Class</b>	<b>Friday Class</b>	<b>Quiz</b>
Jan. 9	Introduction	Review of MBG-2400 topics	Review of MBG-2400 Topics, Tri-allelic loci, Linkage Disequilibrium	Review quiz available (not for credit)
Jan. 16	Linkage Disequilibrium	Linkage Disequilibrium	Migration - multiple generations	Quiz 1 starts – Tri-allelic loci, linkage disequilibrium
Jan. 23	Single Locus Selection	Single Locus Selection, Mutation	Population Size	Quiz 1 closes Quiz 2 starts - Migration, Selection, Mutation
Jan. 30	Population Size, Effective Population Size	Individual Inbreeding	Individual Inbreeding, Relationships	Quiz 2 closes Quiz 3 starts - Population Size and Inbreeding
Feb. 6	Relationships	Relationships, Tabular Method	Genetics Models, Re-introducing Heritability	Quiz 3 closes Quiz 4 starts – Inbreeding, Relationships, Tabular Method

<b>Week</b>	<b>Monday Class</b>	<b>Wednesday Class</b>	<b>Friday Class</b>	<b>Quiz</b>
Feb. 13	Heritability	Re-introducing and expanding Response to selection	Response to selection	Quiz 4 closes No quiz starts
<b>Midterm</b> – online, 3-hour time limit starting any time from <b>6:00 am Thursday to 11:59pm Friday</b>				
February 20 to 24 <b>Reading Week</b> . No classes. No quizzes due.				
Feb. 27	Factors affecting response to selection	Heritability from ANOVA	Heritability from ANOVA	Quiz 5 starts - Heritability and Selection
Mar. 6	Repeatability from ANOVA	Direct and correlated response	Allele effects	Quiz 5 closes Quiz 6 starts - Heritability and ANOVA
Mar. 13	Allele effects, breeding values	QTL Detection	QTL Detection	Quiz 6 closes Quiz 7 starts - Direct response, Allele effects
Mar. 20	QTL Detection	QTL Allele Effects Marker Assisted Selection	Marker panel analyses	Quiz 7 closes Quiz 8 starts - Allele effects, QTL Detection, Selection and Makeup quizzes start
Mar. 27	Marker panel analyses	Marker panel analyses	Marker panel analyses	Quiz 8 closes Quiz 9 starts - Marker Panel Analyses
Apr. 3	Marker panel analyses	Wrap Up	Good Friday - Holiday	Quiz 9 closes Selection and Makeup

Week	Monday Class	Wednesday Class	Friday Class	Quiz
				Quizzes close
Apr. 10	Exam Review	No classes scheduled	<b>Final Exam 11:30am to 1:30pm</b>	No Quizzes Due

## 6 Assessments

### 6.1 Marking Schemes & Distributions

Name	Scheme A (%)
Weekly CourseLink Quizzes	36
Selection Quiz	4
Online Midterm Quiz	15
Final Exam	45
Total	100

### 6.2 Assessment Details

#### Weekly CourseLink Quizzes (36%)

**Date:** See CourseLink or Course Activities, Online

**Learning Outcome:** 1, 2, 3, 4, 5

Weekly Quizzes - 10 in total, 4 points each, **lowest grade is dropped**. Quizzes are generally due **Monday night** but check CourseLink for the deadlines for all of the quizzes, especially the Selection and Makeup Quizzes.

#### Graded Quizzes

The quizzes are scheduled weekly (consult course activities for the overall schedule and CourseLink for the deadline dates). Each weekly quiz generally has 15 questions; the first 10 questions follow the practice quizzes (see below) and the final 5 questions explore concepts that integrate the topics covered in the quiz with previous topics and relate quantitative genetic theory to practical applications. There are 9 weekly quizzes throughout the semester (appropriately called Quiz 1 to Quiz 9) and a Makeup Quiz at the end of the semester for a total of 10 quizzes and the **best 9 quiz grades** will be used for your final grade. Please note that the Selection Quiz is not part of this "best 9" system.

Each weekly quiz (Quizzes 1-9) is open for 8 days from Sunday morning to the following **Monday at 11:59 p.m.** and is due when the quiz module closes at 11:59 p.m. on the due

date. There is no time limit, just a final quiz deadline. During these 8 days, you can re-open and re-enter the quiz as often as you like until you submit it. With this system, there is **no opportunity for late quiz submission** because the answers are released when the quiz closes. If you are registered with SAS, since the quizzes are open for 8 days giving you about 180 hours to complete the quiz, your regular quiz and exam accommodations are not needed.

The **Selection Quiz** and the **Makeup Quiz** have a **2-week availability** and **different deadlines**.

As a safety net, you have 2 attempts for each quiz. You will know the grade on your first attempt but you won't know the answers if you choose to make a second attempt. The extra attempt is there should you wish to retry a quiz and CourseLink will keep the highest of the two grades.

Should it happen that you are unable to complete your quiz on time due to circumstances warranting academic consideration, *complete the academic consideration request form* found on the Courselink site and contact the instructor by e-mail (mbg3060@uoguelph.ca) to request academic consideration. There is a form because students often forget to provide enough detail to for the instructor to figure out what assessment(s) is/are affected so the form just helps ensure the information needed to consider requests is all there. If you have a bad week, the Makeup Quiz is available at the end of the semester as a safety net to replace one quiz. There is no weekly quiz starting the week of the midterm quiz or due over Reading Week. The Selection Quiz is a special quiz covering the very important topic of selection and is designed to review all the types of selection we cover throughout the semester.

The **Selection Quiz is mandatory** and is not part of the "best 9" option described above and it doesn't have a practice quiz but since it covers all different aspects of selection you have already had practice questions on all the aspects covered.

### **Practice Quizzes**

Each of the 9 weekly quizzes for credit has a matching practice quiz. You have unlimited attempts for the practice quizzes and the question feedback has been specially designed to assist you in understanding the material covered by each question. The practice quizzes remain open for the entire semester so you can use them to review for the midterm and final exams as well. Each practice quiz typically contains 10 questions and many of the quizzes have randomized elements to provide variety and new learning experiences with each attempt. The quizzes for credit may also draw from questions you might see on a practice quiz. Please note there are no practice quizzes for the Makeup Quiz and the Selection Quiz since those quizzes review material covered throughout the semester so you have already been practicing for those quizzes.

### **Review Quiz**

There is an additional practice quiz at the beginning of the semester that you can use to review the material from MBG-2400 since it could be at least a year since you have had any exposure to that material. This quiz is purely for your use to recall / review material that



was covered in MBG-2400. You will encounter this material again in greater detail and more advanced levels in MBG-3060 so if it fits your study preferences, the review may help reawaken the brain cells that contain this material from MBG-2400.

### **Selection Quiz (4%)**

**Date:** See CourseLink or course activities, Online

**Learning Outcome:** 1, 4, 5

This quiz is separate from the weekly quizzes and cannot be dropped as part of the "best 9 quizzes" system described above.

### **Online Midterm Quiz (15%)**

**Date:** Week 6, Online

**Learning Outcome:** 1, 2, 3, 4

The online midterm quiz is available between 6:00am Thursday February 16 to 11:59pm on Friday February 17.

The midterm quiz is time-limited, once you open the midterm quiz, you have **2 hours in which to complete the 60 questions**. The midterm quiz is more like a real midterm than the weekly quizzes so unlike the weekly quizzes, you have **one attempt** at the midterm quiz and the grade will not be released until after the availability period ends. You have a span of 2 days in which to do the midterm, don't leave it to the last minute. If you are unable to complete the online midterm quiz and wish to request academic consideration, complete the academic consideration request form for this course (on the CourseLink site) and contact the instructor as soon as possible. *If you are registered with SAS and are given accommodations on exams, your accommodations will automatically be set. If you do not see your SAS accommodations set when the midterm becomes available (a day or so before it opens), it probably means your accommodations have changed and are not in the system yet so email the instructor (mbg3060@uoguelph.ca) with a CC to your SAS advisor.*

### **Final Exam (45%)**

**Date:** Fri, Apr 14, 11:30 AM - 1:30 PM, In-person exam location TBA

**Learning Outcome:** 1, 2, 3, 4, 5

The final exam is an in-person, closed-book exam in a room location on campus yet to be announced. A formula sheet will be provided with the exam and a calculator is allowed. By calculator, it is meant a device that can calculate but not communicate. So a calculator app in a smartphone or tablet or computer is NOT considered to be a calculator for this exam.

## **7 Course Statements**

### **7.1 Technology**

Virtually all students are using their own technology such as smartphones, tablets and computers of various flavours in class and/or for the University of Guelph's online Learning Management System (aka CourseLink). Society has an increasing level of dependence upon personal technology. Technology glitches are increasingly used as an excuse for not completing online course requirements and for missing course deadlines. However, with so

much emphasis placed on online learning, excuses based on technology failure are not sustainable. **It is your responsibility to ensure that you can access the course materials and complete online course requirements within the time allotted regardless of technological issues you may encounter.** This means you are expected to take reasonable and necessary steps to make your technology work or arrange to access or borrow technology or find an internet connection etc that does work.

If there is a widespread problem and CourseLink is not accessible for a significant period of time (not including scheduled maintenance) deemed by the instructor to have had an impact on students' abilities to complete quizzes, appropriate accommodations will be given.

If you are connected to a virtual class, you should use the technology to interact with the course in an appropriate manner that respects your fellow students by not creating undue distractions or interruptions as noted by the university's statement on "netiquette" below.

Also keep in mind that if your technology uses the University's network to access course material, the University's acceptable use policy also comes into play.

## 7.2 Zoom Recordings

The instructor will record classes using the Zoom recording function. These recordings will be automatically available through the Zoom link on the Courselink site within a day or so after class. The recording also includes a copy of the chat and a transcript of the audio of the presentation. The Zoom video recording of the class will generally have real-time video of the image shown overlaid with the audio of the instructor's comments and may include hand-written comments, other media etc. These Zoom recordings will represent the officially sanctioned recorded media for the lecture and are provided for the convenience of students officially registered in the course and may not be reproduced, or transmitted to others, without the express written consent of the instructor. Note that there may be circumstances in which not all of a lecture is recorded so the recording is an additional aid and not necessarily a replacement for attending class, learning the material on your own and through the quizzes and additional media provided.

## 7.3 Group Work

The weekly quizzes are designed as an experiential learning tool. You are encouraged to collaborate and work together on your quizzes to enhance your learning experience. However, everyone must submit their own individual quiz for grading. You will find with the randomized elements built in to the quizzes that each of you will be doing a slightly different quiz covering the same concepts. The midterm quiz is expected to be an individual effort. The online midterm quiz has a large, randomized bank of questions behind the scenes so each student will have a different midterm quiz.

## 7.4 Academic Consideration Request

In order to facilitate the process of requesting academic consideration (based on university policies described elsewhere in this outline) and to ensure that you provide sufficient

information in making your request, there is a form posted on CourseLink for that purpose.  
**Requests for academic consideration must be done using this form.**

## 7.5 Email Contact

Email is used as an important source of updates about this course. All official email from the instructor will be sent to your University email account (ie the one with @uoguelph.ca). It is expected that you are checking this email account on a frequent basis. If you email the course instructor, please keep in mind that with over 250 students in this course along with virtually all of the University's business being conducted by email, the instructor receives a lot of email in a day. In order to facilitate an answer to your email, please consider the following guidelines:

- correspond with the instructor (mbg3060@uoguelph.ca) using your official University email (@uoguelph.ca). Emails from other addresses (i.e. @gmail.com or @hotmail.com) will be ignored as there is no guarantee who owns the account. By the university's privacy policy, instructors are not allowed to share your course information with the general public or even family members so we will not reply to non-UofG email addresses since there is no guarantee who the email belongs to
- if the answer to your email query can be found in the course outline or other material posted on the MBG-3060 CourseLink site or in a Zoom recording, since the information was already available you may not receive a reply or you may just get a terse reply with a link to the relevant information at best
- include **a few relevant key words** indicating what your message is about
- include your full name and student number in the email signature
- if you are requesting academic consideration, include a copy of the Academic Consideration Request form found on the MBG-3060 CourseLink site
- allow 24 to 48 hours for a response to your query, especially if you send your message late at night or over the weekend (in other words sending an urgent email expecting a response in a few minutes is not likely to be successful, especially outside of normal human circadian rhythm times).

## 7.6 Netiquette

Since we are all sharing the online learning environment in this course from a variety of locations and probably more casual circumstances, there can be a tendency to view the online environment as you might with social media and other more recreational uses. Please keep in mind that online classes and meetings for this course are professional interactions. The following statements about Online Behaviour are provided by the University.

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 user name and password
- Recording lectures without the permission of the instructor

## 8 University Statements

### 8.1 Email Communication

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

### 8.2 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. The grounds for Academic Consideration are detailed in the Undergraduate and Graduate Calendars.

Undergraduate Calendar - Academic Consideration and Appeals

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml>

Graduate Calendar - Grounds for Academic Consideration

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml>

Associate Diploma Calendar - Academic Consideration, Appeals and Petitions

<https://www.uoguelph.ca/registrar/calendars/diploma/current/index.shtml>

### 8.3 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 students (undergraduate, graduate and diploma) 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 their respective Academic Calendars.

Undergraduate Calendar - Dropping Courses

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml>

Graduate Calendar - Registration Changes

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/genreg-reg-regchg.shtml>

Associate Diploma Calendar - Dropping Courses

<https://www.uoguelph.ca/registrar/calendars/diploma/current/c08/c08-drop.shtml>

## 8.4 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.

## 8.5 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 14 days in advance, and no later than November 1 (fall), March 1 (winter) or July 1 (summer). Similarly, new or changed accommodations for online quizzes, tests and exams must be approved at least a week ahead of time.

For Guelph students, information can be found on the SAS website  
<https://www.uoguelph.ca/sas>

For Ridgetown students, information can be found on the Ridgetown SAS website  
<https://www.ridgetownc.com/services/accessibilityservices.cfm>

## 8.6 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 encourages academic integrity. 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.

Undergraduate Calendar - Academic Misconduct

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml>

Graduate Calendar - Academic Misconduct

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml>

## 8.7 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.

## 8.8 Resources

The Academic Calendars are the source of information about the University of Guelph's procedures, policies, and regulations that apply to undergraduate, graduate, and diploma programs.

Academic Calendars

<https://www.uoguelph.ca/academics/calendars>

## 8.9 Disclaimer

Please note that the ongoing COVID-19 pandemic may necessitate a revision of the format of course offerings, changes in classroom protocols, and academic schedules. Any such changes will be announced via CourseLink and/or class email.

This includes on-campus scheduling during the semester, mid-terms and final examination schedules. All University-wide decisions will be posted on the COVID-19 website (<https://news.uoguelph.ca/2019-novel-coronavirus-information/>) and circulated by email.

## 8.10 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).

## 8.11 Covid-19 Safety Protocols

For information on current safety protocols, follow these links:

- <https://news.uoguelph.ca/return-to-campus/how-u-of-g-is-preparing-for-your-safe-return/>
- <https://news.uoguelph.ca/return-to-campus/spaces/#ClassroomSpaces>

Please note, these guidelines may be updated as required in response to evolving University, Public Health or government directives.

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