







Preliminary schedule  
Mosquito-borne viruses and their vectors  
180611-14, Umeå University



### Facilitators

-  Olivia Wesula Lwande Virology, Umeå University
-  Magnus Evander Virology, Umeå University
-  Kristoffer Ahlm, Umeå University

### Lecturers

-  Eva Veronesi Institute of Parasitology, University of Zurich
-  Alexander Mathis Institute of Parasitology, University of Zurich
-  Anders Lindström, the Swedish National Veterinary Institute (SVA)
-  Valentin Pflueger Mabritec SA, Lörracherstrasse, Riehen, Switzerland
-  Joacim Rocklöv, Epidemiology, Umeå University
-  Clas Ahlm, Infection and Immunology, Umeå University
-  Göran Bucht, Swedish Defence Research Agency, Umeå, Sweden

### Venue

Lecture halls: Major Groove and Minor Groove Norrland's University Hospital (NUS) 6L, nod J, ground floor (-1) and E04, NUS 6E, nod R  
Laboratory: Blue lab, NUS 6L, nod J, floor 0  
Field work: Convenient site in Umeå

### Funded by NDPIA and Umeå University

#### Day 1 Monday 11<sup>th</sup> June 2018

##### 12:30-12:40

Course introduction (*Olivia Wesula Lwande, Magnus Evander* - in lecture hall Major Groove)

##### 12:40-13:10

Mosquito-borne viruses and their diseases (*Magnus Evander* - in lecture hall Major Groove)

##### 13.15-14:00

Mosquitoes – biology, vectors, sampling (*Anders Lindström* - in lecture hall Major

Groove)

**14:00-14:30 Coffee break**

**14:30-15:40**

Short (2 min) presentations by the course participants of themselves and their research activities - in lecture hall Major Groove)

**15:40-16:30**

Surveillance, detection, remote sensing and response system for emerging and re-emerging mosquito-borne viral diseases (*Jocim Rocklöv* - in lecture hall Major Groove)

**16:30-18:30**

Field activity: Identification of breeding sites for aquatic stages of mosquitoes (*Aedes*, *Culex* and *Anopheles*). Setting traps for collection of adult mosquitoes and their eggs at convenient sites in Umeå. Sampling of mosquito larvae and pupae from the environment (*Anders Lindström, Olivia Wesula Lwande, Kristoffer Ahlm*)

**19:00**

Dinner with facilitators and course participants (**Rex Restaurant, downtown, Rådhusstorget, 903 26 Umeå**)

**Day 2 Tuesday 12<sup>th</sup> June 2018**

**8:30-9:45**

Collect mosquitoes from yesterday's sampling (*Olivia Wesula Lwande, Kristoffer Ahlm*)

**09:45-10:00 Coffee Break**

**10:00-10.30**

Laboratory colonization of selected mosquitoes and bionomics of endemics and exotic arthropods (*Anders Lindström* - in lecture hall Minor Groove)

**10:30-11:15**

Morphological identification of mosquito larvae using standardized keys (*Anders Lindström* - in Blue lab)

**11:30-12:15**

Morphological identification of mosquito adults using standardized keys (*Anders Lindström* - in Blue lab)

**12:15-13:15 Lunch**

**13:15-16:30**

Molecular identification of mosquitoes (*Alexander Mathis, Valentin Pflueger* - in lecture hall Minor Groove and Blue lab)

**16:30-17:00**

Barcoding of mosquitoes using cytochrome c oxidase subunit I (COI) gene and single nucleotide polymorphism sites (SNP) analysis (*Göran Bucht*- in lecture hall Minor Groove)

**Day 3 Wednesday 13<sup>th</sup> June 2018**

**8:30-9:55**

Ongoing research activities (*Magnus Evander, Clas Ahlm, Anders Lindström* - in lecture hall Minor Groove)

**10:00-10:30 Coffee Break**

**10:30-11:15**

Pathogen-vector and host interactions and dynamics, vector capacity and vector competence (*Eva Veronesi* - in lecture hall Minor Groove)

**11:15-12:15 Lunch**

**12:15-17:00**

Laboratory demonstration: oral infection of mosquitoes and dissection of body parts for virus detection using field collected mosquitoes from Umeå (*Eva Veronesi, Olivia Lwande* - in Blue lab)

**Day 4 Thursday 14<sup>th</sup> June 2018**

**8:30-09.30**

Viral RNA extraction, virus detection using PCR, and virus isolation on cell based system (*Eva Veronesi, Olivia Lwande* - in lecture hall Minor Groove)

**09:30-09:45 Coffee break**

**09:45-10:30**

Vector control (*Eva Veronesi* - in lecture hall Minor Groove)

**10:30-12:00**

Oral examination in group discussions based on the course aims  
Course evaluation and issuing of certificates - in lecture hall Minor Groove)