A Practical Introduction to Research Using Biobanks

BioVU, All of US, UK Biobank

HGEN 8391 "BioVU Study Design" course

All faculty, students, and research staff are welcome to attend the **BioVU Study Design** course as needed. Graduate students who wish to have credit for the course should register, but it is expected that many people will just sit in on the course.

All people who are interested in attending any sessions of this course should email the course instructor David Samuels (david.c.samuels@vanderbilt.edu) to be put on an email list for notifications of class topics, dates, and meeting information as well as for access to the recorded lectures.

The course will consist of recorded lectures, with a total of roughly 2 hours of recorded lectures will be distributed each week. On Fridays, 12-1, we will have meetings for discussions and for live demonstrations.

Our goal is to give you the information you need to design a working research project using a biobank with electronic medical record data. While we will give you the most detail on working in **BioVU**, since that is the local system, we will also teach you about working in **All of Us** and in the **UK Biobank**.

HGEN8391 BioVU Study Design: This is a practical course designed to train you to conduct research using the de-identified version of Vanderbilt's electronic medical record (Synthetic Derivative, SD) and DNA biorepository (BioVU). After completion of this course you will have the skills to independently execute SD/BioVU projects and assist colleagues who wish to utilize the resource. Through a combination of lectures, demonstrations, and hands-on workshops, you will develop competence in all aspects of the BioVU research process, including project design, data extraction and cleaning, and analysis. You will also become familiar with practical aspects of using BioVU, including administrative/regulatory requirements and basic use of bioinformatics tools. Topics covered will include:

Overview of the clinical data available in the Synthetic Derivative (SD),

Techniques for defining phenotypes within the SD,

Working with the BioVU programmers,

Proper control definition,

Limitations of BioVU for research,

Available genetic data,

Common problems with BioVU study design and how to address them,

Population stratification,

IRB approval procedures and other RCR topics,

The BioVU application process.

This is a practical course aimed at learning how to use the Synthetic Derivative and BioVU for biomedical research. The goal of the course is to develop your own BioVU proposal. Students taking the course for a grade will receive written feedback on their proposal.

Instructors: David Samuels and Quinn Wells