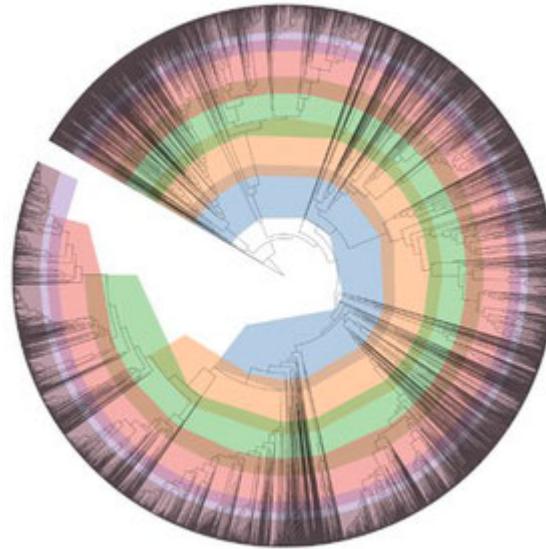


ENVIRONMENTAL METAGENOMICS

Physalia course, online, 11-15 November 2024

Nikolay Oskolkov, Lund University, NBIS SciLifeLab
Luis Pedro Coelho, Queensland University of Technology



Physalia
Courses

NB: original course material courtesy:

Dr. Antti Karkman, University of Helsinki

Dr. Igor Pessi, Finnish Environment Institute (SYKE)

About us

Organizer: Carlo Pecoraro, Physalia courses

info@physalia-courses.org



Instructors:

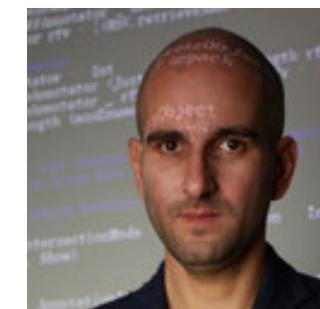
Dr. Nikolay Oskolkov, Lund University, NBIS SciLifeLab

Nikolay.Oskolkov@biol.lu.se



Dr. Luis Pedro Coelho, Queensland University of Technology

luis@luispedro.org





@NikolayOskolkov



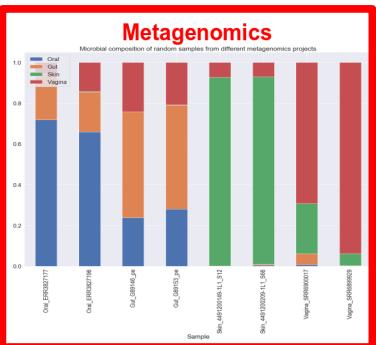
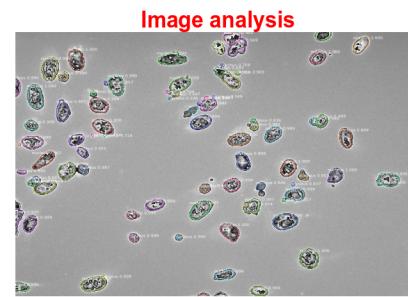
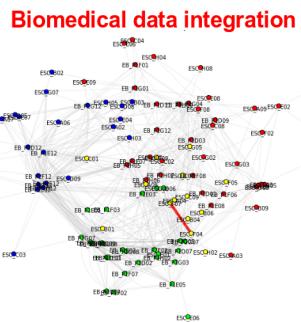
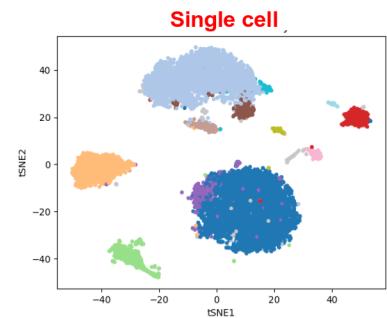
Personal homepage:
<https://nikolay-oskolkov.com>

Brief introduction: who am I

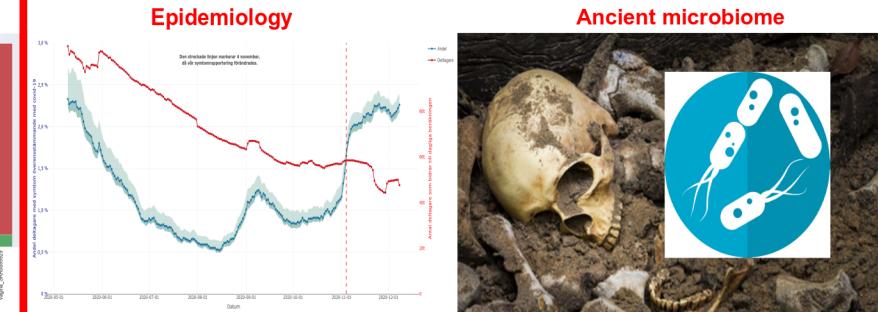
2007 PhD in theoretical physics

2011 medical genetics at Lund University

2016 working at NBIS SciLifeLab, Sweden



Epidemiology

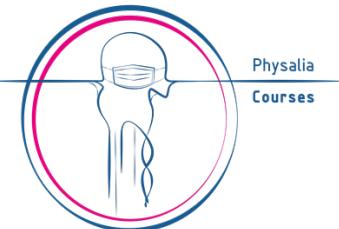


Ancient microbiome



About you

- Name
- University/Institute/Company
- Research interest(s)
- Previous experience(s) with microbial ecology, metagenomics, bioinformatics, etc.
- General hopes for this course



Course outline

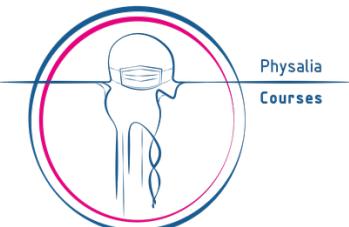
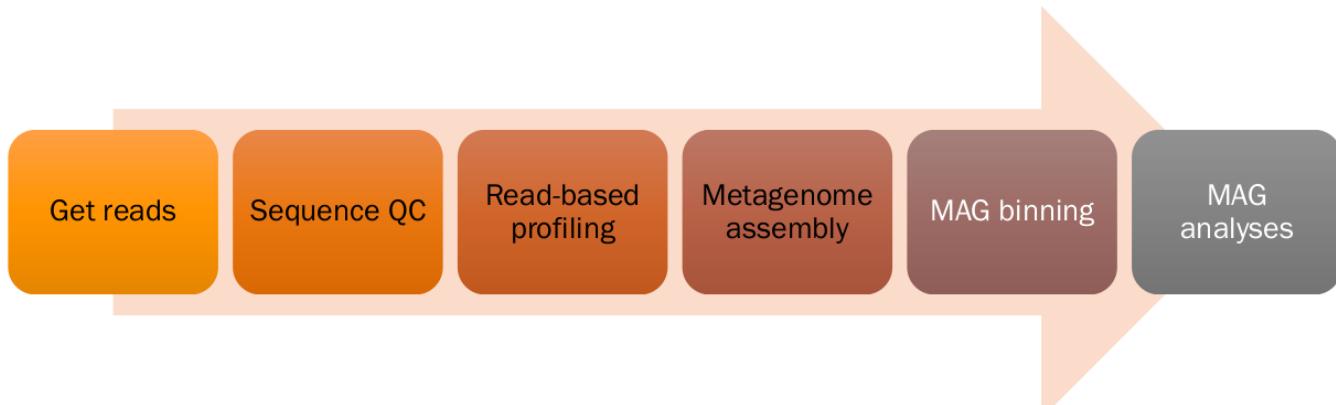
Day 1: introduction, setting up, connecting to server, getting raw data, exploring data

Day2: quality control, adapter removal, read-based taxonomic classification

Day3: *de-novo* assembly, taxonomic profiling and abundance quantification of contigs

Day4: advanced metagenome assembly, quality control of assembled metagenome

Day5: metagenomic binning and functional analysis of MAGs



Practical information: GitHub and Zoom

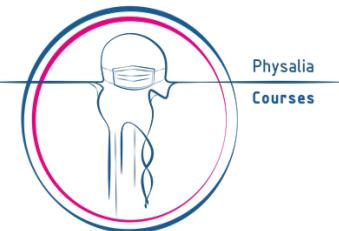
The course will take place **in Zoom from 9am to 1pm (CET)**

Links to the Zoom room will be posted in Slack

The course GitHub repository containing lectures and exercises is:

https://github.com/NikolayOskolkov/Physalia_EnvMetagenomics_2024

Please bookmark this address!



Practical information: Amazon Cloud (AWS EC2)



We will use the Cloud Computing service from Amazon, which we will access via **ssh** (secure shell protocol)

https://github.com/NikolayOskolkov/Physalia_EnvMetagenomics_2024/blob/main/exercises.md#setting-up-the-cloud-computing

See [here](#) for information on how to connect, but remember:

- The IP address changes every day
- Everyone is given a username, with a **home** and **shared** folders
 - List of usernames can be found in Slack
 - The **shared** folder is copy-only: do not delete, move, rename, or write



Practical information: conda



System for software management (python, R, JavaScript, C++, ...)

Allows easy installation of software in dedicated environments,
separated from the main environment and other conda environments

- The environments that we will use have been already set up for everyone

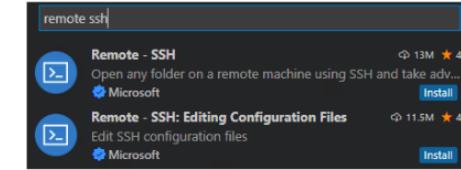
General conda commands

```
> conda env list  
> conda activate ambiente  
> conda deactivate
```



Practical information: setting up VS Code

- Download and install VS Code: code.visualstudio.com/Download
- Launch VS Code
- Go to [View -> Extensions](#)
- Search for and install the extension [Remote-SSH](#)
- See [here](#) for a step-by-step guide on how to connect to the Amazon Cloud



https://github.com/NikolayOskolkov/Physalia_EnvMetagenomics_2024/blob/main/exercises.md