

COURSE

Mechanical characterization of biological samples using correlative methods

November 23 - 24, 2026

- organized by the Institute of Physiology CAS (IPHYS BIF – Czech-BioImaging)
- suitable for Bc, MS or PhD students who want to extend their knowledge in correlative data acquisition, label-free light microscopy and biomechanics
- AFM imaging, TFM imaging, Brillouin microscopy tensile tests, indentation test and advanced light microscopy techniques such as confocal microscopy, pSHG, CARS, etc.

Venue:



Institute of Physiology CAS, Laboratory of Biomathematics,
Krč CAS campus, building Da I, room 011,
Václavská 1083, Prague 4, 14220

Short description of the course:

The two-day course is built as a student-centred project rather than a series of lectures. Participants work on a specific scientific question that they must solve under the guidance of a supervisor. Discussion and interaction are at the core of the course. First, the scientific question is introduced. Then the participants, working in teams, generate a hypothesis and plan an experiment to answer it. While working on the project, they learn how to prepare the sample, perform proper sampling, select the appropriate mechanical and imaging techniques, including their settings, and analyse the data and draw conclusions from it, while the supervisors guide, challenge and support.

Emphasis is put on:

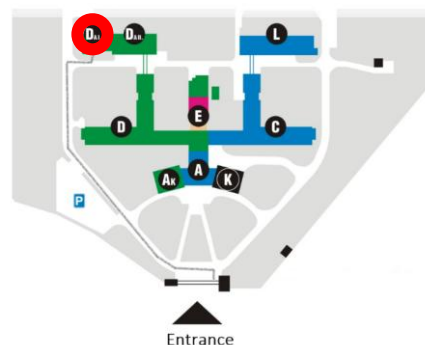
- experimental design and basic biomechanics theories
- sample preparation for correlative experiments
- correlative data acquisition and analysis
- interactions, discussion and creativity

The course fee is 40 Euros.

Course coordinator: Ing. Mgr. Daniel Hadraba, PhD.
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<https://bioimaging.fgu.cas.cz/>

List of instructors:

Ing. Mgr. Daniel Hadraba, PhD.
Mgr. Barbora Radochová, PhD.
Mgr. Jan Přibyl, PhD.
Mgr. Šimon Vrana, Ph.D.



Location of Da I. building in the Krč CAS campus

Adaptive Program

Monday – 23 November 2026

- 9:15 – 9:45 Project introduction, supervisors and teams
Case study: Cell interaction with a substrate (Dal)
- 9:45 – 11:15 Hypothesis and experimental plan
Variables, sample size, sampling, statistical tests (Dal)
- 11:15 – 11:30 *Coffee break*
- 11:30 – 13:00 Methods and techniques
Microscopy methods, biomechanical tests, sample preparation (Dal)
- 13:00 – 14:00 *Lunch*
- 14:00 – 14:30 Data acquisition and analysis
Data management, data handling, data analysis, statistical software (Dal)
- 14:30 – 15:30 Time and instrumentation planning
Select an instrument, book a time slot, prepare the sample, start measurement (Dal)

Tuesday – 24 November 2026

- 9:00 – 17:00 Book a lab and system and complete your experiment
AFM, Brillouin microscopy, indentation, sample characterization, confocal microscopy, etc. (Dal) I
- 12:30 – 13:30 *Lunch*
- *Coffee corner available during the day*