



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

Biologia Cellulare e Molecolare PhD Program

Digital processing of biomolecular images

Practical (basic) course for the correct management and composition of scientific artwork

Learning outcomes and Course contents

At the end of the 15-hour course, the PhD student:

- has acquired basic elements for the correct digital manipulation of scientific images and their composition in vector graphics;
- understands the management of channels, layers and colours to optimise the visual rendering of blots and micrographs;
- is familiar with freeware applications for the analysis and management of scientific images (ImageJ-FIJI, GIMP) and vector graphics (Inkscape);
- has knowledge of the risks and responsibilities associated with image manipulation and is able to recognise the most common artefacts.

In particular, the student acquires skills on:

- elements of the scientific figure;
- correct management of colours and levels (contrast, brightness);
- common artefacts: how to recognise and avoid them;
- introduction to ImageJ (FIJI) for image analysis;
- principles of vector graphics;
- figure composition in vector graphics (cartoons, deuglifying Excel graphs, lettering etc.)

Teaching methods

The practical part of the course will take place on personal laptops. Those interested are requested to download and install the following freeware on their PCs: Inkscape, GIMP, ImageJ2 or FIJI (FIJI is just ImageJ), Adobe Illustrator or Photoshop can also be used instead of Inkscape and GIMP.

Assessment methods

Assessment methods will include the composition of a multipanel figure or poster (.pdf), that will be returned to the students with comments and corrections.

How to attend

The course is aimed in particular at first year PhD students.

Students interested in taking the course are kindly requested to register by sending an email with the subject 'scientific artwork' to alberto.danielli@unibo.it indicating whether they intend to take the course in person or online no later than Monday 9 June 2025 in order to allow the classroom to be organised accordingly.

Other informations

Should you need more information please contact: alberto.danielli@unibo.it