

# Big Genomic Data Skills Training for Professors

*The Jackson Laboratory for Genomic Medicine (JAX-GM)  
Farmington, Connecticut*

**May 21-25, 2018**

## **SAMPLE SCHEDULE**

### **Monday, May 21**

<b>8:00am</b>	<b>Registration</b>
<b>8:30am</b>	<b>Welcome and Introduction</b>
<b>9:00am</b>	<b>Introduction to Data Science with Biological Emphasis</b>
<b>10:00am</b>	<b>Introduction to High Throughput Sequencing Technologies</b>
<b>11:00am</b>	<b>Hands on Work: Setting up Computing Infrastructure and Introductions to Galaxy, Genome Space, IGV, Gene Pattern, R, and Slack. Setting up of basic tools.</b>
<b>12:00pm</b>	<b>Lunch</b>
<b>1:00pm</b>	<b>Introduction to Linux</b>
<b>2:30pm</b>	<b>Essential Statistical Analysis</b>
<b>3:30pm</b>	<b>Break</b>
<b>4:00pm</b>	<b>Curricular Discussion – Presentation and Discussion of UG courses in Genomics, presentation of previous and existing syllabi</b>
<b>5:00pm</b>	<b>RNA-sequencing Seminar</b>
<b>6:00pm</b>	<b>Light Dinner</b>
<b>7:00pm</b>	<b>Evening Lecture</b>

### **Tuesday, May 22**

<b>8:30am</b>	<b>RNA-sequencing Introduction</b>
<b>9:00am</b>	<b>Module #1: RNA-sequencing as Measurement Tool; Hands-on Work</b>
<b>10:00am</b>	<b>Break</b>
<b>10:30am</b>	<b>Module #1: Hands-on Work continued</b>
<b>12:00pm</b>	<b>Lunch</b>
<b>1:00pm</b>	<b>Module Debrief: Lessons learned, Q &amp; A.</b>
<b>1:30pm</b>	<b>Gene Set Enrichment and Pathway Analysis</b>
<b>2:30pm</b>	<b>Hands-on Work; Advanced and Derived RNAseq Analysis</b>
<b>4:00pm</b>	<b>Break</b>
<b>4:30pm</b>	<b>Module #2: Variant Discovery in Genomic Sequence; Hands-on Work; Mutation and Functional Analysis in R</b>

### Wednesday, May 23

- 8:30am Debrief on Module #2 Variant Calling: Lessons learned, Q & A.
- 9:00am Exome Sequencing for Variant Discovery
- 10:00am Module #3: Exome Sequencing Variant Discovery in Galaxy
- 12:00am Lunch
- 1:00pm Introduction to Microbiome
- 2:00pm Hands-on Work: Microbiome
- 3:30pm Break
- 4:00pm Curricular Discussion #2
- 4:30pm Cloud Resources and Galaxy

### Thursday, May 24

- 8:30am Data in Context
- 9:30am Network Modeling
- 10:30am Network Modeling short exercises
- 12:00am Lunch
- 1:00pm Data Standards and Best Practices Data Problems: When bad things happen in genomic analysis
- 2:00pm Introduction to CHIP-seq
- 4:00pm Break
- 4:30pm Module Debriefing on Exome, Microbiome, Network, and CHIP-seq; Open Discussion on Participant Needs and Data
- 5:30pm Reception Dinner

### Friday, May 25

- 8:30am Integrated Modeling of Genetic and Genomic Data
- 9:30am Running UG Courses in Genomics
- 11:00am Cloud Environments and Web Service Grants
- 12:00pm Lunch
- 1:00pm Collaborative Discussion, Next Steps, and How to Support UG Implementations