# Studies Plan

## EDCH - Chemistry and Chemical Engineering 2023-24

### Core courses

<table>
<thead>
<tr>
<th>Courses</th>
<th>Language Code</th>
<th>Section</th>
<th>Teacher</th>
<th>Exam</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Advanced Solid State and Surface Characterization</td>
<td>ECH-633</td>
<td>EDCH</td>
<td>Mensi Oveisi Schouwink</td>
<td>Oral</td>
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<tr>
<td>(Next time: Spring 2024 Pre-enrolment form on course website)</td>
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<tr>
<td>AI in chemistry and beyond: Success stories</td>
<td>E</td>
<td>ChE-607</td>
<td>Smit Vacat</td>
<td>Term paper</td>
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<tr>
<td>(Next time Fall 23-Spring 24)</td>
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<tr>
<td>AI in chemistry and beyond: Trends in the field</td>
<td>E</td>
<td>ChE-606</td>
<td>Corminboeuf Vacat</td>
<td>Term paper</td>
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<td>(From fall 2023 to spring 2024)</td>
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<tr>
<td>Basic and advanced NMR - Level 1 A (EPFL)</td>
<td>E</td>
<td>CH-601(x)</td>
<td>Abriata Bornet Emsley Patiny Piveteau</td>
<td>Oral</td>
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<td>(Next time Winter 24 (block))</td>
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<td>Basic and advanced NMR - Level 1 B (Sion)</td>
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<td>Bornet Piveteau</td>
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<td>Basic and advanced NMR - Level 2 (EPFL)</td>
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<td>CH-703</td>
<td>Abriata Bornet Emsley Patiny Piveteau</td>
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<td>Basic principles of drug action at the cardiovascular system</td>
<td>E</td>
<td>CH-602</td>
<td>Diviani Hummler Beermann Kellenberger</td>
<td>Written</td>
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<tr>
<td>Basic principles of drug action at the nervous system</td>
<td>E</td>
<td>CH-603</td>
<td>Invited lecturers Kellenberger</td>
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<tr>
<td>Chemical Biology Seminar Series 1</td>
<td>E</td>
<td>CH-635</td>
<td>Fierz Heinis Vacat</td>
<td>Project report</td>
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<tr>
<td>Chemical Biology Seminar Series 2</td>
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<td>CH-636</td>
<td>Aye Fierz Vacat</td>
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<td>(Next time Fall 23-Spring 24)</td>
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<tr>
<td>Chemical Biology Seminar Series 3</td>
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<td>CH-637</td>
<td>Aye Heinis Vacat</td>
<td>Project report</td>
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<td>(From fall 2024 to spring 2025)</td>
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<tr>
<td>Chemical Probes for Imaging in Biology</td>
<td>E</td>
<td>CH-634</td>
<td>Johnsson</td>
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<td>Course Code</td>
<td>Course Title</td>
<td>Instructor(s)</td>
<td>Type</td>
<td>Duration</td>
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<tr>
<td>CH-628</td>
<td>Chemosensory receptors: Applications for biosensors and medical therapies</td>
<td>Pick</td>
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<tr>
<td>CH-620</td>
<td>Efficient Synthetic Routes Towards Bioactive Molecules</td>
<td>Cramer</td>
<td>Multiple</td>
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<td>CH-707</td>
<td>Frontiers in Chemical Synthesis. Towards Sustainable Chemistry</td>
<td>Hu Waser</td>
<td>Multiple</td>
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<tr>
<td>CH-709</td>
<td>Frontiers in Organic Synthesis. Part III Stereochemistry</td>
<td>Hu Waser</td>
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<td>CH-708</td>
<td>Frontiers in Organic Synthesis. Part II Synthesis of carb and hetero-cycles</td>
<td>Hu Waser</td>
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<td>CH-E601</td>
<td>Hands-on with Research Data Management in Chemistry</td>
<td>Borel Gabella Varrato</td>
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<td>CH-E610</td>
<td>Highlights energy research and chemical engineering 1</td>
<td>Luterbacher Queen Vacat</td>
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<td>CH-E611</td>
<td>Highlights energy research and chemical engineering 2</td>
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<td>CH-E612</td>
<td>Highlights energy research and chemical engineering 3</td>
<td>Boghossian Queen Vacat</td>
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<td>CH-711</td>
<td>Inorganic chemistry “Applications and spin-offs”</td>
<td>Mazzanti Severin</td>
<td>Oral presentation</td>
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<td>CH-610</td>
<td>Inorganic chemistry “Fundamentals and properties”</td>
<td>Mazzanti Severin</td>
<td>Oral presentation</td>
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<td>CH-611</td>
<td>Inorganic chemistry “Techniques and methods”</td>
<td>Mazzanti Severin</td>
<td>Oral presentation</td>
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<td>CH-609</td>
<td>Introduction to the ChemInfo ELN of ISIC</td>
<td>Patiny Schwaller Vacat</td>
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<td>CH-728</td>
<td>Mass spectrometry, principles and applications</td>
<td>Gasilova Menin Ortiz Trujillo Patiny</td>
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<tr>
<td>CH-604</td>
<td>Medicinal chemistry: concepts and case studies from the pharmaceutical industry</td>
<td>Quancard</td>
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</tbody>
</table>

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

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

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

### Organic semiconductors
(Next time Fall 24)
- **E ChE-613 EDCH**
  - Teacher: Nüesch
  - Type: Oral
  - Credit: 3

### Principles and Applications of X-ray Diffraction
(Next time Fall 23 Pre-enrolment form on course website)
- **E CH-632 EDCH**
  - Teacher: Schouwink
  - Type: Written
  - Credit: 2

### Synergism between Art of Total Synthesis and High Level Strategic Design (MOM)
(Next time Summer 24)
- **E CH-622 EDCH**
  - Teacher: Zhu
  - Type: Multiple
  - Credit: 2

### Other doctoral courses (EDOC)

#### Courses
<table>
<thead>
<tr>
<th>Language Code</th>
<th>Section</th>
<th>Teacher</th>
<th>Exam</th>
<th>Credit</th>
</tr>
</thead>
</table>
| **Information literacy for chemists**
(Next time Fall 23)
- **E ENG-619 EDCH**
  - Teacher: Banfi
  - Type: Project report
  - Credit: 1

- **Scientific Writing (EDCH) (1) (Fall)**
  (Next time Fall 23)
  - **E ENG-613(1) EDCH**
    - Teacher: Bless
    - Type: Project report
    - Credit: 1

- **Scientific Writing (EDCH) (2) (Spring)**
  (Next time: Spring 24)
  - **E ENG-613(2) EDCH**
    - Teacher: Bless
    - Type: Project report
    - Credit: 1

- **Statistical methods in atomistic computer simulations**
  (Next time Winter 2025)
  - **E MSE-639 EDMX**
    - Teacher: Ceriotti
    - Type: Project report
    - Credit: 2

#### Master courses
<table>
<thead>
<tr>
<th>Language Code</th>
<th>Section</th>
<th>Teacher</th>
<th>Exam</th>
<th>Credit</th>
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| **Catalysis for emission control and energy processes**
- **E ChE-410 CGC**
  - Teacher: Kröcher
  - Type: Written
  - Credit: 3

- **Chemistry of f elements**
  - **E CH-427 CGC**
    - Teacher: Mazzanti
    - Type: Written
    - Credit: 2

- **Computational methods in molecular quantum mechanics**
  - **E CH-452 CGC**
    - Teacher: Bonella
    - Type: Oral
    - Credit: 4

- **Frontiers in chemical biology**
  - **E CH-412 CGC**
    - Teacher: Aye
    - Type: Written
    - Credit: 3

- **Fundamentals of solid-state materials**
  - **E MSE-423 MX**
    - Teacher: Marzari
    - Type: Oral
    - Credit: 4

- **Heterogenous reaction engineering**
  - **E ChE-403 CGC**
    - Teacher: Renken
    - Type: Written
    - Credit: 4

- **Molecular quantum dynamics**
  - **E CH-453 CGC**
    - Teacher: Vanicek
    - Type: Oral
    - Credit: 3

- **Physical and computational organic chemistry**
  - **E CH-431 CGC**
    - Teacher: Corminboeuf
    - Type: Oral
    - Credit: 2

- **Structure and reactivity**
  - **E CH-432 CGC**
    - Teacher: Cramer
    - Type: Oral
    - Credit: 3

- **Total synthesis of natural products**
  - **E CH-438 CGC**
    - Teacher: Zhu
    - Type: Written
    - Credit: 3