Block Course Structural Biology and Biophysics

6 weeks, first half of autumn semester, 3rd year of studies, 5th semester of the curriculum BSc in Biology, 15 credit points are requirement for "Major in Molecular Biology". The aim is to obtain a Bachelor in Biology at the University of Basel in the field of molecular biology or integrative biology, www.biozentrum.unibas.ch.

Goal

This Block Course will enable students to glean deep insight into the nanoscopic world of biomolecules that drive functional cellular processes. Here, you will gain a fundamental understanding of the cutting-edge experimental tools and quantitative analytical techniques being used to resolve biomolecular structures and their interactions correlated across atomic, molecular and cellular length scales.

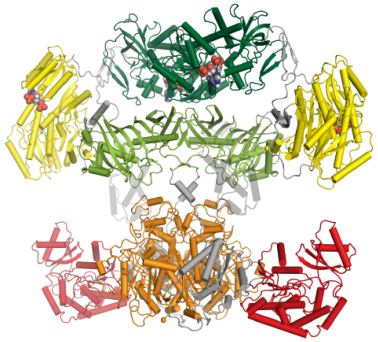
Organization

This course consists of two main themes: theoretical learning and experimental research. First, the students will learn about biophysical concepts and methods by participating in lectures and exercises. This is followed by "Labweeks" whereby each student will carry out one research project per week using different combinations of methods and analyses.

[**Note:** The Block Course may follow a blended learning concept depending on the COVID-19 safety recommendations at the time.]

Topics

- protein expression and purification
- light, fluorescence and electron microscopy
- transmission electron microscopy
- atomic force microscopy
- isothermal calorimetry and surface plasmon resonance
- X-ray crystallography
- nuclear magnetic resonance



Molecular Machines

Requirements

20 credit points and minimum grade 4.0 for module Physikalische Chemie/Biophysikalische Chemie, a good knowledge of lecture Structural Biology (module Biologie 4).

Lecturers

Dr. O. Biehlmaier (oliver.biehlmaier@unibas.ch)
Dr. T. Braun (thomas.braun@unibas.ch)
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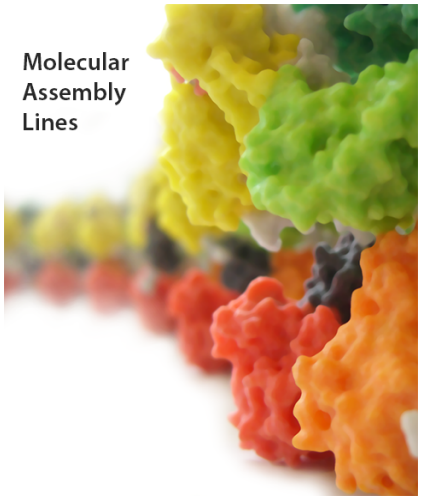

April 2021