

2014 BIOINFORMATICS WORKSHOP SCHEDULE

Wednesday, December 3, 2014

On Wednesday, please arrive at Harper Court, Room 1121 by 1:45 p.m. to allow time to sign in and pick up your workshop materials. Harper Court is located at 5235 S. Harper Court, near the intersection of 53rd Street and Lake Park Avenue in Hyde Park, Chicago. Please remember to bring your own laptop and your University ID.

TIME	TOPIC	INSTRUCTOR
2-2:30 p.m.	Welcoming Remarks	Samuel Volchenboum, MD, PhD
<i>Session 1: High-Throughput Genomics Technologies and Applications in Biomedical Research</i>		
2:30-3 p.m.	Guest Lecture: Large-Scale NGS Data Management and Analysis Using Globus Genomics	Ravi Madduri (Argonne National Laboratory)
3-4 p.m.	The Importance of High-Throughput Genomics Technologies for Cancer Research	Samuel Volchenboum, MD, PhD
4-5 p.m.	Guest Lecture: Statistical Considerations for Experimental Design and Power Calculations for Gene Expression Studies	Masha Kocherginsky, PhD (Biostatistics Core)
5-5:30 p.m.	Applications of NGS to Biomedical Discovery	Jorge Andrade, PhD
5:30-6 p.m.	Overview of NGS Technologies: Illumina, 454, Ion Torrent, SOLiD	Riyue Bao, PhD

Coffee/snack breaks will be provided thanks to our sponsor IBM.

Wednesday's session will be followed by a cocktail reception at 7:00 p.m. at the University's Quadrangle Club. A shuttle bus will be available from Harper Court to the Quad Club. **The bus will leave Harper Court at 6:45 p.m.**



2014 BIOINFORMATICS WORKSHOP SCHEDULE

Thursday, December 4, 2014

On Thursday, please arrive at Harper Court, Room 1121 before 9:00 a.m. Please remember to bring your own laptop and your University ID.

TIME	TOPIC	INSTRUCTOR
<i>Session 2: Introduction to Linux, Shell Scripting, and High-Performance Computing</i>		
9 a.m. - 12 p.m.	Linux overview Navigation, file operations, data transfer Text extraction and manipulation Shell scripting PSB/TORQUE jobs on Tarbell	Kyle Hernandez, PhD
12-1 p.m.	LUNCH BREAK Lunch will be provided thanks to our sponsor QIAGEN Bioinformatics.	
<i>Session 3: Commonly Used Bioinformatics Tools and Formats</i>		
1-2 p.m.	Generic NGS analysis workflow File formats (NGS)	Sabah Kadri, PhD
2-3 p.m.	Guest Lecture: Big Data Meets Biomedical Informatics: From Clusters to Data Commons and Clouds	Robert Grossman, PhD (Center for Data Intensive Science)
3-4 p.m.	Introduction to Commonly Used Software Tools for NGS Analysis	Sabah Kadri, PhD
4-5 p.m.	Guest Lecture: Lynx: Web-Based Database and a Knowledge Extraction Engine	Natalia Maltsev, PhD and Dinanath Sulakhe (Department of Human Genetics)
5-6 p.m.	Commonly Used NGS Tools: Challenge	Sabah Kadri, PhD

Coffee/snack breaks will be provided thanks to our sponsor IBM.

Thursday's session will be followed by a dinner at 6:30 p.m. at the University's Quadrangle Club, generously sponsored by AbbVie. A shuttle bus will be available from Harper Court to the Quad Club. **The bus will leave Harper Court at 6:15 p.m.**

2014 BIOINFORMATICS WORKSHOP SCHEDULE

Friday, December 5, 2014

On Friday, please arrive at Harper Court, Room 1121 before 9:00 a.m. Please remember to bring your own laptop and your University ID.

TIME	TOPIC	INSTRUCTOR
9-11 a.m.	Guest Lecture: How to Perform a Core Analysis in IPA	Sohela Shah, PhD (QIAGEN Bioinformatics)
<i>Session 4: Genomics Data Visualization</i>		
11 a.m. - 12 p.m.	Viewing alignments and other data with IGV Navigating the UCSC Genome Browser	Kyle Hernandez, PhD
12-1 p.m.	LUNCH BREAK Lunch will be provided thanks to our sponsor Meridian IT.	
<i>Session 5: R Programming for Bioinformatics</i>		
1-3 p.m.	R installation and overview Basic commands and data types Package management and Bioconductor Analysis of Affymetrix Microarray Data with R and Bioconductor	Jorge Andrade, PhD, and Lei Huang, PhD
3-4 p.m.	Advanced Data Visualizations in R	Tzuni Garcia, PhD
4-5 p.m.	Guest Lecture: Analysis of Illumina Microarrays	Gilbert Feng, PhD (Creator of Lumi and GeneAnswers packages for Bioconductor)
5-6 p.m.	Guest Lecture: Uses of HPC and Cloud Computing in Biomedical Research	Ian Foster, PhD (Computation Institute)

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2014 BIOINFORMATICS WORKSHOP SCHEDULE

Saturday, December 6, 2014

On Saturday, please arrive at Harper Court, Room 1121 before 9:00 a.m. Please remember to bring your own laptop and your University ID.

TIME	TOPIC	INSTRUCTOR
<i>Session 6: From Sequence to DEGs: How do I analyze my RNA-Seq Data?</i>		
9 a.m. - 12 p.m.	Raw reads: Quality Control Alignment: Map reads to reference genome using splice-aware aligners Quantification: FPKM- and count-based methods Differential Expression: FPKM- and count-based methods Enrichment	Riyue Bao, PhD
12-1 p.m.	LUNCH BREAK Lunch will be provided thanks to our sponsor Continental Resources.	
1-3 p.m.	Hands-on practice with sample data (from QC to differential expression)	Riyue Bao, PhD

Coffee/snack breaks will be provided thanks to our sponsor IBM.