HJORT CENTRE
FOR MARINE ECOSYSTEM DYNAMICS

Microbial Oceanography - Complexity vs Simplicity in Microbial Ecology

Hjort Summer School 2016 in Western Norway, August 29. – September 2.

What it is about
The Summer School targets the question of how to study the complex world of pelagic microorganisms. On the large scales, viruses, bacteria, protists and higher planktonic predators transform the world's oceans into a living soup regulating biogeochemical cycles, climate dynamics, pollution events and marine harvest. On the small scale, we cannot cease to be fascinated by the mind-boggling diversity found among the microbes and the peculiar interactions of individuals in a nearby surrounding. Microbial ecologists study different aspects of this system on separate scales. The goal of this summer school is to evaluate how the different approaches may fit together to gain an improved system understanding. We discuss community level approaches to microbial diversity and function, food web and ecosystem level approaches and ways to study patterns that go beyond the distinct scales. Leading international researchers (*) working on different aspects of microbial oceanography and ecology will teach in a mix of lectures, group discussions, workshops and student presentations.

How to Apply
The course is aimed at PhD students (master students may be considered) who **apply by 1. June**. Applicants send a brief description of their research (0.5 - 1 page) and a letter of support from their advisor stating that travel funding is available to selina.vage@uib.no. Accommodation but no travel is covered for accepted students.

Further information
The summer school (including accommodation) will be held at the Espeland field station of the University of Bergen located near Bergen:
http://www.uib.no/en/bio/53898/espeland-marine-biological-station

Accepted students present their research in form of a poster and short presentation. Upon completion, they receive a course diploma with a recommended 3 ECTS.

The school is arranged as part of the "Hjort Centre for Marine Ecosystem Dynamics", which is an umbrella-institution to foster collaboration between different marine institutions in Bergen:
http://www.hjortcentre.no/

For questions about the course, please contact selina.vage@uib.no or frede.thingstad@uib.no.

(*) Lecturers and brief descriptions of their contributions are listed in the back.

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Brendan Bohannan, *University of Oregon, USA*

Prof Bohannan will focus on application of general ecological concepts in microbial ecology, with emphasis on the biodiversity-ecosystem function debate.

Jed Fuhrman, *University of Southern California, USA*

Prof Fuhrman will discuss measurement of community composition of bacteria, archaea, protists, and viruses, their variations at different time scales, and interpretation including network analysis.

Vicente Fernandez, *Roman Stocker's lab, ETH, Switzerland*

Dr. Fernandez will examine visualizations of the microscale microbial world and discuss their ecological implications.

Aditee Mitra, *Swansea University, UK*

Prof Mitra will address microbial foraging strategies and engage the students with the Powersim modeling software.

Thomas Kiørboe, *DTU Aqua, Denmark*

Prof Kiørboe will demonstrate visualizations of and captivating insights to predation in the microbial world.

David Talmy, *Mick Follows lab, MIT, USA*

Dr. Talmy will introduce a global biogeochemical ocean model and talk about its applications for viral ecology.

Dag Aksnes, *University of Bergen, Norway*

Prof Aksnes will consider the structuring role of light in pelagic ecosystems.

Frede Thingstad, *University of Bergen, Norway (organizer)*

Prof Thingstad will discuss implications of strain diversity on species success and talk about the predictability of microbial community dynamics.

Selina Våge, *University of Bergen, Norway (organizer)*

Dr. Våge will describe how traits of individuals in the bacterial community may be linked to food web structure and ecosystem function and discuss fractal-like characteristics of the microbial food web..

Nigel Goldenfeld, *University of Illinois, USA*

Prof Goldenfeld will talk about two topics in evolutionary ecology: (1) collective interactions between marine cyanobacteria and their phages and the important role of horizontal gene transfer and (2) the dynamics of co-evolving predator-prey interactions, kill-the-winner dynamics and the resulting population structure.