

Welcome to Genomics & Personalized Medicine



Course Staff



Keyan Salari
MD/PhD Candidate, Genetics
Course Director
ksalari@stanford.edu



Stuart Kim
Professor of Genetics and Developmental Biology
Faculty Sponsor
stuartkm@stanford.edu



Konrad Karczewski
PhD Candidate, Biomedical Informatics
TA
konradjk@stanford.edu

Genetics 210

- Era of *personalized medicine* - individually tailoring disease prevention and treatment based on a patient's genes and environment
- Human genetics research has seen explosive growth thanks to major advances in genomic technologies over the last 5-10 years
- Genetics and genomics are playing an increasingly greater role in medicine
- GENE210 Goal: teach you how personal genomics will impact practice of medicine
- We expect you to know basic human genetics, and a little math

Course Structure

- Each session 1.5 hrs
 - ▶ 45 min lecture (videotaped)
 - ▶ 30 min data exercises
 - ▶ 15 min presentations/discussions
- Working hands-on with genotype data will make learning human genetics more engaging and exciting
- Attendance and participation are very important!

Course Requirements

- Pass/Not Pass (MD Grades or S/NC)
- Attend lectures
- Participate in workshop exercises
 - ▶ Bring Mac OS X laptops
 - ▶ 20 Mac OS X laptops reserved from EdTech
- Student presentations

Student Presentations

- Each student must do 1 presentation
- Presentation on genotype-disease or genotype-drug response association (oral or written)
 - ▶ 5 min, 1-2 students per group, 2 groups per day
 - ▶ Sign up for slots starting in Week 3
- Alternative: perform a novel analysis of genome data (for use in last class; due few weeks before)

Personal Genotyping

- History - Dean's Genotyping Task Force

Personal genomics goes to school Nature Blogs

A DNA education

Taking personal genetic testing into the classroom brings ethical and legal sensitivities to the fore.

Nature Jun 17 2010

“well-thought-out program”

The Big Game of Student Genetic Testing



Los Angeles Times | HEALTH

Students' DNA on the curriculum at Stanford Medical School

“Stanford beats Berkeley”

Personal Genotyping

- History
- This is a pioneering course and you are at the forefront
- Your participation and feedback will be incredibly important

Personal Genotyping

- 23andMe or Navigenics
- Voluntary
- Confidential - instructors will not know who opted in or out
- Private - you will not be asked to disclose your raw genotype data
- Counseling - genetic counseling via 23andMe/ Navigenics, and medical/psychological counseling via Dr. Alan Schatzberg



Personal Genotyping

- Eligibility - MD and bioscience PhD students
- Co-pay of \$99
- Already been genotyped? BYOG
- Public genome datasets available for everyone
- After second class (6/30), you can decide - to genotype or not to genotype?
- July 1 pickup kits and spit to get data promptly

GENE210 Research Studies

- IRB-approved
- Pre-course / post-course survey on knowledge and attitudes about personal genomics
- Interview-based longitudinal study

Questions?

Course website

gene210.stanford.edu

Course email

gene210-sum0910-staff@lists.stanford.edu