

Module title	**Imaging for the Life Sciences**
Code	CO4
Degree Programme	Master of Science in Life Sciences
Group	Computation
Workload	3 ECTS (90 student working hours: 42 lessons contact = 32 h; 58 h self-study)
Module Coordinator	**Name**: Dr. Andreas Hock **Phone**: +41 (0)58 934 50 99 **Email**: andreas.hock@zhaw.ch **Address**: ZHAW Life Sciences und Facility Management, Grüental, 8820 Wädenswil
Lecturers	• Dr. Andreas Hock, ZHAW • Dr. Norman Juchler, ZHAW • Prof. Dr. Steffi Lehmann, ZHAW • Dr. Luis Dean Ben, ETH Zurich
Entry requirements	• Basic knowledge of biology • Bachelor level of analysis, linear algebra, statistics and signal processing • Basic Python programming skills • An installed and functional Python programming environment. Installation instructions will be made available on the MSLS Community Centre. Students are expected to verify their setup before the first lecture. If you are unsure whether your prior knowledge is sufficient, you can test it with the quiz on this page: https://mslscommunitycentre.ch/course/view.php?id=140
Learning outcomes and competences	After completing the module, students will be able to: • Understand the techniques of different imaging modalities used in medicine and the life sciences, e.g. ultra-sound, X-rays, CT, MRI, SPECT, PET etc. • To interpret typical image data from the life sciences and (bio-)medicine • Perform basic image processing tasks, such as de-noising, morphological filtering, segmentation, either programmatically in Python or with tools like ImageJ/Fiji.
Module contents	• Imaging methods and applications to different fields in the life sciences • Image processing techniques & workflows • Critical analysis of the use of AI in (medical) imaging; ethical considerations • Student projects • Excursions
Teaching / learning methods	Lectures, accompanied with practical work
Assessment of learning outcome	1. Project work (50%) 2. Written exam (closed-book) (50%)
Format	7-weeks
Timing of the module	Spring semester, CW 16-22
Venue	Blended learning format. Presence sequences take place in Olten
Bibliography	-
Language	English
Links to other modules	-



Comments	-
Last Update	26.10.2026