

# Advanced course on Comparative Genomics & Metagenomics

Faculty of Medicine Siriraj Hospital, Mahidol University

27<sup>th</sup> November - 8<sup>th</sup> December 2017

Week 1	27 <sup>th</sup> Nov 2017 (Mon)	28 <sup>th</sup> Nov 2017 (Tue)	29 <sup>th</sup> Nov 2017 (Wed)	30 <sup>th</sup> Nov 2017 (Thu)	1 <sup>st</sup> Dec 2017 (Fri)
Meeting Room. Lecture	TBA		Sukhum Pattarakom Lecture Hall, 1 <sup>st</sup> floor, Microbiology Building	Sukhum Pattarakom Lecture Hall, 1 <sup>st</sup> floor, Microbiology Building	101, 1 <sup>st</sup> Floor, Siriraj Medical Research Center (SiMR) Building
Meeting Room. Exercise	-		-	204, 2 <sup>nd</sup> floor, Srisavarindira Building	304 - 305, 3 <sup>th</sup> Floor, Siriraj Medical Research Center (SiMR) Building
Morning 09.00 - 10.00 AM	Research Discussion*	Research Discussion*	08.30 - 08.45 AM Welcome remarks 08.45 - 09.00 AM Introduction of Course and Faculty 09.00-10.00 AM Lecture 1 : FM, ML Sequencing and environmental DNA	Lecture 5 : FM, ML Introduction to MG-RAST (part1)	Lecture 7 : FM, ML Data, metadata and analysis of metagenomics data
10.00 - 10.15 AM	Coffee Break				
10.15 - 12.00 AM	Research Discussion*	Research Discussion*	Lecture 2 : FM, ML Analysis of environmental DNA ("metagenomics")	Lecture 6 : FM, ML Introduction to MG-RAST (part2)	Lecture 8 : FM, ML Comparative metagenomics
Lunch					
Afternoon 13.00 - 14.30 PM	Research Discussion*	Research Discussion*	Lecture 3 : FM, ML TBA	Exercise 1 : FM, ML Comparative metagenomics	Exercise 3 : FM, ML Comparative metagenomics
14.30 - 14.45 PM	Coffee Break				
14.45 - 16.00 PM	Research Discussion*	Research Discussion*	Lecture 4 : FM, ML TBA	Exercise 2 : FM, ML Comparative metagenomics	

Week 2	4 <sup>th</sup> Dec 2017 (Mon)	6 <sup>th</sup> Dec 2017 (Wed)	7 <sup>th</sup> Dec 2017 (Thu)	8 <sup>th</sup> Dec 2017 (Fri)
Meeting Room. Lecture	Sukhum Pattarakom Lecture Hall, 1 <sup>st</sup> floor, Microbiology Building	Sukhum Pattarakom Lecture Hall, 1 <sup>st</sup> floor, Microbiology Building	Sukhum Pattarakom Lecture Hall, 1 <sup>st</sup> floor, Microbiology Building	-
Meeting Room. Exercise	304 - 305, 3 <sup>th</sup> Floor, Siriraj Medical Research Center (SiMR) Building	202, 2 <sup>nd</sup> floor, Srisavarindira Building	901, 9 <sup>th</sup> Floor, Siriraj Medical Research Center (SiMR) Building	901, 9 <sup>th</sup> Floor, Siriraj Medical Research Center (SiMR) Building
Meeting Room.				
Morning 09.00 - 10.00 AM	Lecture 9 : DU, IN, FM, ML  Sequences as Biological Information: Cells Obey the Laws of Chemistry and Physics	Lecture 11 : DU, IN, FM, ML  3 Generations of DNA Sequencing	Lecture 13 : DU, IN, FM, ML  Special lecture on Genomics and Epidemiology II	Exercise 6 : DU, IN, FM, ML  BLAST atlases
10.00 - 10.15 AM	Coffee Break			
10.15 - 12.00 AM	Lecture 10 : DU, IN, FM, ML  - Introduction to Bioinformatics  - Sequences as biological information  - Taxonomy	Lecture 12 : DU, IN, FM, ML  Introduction to DNA atlases	Exercise 4 : DU, IN, FM, ML  Use RNAmmer to extract 16S rRNAs	Exercise 7 : DU, IN, FM, ML  Analysis of pan- and core-genomes
Lunch				
Afternoon 13.00 - 14.30 PM	LAB 1 : DU, IN, FM, ML  DNA library preparation of unknown genomes	LAB 3 : DU, IN, FM, ML  Retrieve the sequencing data	Exercise 5 : DU, IN, FM, ML  Make 16S rRNA trees	General discussion  Adjourn
14.30 - 14.45 PM	Coffee Break			
14.45 - 16.00 PM	LAB 2 : DU, IN, FM, ML  Sequencing of unknown genomes	LAB 4 : DU, IN, FM, ML  Basic analysis of unknown sequence	Exercise 5 : DU, IN, FM, ML  Proteome Comparisons - BLAST matrices	

**Note:**

DW = Prof. David Ussery, UAMS

IN = Assoc. Prof. Dr. Intawat Nookaew, UAMS

FM = Prof. Folker Meyer, ANL

ML = Prof. Michael Leuze, ORNL

\* Prof. Michael Leuze will have some times available for research discussion in a small group format on 27<sup>th</sup> and 28<sup>th</sup> November. For further details and scheduling, please contact [skhoomrung@gmail.com](mailto:skhoomrung@gmail.com) or [simpc.mu@gmail.com](mailto:simpc.mu@gmail.com)