MBI-8005 ADVANCED ANTIMICROBIAL RESISTANCE COURSE, 3 EST

Faculty of Health Sciences, UiT - The Arctic University of Norway
https://uit.no/utdanning/emner/emne/512613/mbi-8005

Schedule: Monday 14.10. 2019 from 12.00 to Thursday 17.10.2019 16.00
The course is held every second year.

Type of course:

PhD course that is highly relevant for the National Graduate School in Infection Biology and Antimicrobials (IBA). This course is available as a singular course.

The course is organized by the Department of Medical Biology (IMB) and Department of Pharmacy (IFA) and the National Graduate School IBA.

Admission requirements:

To take PhD courses you need at a minimum a master's degree or equivalent, or admission to a Medical Student Research Program.

Applicants who are affiliated with the National Graduate School IBA will be prioritized for admission if the number of applicants exceeds the course capacity of 25 students.

Course contents:

The course will provide detailed insight and knowledge of antimicrobial resistance in bacteria. The objectives will include understanding of principles regarding antibiotic resistance, methods for detection of resistance, clinical breakpoints, resistance epidemiology, mechanisms for resistance development/evolution and spread, drivers behind development of antimicrobial resistance, clinically important resistance mechanisms in bacteria, molecular methods for typing of resistance bacterial clones and concepts in drug discovery.

Students shall prepare individually by studying 15-20 selected peer reviewed scientific articles, which together account for about 100 000 words. These articles will be regular experimental studies and review articles covering the different aspects described above regarding antimicrobial resistance.

All students meet in a joint four-day gathering at the Faculty of Health Sciences, UiT - The Arctic University of Norway, campus Tromsø, to attend lab demonstrations with related theoretical instructions. It will be performed demonstrations for phenotypic methods to detect susceptibility to antimicrobial agent in bacteria. The students will also present and critically review one given article in a 20-minute (skype) lecture.

Learning outcomes:

After completing the course the students will have:

Knowledge to:

- Discuss the mode of action of major antibiotic classes
- Understand the basic principles in pheno- and genotypic methods for antimicrobial susceptibility testing
- Consider the clinical consequences of antimicrobial resistance
- Discuss clinically important antimicrobial resistance mechanisms in bacteria
- Discuss the evolution of and drivers behind the development of antimicrobial resistance
- Discuss concepts in drug discovery

Skills to:

- Justify which methods to be used for pheno- and genotypic detection of bacterial susceptibility to antimicrobial agents
- Critically evaluate scientific papers to disseminate advanced knowledge of antimicrobial resistance.
- Draw scientific conclusions and defend own research in scientific presentation

Competence to:

- Explain differences between the main genetic mechanisms in the spread of antimicrobial resistance
- Explain the use of molecular methods in typing of antimicrobial resistant bacterial clones

Language of instruction:
English

Teaching methods:

Theoretical study, introductory lectures, group discussions, practical demonstrations and discussions in the lab and presentation of own research and a selected article.

Assessment:

Work requirements
Lectures, group discussions and lab demonstrations are obligatory.

Assessment
One oral presentation of a given scientific publication/subject appointed by the course committee. The oral presentation is evaluated as passed/not passed. There will be no continuation exam.

Recommended reading/syllabus:

Curriculum will be announced in the beginning of the autumn semester.

Course committee:

- Professor Arnfinn Sundsfjord (AS). Committee leader - Department of Medical Biology (IMB), Faculty of Health Sciences, UiT/ Norwegian national advisory unit on detection of antimicrobial resistance (K-res)/Norwegian working group on antibiotics (NWGA).
- Professor Kristin Hegstad (KH): IMB UiT/K-res/NWGA.
- Professor Johanna E. Sollid (JES): IMB UiT.
- Professor Ørjan Samuelsen (ØS): Department of Pharmacy (IFA) UiT/K-res/ NWGA.
- Professor Gunnar Skov Simonsen (GSS): IMB UiT/Norwegian surveillance system for antimicrobial drug resistance (NORM).
- Professor Pål Jarle Johnsen (PJJ): IFA UiT.