

Pre-Conference NGS Bioinformatics Workshop
November 15-16, 2014, Institute of Bioinformatics, Bangalore, India

Day 1 (Saturday, 15th November 2014)			
Introduction to Next-Generation sequencing applications and data analysis			
09:00 – 09:45 AM	Registration		
Time	Topic	Type	Presenter/In-charge
09:45 – 10:00 AM	Welcome remarks and workshop overview	Lecture	Dr. Harsha
10:00 – 10:20 AM	Molecular biology primer Linux environment and basic commands	Lecture	IOB team
10:20 – 10:50 AM	Introduction to NextGen Sequencing (NGS) principles and platforms	Talk	Dr. Zora Modrusan
10:50 – 11:30 AM	Common sequencing and annotation file formats. Overview on public data repositories	Talk and Interactive Session	Dr. Eric Stawiski
11:30 – 11:55 AM	Tea break		
11:55 – 12:10 PM	Quality control of raw sequencing data	Talk	Dr. Eric Stawiski
12:10 – 12:30 PM	Data file formats and quality control	Hands-on	Dr. Eric Stawiski
12:30 – 01:30 PM	Lunch		
01:30 – 02:10 PM	Intro to Exome-seq and WGS: Reference based mapping, alignment and variant discovery	Talk	Dr. Eric Stawiski
02:10 – 02:45 PM	WES mapping and variant discovery	Hands-on	Dr. Eric Stawiski
02:45 – 03:00 PM	WGS Analysis Demo	Demo	Dr. Eric Stawiski
03:00 – 03:20 PM	WGS mapping and variant discovery	Hands-on	Dr. Eric

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			Stawiski
03:20 – 03:35 PM	Tea break		
03:35 – 04:00 PM	Introduction to transcriptome analysis using RNA-Seq	Talk	Dr. Narayanan Raghupathy
04:15 – 05:00 PM	Transcript quantification	Hands-on	Dr. Narayanan Raghupathy

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Day 2 (Sunday, 16th November 2014)			
Advanced Next-Generation sequencing applications and data analysis			
09:00 – 09:30 AM	Registration		
Time	Topic	Type	Presenter/In-charge
9:30 – 10:15 AM	NGS project design and project specifications Hands on exercise involving various project types	Short talk and hands on exercise	Dr Zora Modrusan
10:15 – 10:45 AM	Advanced RNA-seq: Trinity/PASA pipeline for RNA-seq <i>de novo</i> assembly and annotation, for species lacking adequate annotation	Talk	Marcus Schroeder
10:45-11:15 AM	Trinity/PASA Hands-on	Hands-on	Marcus Schroeder
11:15 – 11:30 AM	Tea break		
11:30– 11:50 PM	Intro to JBrowse/WebApollo for RNA-seq annotation	Demo	Marcus Schroeder
11:50-12:30 PM	JBrowse for RNA-seq annotation hands on	Hands-on	Marcus Schroeder
12:30 – 01:30 PM	Lunch		
01:30– 02:00PM	Metagenomics	Talk	Dr. Ravi Gupta
02:00 – 02:45 PM	Metagenomics – 16S rRNA Analysis	Hands-on	Dr. Ravi Gupta
02:45 – 03:00 PM	Tea break		
03:00 – 03:30 PM	Advanced lecture on integrated genomic and proteomic data analysis	Talk	Dr. Harsha

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03:30 – 04:15 PM	Proteomic/Genomics Hands-on	Hands-on	Dr. Harsha
04:15 – 04:45 PM	Intro to PacBio Data and Analysis	Talk	PacBio Staff
04:45 – 05:15 PM	PacBio Hands On	Hands-on	PacBio Staff

Instructors from Institute of Bioinformatics, Bangalore:

Course Director: Dr. Eric Stawiski

Co-Directors: Dr. Harsha Gowda, Dr. Ravi Gupta, and Dr. Zora Modrusan

Faculty: Dr. Narayan Raghupathy, Mr. Marcus Schroeder, Mr. Anil Madugundu

Software and Hardware Coordinators:

Mr. Paul George
Mr. Saneesh
Mr. Anil Madugundu
Dr. Harsha Gowda

Course Material Printing:

Mr. Paul George
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1. Arun Patil
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