

1st IBRO School on Insect Neuroscience and *Drosophila* neurogenetics

20th August-Monday

16:00- 16:20: Welcoming from Lucia & Tom

16:20- 16:40: Students introductions

16:40- 17:00: Introduction to insects as model organism (Tom)

17:00- 18:00: Introduction to *Drosophila* as a model organism I (Isa)

18:00- 18:30: Introduction to the lab, organisation and lab rules (Lucia, Isa, Tom)

18:30- 19:30: Lab practicals on *Drosophila* as a model organism (Isa/Lucia)

21st August- Tuesday

9:00-10:00: Welcoming lecture by Prof. Mohamed

10:00-11:00: Genetics of *Drosophila* (Isa)

11:00-11:20: coffee break

11:20-12:20: Introduction to neurophysiology (Tom)

12:20-13:00: The functional organisation of the nervous system (Tom)

14:20-19:20 p.m.

Lab practicals on *Drosophila* as a model organism (Isa/Lucia) and EMG recordings (Tom) (2 separated groups)

22nd August- Wednesday

9:00-10:00: Introduction to *Drosophila* as a model organism II (Isa)

10:00-11:00: Introduction to genetic tools in *Drosophila* for studying the nervous system (Lucia)

11:00-11:20: coffee break

11:20- 12:20: Online resources: Pubmed, Flybase, Bloomington, etc... (Isa)

14:00-19:00 p.m.

Lab practicals on *Drosophila* as a model organism and insect EMG recordings (Tom) (2 separated groups alternative to tuesday)

23rd August- Thursday

9:00-10:00: Plenary research talk from Dr. Isabel Palacios

10:00- 12:30: Lab practicals on *Drosophila* as a model organism (Isa)

12:30-13:30: lunch break

13:30- 16:00: Continuation of practicals and round table on *Drosophila* as a model organism (Isa and Lucia)

16:00- 17:00: Introduction to scientific method and statistics, and open source software (Tom)

17:00- 17:20: Coffee break

17:20- 19:20: Genetic tools in *Drosophila* for studying the nervous system (Lucia)

24th August- Friday

9:00-11:00: Students presentations on their projects at their home institution

11-11:20: Coffee break

11:20- 12:20- Scientific grant writing (Sadiq)

13:30-19:00 p.m.

Lab practicals on genetic tools in *Drosophila* for studying the nervous system
Set-up fly crosses for the weeks to come.
Time to do internet research on their subject of interest related to insects
Journal Club/ making sure that the concepts of the week are settled

25th August- Saturday- Field trip

27th August-Monday

9-10: Development of the nervous system (Mike)

10-11: Auditory systems I (Berthold)

11-11:20: coffee break

11:20-12:20: *Drosophila* as a model for human diseases (Jorge)

13:30-14:30 p.m.

Plenary lecture from Prof. Michael Bate

14:30-19:30 p.m

Module specific laboratory practicals. This week students choose one of the following:

- 1- Development and Motor behaviours, using *Drosophila* as a model (Mike, Jimena)
- 2- Auditory systems, using large insects (crickets, locust) as models (Berthold, Robin & Tom)
- 3- *Drosophila* as a model for human diseases (Jorge & Lucia)

28th August-Tuesday

9-10 Non-neurodegenerative diseases in *Drosophila melanogaster* (Jorge)

10-11: Development of the nervous system/ Motor systems (Mike/Jimena)

11-11:20: coffee break

11:20-12:20: Auditory systems II (Berthold)

13:30-14:30 p.m.

Plenary lecture from Dr. Berthold Hedwig

14:30-19:30 p.m

Module specific laboratory practicals

29th August-Wednesday

9-10: Auditory systems III (Berthold)

10-11: The use of *Drosophila* to study neurodegeneration (Jorge)

11-11:20: coffee break

11:20-12:20: Development of the nervous system/ Motor systems (Mike/Jimena)

13:30-19:00 p.m.

Module specific laboratory practicals

30th August-Thursday

9-10: Development of the nervous system/ Motor systems (Mike/Jimena)

10-11: Auditory systems IV (Berthold)

11-11:20: coffee break

11:20-12:20: Ageing as a risk factor for neurodegeneration: late-onset fly models of neurodegeneration (Jorge)

13:30-19:00 p.m.

Module specific laboratory practicals

31st August-Friday

9-10: *Drosophila* as a tool for drug screening: biased and genomic approaches. (Jorge)

10-11: Auditory systems V (Berthold)

11-11:20: coffee break

11:20-12:20: Development of the nervous system/ Motor systems (Mike/Jimena)

13:30-19:00 p.m.

Module specific laboratory practicals/ Preparation of presentations

1st September- Saturday

9:00- 13:00: Students presentations

3rd September-Monday

9-10: Electrophysiology: Theory & Assembly I (Horst)

10-11: General principles of vision in vertebrates and invertebrates (Alexander)

11-11:20: coffee break

11:20-12:20: Introduction to chemosensory systems: taste and smell (Lucia)

13:30-19:00 p.m.

Module specific laboratory practicals. This week students choose one of the following:

- 1- How to assemble and use your own electrophysiology set-up (Horst, Robin & Tom)
- 2- Visual systems, using *Caliphora* (big flies), and *Drosophila* as models (Alex & Alexander)
- 3- Olfactory systems, using ants and *Drosophila* as models (Adria & Lucia)

4th September-Tuesday

9-10: Study of chemosensation in non-model organisms (Adria)

10-11: Electrophysiology: Theory & Assembly II (Horst)

11-11:20: coffee break

11:20-12:20: Phototransduction in *Drosophila* (Alex)

13:30-14:30: Plenary research talk by Dr. Tom Baden

14:30-19:30 p.m.

Module specific laboratory practicals

5th September-Wednesday

9-10: Electrophysiology: Theory & Assembly III (Horst)

10-11: Fly visual processing I: Motion vision (Alexander)

11-11:20: coffee break
11:20-12:20: Pheromone and chemical communication in insects (Adria)

13:30-14:30: Plenary research talk by Dr. Prieto Godino
14:30-19:30 p.m.
Module specific laboratory practicals

6th September-Thursday

9-10: Fly visual processing II: Recent developments and future directions (Alex)
10-11: Electrophysiology: Theory & Assembly IV (Horst)
11-11:20: coffee break
11:20-12:20: Social behaviours in *Drosophila* (Lucia)

13:30-19:00 p.m.
Module specific laboratory practicals/ Preparation of presentations

7th September- Friday

9:00- 13:00: Students presentations
16:00- 02:00: Goodbye party



Faculty

Dr. Alexander Arenz (MPI Martinried, Munich, Germany)
Dr. Tom Baden (CIN/BCCN, Tübingen, Germany)
Prof. Mike Bate (Dept. Zoology, Cambridge, UK)
Dr. Jimena Berni (Dept. Zoology, Cambridge, UK)
Robin Kemmler (CIN/BCCN, Tübingen, Germany)
Jorge Castillo Quan (UCL, London, UK)
Dr. Berthold Hedwig (Dept. Zoology, Cambridge, UK)
Dr. Adria Le Boeuf (CIG, Lausanne, Switzerland)
Dr. Alex Mauss (MPI Martinried, Munich, Germany)
Dr. Isabel Palacios (Dept. Zoology, Cambridge, UK)
Dr. Laura Lucia Prieto Godino (CIG, Lausanne, Switzerland)
Dr. Horst Schneider (Innowep, Wurzburg, Germany)
Prof. Abdul H. Mohammed (Karolinska Inst., Stockholm, Sweden)
Prof. Sadiq Yusuf (KIU, Bushenyi, Uganda)