



Foundation Masterclasses 2020-2021

Structural Biology & Crystallography

optional for first- and second-year EASTBIO PhD students

Workshop leader: Dr Magnus Alphey (University of St Andrews)

9 March 2021, 9:00-12:10

This masterclass will be held online (via Blackboard Collaborate); to join simply click on this link:
<https://eu.bbcollab.com/guest/0fe92144738f40bfd42966bde002986>

Workshop description:

This course will be a whistle-stop introduction to the crystallography side of structural biology. No previous experience is necessary (though a little background reading would help with terminology). The workshop will swiftly move on from a brief introduction to the more practical aspects of protein crystallization, collecting X-ray diffraction data, solving a macromolecular structure, looking at amazing structures in the Protein Data Bank (PDB), how to generate those lovely figures that you see in publications, and what information we would typically describe and derive from a macromolecular structure.

Learning outcomes:

- What do we use macromolecular structural information for?
- The variables in crystal growth optimization; how to collect usable diffraction data.
- Appreciate the variety of software required for protein structure solution and refinement; how to find and look at structures in the PDB; how to generate publication quality images.

Training Schedule:

09:00-09:20	Welcome and introduction to protein crystallography
09:20-10:40	Protein crystallization, ligand soaking, and data collection
10:40-11:00	Screen break
11:00-11:40	Solving structures, the Protein Data Bank, visualization, analysis
11:40-12:10	Hands-on practical using CCP4mg to generate publication quality images

Times will be flexible and with occasional screen breaks.

EASTBIO will record this training (following the training lead's consent) and make the recording available to students who will request it.

Participation requirements:

- Prior to the workshop, students should download the CCP4 Molecular Graphics package (<https://www.ccp4.ac.uk/MG/>). A sample structure file will be sent out closer to the course data for analysis.
- Some basic background reading on crystallography would help with understanding terminology.

Training web-page: <http://www.eastscotbiodtp.ac.uk/foundation-masterclasses>

For **further info**, please email enquiries@eastscotbiodtp.ac.uk