Instructor: Prof. Shili Lin, 440A Cockins Hall, 2-7404, shili@stat.osu.edu
Lectures: MWF 10:20 AM - 11:15 AM; Caldwell Lab 183.
No classes on September 4, October 13, November 10, 22, and 24
Office Hours: Monday 11:20 AM - 12:20 PM, Wednesday 9:00 AM - 10:00 AM, or by appointment
Grader: Mr. Xiaofei Zhou, zhou.1150@osu.edu
Website: http://carmen.osu.edu
Course Requirements: You are responsible for: material covered in class, assigned readings, homework assignments, and project. Class attendance is required.
Topics: Overview and history - statistical genetics, omics and bioinformatics
Basic principles of population genetics
Gene/haplotype frequency estimation
Likelihood computation on pedigrees (exact and Monte Carlo methods)
Association study; population and family based
More advance topics (e.g. imprinting and maternal effects; rare variants)
Topics in Bioinformatics (e.g. microarray/sequencing, methylation, Chromatin structures (spatial ineractions), data integration)
Homework: There are a total of 4-5 assignments. They are based on the materials covered in the lecture. No late homework will be accepted.
Assessments: There will be quizzes and a midterm; dates TBA.
Project: The project is to read, summarize, and present a journal article. Novel ideas on extending statistical methodologies or improving computational algorithms will be awarded extra points. It is being structured into three parts: Part I: summary of paper; Part II: slide preparation; Part III: Presentation.
A more research oriented project is also possible.
Grades: The final numerical grade will be determined as follows:
   Homework assignments 10%
   Quizzes and Midterm exam 40%
   Reading and participation in discussion 10%
   Project (including summary, slides, and presentation) 40%
References: Research Papers
Thompson EA (2000) Statistical inference from genetic data on pedigrees
Weir BS (2007) Genetic Data Analysis 3
Academic Misconduct  It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term “academic misconduct includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct http://studentlife.osu.edu/csc/.

Disability Services  Students with disabilities (including mental health, chronic or temporary medical conditions) that have been certified by the Office of Student Life Disability Services will be appropriately accommodated and should inform the instructor as soon as possible of their needs. The Office of Student Life Disability Services is located in 098 Baker Hall, 113 W. 12th Avenue telephone 614- 292-3307, slds@osu.edu; slds.osu.edu.