



DEPARTMENT OF MEDICINE, SOLNA

K2F6040, Malaria: from Cell to Society - towards Global Eradication, 1.5 credits (hec)

Malaria: från cell till samhälle - mot global utrotning, 1,5 högskolepoäng

Third-cycle level / Forskarnivå

Approval

This syllabus was approved by the The Committee for Doctoral Education on 2024-09-24, and is valid from spring semester 2025.

Responsible department

Department of Medicine, Solna, Faculty of Medicine

Contributing department/s

Department of Microbiology, Tumor and Cell Biology

Prerequisite courses, or equivalent

No prerequisite courses, or equivalent, demanded for this course.

Purpose & Intended learning outcomes

The aim of this course is to enable you to obtain a broad understanding of malaria including parasite biology, clinical aspects and current control and research strategies.

Knowledge and understanding

At the end of the course the student is expected to be able to:

- Describe how malaria parasites are transmitted and multiply in the mosquito and human host and how they cause disease.
- Account for how severe and uncomplicated malaria is managed.
- Explain different principles of malaria prevention and control, involving both the mosquito, parasite, human host and society.

- Explain age-dependent acquired immunity and different presentation of disease, including asymptomatic and sub-microscopic infections.
- Account for principle mechanisms of malaria vaccines, antimalarial therapies and important resistance mechanisms.
- Summarize how sequencing technologies can be used in an endemic setting.

Competence and skills

At the end of the course the student is expected to be able to:

- Discuss current issues in malaria research, prevention and control in low and middle income countries.
- Explain malaria epidemiology and principles for pathogenesis of severe malaria.
- Discuss how malaria transmission is maintained in endemic communities.
- Analyse broader context of malaria prevention, control interventions including vaccine strategies, and potential effects of climate change.
- Explain different types of epidemiological studies focusing on malaria endemic settings

Course content

Malaria epidemiology, life cycle, morphology, pathogenesis, clinical presentations, management and diagnostic methods. Principles for therapy and prophylaxis, pharmacology and resistance to antimalarial drugs. Malaria immunology, host and parasite genetics and vaccines. Entomology and vector control. Public health and socio-economic aspects as well as new malaria control policies including how to evaluate the efficacy/effectiveness of malaria interventions.

Forms of teaching and learning

The course will consist of lectures, seminars, and practical sessions including malaria microscopy and a workshop where you will get to analyze epidemiological data from a field study setting using R (no previous knowledge of R required).

Language of instruction

The course is given in English

Grading scale

Pass (G) /Fail (U)

Compulsory components & forms of assessment

Compulsory components

At least 75% attendance at the lectures is required. Absence can be compensated with an assignment. If you cannot attend one or more lectures, please discuss compensation for the absence with the course organizer. Seminars and practical sessions will be mandatory.

Forms of assessment

Formative assessment will take place during the seminars and the practical sessions and is a way to support you to achieve the ILOs for the course. There will also be a written examination with short-form answers at the end of the course.

Course literature

Recommended (not compulsory): Essential Malariology, 4th Edition. David A. Warrell and Herbert M. Gilles, Oxford University Press

Additional publications covering relevant topics will be provided during the course