## Studies Plan

**EDCH - Chemistry and Chemical Engineering 2019-20**

### Core courses

<table>
<thead>
<tr>
<th>Courses</th>
<th>Language Code</th>
<th>Section</th>
<th>Teacher</th>
<th>Exam</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advanced Solid State and Surface Characterization</strong></td>
<td>ECH-633</td>
<td>EDCH</td>
<td>Mensi Oveis Oveisi Schouwink</td>
<td>Oral, Written</td>
<td>4</td>
</tr>
<tr>
<td><strong>Basic and advanced NMR - Level 1 A (EPFL)</strong></td>
<td>CH-601(x)</td>
<td>EDCH</td>
<td>Bornet Emsley Stevanato</td>
<td>Oral</td>
<td>2</td>
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<tr>
<td><strong>Basic and advanced NMR - Level 1 B (Sion)</strong></td>
<td>CH-601(y)</td>
<td>EDCH</td>
<td>Bornet Emsley Stevanato</td>
<td>Oral</td>
<td>2</td>
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<tr>
<td><strong>Basic and advanced NMR - Level 2 (EPFL)</strong></td>
<td>CH-703</td>
<td>EDCH</td>
<td>Bornet Emsley Stevanato</td>
<td>Oral</td>
<td>2</td>
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<tr>
<td><strong>Basic principles of drug action at the cardiovascular system</strong></td>
<td>CH-602</td>
<td>EDCH</td>
<td>Diviani Hummler Beermann</td>
<td>Written</td>
<td>1</td>
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<tr>
<td><strong>Basic principles of drug action at the nervous system</strong></td>
<td>CH-603</td>
<td>EDCH</td>
<td>Katanaev Kellenberger</td>
<td>Written</td>
<td>1</td>
</tr>
<tr>
<td><strong>Challenges and Opportunities in Energy Research</strong></td>
<td>ECH-803</td>
<td>EDCH</td>
<td>Buonsanti Various lecturers</td>
<td>Written &amp; Oral</td>
<td>2</td>
</tr>
<tr>
<td><strong>Chemical Probes for Imaging in Biology</strong></td>
<td>CH-634</td>
<td>EDCH</td>
<td>Johnsson</td>
<td>Oral presentation</td>
<td>1</td>
</tr>
<tr>
<td><strong>Chemosensory receptors: Applications for biosensors and medical therapies</strong></td>
<td>CH-628</td>
<td>EDCH</td>
<td>Pick</td>
<td>Oral</td>
<td>1</td>
</tr>
<tr>
<td><strong>Colloidal synthesis of nanoparticles and their energy applications</strong></td>
<td>ChE-604</td>
<td>EDCH</td>
<td>Buonsanti Loiudice</td>
<td>Oral</td>
<td>2</td>
</tr>
<tr>
<td><strong>Current Topics in Chemical Biology 1</strong></td>
<td>CH-629(1)</td>
<td>EDCH</td>
<td>Fierz Heinis Vacat</td>
<td>Written</td>
<td>1</td>
</tr>
<tr>
<td><strong>Current Topics in Chemical Biology 2</strong></td>
<td>CH-629(2)</td>
<td>EDCH</td>
<td>Fierz Heinis Vacat</td>
<td>Written</td>
<td>1</td>
</tr>
<tr>
<td><strong>Efficient Synthetic Routes Towards Bioactive Molecules</strong></td>
<td>CH-620</td>
<td>EDCH</td>
<td>Cramer Multiple</td>
<td>2</td>
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</tbody>
</table>
Frontiers in Chemical Synthesis. Towards Sustainable Chemistry  
(Next time: Spring 2020)  
| E | CH-707 | EDCH | Hu Waser | Multiple | 2 |

Frontiers in Organic Synthesis. Part III Stereochemistry  
(Next time: Spring 2022)  
| E | CH-709 | EDCH | Hu Waser | Multiple | 2 |

Frontiers in Organic Synthesis. Part II Synthesis of carbo- and hetero-cycles  
(Next time: Spring 2021)  
| E | CH-708 | EDCH | Hu Waser | Multiple | 2 |

Gene transfer and recombinant protein expression in animal cells  
(Postponed)  
| E | CH-710 | EDCH | Hacker Pick | Oral presentation | 2 |

Highlights in Energy Research : Characterization of materials for sustainable energy (1)  
(Every 3 years. Next time: Fall 2020)  
| E | ChE-607(1) | EDCH | Queen | Term paper | 1 |

Highlights in Energy Research : Characterization of materials for sustainable energy (2)  
(Every 3 years. Next time: Spring 2021)  
| E | ChE-607(2) | EDCH | Queen | Term paper | 1 |

Highlights in Energy Research : Sustainable energy applications and devices (1)  
(Every 3 years. Next Time Fall 2021)  
| E | ChE-608(1) | EDCH | Queen | Term paper | 1 |

Highlights in Energy Research : Sustainable energy applications and devices (2)  
(Every 3 years. Next time: Spring 2022)  
| E | ChE-608(2) | EDCH | Queen | Term paper | 1 |

Highlights in Energy Research : Synthesis and design of materials for sustainable energy (1)  
(Every 3 years. Next time: Fall 2019)  
| E | ChE-606(1) | EDCH | Queen | Term paper | 1 |

Highlights in Energy Research : Synthesis and design of materials for sustainable energy (2)  
(Every 3 years. Next time: Spring 2020)  
| E | ChE-606(2) | EDCH | Queen | Term paper | 1 |

Information literacy for chemists  
(Next time: Fall 2019)  
| E | ENG-619 | EDCH | Borel | Project report | 0 |

Inorganic chemistry "Applications and spin-offs"  
(Next time: Fall semester 2020)  
| E | CH-711 | EDCH | Dyson Mazzanti Severin | Oral presentation | 2 |

Inorganic chemistry "Fundamentals and properties"  
(Next time: Fall semester 2019)  
| E | CH-610 | EDCH | Dyson Mazzanti Severin | Oral presentation | 2 |

Inorganic chemistry "Techniques and methods"  
(Next time: Fall semester 2021)  
| E | CH-611 | EDCH | Dyson Mazzanti Severin | Oral presentation | 2 |

Interfacial Electrochemistry of Metals and Semiconductors for Energy Conversion and Storage 1- Basic concepts  
(Spring semester 2020)  
| E | ChE-603(1) | EDCH | Hagfeldt Vlachopoulos | Multiple,Written | 4 |

Interfacial Electrochemistry of Metals and Semiconductors for Energy Conversion and Storage 2 - Advanced Topics  
(Every year)  
| E | ChE-603(2) | EDCH | Hagfeldt Vlachopoulos | Multiple,Written | 4 |

Leading research in Chemical Engineering (1)
### Leading research in Chemical Engineering (2)
*(Next time: Spring semester 2019)*
- **E CH-601(2)**: EDCH  
  - Luterbacher  
  - Vacat  
  - Term paper  
  - 1

### Mass spectrometry, principles and applications
*(Pre-enrolment – send a short motivation email why you are interested in this course to edch@epfl.ch)*
- **E CH-728**: EDCH  
  - Boyarkine  
  - Gasilova  
  - Menin  
  - Ortiz  
  - Trujillo  
  - Patiny  
  - Oral  
  - 3

### Medicinal chemistry: concepts and case studies from the pharmaceutical industry
*(Spring 2020 from: 2.02 to: 16.02)*
- **E CH-604**: EDCH  
  - Quancard  
  - Oral  
  - 1

### Perspectives in Modern Organic Chemistry (OCS) 1
*(Next time: Fall semester 2019)*
- **E CH-621(1)**: EDCH  
  - Cramer  
  - Vacat  
  - Zhu  
  - Oral  
  - 1

### Perspectives in Modern Organic Chemistry (OCS) 2
*(Spring semester 2019)*
- **E CH-621(2)**: EDCH  
  - Cramer  
  - Vacat  
  - Zhu  
  - Oral  
  - 1

### Principles and Applications of X-ray Diffraction
*(Next time: Winter 2020)*
- **E CH-632**: EDCH  
  - Schouwink  
  - Oral  
  - 2

### Scientific Writing (3) (Sion)
*(postponed until « Fall 2020 »)*
- **E ENG-613(3)**: EDCH  
  - Bless  
  - Project report  
  - 1

### Scientific Writing (EDCH) (1) (Fall)
*(Next time: 22.11.2019 (Block))*
- **E ENG-613(1)**: EDCH  
  - Bless  
  - Project report  
  - 1

### Scientific Writing (EDCH) (2) (Spring)
*(Spring 2019 EPF Lausanne)*
- **E ENG-613(2)**: EDCH  
  - Bless  
  - Project report  
  - 1

### Seminars in Physical Chemistry (1)
*(Next time: Fall semester 2019)*
- **E CH-630(1)**: EDCH  
  - Drabbels  
  - Lorenz  
  - Vacat  
  - Term paper  
  - 1

### Seminars in Physical Chemistry (2)
*(Next time: Spring semester 2020)*
- **E CH-630(2)**: EDCH  
  - Drabbels  
  - Lorenz  
  - Vacat  
  - Term paper  
  - 1

### Synergism between Art of Total Synthesis and High Level Strategic Design (MOM)
*(Next time: Summer 2020)*
- **E CH-622**: EDCH  
  - Zhu  
  - Multiple  
  - 2

### Other doctoral courses (EDOC)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Language Code</th>
<th>Section</th>
<th>Teacher</th>
<th>Exam</th>
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</thead>
<tbody>
<tr>
<td>Solar photovoltaics and energy systems</td>
<td>E CH-600</td>
<td>EDEY</td>
<td>Guijarro Carratala Sivula Tress</td>
<td>Multiple</td>
<td>2</td>
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<th>Teacher</th>
<th>Exam</th>
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<tbody>
<tr>
<td>E</td>
<td>CH-621</td>
<td>EDCH</td>
<td>Yoshitaka</td>
<td>Term paper</td>
</tr>
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</table>

Theory of nonlinear electronic and electronic-vibrational spectroscopies
(Fall 2019)