## Studies Plan

### EDCH - Chemistry and Chemical Engineering 2023-24

#### Core courses

<table>
<thead>
<tr>
<th>Courses</th>
<th>Section</th>
<th>Teacher</th>
<th>Exam</th>
<th>Credit</th>
</tr>
</thead>
</table>
| Advanced Solid State and Surface Characterization  
(Next time: Spring 2024 Pre-enrolment form on course website) | E CH-633 | EDCH | Mensi Oveis Oveis Oveis Oveis | Oral | 2 |
| AI in chemistry and beyond: Success stories  
(Next time Fall 23-Spring 24) | E ChE-607 | EDCH | Smit Vacat | Term paper | 1 |
| AI in chemistry and beyond: Trends in the field  
(From fall 2023 to spring 2024) | E CH-606 | EDCH | Corminboeuf Vacat | Term paper | 1 |
| Basic and advanced NMR - Level 1 A (EPFL)  
(Next time Winter 24 (block)) | E CH-601(x) | EDCH | Abriata Bornet Emsley Patiny Piveteau | Oral | 2 |
| Basic and advanced NMR - Level 1 B (Sion)  
(Next time Fall 23-Spring 24) | E CH-601(y) | EDCH | Bornet Piveteau | Oral | 2 |
| Basic and advanced NMR - Level 2 (EPFL)  
(Next time Winter 24 (block)) | E CH-703 | EDCH | Abriata Bornet Emsley Patiny Piveteau | Oral | 2 |
| Basic principles of drug action at the cardiovascular system  
(Next time Spring 24) | E CH-602 | EDCH | Diviani Hummler Beermann Kellenberger | Written | 1 |
| Basic principles of drug action at the nervous system  
(Next time Spring 24) | E CH-603 | EDCH | Invited lecturers Kellenberger | Written | 1 |
| Chemical Biology Seminar Series 1  
(From fall 2022 to spring 2023) | E CH-635 | EDCH | Fierz Heinis Vacat | Project report | 1 |
| Chemical Biology Seminar Series 2  
(Next time Fall 23-Spring 24) | E CH-636 | EDCH | Aye Fierz Vacat | Project report | 1 |
| Chemical Biology Seminar Series 3  
(From fall 2024 to spring 2025) | E CH-637 | EDCH | Aye Heinis Vacat | Project report | 1 |
| Chemical Probes for Imaging in Biology  
(Next time November 23) | E CH-634 | EDCH | Johnsson | Term paper | 1 |
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Instructor(s)</th>
<th>Type</th>
<th>Credits</th>
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<tbody>
<tr>
<td>E CH-628</td>
<td>Chemosensory receptors: Applications for biosensors and medical therapies</td>
<td>Pick</td>
<td>Oral</td>
<td>1</td>
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<tr>
<td>E CH-620</td>
<td>Efficient Synthetic Routes Towards Bioactive Molecules</td>
<td>Cramer</td>
<td>Multiple</td>
<td>2</td>
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<tr>
<td>E CH-707</td>
<td>Frontiers in Chemical Synthesis. Towards Sustainable Chemistry</td>
<td>Hu Waser</td>
<td>Multiple</td>
<td>2</td>
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<tr>
<td>E CH-709</td>
<td>Frontiers in Organic Synthesis. Part III Stereochemistry</td>
<td>Hu Waser</td>
<td>Multiple</td>
<td>2</td>
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<tr>
<td>E CHE-601</td>
<td>Hands-on with Research Data Management in Chemistry</td>
<td>Borel Gabella Varrato</td>
<td>Project report</td>
<td>1</td>
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<tr>
<td>E CH-610</td>
<td>Highlights energy research and chemical engineering 1</td>
<td>Luterbacher Queen Vacat</td>
<td>Project report</td>
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<tr>
<td>E CH-611</td>
<td>Highlights energy research and chemical engineering 2</td>
<td>Boghossian Queen Vacat</td>
<td>Project report</td>
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<td>E CH-612</td>
<td>Highlights energy research and chemical engineering 3</td>
<td>Boghossian Queen Vacat</td>
<td>Project report</td>
<td>1</td>
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<tr>
<td>E CH-711</td>
<td>Inorganic chemistry “Applications and spin-offs”</td>
<td>Mazzanti Severin</td>
<td>Oral presentation</td>
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<tr>
<td>E CH-610</td>
<td>Inorganic chemistry “Fundamentals and properties”</td>
<td>Mazzanti Severin</td>
<td>Oral presentation</td>
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<tr>
<td>E CH-611</td>
<td>Inorganic chemistry “Techniques and methods”</td>
<td>Mazzanti Severin</td>
<td>Oral presentation</td>
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<tr>
<td>E CH-609</td>
<td>Introduction to the ChemInfo ELN of ISIC</td>
<td>Patiny Schwaller Vacat</td>
<td>Project report</td>
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<tr>
<td>E CH-728</td>
<td>Mass spectrometry, principles and applications</td>
<td>Gasilova Menin Ortiz Trujillo Patiny</td>
<td>Oral</td>
<td>3</td>
</tr>
<tr>
<td>E CH-604</td>
<td>Medicinal chemistry: concepts and case studies from the pharmaceutical industry</td>
<td>Quancard</td>
<td>Oral</td>
<td>1</td>
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</table>

### Modern Organic chemistry-Highlights in the field
(From fall 2022 to spring 2023)
- E CH-640 EDCH Vacat Zhu
  - Project report 1

### Modern Organic chemistry-Success stories
(From fall 2024 to spring 2025)
- E CH-642 EDCH Cramer Vacat
  - Project report 1

### Modern Organic chemistry-Trends in the field
(Next time Fall 23-Spring 24)
- E CH-641 EDCH Vacat Waser
  - Project report 1

### Organic semiconductors
(Next time Fall 24)
- E CH-613 EDCH Nüesch Oral
  - Project report 1

### Principles and Applications of X-ray Diffraction
(Next time Fall 23 Pre-enrolment form on course website)
- E CH-632 EDCH Schouwink Written
  - Project report 1

### Synergism between Art of Total Synthesis and High Level Strategic Design (MOM)
(Next time Summer 24)
- E CH-622 EDCH Zhu Multiple
  - Project report 1

### Other doctoral courses (EDOC)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Exam</th>
<th>Credit</th>
</tr>
</thead>
</table>
| Information literacy for chemists
  (Next time Fall 23)
  E ENG-619 EDCH Banfi Borel
  - Project report 1
| Scientific Writing (EDCH) (1) (Fall)
  (Next time Fall 23)
  E ENG-613(1) EDCH Bless
  - Project report 1
| Scientific Writing (EDCH) (2) (Spring)
  (Next time: Spring 24)
  E ENG-613(2) EDCH Bless
  - Project report 1
| Statistical methods in atomistic computer simulations
  (Next time Winter 2025)
  E MSE-639 EDMX Ceriotti
  - Project report 2

### Master courses

<table>
<thead>
<tr>
<th>Courses</th>
<th>Exam</th>
<th>Credit</th>
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</table>
| Asymmetric catalysis for fine chemicals synthesis
  E CH-435 CGC Waser Oral
  - Project report 1
| Catalysis for emission control and energy processes
  E ChE-410 CGC Kröcher Written
  - Project report 1
| Chemistry of f elements
  E CH-427 CGC Mazzanti Written
  - Project report 1
| Computational methods in molecular quantum mechanics
  E CH-452 CGC Bonella Oral
  - Project report 1
| Frontiers in chemical biology
  E CH-412 CGC Aye Written
  - Project report 1
| Fundamentals of solid-state materials
  E MSE-423 MX Marzari Oral
  - Project report 1
| Heterogeneous reaction engineering
  E ChE-403 CGC Renken Written
  - Project report 1
| Molecular quantum dynamics
  E CH-453 CGC Vanicek Oral
  - Project report 1
| Physical and computational organic chemistry
  E CH-431 CGC Corminboeuf Oral
  - Project report 1
| Structure and reactivity
  E CH-432 CGC Cramer Oral
  - Project report 1

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Course Code</th>
<th>Department</th>
<th>Credits</th>
<th>Time</th>
</tr>
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<tbody>
<tr>
<td>Sustainable chemistry and engineering in Industry</td>
<td>E CH-407</td>
<td>CGC</td>
<td>2</td>
<td>During the semester</td>
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<td></td>
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<tr>
<td>Biasi Brocklehurst</td>
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<td>Godineau Lovelle</td>
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<td>Nanchen Robvieux Waser</td>
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| Total synthesis of natural products              | E CH-438    | CGC        | 3       | Written |
|                                                 |             |            |         | 3    |