Course Requirements
Problem Sets (20%)
  Problem set 1. Out April 5. Due April 19.
  Problem set 2. Out April 19. Due May 3.
  Problem set 3. Out May 3. Due May 17.

Projects (40%) Choose one of the following projects. Email Stuart Kim by April 17 with your choice.
  1. Presentation to the class (15')
    Key disease risk loci. Presentation about how genes affect risk and diagnoses for key diseases. Goal is to present baseline knowledge that a physician or a patient would want to know to understand how their genotype affects a disease. Discuss how specific SNPs are associated with increased risk for :
      a) Breast Cancer
      b) Type 2 Diabetes
      c) Alzheimer's disease
      d) Parkinson's disease
      e) other traits - Some trait that you find interesting to research or that may be personally important to you. Talk to Stuart Kim for permission

  2. Write-up
    a. One page write up of association of how a SNP is linked with a particular trait. The format is the same as used at SNPedia.com. For example, see http://www.snpedia.com/index.php/Rs1800497. This should be a new SNP, not currently listed at DTC companies or on SNPedia. (Previous traits can be written with permission from Stuart Kim and your write up has to be significantly different than ones available on the web.)
    b. First draft due on May 19.
    c. We will post your write up and allow students to look up their SNPs from your write up. The class can comment on your write up.
    d. Qualified write-ups will be published on SNPedia.com on week 10.

  3. Class Presentations (15')
    a. "Should DTC genetics be prescription only? (possibly debate with 2 people)".
    b. "My idea for a new DTC company"
    c.   "For $100M or less, propose an experiment to study the genetic basis for a complex trait (1-3 people, 5 page proposal or 15' presentation)."
    d. Write a 5 page proposal of specific aims for this RFA:
    National Human Genome Research Institute (NHGRI)
    Genomic Medicine Pilot Demonstration Projects (U01)
    Amount of funding: $750,000 total costs plus indirects per year x 4 yrs
    Purpose: The purpose of this funding opportunity announcement (FOA) is to support a consortium of collaborative Genomic Medicine Pilot Demonstration Projects designed to develop methods for, and evaluate the feasibility of, incorporating an individual patient's genomic findings into his or her clinical care.

e. If you have another idea, talk to Stuart about adding another debate.
4. Bioinformatics project to improve genotation.stanford.edu.

Final Exam (40% credit) take home.
1.   Scenario is that you are an MD diagnosing a patient.
You will be given the genotype of your patient. The final will have various scenarios.
You need to discuss how the genotype of the patient affects the diagnosis of the
patient. You will use the tools from the class website to analyze the patient's genome,
and provide informative feedback to the patient.

Extra credit. (10%)
a. You will be given the genotypes of 7 people (SK, KK, RT, NT, NZ, MPS, GC).
b. You will be told ancestry and specific traits for these 7 people.
c. You need to match the genotype with the person.