

# Welcome to BASIC GENETICS (Biology 202)

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# Introduction to Biol-202

- Lectures in Leacock 132 (MWF 8:35-9:25am) are recorded
- Overflow rooms, Leacock 232 & ART-W215, are only used when necessary.
- Lecture recordings are available on myCourses (Usually within 24hr)

# Lecture slides

- PowerPoint slides will be available at myCourses in the PDF format.
- In general, they will be posted no later than the evening before the lecture.
- Lecture slides and recordings are **not to be distributed without permission.**

# TEXTBOOK

Chapters from “*Introduction to Genetics Analysis*”, 12<sup>th</sup> edition, by Anthony Griffiths et al. and from *Genetics: A Conceptual Approach*, 5<sup>th</sup> edition, by Benjamin Pierce.

1. **Print & digital Achieve package:** "Introduction to Genetic Analysis 12e & CM Achieve for Introduction to Genetic Analysis 12e & Genetics 7e (1-Term Access) McGill University" (ISBN 9781319484606).
2. **Digital Achieve package only:** "CM Achieve for Introduction to Genetic Analysis 12e & Genetics 7e (1-Term Online) McGill University" (ISBN: 9781319484583).  
This option is on-line access only.

Please pick only 1 of the 2 options that better suits your study needs

**Reading assignments** from the textbook is indicated in the lecture schedule posted at myCourses.

# Who to ask questions

- Course Materials:
  - Ask your professors during/after the class
  - TAs (The TA-led conference schedule will be posted on myCourses)
  - “Discussions” at myCourses
- Technical Glitches (eg. problem with recordings):  
Please contact IT Service Desk:  
<https://www.mcgill.ca/it/support>

# TA-led conferences

- Five (1.5 hr) TA conferences per week – optional but strongly recommended
- Review sample problems posted by professors (myCourses) with TAs and ask questions on the lecture materials
- Begin on the week of January 20th.
- You may attend any session & you may switch days/times from one week to the next
- Time & room details will be posted at myCourses

# SciLearn Peer Collaboration

- Mondays and Fridays from 3:00-5:00pm
- TEAM members previously took the course will be present
- Begin on the week of January 20th.

# BIOL 202 Primers

- The *BIOL 202 Primers* are summaries of background information (e.g. terminology from prerequisite courses) and what to expect from different sections of the course.
- List of textbook practice questions.
- Solution manual is provided in the digital Achieve package (Achieve course home).



# Exam dates & times

- Midterm Exam (30%): Tuesday Feb 20th (location TBA). It covers Profs. Moon & Schoen's sections.
  - Exam duration is 1.5 hr.
- There will be no lecture on the 21st, the day after the midterm exam.
- Final Exam (60%) : Accumulative, covers entire course.

# Exam Viewing Policy

- Midterm and Final: After the exams have been graded, we will announce how you may see your midterm and final exams.
  - Please note: We do not have sufficient staff to arrange individual exam viewing sessions

# Self-Assessment Exercises (10%):

- There will be five self-assessment exercises (2% each)
- SAEs are held during the class via the quiz function of myCourses. The dates of SAEs are indicated in the lecture schedule posted at myCourses (changes made last weekend).
- For Self-Assessment Exercise, students are encouraged to work collaboratively with other students to discuss questions.
- It is a 15-minute-long assessment, but 30 minutes are given to encourage discussion, chance to self-assess.

Please, read the course syllabus for additional information!!!!

# “Polling” during the lecture

The system allows students to submit responses to questions during the lectures, including today.

Please go to <http://www.mcgill.ca/polling/> and register.

- You can participate polling by scanning the QR code or go to <https://app.sli.do/> and enter the Slido code.
- Will not affect grades.

slido

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install the Slido app on  
all computers you use



**Describe/Define Genetics in  
a word or two.**

① Start presenting to display the poll results on this slide.

# Genetics

Which one of the following pictures shows a GENETICALLY related family?



Genetics is the branch of biology that studies genes, heredity, and variation in living organisms. It explores how traits are passed from one generation to the next through DNA and how genetic information influences the development, function, and behavior of organisms.

## Profs. Moon/Schoen

Rules in genetics

- Mendelian genetics
- Pattern of inheritance
- Linkage
- Quantitative traits
- Population genetics

## Prof. Nilson

Molecular basis of traits and genetic variation:

- Chromosome
- Transposons
- Rearrangements and mutations
- Bioinformatics
- Functional genomic
- Forward genetics

## Prof. Hipfner/Moon

Deciphering genetic codes:

- Transcription
- Developmental genetics
- Epigenetics
- Cancer genetics
- Immunogenetics
- Gene therapy

# Gregor Mendel (1822-1884)

Gregor Mendel



*James King-Holmes/Science Source.*

During his childhood, Mendel worked as a gardener, grew up in a farm.

Became a monk and conducted his famous pea experiments in the monastery garden in the town of Brunn, Austria (Brno, Czech Republic, today).

In 1800s, resemblance between parents and offspring was explained by “blending theory”

Red + Blue => Purple + Purple  
Parents                      offspring  $\Downarrow$   
Purple