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| <b>Modulbezeichnung:</b> Catalysis (CME2)<br>(Catalysis) | <b>15 ECTS</b>                                                                                                                           |                              |
| Modulverantwortliche/r:                                  | Hans-Peter Steinrück                                                                                                                     |                              |
| Lehrende:                                                | Julien Bachmann, Jörg Libuda, Andriy Mokhir, Thomas Drewello, Sjoerd Harder, Hans-Peter Steinrück, Svetlana Tsogoeva, Romano Dorta, u.a. |                              |
| Startsemester: SS 2020                                   | 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 (SS 2020, Praktikum, 7 SWS, Hans-Peter Steinrück et al.)

#### Lectures and seminars:

##### Option A:

**Please note:** The lecture "Nanoparticles and Nanostructured Thin Films" is no longer offered in the winter semester.

Please clarify with the module coordinator which lectures you can attend as a Substitute!

Catalysis and Kinetics (SS 2020, Vorlesung, 2 SWS, Jörg Libuda)

Seminar Catalysis and Kinetics (SS 2020, Seminar, 1 SWS, Jörg Libuda et al.)

##### Option B:

Catalytic reactions with transition metals (SS 2020, Vorlesung, 2 SWS, Sjoerd Harder et al.)

Catalytic reactions with transition metals (SS 2020, Seminar, 1 SWS, Romano Dorta et al.)

Organocatalysis and catalytic reactions in water (SS 2020, Vorlesung, 2 SWS, Svetlana Tsogoeva et al.)

Organocatalysis and catalytic reactions in water - Seminar (SS 2020, Seminar, 1 SWS, Svetlana Tsogoeva et al.)

##### Option C:

**Please note:** The lecture "Modern Methods in Mass Spectroscopy" is no longer offered in the winter semester. Please clarify with the module coordinator which lectures you can attend as a Substitute!

Catalytic reactions with transition metals (SS 2020, Vorlesung, 2 SWS, Sjoerd Harder et al.)

Catalytic reactions with transition metals (SS 2020, Seminar, 1 SWS, Romano Dorta et al.)

##### Option D:

**Please note:** The lecture "Modern Methods in Mass Spectroscopy" is no longer offered in the winter semester. Please clarify with the module coordinator which lectures you can attend as a Substitute!

Catalysis and Kinetics (SS 2020, Vorlesung, 2 SWS, Jörg Libuda)

Seminar Catalysis and Kinetics (SS 2020, 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

### 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)

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

(Po-Vers. 2009 | NatFak | Chemie (Master of Science) | Wahlmodul | 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:

O45 (PL): oral examination 45 min, 2 examiners,

EX (SL), EX (SL), LAB (SL)

Prüfungssprache: Englisch

Erstablingung: SS 2020, 1. Wdh.: WS 2020/2021

1. Prüfer: Julien Bachmann (070509)

1. Prüfer: Romano Dorta (070510)

1. Prüfer: Jörg Libuda (070744)

1. Prüfer: Sjoerd Harder (070508)

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**Organisatorisches:**

Please clarify with the module coordinator which lectures you can attend as a Substitute for the lectures "Modern Methods in Mass Spectroscopy" and "Nanoparticles and Nanostructured Thin Films" which are no longer offered in the winter term 2020/21!

**Bemerkungen:**

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