Course Outline: BIOL4390.3 Population Genetics, Winter 2020
Instructor: Prof. Amro Zayed

Course Description:
Evolution is the key to the fascinating and incredibly diverse forms and functions we observe in nature. This course will explore the evolutionary processes that control the fate of novel genetic variants arising from mutation in natural populations, mainly chance (i.e. genetic drift) and natural selection. After an introduction to the theory underlying population genetics and molecular evolution, we will focus on current topics in the field, including how to detect the signatures of selection on the genome, and how the phenotype evolves. Students completing BIOL4390 will gain a solid understanding of the evolutionary process, which will help them pursue careers in academia (e.g. evolutionary genetics and ecology), biomedicine (e.g. understanding the role of genetic diversity and disease susceptibility in Humans), and agriculture (e.g. improving domesticated animal and plant stocks using artificial selection).

Grading:

Weekly Quiz – Typically on Friday (N=12)	36% (3 % each)
Assignments (N=3)	64% (21⅓ % each)

Lectures:
M,W,F: 9:30 to 10:30 am, CLH 110
Attending lectures is mandatory and absolutely necessary.

Textbook:
None

Weekly reading: You will be required to read 1 or 2 peer-reviewed articles per week. The weekly readings are mandatory and will complement the lecture topics.

Weekly quizzes: A few (2 to 3) questions, drawn from the weekly reading and/or the lecture material. The quiz will be held in class, and its time will vary depending on the difficulty of the questions (typically a total of 3 to 5 min)

Assignments: The assignments will consist of analysis and interpretation of population genetic data. You will typically have at least 1 week to complete an assignment.

Moodle: This course will use Moodle (http://moodle.yorku.ca/) to disseminate weekly readings and assignments. To access the site, go to **moodle.yorku.ca**, and login using your Passport York Username and ID; Contact the helpdesk (helpdesk@yorku.ca) if you experience any difficulties accessing the Moodle Course. All students officially enrolled into the course will have access to the Moodle material. Email me if you are enrolling late to get weekly readings and assignments – late enrolment will not excuse you from completing coursework.

Discussion and Contact Policy:
If you have any questions regarding the course material and content please post a message on the course's Discussion forum on Moodle. I have allocated time to check and answer questions on the discussion forum. I do not answer questions regarding the subject matter and/or

assignments via email. If you wish to meet with me in person – please send me an email with the title: "**BIOL4390 Request for Appointment**", and include your full name and student number in the body of the email.

Policy on Re-marking quizzes and assignments:
Quiz and assignment grades are final, with the exception of mark summation errors. I do not negotiate grades.