# 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>Advanced Solid State and Surface Characterization</td>
<td>E</td>
<td>CH-633</td>
<td>Mensi, Oveis, Schouwink</td>
<td>Oral, Written</td>
<td>4</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>Bornet, Emsley, Stevanato</td>
<td>Oral</td>
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<tr>
<td>Basic and advanced NMR - Level 1 B (Sion)</td>
<td>E</td>
<td>CH-601(y)</td>
<td>Bornet</td>
<td>Oral</td>
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<tr>
<td>Basic and advanced NMR - Level 2 (EPFL)</td>
<td>E</td>
<td>CH-703</td>
<td>Abruatu, Bornet, Emsley, Stevanato</td>
<td>Oral</td>
<td>2</td>
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<tr>
<td>Basic principles of drug action at the cardiovascular system</td>
<td>E</td>
<td>CH-602</td>
<td>Diviani, Hummer, Beermann, Kellenberger</td>
<td>Written</td>
<td>1</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>Katanaev, Kellenberger</td>
<td>Written</td>
<td>1</td>
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<tr>
<td>Challenges and Opportunities in Energy Research</td>
<td>E</td>
<td>ChE-803</td>
<td>Buonsanti, Various lecturers</td>
<td>Written &amp; Oral</td>
<td>2</td>
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<tr>
<td>Chemical Probes for Imaging in Biology</td>
<td>E</td>
<td>CH-634</td>
<td>Johnsson</td>
<td>Oral presentation</td>
<td>1</td>
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<tr>
<td>Chemosensory receptors: Applications for biosensors and medical therapies</td>
<td>E</td>
<td>CH-628</td>
<td>Pick</td>
<td>Oral</td>
<td>1</td>
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<tr>
<td>Colloidal synthesis of nanoparticles and their energy applications</td>
<td>E</td>
<td>ChE-604</td>
<td>Buonsanti, Loiudice</td>
<td>Oral</td>
<td>2</td>
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<tr>
<td>Current Topics in Chemical Biology 1</td>
<td>E</td>
<td>CH-629(1)</td>
<td>Fierz, Heinis, Vacat</td>
<td>Written</td>
<td>1</td>
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<tr>
<td>Current Topics in Chemical Biology 2</td>
<td>E</td>
<td>CH-629(2)</td>
<td>Fierz, Heinis, Vacat</td>
<td>Written</td>
<td>1</td>
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<tr>
<td>Efficient Synthetic Routes Towards Bioactive Molecules</td>
<td>E</td>
<td>CH-620</td>
<td>Cramer</td>
<td>Multiple</td>
<td>2</td>
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</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 ChE-601(2) EDCH Luterbacher Vacat Term paper 1

Mass spectrometry, principles and applications
(Next course Fall 2020)
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: Fall 2019 (Block))
E ENG-613(1) EDCH Bless Project report 1

Scientific Writing (EDCH) (2) (Spring)
(Next time: Spring 2020)
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

Theory of nonlinear electronic and electronic-vibrational spectroscopies
(Fall 2019)
E CH-621 EDCH Vanicek Yoshitaka Term paper 1

Other doctoral courses (EDOC)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Language Code</th>
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<tbody>
<tr>
<td>Hands-on with Research Data Management in Chemistry</td>
<td>ChE-601</td>
<td>EDCH</td>
<td>Borel Panes Varrato</td>
<td>Project report</td>
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<tr>
<th>Courses</th>
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<th>ChE-600</th>
<th>EDEY</th>
<th>Guijarro</th>
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Solar photovoltaics and energy systems
(next time Spring 2020)