Modulbezeichnung:	**Catalysis (CME2)** (Catalysis)	**15 ECTS**
Modulverantwortliche/r:	Hans-Peter Steinrück	
Lehrende:	Andriy Mokhir, Jörg Libuda, Hans-Peter Steinrück, Romano Dorta, Sjoerd Harder, Holger Jorschick, und Mitarbeiter/innen, Julien Bachmann, Dozenten A1-A8 (CME2), Wilhelm Schwieger, Bernd Meyer, Assistenten, Svetlana Tsogoeva, Vinzent Strobel, Thomas Drewello, Assistenten, Peter Schulz	

Startsemester: WS 2017/2018	Dauer: 2 Semester	Turnus: halbjährlich (WS+SS)
Präsenzzeit: 195 Std.	Eigenstudium: 255 Std.	Sprache: Englisch

Lehrveranstaltungen:

A: Lectures and seminars

Two units per 2L + 1S from the offers A1 - A8 chosen by the student.

One of the two units can be replaced either by an equivalent multidisciplinary course with a total of 5 ECTS from the field of "Erlangen Catalysis Resource Center" (ECRC) (e.g. A9 and A10) or by courses from the modules "Interfaces" or "Molecular Nanoscience".

A1: N. N.

A2: Nanoparticles and nanostructured thin films (WS)

Nanoparticles and Nanostructured Thin Films / Nanopartikel und nanostrukturierte dünne Schichten (WS 2017/2018, Vorlesung, 2 SWS, Julien Bachmann)

A3: Organocatalysis (SS)

Organocatalysis (SS 2018, Vorlesung, 2 SWS, Svetlana Tsogoeva)

Organocatalysis - Seminar (SS 2018, Seminar, 1 SWS, Svetlana Tsogoeva)

A4: Catalysis and kinetics (SS)

Catalysis and Kinetics (SS 2018, Vorlesung, 2 SWS, Jörg Libuda)

Seminar Catalysis and Kinetics (SS 2018, Seminar, 1 SWS, Jörg Libuda et al.)

A5: Organic Chemistry under physiological conditions (SS)

Organic Chemistry under physiological conditions (SS 2018, Vorlesung, Andriy Mokhir)

Organic Chemistry under physiological conditions (SS 2018, Seminar, Andriy Mokhir)

A6: Catalytic reactions with transition metals (SS)

Catalytic reactions with transition metals (SS 2018, Vorlesung, 2 SWS, Sjoerd Harder et al.)

Catalytic reactions with transition metals (SS 2018, Seminar, 1 SWS, Romano Dorta et al.)

A7: Modeling of catalytic processes (SS)

Modeling of Catalytic Processes (SS 2018, Vorlesung, 2 SWS, Bernd Meyer)

Modeling of Catalytic Processes (Praktikum) (SS 2018, Praktikum, 2 SWS, Bernd Meyer et al.)

A8: Modern methods in mass spectrometry (WS)

Modern Methods in Mass Spectrometry (WS 2017/2018, Vorlesung, 2 SWS, Thomas Drewello)

Seminar Modern Methods in Mass Spectrometry (WS 2017/2018, Seminar, 1 SWS, Thomas Drewello et al.)

A9: Lösungsmittelkonzepte für katalytische Verfahren (WS)

Lösungsmittelkonzepte für katalytische Verfahren (WS 2017/2018, Vorlesung, 2 SWS, Peter Schulz)

Lösungsmittelkonzepte für katalytische Verfahren (WS 2017/2018, Übung, 1 SWS, Holger Jorschick et al.)

A10: Technische Katalyse und Adsorption (SS)

Technische Katalyse und Adsorption / Technical Catalysis and Adsorption (SS 2018, Vorlesung, 2 SWS, Wilhelm Schwieger)

Übungen zu Technische Katalyse und Adsorption (SS 2018, Übung, 1 SWS, Wilhelm Schwieger et al.)

B: Lab course in one of the lecturers working groups A1-A8 at the Department of Chemistry and Pharmacy (7 LAB)

Attendance in lab course is compulsory!

Lab Course Catalysis (WS 2017/2018, Praktikum, 7 SWS, Hans-Peter Steinrück et al.)

Lab Course Catalysis (SS 2018, Praktikum, 7 SWS, Hans-Peter Steinrück 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)

[2] **Chemie (Master of Science): 1-3. Semester**
(Po-Vers. 2009 | NatFak | Chemie (Master of Science) | Wahlmodul | Katalyse)

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, 2 examiners (PL)
EX (SL)
EX (SL) LAB (SL)
Grading procedure: Result of the oral examination (100%)
Prüfungssprache: Englisch

Erstablegung: WS 2017/2018, 1. Wdh.: SS 2018
1. Prüfer: Julien Bachmann

Bemerkungen:

Module compatibility: M.Sc. Chemie / M.Sc. Molecular Science (Elective module)
Teaching and examination language: English, except A9 and A10 (both in German!)