**Course Outline: BIOL4390.3 Population Genetics, Winter 2013**

**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 each Friday (12) 36% (3 % each)
Assignments (3) 64% (21⅓ % each)

**Lectures:**
M,W,F: 9:30 to 10:30 am, SLH E
Although we have no attendance or participation marks, *attending lectures is mandatory and absolutely necessary.* It is your responsibility to cover any missed lectures independently.

**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 lecture material and/or the weekly reading.

**Assignments:** The assignments will consist of analysis and interpretation of population genetic data.

**Moodle:** This course will use Moodle (http://moodle.yorku.ca/) to disseminate the lecture material, 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. Although lecture slides will be available on moodle – this is not an excuse to miss lectures. The slides only have factual information – you’ll have to attend the lecture if you wish to understand the slides (and do well in the course)!

**Discussion and Contact Policy:**
If you have any questions regarding the course material 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 will 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:
“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!