

Biochemistry

Courses

| Compulsory courses | | |
|--|---------------------------|---|
| Concept courses | | |
| Cellular Biochemistry (Part I)/Cellular Biochemistry (Part II) | 551-0319-00L/551-0320-00L | 6 |
| Master courses (one of the following) | | |
| A Problem-Based Approach to Cellular Biochemistry | 551-1310-00L | 6 |
| Cellular Biochemistry of Health and Disease | 551-1303-00L | 4 |
| Elective compulsory courses | | |
| Concept courses | | |
| Cell Biology in Health and Disease | 551-0326-00L | 6 |
| Concepts in Modern Genetics | 551-0309-00L | 6 |
| Molecular and Structural Biology I: Protein Structure and Function/Molecular and Structural Biology II: Molecular Machines and Cellular Assemblies | 551-0307-00L/551-0307-01L | 6 |
| Master courses | | |
| <i>Autumn semester</i> | | |
| Applied Statistical Regression | 401-0649-00L | 5 |
| Biological Engineering and Biotechnology | 636-0108-00L | 4 |
| Cell Biophysics | 227-0939-00L | 6 |
| Cellular Matters: Properties, Functions and Applications of Biomolecular Condensates | 551-0357-00L | 4 |
| Chemical Biology and Synthetic Biochemistry | 529-0733-02L | 6 |
| Computational Systems Biology | 636-0007-00L | 6 |
| Moderne Massenspektroskopie, gekoppelte Analysenmethoden, Chemometrie | 529-0041-00L | 6 |
| RNA Biology Lecture Series I: Transcription & Processing & Translation | 551-1407-00L | 4 |
| RNA Biology Lecture Series II: Non-Coding RNAs: Biology and Therapeutics | 551-1409-00L | 4 |
| Systems Biology of Metabolism | 551-1153-00L | 4 |
| <i>Spring semester</i> | | |
| Advanced Proteomics | 551-0224-00L | 4 |
| Current Approaches in Single Cell Analysis (University of Zurich) | 551-0338-00L | 2 |
| Elements of Microscopy | 227-0390-00L | 4 |
| Epigenetics | 551-0140-00L | 4 |
| EXCITE Interdisciplinary Summer School on Bio-Medical Imaging | 227-0396-00L | 4 |
| Functional Genomics | 551-0364-00L | 3 |
| Infectious Agents: From Molecular Biology to Disease | 551-1100-00L | 4 |
| Microbial Biochemistry | 551-1103-00L | 4 |
| Molecular and Structural Biology III: Biophysical Analysis of Macromolecular Mechanisms | 551-1402-00L | 4 |
| Molecular and Structural Biology IV: Visualizing Macromolecules by X-Ray Crystallography and EM | 551-1412-00L | 4 |
| Molecular and Structural Biology V: Studying Macromolecules by NMR and EPR | 551-1414-00L | 4 |
| Nanoscale Molecular Imaging | 529-0059-00L | 3 |
| Soft and Living Matter Physics | 402-0866-05L | 6 |
| Technologies in Molecular Microbiology | 551-1126-00L | 4 |
| Elective courses (free choice) | | |
| Master courses | | |
| D-BIOL and other ETH Master courses, with study advisor agreement | | |
| Scientific writing courses | | |
| Scientific Writing for Life Sciences and Chemistry | 529-0079-00L | 1 |
| Writing Scientific Reports for MSc Biology | 551-0575-00L | 2 |
| Concept courses | | |
| Concepts in Modern Genetics | 551-0309-00L | 6 |
| Immunology I/Immunology II | 551-0317-00L/551-0318-00L | 6 |
| Microbiology (Part I)/Microbiology (Part II) | 551-0313-00L/551-0314-00L | 6 |
| Molecular and Structural Biology I: Protein Structure and Function/Molecular and Structural Biology II: Molecular Machines and Cellular Assemblies | 551-0307-00L/551-0307-01L | 6 |
| Nucleic Acids and Carbohydrates | 529-0731-00L | 6 |
| Proteins and Lipids | 529-0732-00L | 6 |
| Systems Biology | 551-0324-00L | 6 |
| Elective courses in Humanities, Social or Political Sciences (min. 2 CP) | | |

About this major

The Master programme in Biochemistry aims at the development of advanced, research-oriented theoretical and practical skills in cellular biochemistry in a communicative, interdisciplinary research environment. The training focuses on the molecular mechanisms and concepts underlying the biochemistry of cellular physiology, and associated pathologies such as cancer. We put particular emphasis on the question of how these processes are integrated to carry out complex, highly coordinated cellular functions. The investigation and understanding of processes such as intracellular transport, cytoskeletal regulation, cell polarity, cell motility, cell division and cell growth requires a combination of approaches like classical biochemistry and molecular biology, but also cell biology, genetics, live cell imaging and quantitative data analysis.

The successful completion of the Master programme in Biochemistry prepares the student for a professional career in scientific research areas concerned with biological questions on the molecular and cellular level. It provides a solid scientific background for further academic studies towards a PhD followed by postdoctoral training, but also provides the Master graduates with a scientific profile desired for competitive positions in biotechnology, clinical chemistry, and the chemical, biomedical and pharmaceutical industry.

Study advisor



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