



Microbial Metagenomics: A 360° Approach

EMBO PRACTICAL COURSE



We have moved our website to embl.org/events. The content below is no longer being updated.

EMBL Courses and Conferences during the Coronavirus pandemic

With the onsite programme paused, many of our events are now being offered in virtual formats.

Registration is open as usual for many events, with back-up plans in place to move further courses and conferences online as necessary. Registration fees for any events affected by the COVID-19 disruption are fully refundable.

More information for participants of events at EMBL Heidelberg can be found [here](#).

Programme

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Day 1 - Wednesday 12 June 2019

Time	Speaker	Location
09:00 - 09:15	Welcome and EMBL Overview Elisabeth Zielonka	Courtyard Room A+B

Time	Speaker	Location
09:15 - 09:30	Introduction to Training Lab and House notes Yvonne Yeboah	Courtyard Room A+B
09:30 - 10:00	Welcome and Introductions José Eduardo González Pastor - Center of Astrobiology (CSIC/INTA), Spain	Courtyard Room A+B
10:00 - 11:00	Lecture: Metagenomics: Concepts, historical milestones and next advance José Eduardo González Pastor - Center of Astrobiology (CSIC/INTA), Spain	Courtyard Room A+B
11:00 - 12:00	Lecture: Metagenomics library preparation for NGS Vladimir Benes	Courtyard Room A+B
12:00 - 13:00	Lunch break	EMBL Canteen
13:00 - 14:30	Lecture: The impact of Metagenomics, on genes and genomes discovery Gabrielle Potocki-Veronese	Courtyard Room A+B
14:30 - 15:15	Group activity Elisabeth Zielonka - EMBL Heidelberg, Germany	Courtyard Room A+B
15:15 - 16:45	Lecture: What bring metagenomic approach in cardiometabolic and nutrition-related disorders? Karine Clement - ICAN INSERM, France	Courtyard Room A+B
16:45 - 18:00	Flash talks participants	Courtyard Room A+B
18:00 - 19:00	Dinner	ATC Foyer
19:00 - 20:30	Poster session	ATC Foyer
20:30	Bus back to Holiday Inn Hotel	

Day 2 - Thursday 13 June 2019

Time	Speaker	Location
09:00 - 09:15	Quick overview of the day José Eduardo González Pastor - Center of Astrobiology (CSIC/INTA), Spain	Courtyard Room A+B

Time	Speaker	Location
	Practical: Extraction of metagenomic DNA in groups from soil samples	
09:15 - 10:30	José Eduardo González Pastor - Center of Astrobiology (CSIC/INTA), Spain Arantxa Lopez - FISABIO, Spain	Training Lab B
10:30 - 11:00	Coffee Break	Courtyard Room A+B
	Practical: Quality control of DNA samples and Nanopore 16s PCR set up	
11:00 - 12:30	José Eduardo González Pastor - Center of Astrobiology (CSIC/INTA), Spain Arantxa Lopez - FISABIO, Spain	Training Lab B
12:30 - 13:30	Lunch break	EMBL Canteen
	Practical: Discussion of Extraction Results	
13:30 - 14:30	José Eduardo González Pastor - Center of Astrobiology (CSIC/INTA), Spain Arantxa Lopez - FISABIO, Spain	Training Lab B
	Practical: Nanopore: 16S PCR cleanup, finishing library preparation and starting sequencing run, followed by Genomics Core Facility Tour	
14:30 - 16:45	Dinko Pavlinic - EMBL Heidelberg, Germany Bianka Baying - EMBL Heidelberg, Germany Laura Villacorta - EMBL Heidelberg, Germany	Training Lab B
16:45 - 17:00	Coffee Break	Courtyard Room A+B
	Practical: Nanopore: 16S analysis/ DNA cleanup and Sequencing start	
17:00 - 18:30	Dinko Pavlinic - EMBL Heidelberg, Germany Bianka Baying - EMBL Heidelberg, Germany Laura Villacorta - EMBL Heidelberg, Germany	Training Lab B
18:30 - 19:30	Dinner	EMBL Canteen
19:30	Bus back to Holiday Inn Hotel	

Day 3 - Friday 14 June 2018

Time	Speaker	Location
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Time	Speaker	Location
09:00 - 09:25	Lecture: Single cells genomics Christoph Merten - EMBL Heidelberg, Germany	Courtyard Room A+B
09:25 - 10:30	Practical: Test digestion conditions for metagenomic DNA and preparation of agarose gels José Eduardo González Pastor - Center of Astrobiology (CSIC/INTA), Spain Arantxa Lopez - FISABIO, Spain	Courtyard Room A+B
10:30 - 11:00	Nanopore sequencing results Jan Provaznik - EMBL Heidelberg, Germany	Courtyard Room A+B
11:00 - 11:30	Coffee Break	Courtyard Room A+B
11:30 - 12:30	Digestion of metagenomic DNA for cloning in the libraries (once that digestion conditions are determined)	Training Lab B
12:30 - 13:30	Lunch break	EMBL Canteen
13:30 - 15:00	Purification from gel of the digested metagenomic DNA	Training Lab B
15:00 - 15:30	Coffee break	Courtyard Room A+B
15:30 - 18:00	Cloning of the metagenomic DNA + overnight ligation	Training Lab B
18:00 - 19:00	Hands-on/Introduction to Linux I Giuseppe D'Auria - Chair FISABIO-University of València, Spain, Spain	Computer Training Lab
19:00 - 20:00	Dinner	EMBL Canteen
20:00	Bus back to Holiday Inn Hotel	

Day 4 - Saturday 15 June 2019

Time	Speaker	Location
09:00 - 09:15	Quick overview of the day José Eduardo González Pastor - Center of Astrobiology (CSIC/INTA), Spain	Courtyard Room A+B

Time	Speaker	Location
	Practical: Transformation in E. coli of the library	
09:15 - 11:00	José Eduardo González Pastor - Center of Astrobiology (CSIC/INTA), Spain Arantxa Lopez - FISABIO, Spain	Training Lab B
	Methodological lecture and discussion session:	
11:00 - 12:00	Metagenomics experimental design: Common shortcoming and pitfalls José Eduardo González Pastor - Center of Astrobiology (CSIC/INTA), Spain	Courtyard Room A+B
12:00 - 13:00	Lunch break	EMBL Canteen
	Lecture: Sequence data "Shotgun Sequencing, and Meta[gen transcript]omics analysis	
13:00 - 14:00	Giuseppe D'Auria - Chair FISABIO-University of València, Spain, Spain	Computer Training Lab
14:00 -14:30	Coffee break	Computer Training Lab
	Hands-on/Introduction to Linux II	
14:30 - 16:30	Giuseppe D'Auria - Chair FISABIO-University of València, Spain, Spain	Computer Training Lab
16:30	Bus to Neckarmünzplatz	
16:50	Free evening with tour of Heidelberg	

Day 5 - Sunday 16 June 2019

Time	Speaker	Location
09:00 - 09:15	Quick overview of the day Giuseppe D'Auria - FISABIO, Spain	Computer Training Lab
	Practical: Analysis of some colonies from the metagenomic libraries -Interpretation of results	
09:15 - 10:00	José Eduardo González Pastor - Center of Astrobiology (CSIC/INTA), Spain Arantxa Lopez - FISABIO, Spain	Training Lab B

Time	Speaker	Location
10:00 - 10:30	Coffee break	Computer Training Lab
10:30 - 11:30	Lecture: Metagenomics and other culture-independent tools to study virus communities Josefa Antón Botella - University of Alicante, Spain	Computer Training Lab
11:30 - 12:30	Lecture: Theory on taxonomy, phylogeny and diversity measures based on 16S rRNA gene amplicons and metagenomes Kostas Konstantinidis - Georgia Institute of Technology, USA	Computer Training Lab
12:30 - 13:30	Lunch	EMBL Canteen
13:30 - 15:30	Lecture: 16S rRNA gene analysis from amplicons and metagenomes Kostas Konstantinidis - Georgia Institute of Technology, USA	Computer Training Lab
15:30 - 16:00	Coffee break	Computer Training Lab
16:00 - 18:30	Hands-on: Introduction to 16S rDNA profiling using QIIME2 Giuseppe D'Auria - Chair FISABIO-University of València, Spain, Spain	Computer Training Lab
18:30 - 20:30	Dinner & drinks/ BBQ	
20:30	Bus back to Holiday Inn Hotel	

Day 6 - Monday 17 June 2019

Time	Speaker	Location
09:00 - 09:15	Quick overview of the day Kostas Konstantinidis - Georgia Institute of Technology, USA	Computer Training Lab

Time	Speaker	Location
09:15 - 11:00	Lecture: Diversity matters, a place for a classification of uncultured microorganisms in Taxonomy Kostas Konstantinidis - Georgia Institute of Technology, USA	Computer Training Lab
11:00 - 11:15	Coffee break	Computer Training Lab
11:15 – 12:15	Lecture and Hands-on: the MiGA web-server: the genome-equivalent of RDP/Silva SSU web-servers Kostas Konstantinidis - Georgia Institute of Technology, USA	Computer Training Lab
12:15 - 13:15	Lunch break	EMBL Canteen
13:15 – 14:15	Lecture and Hands-on: Tools for specialized analyses of metagenomes Kostas Konstantinidis - Georgia Institute of Technology, USA	Computer Training Lab
14:15 – 16:15	Lecture and Hands-on: Tools for specialized analyses of metagenomes (continue) Kostas Konstantinidis - Georgia Institute of Technology, USA	Computer Training Lab
16:15 - 16:45	Coffee break	Computer Training Lab
16:45 - 18:00	Minilon data analysis: QC and Taxonomy profiling Jan Provaznik - EMBL Heidelberg, Germany	Computer Training Lab and Gene Core Facility
18:00 - 19:00	Dinner	ATC Foyer
19:00 - 20:30	Poster Session	ATC Foyer
20:30	Bus back to Holiday Inn Hotel	

Day 7 - Tuesday 18 June 2019

Time	Speaker	Location
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Time	Speaker	Location
09:00 - 09:15	Quick overview of the day Kristian Vlahovicek - University of Zagreb, Croatia	Computer Training Lab
09:15 - 11:15	Lecture and Hands-on: Metagenomic assembly, ORF finding, functional annotation Giuseppe D'Auria - Chair FISABIO-University of València, Spain, Spain	Computer Training Lab
11:15 - 11:30	Coffee break	Computer Training Lab
11:30 - 13:00	Lecture and Hands-on: Lecture and Hands-on: Functional and taxonomic analysis with MGnify Alex Mitchell - EMBL-EBI, UK	Computer Training Lab
13:00 - 14:00	Lunch break	EMBL Canteen
14:00 - 17:00	Lecture and Hands-on: Lecture and Hands-on: Functional and taxonomic analysis with MGnify Alex Mitchell - EMBL-EBI, UK	Computer Training Lab
17:00 - 18:00	Lecture: Analysis Tools Overview: INCA, MILC and MELP Kristian Vlahovicek - University of Zagreb, Croatia	Computer Training Lab
18:00 - 18:30	Group activity/ Wrap-up of the day + Q&A	Computer Training Lab
18:30	Bus to Flammkuchenhof	
19:00	Dinner at Flammkuchenhof	

Day 8 - Wednesday 19 June 2019

Time	Speaker	Location
09:00 - 09:15	Quick overview of the day José Eduardo González Pastor - Center of Astrobiology (CSIC/INTA), Spain	Computer Training Lab
09:15 - 10:30	Hands-on: INCA Kristian Vlahovicek - University of Zagreb, Croatia	Computer Training Lab

Time	Speaker	Location
10:30- 10:45	Coffee Break	Computer Training Lab
10:45 - 12:00	Hands-on/MEGAN Daniel Huson - University of Tübingen, Germany	Computer Training Lab
12:00 - 13:00	Lunch break	EMBL Canteen
13:00 - 14:00	Hands-on/MEGAN Daniel Huson - University of Tübingen, Germany	Computer Training Lab
14:00 - 15:00	Lecture: Minilon 16S analysis Jan Provaznik - EMBL Heidelberg, Germany	Computer Training Lab
15:00 - 16:30	Group activity	Computer Training Lab
16:30 - 16:45	Coffee break	Computer Training Lab
16:45 - 17:45	Hands-on/Time to practice and Q&A	Computer Training Lab
17:45 - 18:45	Wrap-up and conclusions	Computer Training Lab
18:45	Bus to Neckarmünzplatz	
19:00	Dinner Downtown	