GBI-LNMA 2024 course:
Image analysis and data reuse through image repositories

Overview: *The [GBI-LNMA 2024 course](#) is jointly organized by Global BioImaging and [Laboratorio Nacional de Microscopía Avanzada](#), a Global BioImaging partner organization in Mexico. The course will feature an overarching topic of image data including image analysis and image repositories. The image analysis component will include theoretical and practical sessions over the duration of four days in fundamentals of image analysis, ImageJ/Fiji GUI, introduction to ImageJ macro language and Python programming and a session on Napari viewer and Napari plugins. The course will also feature the [BioImage Archive](#) image repository in the form of a seminar and a workshop. The topic of [FAIR principles](#) (Findable, Accessible, Interoperable, and Reusable) and recommended metadata for biological images to enable reuse of microscopy data in biology ([REMBI: Recommended Metadata for Biological Images](#)) will also be briefly explored. In addition, the course will provide opportunities for the participants and the faculty to network with each other during planned social activities.*

When: 10-14 June 2024

Where: Cuernavaca, Mexico

Venue: [Instituto de Biotecnología](#)

Day 1: Monday, 10th of June

8:30 - 9:00	**Registration at the Institute of Biotechnology (Instituto de Biotecnología)**
9:00 - 9:30	Welcome by the director of the Institute of Biotechnology
	Laura Palomares (Institute of Biotechnology)
9:30 - 11:00	Introduction to digital images
	Trainer: *Rocco D'Antuono (Francis Crick Institute)*
	Helper: *Stefania Marcotti (King's College London)*
11:00 - 11:30	Coffee break
11:30 - 13:00	Introduction to digital images (continued)
	Trainer: *Rocco D'Antuono (Francis Crick Institute)*
	Helper: *Stefania Marcotti (King's College London)*
13:00 - 14:00	Lunch
14:00 - 16:30	Using ImageJ/FIJI via a graphical user interface (GUI)
	Trainer: *Stefania Marcotti (King's College London)*
	Helpers: *Rocco D'Antuono (Francis Crick Institute), Christopher Wood (Institute of Biotechnology)*
16:30 - 17:00	Participants are split into (thematic) groups (4-5 participants per group)
	Participants & instructors of the course
17:00 - 17:45	Innovation and Entrepreneurship at IBT-UNAM: Some Examples
	Enrique Galindo (Institute of Biotechnology)

Day 2: Tuesday, 11th of June

9:00 - 10:30   Introduction to ImageJ macro language

Trainer: Stefania Marcotti (King's College London)

Helper: Rocco D'Antuono (Francis Crick Institute)

10:30 - 11:00   Coffee break

11:00 - 13:00   Introduction ImageJ macro language (continued)

Trainer: Stefania Marcotti (King's College London)

Helper: Rocco D'Antuono (Francis Crick Institute)

13:00 - 14:00   Lunch

14:00 - 16:00   Work in thematic groups (4-5 participants per group)

Participants & instructors of the course

16:00 - 17:00   Visit to the Microscopy Facility at the Institute of Biotechnology

A visit to the Laboratorio Nacional de Microscopía Avanzada (National Laboratory of Advanced Microscopy) to explore its facilities and imaging technologies

17:00 - 17:45   Presentation of Folkloric Dance by the University of the State of Morelos

A unique performance by a local folkloric dance group

Day 3: Wednesday, 12th of June

9:00 - 10:30   Introduction to Python programming (Session #1)

           Trainer: Sebastian Gonzalez Tirado (European Molecular Biology Laboratory)

           Helpers: Rocco D'Antuono (Francis Crick Institute), Stefania Marcotti (King's College London), Adan Guerrero, (Institute of Biotechnology)

10:30 - 11:00   Coffee break

11:00 - 13:00   Introduction to Python programming (Session #1 continued)

           Trainer: Sebastian Gonzalez Tirado (European Molecular Biology Laboratory)

           Helpers: Rocco D'Antuono (Francis Crick Institute), Stefania Marcotti (King's College London), Adan Guerrero (Institute of Biotechnology)

13:00 - 14:00   Lunch

14:00 - 15:20   Managing your image data for the long term: FAIR data, REMBI metadata and the BioImage Archive

           Speaker: Matthew Hartley (European Bioinformatics Institute)

15:20 - 17:00   Work in thematic groups (4-5 participants per group)

           Participants & instructors of the course

17:00 - 17:45   Venom House Tour

           Tour of the facility that includes venomous reptiles (snakes & lizards) that are used in antivenom research and production

           <u>Optional: not recommended for individuals with a fear of snakes or other reptiles</u>

Day 4: Thursday,13th of June

9:00 - 10:30   Introduction to Python programming (Session #2)

Trainer: Sebastian Gonzalez Tirado (European Molecular Biology Laboratory)

Helpers: Rocco D'Antuono (Francis Crick Institute), Stefania Marcotti (King's College London), Adan Guerrero (Institute of Biotechnology)

10:30 - 11:00   Coffee break

11:00 - 13:00   Introduction to Python programming (Session #2 continued)

Trainer: Sebastian Gonzalez Tirado (European Molecular Biology Laboratory)

Helpers: Rocco D'Antuono (Francis Crick Institute), Stefania Marcotti (King's College London), Adan Guerrero (Institute of Biotechnology)

13:00 - 14:00   Lunch

14:00 - 17:00   BioImage Archive image data repository workshop

Trainer: Aybuke Kupcu Yoldas (European Bioinformatics Institute)

17:00 - 17:45   Visit to the Museum of Biology and Photography Exhibition

Day 5: Friday, 14th of June

9:00 - 10:30   Napari viewer

Trainer: Rocco D'Antuono (Francis Crick Institute)

Helpers: Adan Guerrero (Institute of Biotechnology)

10:30 - 11:00   Coffee Coffee break

11:00 - 13:00   Napari viewer & plugins

Trainer: Rocco D'Antuono (Francis Crick Institute)

Helpers: Adan Guerrero (Institute of Biotechnology)

13:00 - 14:00   Lunch

14:00 - 15:00   Napari superres & zelda plugins

Trainers: Rocco D'Antuono (Francis Crick Institute) & Adan Guerrero (National Autonomous University of Mexico)

15:00 - 15:30   Building reusable bioimage analysis workflows with Nextflow

Speaker: Sebastian Gonzalez Tirado (European Molecular Biology Laboratory)

15:30 - 17:00   Presentations from thematic groups (4-5 participants per group)

Participants of the course

17:30   Closing Dinner

Dinner featuring local cuisine and final opportunity to network with participants and the faculty