

# BIOL 110

## Human Genetics and Evolution

Winter Term (2013-14)

### 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

**Lectures: Monday 8:30-9:30, Tuesday 10:30-11:30, Thursday 9:30-10:30, BIOSCI 1102.**

<b>Instructor</b>	<b>Robert Snetsinger</b>
<b>Instructor Contact</b>	<a href="mailto:snetsing@queensu.ca">snetsing@queensu.ca</a> , Rm. 2322A Bioscience, Phone: 613-533-6000 ext. 77439
<b>Office Hours</b>	By appointment
<b>TA:</b>	n/a
<b>TA Contact Information</b>	n/a
<b>Office Hours</b>	n/a

### Learning Objectives

Demonstrate knowledge and critical understanding of the key concepts, methodologies, current advances, theoretical approaches and assumptions in the biology of cells.

Please Note: We are in conversations with McGraw Hill to facilitate an on-line learning model similar to the one introduced by Biol 102 in the Fall 2013 course. This may not come to fruition due to development delays. Consequently the course outline may change substantially in December than what is described below.

### Learning Hours

<i>Teaching method</i>		<i>Average hours per week</i>	<i>Number of weeks</i>	<i>Total hours</i>
In-class hours	Lecture	2.5	12	30
	Seminar			
	Laboratory			
	Tutorial			
	Practicum			
	Group learning	0.5	12	6
	Individual instruction	6	12	72
Other	Online activity	1	5	5
	Off-campus activity			
	Private study			
<b>Total hours on task</b>				<b>113</b>

## **Course Outline**

An introductory course intended to inform non-biology majors and those with limited science background on basic themes and concepts of human genetics, including applications of Mendelian, population and molecular genetics. Material will be presented in a variety of formats including lecture, group learning, and on-line quizzes.

### Cell Biochemistry

A focus on cellular processes that will provide a baseline for subsequent genetic material.

### DNA Structure.

Structural properties of chromosomes that will provide a baseline for subsequent genetic discussions.

### DNA Processes

Replication, transcription, translation, mitosis, meiosis, and gene regulation

### Human Development

Developmental genetics covering conception to birth including topics such as organ and limb development, teratogens, and developmental evolution.

### Mendelian

Mostly problem solving exercises and including the many exceptions to Mendel's laws of inheritance.

### Population Genetics and Hardy Weinburg

Hardy Weinburg, how populations are structured, how genetic diseases are tracked.

### Genetics of Behavior

How genetics influences most human behaviors.

### Genetics of Cancer

The biochemistry of cancer stemming from mutations. Also includes a section on aging.

### DNA technologies

Recombinant techniques, transgenics, cloning, and fingerprinting

## **Grading Scheme**

<b>Component</b>	<b>Weight (%)</b>	<b>Date</b>
Moodle Quizzes	40	TBA
Final Exam	60	TBA

## **Grading Method**

All components of this course will receive numerical percentage marks. The final grade you receive for the course will be derived by converting your 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/>*