Who are you? Revelations from The Personal Genome

Welcome to the wiki for the first-year seminar *Who are you? Revelations from The Personal Genome*

The *Recreational Genetics* marketplace has undergone a massive expansion in recent years. Similar to the telescopes available to the amateur astronomer, sophisticated genetic tools are now available to anyone with an interest in exploring their own genome. For a nominal fee a company will analyze about 0.02% of the sites in your genome, provide you access to the data, and report various interpretations back to you. Many of these same sites are used in human genetic research to identify genes responsible for increased disease risks and for other traits in the human population. Thus, the results of a genetic test have uses beyond providing information on your ancestry and connecting with relatives.

Have you considered doing a DNA test yourself or giving a DNA test as a gift? Have you done a DNA test already, but feel that you have not fully used the results? Do you have an interest in human evolution and genetic variation?

This introductory seminar course will evaluate the science underlying genetic analysis of human genetic variation and ancestry, compare the tests available from the varied companies that dominate the direct-to-consumer genetic marketplace (e.g., Ancestry DNA, Family Tree DNA, The Genographic Project, and 23andMe), and build the knowledge to navigate the results obtained from the analysis of your own DNA sample. To gain the most from this course, a student should be willing to provide a DNA sample that will be sent for analysis by 23andMe. The DNA test is available to you at no cost; however, your results will be available only to you through 23andMe's website. The content and activities in the course will facilitate your being able to fully utilize your genome data.

### Course Objectives

- Contrast different types of genetic information indicative of ancestral relationships
- Recognize the existence of genetic structure among human populations across the globe
- Build proficiency in the conceptual foundation for the methods that underlie tests of human ancestry
- Navigate the 23andMe web platform to view the various interpretations of your genome data
- Evaluate the personal and the potential societal impacts from commercialization of genetic tests
- Develop skills for contributing to a productive group discussion about science and humanity

**Now wait a minute! You want to examine my DNA - as a class project?**

Unless you have an identical twin, your DNA is unique to you. Therefore, DNA testing entails privacy concerns and engenders other potential consequences. **Providing a sample for DNA testing is optional** - you can participate in this course and use the 23andMe website without submitting a test yourself. Before the semester begins consider potential outcomes of DNA testing and discuss with family members your interest in doing a DNA test for this class. The 1st class meeting will focus on considering possible outcomes of testing and evaluating the value of testing versus the potential negative consequences. This YouTube video from a student at Stanford discusses some of the things that you can learn from the analysis of your DNA. The 2nd class meeting will be 'spit day' when consent forms are signed and samples prepared.

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Back in May of 2018 researchers at the University of Oregon developed a computer program that brings us one step closer to understanding the links between genetic mutations and disease. The new software is called bpRNA and has the capability to interpret secondary structures in RNA. This allows for more precise and complete study of structure and sequencing. RNA is responsible for delivering DNA codes....