**Shi Lab (**[**http://shilab.uncc.edu/**](http://shilab.uncc.edu/)**) Saturday Science Day**

**UNC Charlotte, Bioinformatics 104**

**March 21, 2015**

9:30-9:40 Introduction and setup

9:40-10:20 A brief introduction to bioinformatics, human genetics and precision medicine (Mindy Shi, Jia Wen)

1. Bioinformatics and interdisciplinary research in big era of biomedical research and industry.
2. Introduction to human genetics and data integration, with a focus on what we do in our lab.
   1. The 1000 Genomes Project: <http://www.1000genomes.org/>
   2. Integrating genomics data (e.g. Expression quantitative trait locus mapping, network analysis): <http://shilab.uncc.edu/sites/shilab.uncc.edu/files/media/papers/Quitadamo-BMCbioinformatics-15.pdf>

10:20-10:40 break/setup

10:40-11:30 Pipelines/tools for human genomic data analysis (Andrew Quitadamo, Dahlia Shvets)

1. Github and open science
   1. Github: <https://github.com/>
2. Programming and data analysis in Python/iPython
   1. Python: <http://www.codecademy.com/en/tracks/python>
   2. iPython Notebook: <http://ipython.org/notebook.html>
3. R scripting and statistical analysis:
   1. <http://www.r-project.org/>
4. Aggregated Genome Data Resources
   1. UCSC Genome Bioinformatics: <http://genome.ucsc.edu/>

11:30-11:50 break/setup

11:50-12:30 Demo and lab session (Andrew Quitadamo, Dahlia Shvets, Jia Wen, Mindy Shi)

1. Bioinformatics programming and data analysis (Python/iPython/R)

12:30-1:30 break and lunch