**Syllabus for STA480/STA2080**
Fundamentals of Statistical Genetics
Lei Sun

1. **Contents**
   - We start with an overview of genetic studies to have a general understanding of its goal and study design.
   - We then introduce the basic genetic terminologies necessary for the discussion of the various statistical methods used to understand human genetics
   - The topics include basic concepts of population genetics, principles of inheritance, likelihood for pedigree data, aggregation, heritability and segregation analyses, map and linkage analysis, population-based and family-based association studies, genome-wide association studies and multiple hypothesis testing.

2. **Prerequisites**
   - Although "we assume no formal training in genetics, we [do] assume familiarity with elementary probability, statistical inference and methods".
   - The prerequisite is STA303-Methods of Data Analysis or equivalent.

3. **Textbook and Lecture Notes**
   - The teaching will generally follow the book by Laird and Lange: The Fundamentals of Modern Statistical Genetics (can be accessed online through the UofT library)
   - Instructor will provide additional materials.
   - Integrated course notes in .pdf format will be posted in advance of each lecture.

4. **Evaluation**
   - In-class closed book test 1 (30%), scheduled for Monday Oct 19th
   - In-class closed book test 2 (30%), scheduled for Monday November 23rd
   - In-class closed book final test (40%), during the exam period of December 11-22.

5. **Other Important Information**
   - No class on November break Monday, November 9th, BUT there will be a make-up class on Wednesday December 9th, 9:30am-12:30pm
   - There is no TA for the course
   - The instructor will host office hour Thursdays 2-3pm.
   - Some statistical genetics programs will be briefly discussed, but there will be no hands-on computing labs or R programming. R codes used by the instructor will be made available.