PLANETARY SURFACE EXPLORATION COURSE

Hosted by the University of Basel, Switzerland
From February 20th to May 22nd, 2025

Open to Master and PhD students in both Science and Engineering fields, including those from outside the University of Basel (4 CP)

Online participation possible for some parts of the course

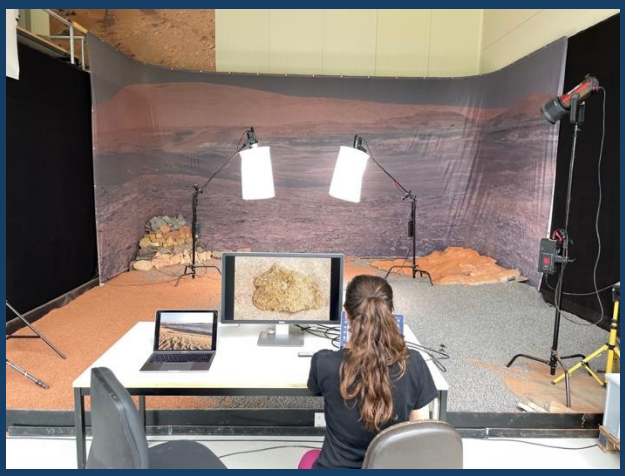
Universität Basel

SPACE - X
Space Exploration Institute

MARSLABOR
UNIVERSITÄT BASEL

Join a simulated robotic mission to search for life on Mars!

The course introduces students to the collaborative, multidisciplinary approach needed for planning and executing robotic missions to explore our Solar System. The lecturers are part of the Science Team of the Rosalind Franklin Rover, which will search for signs of past life on Mars as part of the ExoMars mission, led by ESA in collaboration with NASA. This mission connects subjects such as the search for extraterrestrial life, space exploration history, planetary geology, biosignature detection, planetary exploration with orbiters, geomorphology, Mars-analogue site research, and space systems engineering.



During the first part of the course, the students will be divided in 3 groups and will have the task to prepare presentations covering 3 topics (The geology and climatic evolution of Mars; Search for life on Mars; Robotic Exploration of Mars) this multidisciplinary subjects will be complemented with discussions and presentations given by the lecturers.
The second part of the course will include a practical component in which the participants will take part in a simulated mission to Mars, based on images and data acquired by NASA's Curiosity rover.

During the course, participants will also visit the Marslabor of the University of Basel in Witterswil, a facility designed to simulate image acquisition and robotic missions in an artificial Martian landscape. A collection of Mars analogue samples is available in this laboratory and will be used for image acquisition exercises. At the end of the course, students will prepare a presentation summarizing the outcome of the simulated mission and displaying the data produced in the Marslabor.

Application process

The course is limited to 8 students. Selection of participants will be based on a short presentation and motivation letter (maximum one page) to be sent to Dr. Tomaso Bontognali to the following email address: tomaso.bontognali@unibas.ch
Review of the applications will start on January 15th and will continue until all the positions will be filled.
For more information visit the site:
https://duw.unibas.ch/de/physiogeo/forschung-862/planetary-surface-exploration-course/
or contact Dr. Tomaso Bontognali: tomaso.bontognali@unibas.ch