



MBG*4020 Genetics of Companion Animals

Fall 2019

Section(s): C01

Department of Animal Biosciences

Credit Weight: 0.50

Version 2.00 - September 05, 2019

1 Course Details

1.1 Calendar Description

This course explores theoretical and applied aspects of breeding programs for performance, pleasure and hobby animal populations to enhance genetic selection and population viability. Case studies are used to explore the theory and practice of designing practical and sustainable breeding programs that integrate molecular genetics, animal breeding and statistical genomics for a variety of single and multiple birth species.

Pre-Requisites: MBG*3060
Equates: ANSC*4020

1.2 Timetable

Lectures – Tuesday and Thursday 11:30am – 12:50 pm Richards (RICH) Rm 2520

1.3 Final Exam

Saturday December 7, 2019 2:30pm-4:30pm Consult WebAdvisor for the location

2 Instructional Support

2.1 Instructional Support Team

Instructor: Andy Robinson
Email: andyr@uoguelph.ca
Telephone: +1-519-824-4120 x53679
Office: ANNU 122

Office Hours: Monday 2:30-5:00pm or by appointment

2.2 Teaching Assistants

Teaching Assistant: Michelina Crosbie
Email: crosbiem@uoguelph.ca

Teaching Assistant: Bayode Makanjuola
Email: bmakanju@uoguelph.ca

3 Learning Resources

3.1 Additional Resources

Other Resources (Other)

Lecture information will be posted on CourseLink in advance. Your notes from MBG-3060 Quantitative Genetics will provide valuable background information for this course. Copies of a representative set of course notes from MBG-3060 will be posted on CourseLink in case you no longer have your notes.

Field Trips (Other)

There is an optional Miniature Donkey Open House Sunday September 15, 2019. Details will be provided separately via CourseLink. You will be responsible for your own transportation but there will be a ride sharing discussion forum on CourseLink to assist with car pooling.

4 Learning Outcomes

Since the beginning of domestication, humans have managed animal populations for many purposes. Managing the genetic resources and variability of small populations under a number of constraints requires a balanced approach that includes a sound knowledge of the theory and a practical approach to problem solving. By the end of this course, you will be able to manage a breeding program and understand:

4.1 Course Learning Outcomes

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

1. the impact of population size on the success of the program
 2. setting up, achieving and monitoring selection goals
 3. objectively and consistently measuring and assessing phenotypes
 4. applying appropriate statistical genomics analyses to the phenotypes
 5. the effective and appropriate incorporation of molecular genetic information
 6. how genetics as a science interacts with genetics as a social and legal concept
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5 Teaching and Learning Activities

5.1 Lecture

Topics:

Lecture Content / Schedule

Week Topic(s)

Sept 9 Population Size - Past, Present and Future

Sept
16 Genetic Variability

Sept
23 Selection - Developing Goals and Recording Phenotypes

Sept
30 EBVs

Oct 7 EBVs

Oct 14 **Fall Break**, Combining EBVs to Match Selection Goals

Oct 21 Genomics

Oct 28 Mating Schemes

Nov 4 Registration and Data Recording

Nov 11 Undoing Selection, Genetic Consequences

Nov 18 Holistic Application to Breeding Programs

Nov 25 Wrap up and Review

Lecture material will be posted on CourseLink regularly in advance of the class(es) where they are discussed.

NOTE that there is **no class Tuesday October 15, 2019** due to the Fall Break. Instead that class will be made up on Thursday November 28, 2019 at the usual time.

6 Assessments

6.1 Marking Schemes & Distributions

Name	Scheme A (%)
Quizzies	36
Online Midterm Exam	19
Final Examination	45
Total	100

6.2 Assessment Details

Quizzies (36%)

Learning Outcome: 1, 2, 3, 4, 5, 6

9 @ 4%, there are 10 weekly quizzes through the semester with the lowest quiz grade being dropped so the 9 best quiz grades are kept. Generally quizzes are due Mondays at 11:59pm but see CourseLink for exact availability and deadline dates. Weekly quizzes that cover concepts that have a lot of calculations are paired with a practice quiz to help you master the calculations. When there is a corresponding practice quiz, the practice quiz has an unlimited number of attempts and is graded immediately. The graded quizzes each have two attempts as a safety net in case a problem is encountered with the first attempt. Please note that although the grade for the first attempt will appear in the grade book, the solutions to the quiz will not be available before the final deadline.

Online Midterm Exam (19%)

Date: Oct 16 to 19 (see CourseLink for schedule)

Learning Outcome: 1, 2, 3

The 19% online midterm quiz is done through CourseLink as a time-limited quiz. Once you open the midterm quiz, you have 3 hours in which to complete it. The midterm quiz is more like a real midterm than the weekly quizzes so unlike the weekly quizzes, you have just one attempt at the midterm quiz and the grade will not be released until after the midterm period ends and all the academic consideration requests are resolved. You have a span of

4 days in which to do the midterm, there is no extended deadline option for the midterm quiz so don't leave it to the last minute. If you are unable to complete the online midterm quiz and wish to request academic consideration, contact the instructor as soon as possible. **If you are registered with SAS and are given extra time accommodations on exams, just like booking an exam with the SAS Exam Centre, you must inform the instructor one week in advance by email CC'ed to your SAS advisor (by 11:59 p.m. on October 9) in order for your accommodation to be applied to the midterm quiz settings.** Otherwise you will have the regular 3-hour time limit. **If your accommodations include more than additional time, contact the instructor and your SAS advisor well in advance to determine the best approach.**

Final Examination (45%)

Date: Saturday December 7, 2019 2:30pm-4:30pm Consult WebAdvisor for the location

Learning Outcome: 1, 2, 3, 4, 5, 6

The final exam is worth 45% and is a traditional sit-down 2 hour final exam focused on understanding course material and problem solving relating to aspects of companion animal breeding programs.

7 Course Statements

7.1 Grading Policies

For quizzes, consult the CourseLink site for the deadlines. Quizzes are open for one week and the results are released immediately after the deadline, therefore there is an 8-day window in which to do the quiz. Quiz results are released immediately after the deadline and since the answers are available to all, there is **no late option for a quiz**. For the Online Midterm Quiz, you have 3 hours within the availability window in which to complete the Online Midterm and there is **no late option for the online midterm quiz**. If you are unable to complete any quiz for reasons you think warrant academic consideration, contact the instructor as soon as possible. If you are registered with SAS for additional time on quizzes, since you have 8 days in which to do these quizzes, your extra-time accommodation is not needed. If you are registered with SAS for other types of accommodations, please email the instructor (andy@uoguelph.ca) and your SAS advisor well in advance of the first quiz so that we can collectively determine the best way to handle your individual accommodation.

7.2 Student Technology

The vast majority students are using their own technology such as smartphones, laptops and tablets in class as well as for the University of Guelph's online Learning Management System (aka CourseLink). In this course it is your responsibility to ensure that you can access the course materials and complete online course requirements, such as quizzes on CourseLink, within the time allotted regardless of technological issues you may encounter. There are many places on campus where computers may be accessed if your own technology is non-functional. If 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, deadlines will be extended.

In class, you are welcome to use technology to take notes and interact with the course material. This should be done in a way that respects your fellow students by not creating

undue distractions. Also keep in mind that if your technology uses the University's wireless network to access the Internet, the University's acceptable use policy also comes into play. http://www.uoguelph.ca/cio/sites/uoguelph.ca.cio/files/CIO-ITSecurity-03.1.3-AUP-Approved_0.pdf

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 book their exams at least 7 days in advance and not later than the 40th Class Day.

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>
