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| <b>Modulbezeichnung:</b> Catalysis (CME2)<br>(Catalysis) | <b>15 ECTS</b>   |                              |
| Modulverantwortliche/r:                                  | Hans-Peter Steinrück   |                              |
| Lehrende:  | Svetlana Tsogoeva, u.a., Julien Bachmann, Andriy Mokhir, Hans-Peter Steinrück, Sjoerd Harder, Jörg Libuda, Romano Dorta, Thomas Drewello |                              |
| Startsemester: WS 2018/2019                              | Dauer: 2 Semester  | Turnus: halbjährlich (WS+SS) |
| Präsenzzeit: 195 Std.                                    | Eigenstudium: 255 Std.   | Sprache: Englisch            |

### Lehrveranstaltungen:

Please attend one **lab course** and choose one of the given **Options A - D**:

#### Lab course (7 LAB):

Attendance in lab course is compulsory!

Lab Course Catalysis (WS 2018/2019, Praktikum, 7 SWS, Hans-Peter Steinrück et al.)

Lab Course Catalysis (SS 2019, Praktikum, 7 SWS, Hans-Peter Steinrück et al.)

#### Lectures and seminars:

##### Option A:

Nanoparticles and Nanostructured Thin Films / Nanopartikel und nanostrukturierte dünne Schichten (WS 2018/2019, Vorlesung, 2 SWS, Julien Bachmann)

Nanoparticles and Nanostructured Thin Films / Nanopartikel und nanostrukturierte dünne Schichten - Seminar (WS 2018/2019, Seminar, Julien Bachmann)

Catalysis and Kinetics (SS 2019, Vorlesung, 2 SWS, Jörg Libuda)

Seminar Catalysis and Kinetics (SS 2019, Seminar, 1 SWS, Jörg Libuda et al.)

##### Option B:

Catalytic reactions with transition metals (SS 2019, Vorlesung, 2 SWS, Sjoerd Harder et al.)

Catalytic reactions with transition metals (SS 2019, Seminar, 1 SWS, Romano Dorta et al.)

Organocatalysis and catalytic reactions in water (SS 2019, Vorlesung, 2 SWS, Svetlana Tsogoeva et al.)

Organocatalysis and catalytic reactions in water - Seminar (SS 2019, Seminar, 1 SWS, Svetlana Tsogoeva et al.)

##### Option C:

Modern Methods in Mass Spectrometry (WS 2018/2019, Vorlesung, 2 SWS, Thomas Drewello)

Seminar Modern Methods in Mass Spectrometry (WS 2018/2019, Seminar, 1 SWS, Thomas Drewello et al.)

Catalytic reactions with transition metals (SS 2019, Vorlesung, 2 SWS, Sjoerd Harder et al.)

Catalytic reactions with transition metals (SS 2019, Seminar, 1 SWS, Romano Dorta et al.)

##### Option D:

Modern Methods in Mass Spectrometry (WS 2018/2019, Vorlesung, 2 SWS, Thomas Drewello)

Seminar Modern Methods in Mass Spectrometry (WS 2018/2019, Seminar, 1 SWS, Thomas Drewello et al.)

Catalysis and Kinetics (SS 2019, Vorlesung, 2 SWS, Jörg Libuda)

Seminar Catalysis and Kinetics (SS 2019, Seminar, 1 SWS, Jörg Libuda et al.)

### Inhalt:

- developing the basics of catalysis at the level of a scientifically oriented Master's program
- introduction to the current issues of research in the field of catalysis
- deepening of knowledge in a specialized field of catalysis of lecturers involved in the ECRC to the limit of current knowledge
- experimental studies on selected chapters of catalysis at an advanced level

### Lernziele und Kompetenzen:

Students

- explain the basics of catalysis
- present and compare basics of different modern experimental or theoretical methods in catalysis
- apply basic knowledge to current issues in research

- analyse experimental data and interpret results referring to literature data independently
- apply model-like descriptions for complex systems and model experimental data

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**Verwendbarkeit des Moduls / Einpassung in den Musterstudienplan:**

Das Modul ist im Kontext der folgenden Studienfächer/Vertiefungsrichtungen verwendbar:

**[1] Chemie (Master of Science): 1-3. Semester**

(Po-Vers. 2009 | NatFak | Chemie (Master of Science) | Wahlpflichtmodul | Katalyse)

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**Studien-/Prüfungsleistungen:**

Katalyse (Prüfungsnummer: 65401)

(englische Bezeichnung: Oral Examination or Examination (Klausur) on Catalysis)

Prüfungsleistung, mündliche Prüfung, Dauer (in Minuten): 45

Anteil an der Berechnung der Modulnote: 100%

weitere Erläuterungen:

OE45, 2 examiners (PL), LAB (SL)

Prüfungssprache: Englisch

Erstablingung: WS 2018/2019, 1. Wdh.: SS 2019

1. Prüfer: Julien Bachmann

1. Prüfer: Romano Dorta

1. Prüfer: Thomas Drewello

1. Prüfer: Svetlana Tsogoeva

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**Bemerkungen:**

**Module compatibility:** M.Sc. Chemie / M.Sc. Molecular Science (as Mandatory Elective module or Elective module)