## che414 - Research Laboratory Course in Physical Chemistry

<table>
<thead>
<tr>
<th>Module label</th>
<th>Research Laboratory Course in Physical Chemistry</th>
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<tbody>
<tr>
<td>Module code</td>
<td>che414</td>
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<tr>
<td>Credit points</td>
<td>15.0 KP</td>
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<tr>
<td>Workload</td>
<td>450 h</td>
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<tr>
<td>Used in course of study</td>
<td>• Master's Programme Chemistry &gt; Mastermodule</td>
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<tr>
<td>Contact person</td>
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### Module responsibility
- Gunther Wittstock
- Katharina Al-Shamery

### Authorized examiners
- Katharina Al-Shamery
- Gunther Wittstock
- Mehtap Özaslan
- Carsten Dosche
- Izabella Brand

### Module counseling
- Gunther Wittstock
- Katharina Al-Shamery

### Entry requirements

### Skills to be acquired in this module
Students acquire practical skills in complex instrumental methods of Physical Chemistry and apply them for solving a scientific problem. They learn the handling as well as presentation of research results. They use original literature, scripts and handbooks and operational procedures to prepare and conduct complex experiments.

### Module contents
#### Master of Science
Students select 3 method courses out of the catalogue from physical chemistry. The courses should be related to the topic and requirements of the research exercise. Exceptions are possible after consultation with the student advisors of this module (Al-Shamery, Wittstock). Each method course comprises self-study, class-room instruction, a preset experiment and data evaluation. Students present the result of own literature research in a seminar talk. Students solve a research exercise in which they extend their capabilities in a selected area beyond the method courses.

#### PhD program Interface Science
Students may select method courses for their further qualification (1-2 KP each) and attend a colloquium (30 min pass/fail) at the end of the method course. PhD students can only select method courses that have not been part of their MSc. curriculum.

#### Themen der Methodenkurse

- scanning electrochemical microscopy (Wittstock, SoSe)
- x-ray photoelectron spectroscopy (Wittstock, Dosche, SoSe)
- impedanz spectroscopy (Dosche, SoSe)
- polarisation modulation infrared reflection absorption spectroscopy (Brand, SoSe)
- rotating ring-disk electrode (Özaslan, SoSe)
- transmission electron microscopy (Al-Shamery, WiSe)

### Reader's advisory

### Links

### Languages of instruction
- German
- English

### Duration (semesters)
- 2 Semester

### Module frequency
- halbjährlich

### Module capacity
- unlimited

### Modullevel
- MM (Mastermodul)

### Modulart
- Wahlpflicht

### Lern-/Lehrform / Type of program

### Vorkenntnisse / Previous knowledge

### Examination
- Time of examination
- Type of examination
- Final exam of module
- Course type
- Comment
- SWS
- Frequency
- Workload attendance
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<tr>
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<th>WiSe</th>
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<tbody>
<tr>
<td>Seminar</td>
<td>5.00</td>
<td></td>
<td>70 h</td>
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<tr>
<td>Practical</td>
<td>17.00</td>
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<td>238 h</td>
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**Total time of attendance for the module**

308 h