BIOL 110
Human Genetics and Evolution

Winter Term (2017)

CALENDAR DESCRIPTION

Introductory genetics and evolutionary processes as they relate to the human condition - genetic diseases, medical techniques, inheritance and ethical issues such as cloning and genetically modified foods.

ONE-WAY EXCLUSION May not be taken with or after BIOL 102/3.0; BIOL 103/3.0.

SCHEDULE

Monday 8:30 to 9:30 (Lecture)
Monday 12:30 to 1:30 (Weeks 1-2 Lecture; Weeks 3-12 Group Learning/Tutorial)
Tuesday 10:30 to 11:30 (Lecture)
Biosciences Rm. 1102

Instructor	**Dr. Susan Yates**
Instructor Contact	yates@queensu.ca Rm. 2308B Bioscience
Office Hours	Mondays 9:30-12:00 or by appointment

Course Description:

This course is intended as an elective course for students from all academic disciplines with the exception of biology majors. No scientific backroad is required for enrollment. The course will provide an overview of the most basic concepts in genetics and how they apply to humans. The goal is to provide non-biologists with sufficient understanding of the field of genetics to support a basic understanding of many topical issues in modern society.

The course combines directed readings, independent investigation of topics of interest, and interaction with peers and instructors. Participants will be expected to learn basic concepts through the readings and to engage at a deeper level with a topic of choice and produce an essay. In a series of group learning/tutorials, students will interact with peers by contributing actively to the discussions of assigned topics.

Learning Outcomes:

Demonstrate knowledge and critical understanding of the key concepts, methodologies, current advances, theoretical approaches and assumptions in the biology of cells. By the end of this course, the student will:

- Identify and define basic concepts in genetics such as inheritance, gene, and chromosome
- Apply genetic concepts in the understanding of human evolution
- Appreciate the role of genetics in contemporary issues such as stem cell research, longevity research, genetic testing, and cancer

- Distinguish between “older-school” research approaches and cutting edge approaches
- Evaluate how life might be affected by new technologies in the Genomics Age

Learning Hours

Teaching method		*Average hours per week*	*Number of weeks*	*Total hours*
In-class hours	Lecture	3 (week 1-2) 2 (week 3-12)	12	26
	Group Learning/Tutorial	1	10	10
Other	Online activity	3	12	36
	Private study	3	12	36
Total hours on task				108

Course Topics

- The Human Genome
- Cell Biology/Chromosomes
- Meiosis and Development
- Mutation/Single-Gene Inheritance
- Beyond Mendel's Laws
- Sex and Genetics
- Multifactorial (Complex) Traits
- Genetics of Behavioural Traits
- Human Evolution
- Cancer
- Genetic Technology/Genetic Testing
- Genomics

Textbook:

The following course textbook is required and is available through the campus bookstore as an ebook:

Human Genetics, Concepts and Applications (Ricki Lewis, 11th edition, McGraw-Hill).
ISBN-10: 0077658922 ISBN-13: 9780077658922

Course Website:

Dates and/or details regarding readings, assignments, essay and examinations will be announced in class and/or posted on the course website (located on OnQ).

Evaluation

Component	Weight (%)	Date
Quiz #1 (online)	15 %	TBA
Quiz #2 (in class)	20 %	TBA
Group Session/Tutorial Assignments	10 x 2 % = 20 %	Weekly beginning the 3rd week of class
Essay	15 %	TBA
Final Exam	30 %	TBA

Grading Method

All components of this course will receive numerical percentage marks. The final grade will be derived by converting the numerical course average to a letter grade according to Queen's Official Grade Conversion Scale.

When letter grades are employed, the following scale will be employed for purposes of calculating your course average:

Arts & Science Letter Grade Input Scheme

Assignment mark	Numerical value for calculation of final mark
A+	93
A	87
A-	82
B+	78
B	75
B-	72
C+	68
C	65
C-	62
D+	58
D	55
D-	52
F48 (F+)	48
F24 (F)	24
F0 (0)	0

Your course average will then be converted to a final letter grade according to Queen's Official Grade Conversion Scale:

Queen's Official Grade Conversion Scale

Grade	Numerical Course Average (Range)
A+	90-100
A	85-89
A-	80-84
B+	77-79
B	73-76
B-	70-72
C+	67-69
C	63-66
C-	60-62
D+	57-59
D	53-56
D-	50-52
F	49 and below

Academic Integrity and Queen's Code of Conduct

Students are responsible for familiarizing themselves with the regulations concerning academic integrity and for ensuring that their assignments and conduct conform to the principles of academic integrity. Information is available in the Arts and Science Calendar (see Academic Regulation 1 - http://www.queensu.ca/artsci/academic-calendars/regulations/academic-regulations, on the Arts and Science website (see http://www.queensu.ca/artsci/academics/undergraduate/academic-integrity), and at Biology's website (http://www.queensu.ca/biology/undergrad/integrity.html) and from the instructor of this course. Departures from academic integrity include plagiarism, use of unauthorized materials, facilitation, forgery and falsification, and are antithetical to the development of an academic community at Queen's. Given the seriousness of these matters, actions which contravene the regulations on academic integrity carry sanctions that can range from a warning or the loss of grades on an assignment to the failure of a course to a requirement to withdraw from the university.

Accommodation Policy, Exam Conflicts, and Other Conflicts

Students who feel they need accommodations for disabilities or extenuating circumstances, or have a conflict between exams or other commitments should consult the Biology Department's website for details about how to proceed (http://www.queensu.ca/biology/undergrad/integrity.html). In general, the earlier a course coordinator is apprised of an extenuating circumstance, the more likely an accommodation can be made. Students are encouraged to be proactive in anticipating difficulties, when it is possible to do so.

Students may apply to write a make-up or deferred exam if they have an exam conflict as defined in the Academic Regulations of the Faculty (See Arts and Science Calendar Regulation 8 - http://www.queensu.ca/artsci/academic-calendars/regulations/academic-regulations). In this case, the student should report to the Exams Office first to verify that there is a genuine exam conflict. Biology professors will not consider your situation to be a conflict unless it meets the criteria set out by the Faculty of Arts and Sciences.

Students may request a make-up or deferred exam if they have an exam conflict with off-campus travel associated with a field course (e.g BIOL-307/3.0 or 407/3.0) that is held during the fall or winter terms.

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Accommodation of Disabilities

Queen's University is committed to achieving full accessibility for persons with disabilities. Part of this commitment includes arranging academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all of their academic activities. If you are a student with a disability and think you may need accommodations, you are strongly encouraged to contact the Disability Services Office (DSO) and register as early as possible. For more information, including important deadlines, please visit the DSO website at: http://www.queensu.ca/hcds/ds/