

UNIVERSITÀ DI PISA

DIPARTIMENTO DI RICERCA TRASLAZIONALE E DELLE NUOVE TECNOLOGIE IN MEDICINA E CHIRURGIA

DIPARTIMENTO DI MEDICINA CLINICA E SPERIMENTALE

DIPARTIMENTO DI BIOLOGIA

CENTRO INTERDIPARTIMENTALE DI MICROSCOPIA ELETTRONICA CIME



Winter School (XI Edition)

Pisa 2027 15 - 22 January

FRIDAY 15/01/2027

ES1 classroom Via Volta 4Bis

09:00-9:30

Welcome to the course (P. Lenzi)

9.30-10:45

Lesson: JEOL

10:45-11:00

Coffee break

11:00-12:00

Lesson: "Introduction to transmission electron microscopy (TEM)". (P. Lenzi)

Break

14:00-16:00

Lesson: "Introduction to scanning electron microscopy (SEM) and sample processing for SEM analysis". (L. Modeo)

16:15-17:30

Lesson: "Sample processing for TEM analysis I". (P. Lenzi)

SATURDAY 16/01/2027

Baccelli classroom Medicine School Via Savi 4

9:30-10:30

Lesson: "Parasites and Scanning electron microscopy". (F. Macchioni)

Coffee break

10:45-12:00

Lesson: "Sample processing for TEM analysis II". (P. Lenzi)

MONDAY 18/01/2027

8:15 -11:00

Lesson/Practice: "Trimming of the blocks and cut of semithin sections with the ultramicrotome". (A. Salvetti, P. Lenzi, P. Lucchesi) Lab Via Volta 4

11:00-11:30

Practice: Fixation of samples for TEM (A Salvetti, P. Lucchesi, G. Gambino, G. Marcelli) Polo Nobili Lab2 Via Volta 4

11:30-11:40

Coffee break

11:45-13:00

Lesson: “Sample processing for TEM: Advanced specimens preparation”. Morphological and ultrastructural studies in different experimental conditions: personal research experience”. (P. Lenzi) ES1 classroom Via Volta 4 Bis

Break

14:00-17:30

Practice: “Sample processing for TEM I (dehydration and infiltration with epoxy resin)”. (A. Salvetti, P. Lucchesi, G. Marcelli) Polo Nobili Lab2 Via Volta 4

TUESDAY 19/01/2027

9:00-9:30

Practice: “Sample processing for TEM II (infiltration with 100% epoxy resin)”. (A. Salvetti, P. Lucchesi, G. Gambino, G. Marcelli) Polo Nobili Lab2 Lab Via Volta 4

9:30-10:30

Practice: “Sample processing for SEM I (Fixation and dehydration)”. (L. Modeo) Lab Via Volta 4

10:30-11:00

Coffee break

11:00-13:00

Practice: “Sample processing for SEM II (Critical Point/Covering)”. (L. Modeo) Lab Via Volta 4

Break

15:00-16:00

Practice: “Sample preparation for TEM III (final embedding in epoxy resin)”. (A. Salvetti, G. Gambino, G. Marcelli) Polo Nobili Lab2 Via Volta 4

16:00-17:00

Lesson: “Dissecting cell-clearing systems in neurodegeneration through transmission electron microscopy”. (P. Lenzi) ES1 classroom Via Volta 4 Bis

WEDNESDAY 20/01/2027

9:00-10:15

Lesson: “The role of electron microscopy in nanoparticles characterization and cellular uptake”. (G. Frenzilli) ES1 classroom Via Volta 4 Bis

10:15-10:30

Brief introduction to immuno-electron microscopy (P. Lenzi)

10:30-11:00

Coffee break

11:00-13:00

Practice: “Sample observation at scanning electron microscope”. (L. Modeo) Lab Via Volta 4

Break

15:00-16:00

Lesson: “The contribution of TEM to solving issues in the reproductive biology of lower invertebrates”. (A. Falleni) ES1 classroom Via Volta 4 Bis

16:00-17:30

Lesson: “Role of Electron Microscopy in the Modern Diagnostic”. (V. De Tata) ES1 classroom Via Volta 4Bis

THURSDAY 21/01/2027

9:00-11:00	Lesson: “Cut of ultrathin sections with the ultramicrotome equipped with a diamond knife and section collection on copper grids. Staining of ultrathin sections”. (P. Lenzi, P. Lucchesi) ES1 Classroom, Lab Via Volta 4
11:00-11:15	Coffee break
11:15-13:00	Lesson/Practice: “The electron beam and image formation in electron microscopy”. (P. Lucchesi) ES1 classroom Via Volta 4 Bis Break
14:30-17:00	Practice: “Sample observation at transmission electron microscope” JEOL F200 E JEOL S100X (P. Lenzi, A. Salvetti. P. Lucchesi) Lab Via Volta 4
17:00-17:30	Practice: “Immunolabelling experiment I” (P. Lenzi, G. Marcelli) Lab Via Volta 4

FRIDAY 22/01/2027

9:00-9:30	Practice: “Immunolabelling experiment I”. (P. Lenzi, G. Marcelli) Lab Via Volta 4
9,30-10,30	Lesson: “Combining light and electron microscopy: the “CLEM” experience in studying neuroscience”. (M. Ferrucci) ES1 Via Volta 4
10:30-11:00	Coffee break
11:00-13:00	Lesson: “Ultrastructural alterations induced by neurotoxins in different cell lines: analysis by light and electron microscopy” (G.Lazzeri) ES1 Via Volta 4 Break
14.30-15.30	Lesson: The use of SEM in paleopathology: the museal experience (V. Giuffra, G. Natale) ES1 classroom Via Volta 4 Bis. Farewell buffet

Final evaluation test

Record of credits

