Syllabus: BIOL 4803C "HEALTH, GENES and SOCIETY" Spring 2016

Overview

This is a non-traditional course designed to engage you in projects that relate to personalized medicine, particularly incorporating consideration of the impact of genome analysis. Rather than absorbing lecture material, the emphasis will be on self-directed learning and realization of deliverable projects in small teams working throughout the semester. We will start with a survey of predictive health (past, present and future), and lay down the essentials of genetic risk evaluation. Then each week a pair of students will be responsible for a presentation on the assigned topic and leading discussion, and we will work together in class to make constant progress on your projects.

Objectives

1. To understand the potential contribution of whole genome sequencing and genomic profiling for personalized medicine
2. To place genomic medicine in the context of other emerging trends in healthcare including mobile health, evidence-based medicine, and big-data driven public health
3. To deliver an actual product that can be used in a practical manner to influence health behavior

Evaluation

50% Term Project (evaluation criteria will be discussed in class, and include peer assessment)

25% Class presentation and participation in weekly discussion

25% Final Exam

Sample Ideas for Term Projects

(see http://genomestake.blogspot.com/2014_05_01_archive.html for a summary of the 2014 projects, and http://genomestake.blogspot.com/2015_05_01_archive.html for a summary of the 2015 projects).

Devise strategies for enrolling disadvantaged groups in health insurance through the RING organization

Generate an App that will take an individual's whole genome genotype profiles (for example, downloaded from 23andme) and return up-to-date genetic risk scores for dozens of conditions

Create a module of 3 or 4 lectures on a personalized medicine topic that high school teachers may use in lesson planning (see http://teachthemicrobiome.weebly.com and http://PersonalizedMedicineProject.Weebly.com for examples from the last two years)

Visit local high schools to help teachers present the lesson plans above

Work with Georgia Tech STAMPS Wellness Center to institute an incentive program to improve some aspect of campus life

Design a game incorporating genetics into planning a healthy lifestyle

Capstone Project and Lecture Presentation Groups

Group A	Samah HISAMUDDIN, Hussain KACHWALLA, Melissa LINTON, Victoria HERDMAN Designer Babies, Jan 28
Group B	**Chris BOYD, Lee Martin FRAZER, Sara Locklear** **Quantified Self Movement, Feb 4**
Group C	**Jingheng CHEN, Amanda LIEW, Kristin SHAEFFER** **Patients-Like-Me, Feb 18**
Group D	**Jacqui GRANT, Demetria HUBBARD, Orezime UYEH** **Global Philanthropy, Feb 23**
Group E	**Lillian CHEN, Akinade OJEMAKINDE, Natalie PAYNE** **Racial Disparities, March 3**
Group F	**Komal ABBAS, Lily AKBARZADEH, Mona ABRAHAM** **Eating Behavior, March 10**
Group G	**Kenya COLLINS, Haley HAUFSCHILD, Donjhae JONES** **Exercise Behavior, March 17**
Group H	**Radhi AMIN, Alexa DECKBAR, Sana SURANI** **Drinking Behavior, March 31**
Group J	**Yamah AMANI, Shaun CHAPMAN** **Smoking and Drug Behavior**
Group K	**Hanna MARKS, Robert LEON, Kristy SYHAPANHA** **Parenting Behavior**

Weekly Content (Red lectures by Students)

Introduction - Professor Gibson		**Tuesday**	**Thursday**
Jan 12, 14	Week 1	What is Predictive Health?	Ayurvedic medicine
Jan 19, 21	Week 2	Precision Medicine	Genetic risk prediction
Jan 26, 28	Week 3	Newborn screening	Designer babies
Mobile Health and Social Media			
Feb 2, 4	Week 4	Social Media in medicine	The Quantified Self Movement
Feb 9, 11	Week 5	Pharmaceuticalization of medicine	Health and Social Networks
Feb 16, 18	Week 6	Personal Genome Projects	Patients Like Me
Public Health			
Feb 23, 25	Week 7	Global foundations: Gates to Clinton	Responsible Philanthropy
Mar 1, 3	Week 8	Socioeconomic Inequality	Racial Disparities
Domains of Health			
Mar 8, 10	Week 9	Missing microbes	Eating behavior
Mar 15, 17	Week 10	Midway 10 min Presentations	Exercise behavior
Mar 22, 24	Spring Break		GG in Australia
Mar 29, 31	Week 11	Genetics of alcoholism	Drinking behavior
Apr 5, 7	Week 12	Smoking and drug abuse	Cancer screening
Apr 12, 14	Week 13	Parenting behavior	Depression
Apr 19, 21	Week 14	Term Project presentations	Term Project presentations
Apr 26	Week 15		
May 5	9-11	FINAL EXAM	