Julius-Maximilians-
UNIVERSITÄT
WÜRZBURG

Subdivided Module Catalogue

for the Subject

FOKUS Chemistry

as a Master's with 1 major

with the degree "Master of Science"

(120 ECTS credits)

Examination regulations version: 2016
Responsible: Faculty of Chemistry and Pharmacy

Course of Studies - Contents and Objectives

The Master's program in FOKUS Chemistry is offered by the Faculty of Chemistry and Pharmacy of the JMU as a fundamentally-oriented course with the degree of "Master of Science" (M.Sc.), in the context of a consecutive Bachelor's and Master's degree program.

The Master's course prepares students for scientific as well as doctoral work in chemistry and the eventual award of the degree Dr. rer. nat. The aim of the training is to provide students with in-depth knowledge of scientific work in the research and application of chemistry and the associated basic concepts. Through the education and training of analytical thinking, students should acquire the ability to independently apply the basic knowledge obtained earlier in their Bachelor studies and to transfer it to, and later familiarize themselves with, a wide variety of new tasks.

Through the thesis, students should show that they are able to deal with an experimental or theoretical task in a thematically-limited extent using known methods and from a scientific point of view. The Master's examination intends to determine whether the candidate or the candidate has an overview of the relationships in chemistry, and has the ability to apply the learned scientific methods. It allows the acquisition of an internationally comparable degree in the field of chemistry and provides a professional qualification to prepare for future work in research and development.

Abbreviations used

Course types: **E** = field trip, **K** = colloquium, **O** = conversatorium, **P** = placement/lab course, **R** = project, **S** = seminar, **T** = tutorial, **Ü** = exercise, **V** = lecture

Term: **SS** = summer semester, **WS** = winter semester

Methods of grading: **NUM** = numerical grade, **B/NB** = (not) successfully completed

Regulations: **(L)ASPO** = general academic and examination regulations (for teaching-degree programmes), **FSB** = subject-specific provisions, **SFB** = list of modules

Other: **A** = thesis, **LV** = course(s), **PL** = assessment(s), **TN** = participants, **VL** = prerequisite(s)

Conventions

Unless otherwise stated, courses and assessments will be held in German, assessments will be offered every semester and modules are not creditable for bonus.

Notes

Should there be the option to choose between several methods of assessment, the lecturer will agree with the module coordinator on the method of assessment to be used in the current semester by two weeks after the start of the course at the latest and will communicate this in the customary manner.

Should the module comprise more than one graded assessment, all assessments will be equally weighted, unless otherwise stated below.

Should the assessment comprise several individual assessments, successful completion of the module will require successful completion of all individual assessments.

In accordance with

the general regulations governing the degree subject described in this module catalogue:

ASPO2015

associated official publications (FSB (subject-specific provisions)/SFB (list of modules)):

15-Dec-2015 (2015-258)

This module handbook seeks to render, as accurately as possible, the data that is of statutory relevance according to the examination regulations of the degree subject. However, only the FSB (subject-specific provisions) and SFB (list of modules) in their officially published versions shall be legally binding. In the case of doubt, the provisions on, in particular, module assessments specified in the FSB/SFB shall prevail.

The subject is divided into

Abbreviation	Module title	ECTS credits	Method of grading	page
Compulsory Courses "Additional Qualifications" (10 ECTS credits)				
08-FOM-HOT-161-m01	Advanced discussion of hot topics in contemporary chemical research	5	B/NB	14
08-FOM-TOP-161-m01	Latest topics of current chemical research	5	B/NB	16
Compulsory Electives (80 ECTS credits) Students must successfully complete all modules of a total of four sub-areas worth 20 ECTS credits each; provisions on available combinations are set out in Section 3 Subsection 2 FSB (subject-specific provisions).				
Subfield Inorganic Chemistry (20 ECTS credits)				
08-ACFM1-161-m01	Research oriented inorganic chemistry	12	NUM	5
08-ACFM2-161-m01	Research oriented practical course in inorganic chemistry	8	B/NB	6
Subfield Organic Chemistry (20 ECTS credits)				
08-OCFM1-161-m01	Research oriented organic chemistry	12	NUM	21
08-OCFM2-161-m01	Research oriented practical course in organic chemistry	8	B/NB	22
Subfield Physical Chemistry (20 ECTS credits)				
08-PCFM1-161-m01	Research oriented physical chemistry	12	NUM	23
08-PCFM2-161-m01	Research oriented practical course in physical chemistry	8	B/NB	24
Subfield Biochemistry (20 ECTS credits)				
08-BCFM1-161-m01	Research oriented biochemistry	12	NUM	7
08-BCFM2-161-m01	Research oriented practical course in biochemistry	8	B/NB	8
Subfield Functional Materials (20 ECTS credits)				
08-FMFM1-161-m01	Research oriented course in functional materials	12	NUM	9
08-FMFM2-161-m01	Research oriented practical course in functional materials	8	B/NB	10
Subfield Homogeneous Catalysis (20 ECTS credits)				
08-HKFM1-161-m01	Research oriented course in homogeneous catalysis	12	NUM	17
08-HKFM2-161-m01	Research oriented practical course in homogeneous catalysis	8	B/NB	18
Subfield Medicinal Chemistry (20 ECTS credits)				
08-MCFM1-161-m01	Research oriented pharmaceutical/medicinal chemistry	12	NUM	19
08-MCFM2-161-m01	Research oriented practical course in pharmaceutical/medicinal chemistry	8	B/NB	20
Subfield Supramolecular Chemistry (20 ECTS credits)				
08-SCFM1-161-m01	Research oriented supramolecular chemistry	12	NUM	25
08-SCFM2-161-m01	Research oriented practical course in supramolecular chemistry	8	B/NB	26
Subfield Theoretical Chemistry (20 ECTS credits)				
08-TCFM1-161-m01	Research oriented theoretical chemistry	12	NUM	27
08-TCFM2-161-m01	Research oriented practical course in theoretical chemistry	8	B/NB	28
Subfield Additional Skills (20 ECTS credits)				
08-FOMA-162-m01	Advanced FOKUS Foreign Studies	20	NUM	12
08-FOMI-162-m01	Advanced FOKUS Industrial work experience	20	NUM	15
08-FOMF-162-m01	Advanced FOKUS research lab course	20	NUM	13
Thesis (30 ECTS credits)				
08-FOKUS-MA-161-m01	Master-Thesis FOKUS Chemistry	30	NUM	11

Module title			Abbreviation
Research oriented inorganic chemistry			08-ACFM1-161-m01
Module coordinator		**Module offered by**	
focus point coordinator "Inorganic Chemistry"		Institute of Inorganic Chemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
12	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
	graduate	--	

Contents

Three selected research-based courses exploring advanced topics in inorganic chemistry.

Intended learning outcomes

Students are able to explain and analyse selected research-oriented topics in inorganic chemistry. They are able to situate the topics covered in different courses within a broader context.

Courses (type, number of weekly contact hours, language — if other than German)

S (3) + S (3) + S (3)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

oral examination of one candidate each (approx. 45 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

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Workload

360 h

Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) FOKUS Chemistry (2016)

Module title			Abbreviation
Research oriented practical course in inorganic chemistry			08-ACFM2-161-m01
Module coordinator		**Module offered by**	
focus point coordinator "Inorganic Chemistry"		Institute of Inorganic Chemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
8	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

This module gives students the opportunity to enhance their skills in advanced synthesis and analytical methods in inorganic chemistry. The focus will be on working under inert atmospheres, purification methods, spectral analysis and crystallography. Students will be expected to conduct their work in the lab independently, write a lab report documenting their findings and deliver a presentation.

Intended learning outcomes

Students are able to use advanced synthesis and analytical methods in inorganic chemistry in the lab and to interpret their findings. They are able to write a lab report documenting their findings and deliver a presentation.

Courses (type, number of weekly contact hours, language — if other than German)

P (10)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

report on practical course (approx. 40 pages) and talk including discussion (approx. 30 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

Additional information on module duration: block placement with a duration of approx. 40 working days.
At student's option, the placement may be divided up into two individual placements with a duration of approx. 20 working days each. If the placement is divided up into two individual placements, students will be required to prepare a placement report (approx. 15 pages) and deliver a talk (including discussion, approx. 10 minutes) for each of the placements.

Workload

240 h

Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) FOKUS Chemistry (2016)

Module title			Abbreviation
Research oriented biochemistry			08-BCFM1-161-m01
Module coordinator		**Module offered by**	
focus point coordinator "Biochemistry"		Chair of Biochemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
12	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
	graduate	--	

Contents

Three selected research-based courses exploring advanced topics in biochemistry.

Intended learning outcomes

Students are able to explain and analyse selected research-oriented topics in biochemistry. They are able to situate the topics covered in different courses within a broader context.

Courses (type, number of weekly contact hours, language — if other than German)

S (3) + S (3) + S (3)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

oral examination of one candidate each (approx. 45 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

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Workload

360 h

Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) FOKUS Chemistry (2016)

Module title			Abbreviation
Research oriented practical course in biochemistry			08-BCFM2-161-m01
Module coordinator		**Module offered by**	
focus point coordinator "Biochemistry"		Chair of Biochemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
8	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

This module gives students the opportunity to enhance their skills in advanced synthesis and analytical methods in biochemistry. Students will be expected to conduct their work in the lab independently, write a lab report documenting their findings and deliver a presentation.

Intended learning outcomes

Students are able to use advanced synthesis and analytical methods in biochemistry in the lab and to interpret their findings. They are able to write a lab report documenting their findings and deliver a presentation.

Courses (type, number of weekly contact hours, language — if other than German)

P (10)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

report on practical course (approx. 40 pages) and talk including discussion (approx. 30 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

Additional information on module duration: block placement with a duration of approx. 40 working days.
At student's option, the placement may be divided up into two individual placements with a duration of approx. 20 working days each. If the placement is divided up into two individual placements, students will be required to prepare a placement report (approx. 15 pages) and deliver a talk (including discussion, approx. 10 minutes) for each of the placements.

Workload

240 h

Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) FOKUS Chemistry (2016)

Module title			Abbreviation
Research oriented course in functional materials			08-FMFM1-161-m01
Module coordinator			**Module offered by**
focus point coordinator "Functional Materials"			Chair of Chemical Technology of Material Synthesis
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
12	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
	graduate	--	

Contents

Three selected research-based courses exploring advanced topics in functional materials.

Intended learning outcomes

Students are able to explain and analyse selected research-oriented topics in functional materials. They are able to situate the topics covered in different courses within a broader context.

Courses (type, number of weekly contact hours, language — if other than German)

S (3) + S (3) + S (3)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

oral examination of one candidate each (approx. 45 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

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Workload

360 h

Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) FOKUS Chemistry (2016)

Module title			Abbreviation
Research oriented practical course in functional materials			08-FMFM2-161-m01
Module coordinator		**Module offered by**	
focus point coordinator "Functional Materials"		Chair of Chemical Technology of Material Synthesis	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
8	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

This module gives students the opportunity to enhance their skills in advanced synthesis and analytical methods in functional materials. Students will be expected to conduct their work in the lab independently, write a lab report documenting their findings and deliver a presentation.

Intended learning outcomes

Students are able to use advanced synthesis and analytical methods in materials science in the lab and to interpret their findings. They are able to write a lab report documenting their findings and deliver a presentation.

Courses (type, number of weekly contact hours, language — if other than German)

P (10)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

report on practical course (approx. 40 pages) and talk including discussion (approx. 30 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

Additional information on module duration: block placement with a duration of approx. 40 working days.
At student's option, the placement may be divided up into two individual placements with a duration of approx. 20 working days each. If the placement is divided up into two individual placements, students will be required to prepare a placement report (approx. 15 pages) and deliver a talk (including discussion, approx. 10 minutes) for each of the placements.

Workload

240 h

Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) FOKUS Chemistry (2016)

Module title			Abbreviation
Master-Thesis FOKUS Chemistry			08-FOKUS-MA-161-m01
Module coordinator		**Module offered by**	
head of the research group offering the module		Faculty of Chemistry and Pharmacy	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
30	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	Where applicable, specific modules as specified by supervisor.	

Contents

Researching and writing on a defined problem within a given time frame and adhering to the principles of good scientific practice.

Intended learning outcomes

Students are able to conduct research on a defined topic/problem, adhering to the principles of good scientific practice, and to present the results of their work in written form.

Courses (type, number of weekly contact hours, language — if other than German)

No courses assigned to module

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

Master's thesis (approx. 60 to 80 pages)
Language of assessment: English

Allocation of places

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Additional information

Time to complete: 6 months.

Workload

900 h

Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) FOKUS Chemistry (2016)

Module title			Abbreviation
Advanced FOKUS Foreign Studies			08-FOMA-162-m01
Module coordinator			**Module offered by**
degree programme coordinator FOKUS Chemie (Chemistry)			Faculty of Chemistry and Pharmacy
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
20	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	A supervisor from the Faculty, who must be an authorised examiner, is to be chosen prior to the placement.	

Contents

A placement in industry. The contents of the placement should correspond to the contents of a lab course offered in the context of the Bachelor's programme in Chemistry (180 ECTS credits); please consult with the competent coordinator in advance.

Intended learning outcomes

Students are familiar with procedures and processes used in industry. They have acquired subject-specific skills as well as language and interpersonal skills.

Courses (type, number of weekly contact hours, language — if other than German)

P (0)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

report on practical course (approx. 30 pages) and talk including discussion (approx. 20 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

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Workload

600 h

Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) FOKUS Chemistry (2016)

Module title			Abbreviation
Advanced FOKUS research lab course			08-FOMF-162-m01
Module coordinator			**Module offered by**
degree programme coordinator FOKUS Chemie (Chemistry)			Faculty of Chemistry and Pharmacy
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
20	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

This module gives students the opportunity to explore a research topic and apply the methods commonly used in the discipline in question.

Intended learning outcomes

Students are able to explore a specific research topic and present the results of their work in a written report or oral presentation.

Courses (type, number of weekly contact hours, language — if other than German)

P (0)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

report on practical course (approx. 30 pages) and talk including discussion (approx. 20 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

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Workload

600 h

Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) FOKUS Chemistry (2016)

Module title			Abbreviation
Advanced discussion of hot topics in contemporary chemical research			08-FOM-HOT-161-m01
Module coordinator			**Module offered by**
degree programme coordinator FOKUS Chemie (Chemistry)			Faculty of Chemistry and Pharmacy
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

This module gives students the opportunity to explore a hot topic in chemical research in depth, deliver a presentation on that topic that is tailored to their audience as well as to engage in discussion of that topic.

Intended learning outcomes

Students have developed the ability to explore hot topics in chemical research, gather information, find and review relevant literature as well as to prepare and deliver presentations on those topics that are tailored to their audience.

Courses (type, number of weekly contact hours, language — if other than German)

S (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

talk (approx. 15 minutes) with discussion (approx. 15 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) FOKUS Chemistry (2016)

Module title			Abbreviation
Advanced FOKUS Industrial work experience			08-FOMI-162-m01
Module coordinator		**Module offered by**	
degree programme coordinator FOKUS Chemie (Chemistry)		Faculty of Chemistry and Pharmacy	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
20	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	A supervisor from the Faculty, who must be an authorised examiner, is to be chosen prior to the placement.	

Contents

A placement in industry. The contents of the placement should correspond to the contents of a lab course offered in the context of the Master's programme in Chemistry (120 ECTS credits); please consult with the competent coordinator in advance.

Intended learning outcomes

Students are familiar with procedures and processes used in industry. They have developed both subject-specific and interpersonal skills.

Courses (type, number of weekly contact hours, language — if other than German)

P (0)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

report on practical course (approx. 30 pages) and talk including discussion (approx. 20 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

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Workload

600 h

Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) FOKUS Chemistry (2016)

Module title			Abbreviation
Latest topics of current chemical research			08-FOM-TOP-161-m01
Module coordinator		**Module offered by**	
degree programme coordinator FOKUS Chemie (Chemistry)		Faculty of Chemistry and Pharmacy	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

This module gives students the opportunity to explore a topical issue in chemical research in depth, deliver a presentation on that issue that is tailored to their audience as well as to engage in discussion of that issue.

Intended learning outcomes

Students have developed the ability to read and understand scientific literature as well as to deliver presentations on what they have read that are tailored to their audience.

Courses (type, number of weekly contact hours, language — if other than German)

S (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

talk (approx. 15 minutes) with discussion (approx. 15 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) FOKUS Chemistry (2016)

Module title			Abbreviation
Research oriented course in homogeneous catalysis			08-HKFM1-161-m01
Module coordinator		**Module offered by**	
focus point coordinator "Homogeneous Catalysis"		Faculty of Chemistry and Pharmacy	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
12	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
	graduate	--	

Contents

Three selected research-based courses exploring advanced topics in homogeneous catalysis.

Intended learning outcomes

Students are able to explain and analyse selected research-oriented topics in homogeneous catalysis. They are able to situate the topics covered in different courses within a broader context.

Courses (type, number of weekly contact hours, language — if other than German)

S (3) + S (3) + S (3)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

oral examination of one candidate each (approx. 45 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

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Workload

360 h

Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) FOKUS Chemistry (2016)

Module title			Abbreviation
Research oriented practical course in homogeneous catalysis			08-HKFM2-161-m01
Module coordinator		**Module offered by**	
focus point coordinator "Homogeneous Catalysis"		Faculty of Chemistry and Pharmacy	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
8	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

This module gives students the opportunity to enhance their skills in advanced synthesis and analytical methods in homogeneous catalysis. Students will be expected to conduct their work in the lab independently, write a lab report documenting their findings and deliver a presentation.

Intended learning outcomes

Students are able to use advanced synthesis and analytical methods in homogeneous catalysis in the lab and to interpret their findings. They are able to write a lab report documenting their findings and deliver a presentation.

Courses (type, number of weekly contact hours, language — if other than German)

P (10)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

report on practical course (approx. 40 pages) and talk including discussion (approx. 30 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

Additional information on module duration: block placement with a duration of approx. 40 working days.
At student's option, the placement may be divided up into two individual placements with a duration of approx. 20 working days each. If the placement is divided up into two individual placements, students will be required to prepare a placement report (approx. 15 pages) and deliver a talk (including discussion, approx. 10 minutes) for each of the placements.

Workload

240 h

Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) FOKUS Chemistry (2016)

Module title			Abbreviation
Research oriented pharmaceutical/medicinal chemistry			08-MCFM1-161-m01
Module coordinator			**Module offered by**
focus point coordinator "Medicinal Chemistry"			Institute of Pharmacy and Food Chemistry
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
12	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
	graduate	--	

Contents

Three selected research-based courses exploring advanced topics in medicinal chemistry.

Intended learning outcomes

Students are able to explain and analyse selected research-oriented topics in medicinal chemistry. They are able to situate the topics covered in different courses within a broader context.

Courses (type, number of weekly contact hours, language — if other than German)

S (3) + S (3) + S (3)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

oral examination of one candidate each (approx. 45 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

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Workload

360 h

Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) FOKUS Chemistry (2016)

Module title			Abbreviation
Research oriented practical course in pharmaceutical/medicinal chemistry			08-MCFM2-161-m01
Module coordinator		**Module offered by**	
focus point coordinator "Medicinal Chemistry"		Institute of Pharmacy and Food Chemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
8	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

This module gives students the opportunity to enhance their skills in advanced techniques and methods in medicinal chemistry. Students will be expected to conduct their work in the lab independently, write a lab report documenting their findings and deliver a presentation.

Intended learning outcomes

Students are able to use advanced techniques in medicinal chemistry and to interpret their findings. They are able to write a lab report documenting their findings and deliver a presentation.

Courses (type, number of weekly contact hours, language — if other than German)

P (10)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

report on practical course (approx. 40 pages) and talk including discussion (approx. 30 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

Additional information on module duration: block placement with a duration of approx. 40 working days.
At student's option, the placement may be divided up into two individual placements with a duration of approx. 20 working days each. If the placement is divided up into two individual placements, students will be required to prepare a placement report (approx. 15 pages) and deliver a talk (including discussion, approx. 10 minutes) for each of the placements.

Workload

240 h

Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) FOKUS Chemistry (2016)

Module title			Abbreviation
Research oriented organic chemistry			08-OCFM1-161-m01
Module coordinator		**Module offered by**	
focus point coordinator "Organic Chemistry"		Institute of Organic Chemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
12	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
	graduate	--	

Contents

Three selected research-based courses exploring advanced topics in organic chemistry.

Intended learning outcomes

Students are able to explain and analyse selected research-oriented topics in organic chemistry. They are able to situate the topics covered in different courses within a broader context.

Courses (type, number of weekly contact hours, language — if other than German)

S (3) + S (3) + S (3)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

oral examination of one candidate each (approx. 45 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

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Workload

360 h

Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) FOKUS Chemistry (2016)

Module title			Abbreviation
Research oriented practical course in organic chemistry			08-OCFM2-161-m01
Module coordinator		**Module offered by**	
focus point coordinator "Organic Chemistry"		Institute of Organic Chemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
8	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

This module gives students the opportunity to enhance their skills in advanced synthesis and analytical methods in organic chemistry. Students will be expected to conduct their work in the lab independently, write a lab report documenting their findings and deliver a presentation.

Intended learning outcomes

Students are able to use advanced synthesis and analytical methods in organic chemistry in the lab and to interpret their findings. They are able to write a lab report documenting their findings and deliver a presentation.

Courses (type, number of weekly contact hours, language — if other than German)

P (10)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

report on practical course (approx. 40 pages) and talk including discussion (approx. 30 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

Additional information on module duration: block placement with a duration of approx. 40 working days.
At student's option, the placement may be divided up into two individual placements with a duration of approx. 20 working days each. If the placement is divided up into two individual placements, students will be required to prepare a placement report (approx. 15 pages) and deliver a talk (including discussion, approx. 10 minutes) for each of the placements.

Workload

240 h

Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) FOKUS Chemistry (2016)

Module title			Abbreviation
Research oriented physical chemistry			08-PCFM1-161-m01
Module coordinator		**Module offered by**	
focus point coordinator "Physical Chemistry"		Institute of Physical and Theoretical Chemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
12	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
	graduate	--	

Contents

Three selected research-based courses exploring advanced topics in physical chemistry.

Intended learning outcomes

Students are able to explain and analyse selected research-oriented topics in physical chemistry. They are able to situate the topics covered in different courses within a broader context.

Courses (type, number of weekly contact hours, language — if other than German)

S (3) + S (3) + S (3)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

oral examination of one candidate each (approx. 45 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

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Workload

360 h

Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) FOKUS Chemistry (2016)

Module title			Abbreviation
Research oriented practical course in physical chemistry			08-PCFM2-161-m01
Module coordinator		**Module offered by**	
focus point coordinator "Physical Chemistry"		Institute of Physical and Theoretical Chemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
8	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

This module gives students the opportunity to enhance their skills in advanced techniques and methods in physical chemistry. Students will be expected to conduct their work in the lab independently, write a lab report documenting their findings and deliver a presentation.

Intended learning outcomes

Students are able to use advanced techniques in physical chemistry and to interpret their findings. They are able to write a lab report documenting their findings and deliver a presentation.

Courses (type, number of weekly contact hours, language — if other than German)

P (10)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

report on practical course (approx. 40 pages) and talk including discussion (approx. 30 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

Additional information on module duration: block placement with a duration of approx. 40 working days.
At student's option, the placement may be divided up into two individual placements with a duration of approx. 20 working days each. If the placement is divided up into two individual placements, students will be required to prepare a placement report (approx. 15 pages) and deliver a talk (including discussion, approx. 10 minutes) for each of the placements.

Workload

240 h

Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) FOKUS Chemistry (2016)

Module title			Abbreviation
Research oriented supramolecular chemistry			08-SCFM1-161-m01
Module coordinator		**Module offered by**	
focus point coordinator "Supramolecular Chemistry"		Faculty of Chemistry and Pharmacy	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
12	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
	graduate	--	

Contents

Three selected research-based courses exploring advanced topics in supramolecular chemistry.

Intended learning outcomes

Students are able to explain and analyse selected research-oriented topics in supramolecular chemistry. They are able to situate the topics covered in different courses within a broader context.

Courses (type, number of weekly contact hours, language — if other than German)

S (3) + S (3) + S (3)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

oral examination of one candidate each (approx. 45 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

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Workload

360 h

Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) FOKUS Chemistry (2016)

Module title			Abbreviation
Research oriented practical course in supramolecular chemistry			08-SCFM2-161-m01
Module coordinator		**Module offered by**	
focus point coordinator "Supramolecular Chemistry"		Faculty of Chemistry and Pharmacy	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
8	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

This module gives students the opportunity to enhance their skills in advanced synthesis and analytical methods in supramolecular chemistry. Students will be expected to conduct their work in the lab independently, write a lab report documenting their findings and deliver a presentation.

Intended learning outcomes

Students are able to use advanced synthesis and analytical methods in supramolecular chemistry in the lab and to interpret their findings. They are able to write a lab report documenting their findings and deliver a presentation.

Courses (type, number of weekly contact hours, language — if other than German)

P (10)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

report on practical course (approx. 40 pages) and talk including discussion (approx. 30 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

Additional information on module duration: block placement with a duration of approx. 40 working days.
At student's option, the placement may be divided up into two individual placements with a duration of approx. 20 working days each. If the placement is divided up into two individual placements, students will be required to prepare a placement report (approx. 15 pages) and deliver a talk (including discussion, approx. 10 minutes) for each of the placements.

Workload

240 h

Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) FOKUS Chemistry (2016)

Module title			Abbreviation
Research oriented theoretical chemistry			08-TCFM1-161-m01
Module coordinator		**Module offered by**	
focus point coordinator "Theoretical Chemistry"		Institute of Physical and Theoretical Chemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
12	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
	graduate	--	

Contents

Three selected research-based courses exploring advanced topics in theoretical chemistry.

Intended learning outcomes

Students are able to explain and analyse selected research-oriented topics in theoretical chemistry. They are able to situate the topics covered in different courses within a broader context.

Courses (type, number of weekly contact hours, language — if other than German)

S (3) + S (3) + S (3)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

oral examination of one candidate each (approx. 45 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

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Workload

360 h

Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) FOKUS Chemistry (2016)

Module title			Abbreviation
Research oriented practical course in theoretical chemistry			08-TCFM2-161-m01
Module coordinator		**Module offered by**	
focus point coordinator "Theoretical Chemistry"		Institute of Physical and Theoretical Chemistry	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
8	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

This module gives students the opportunity to enhance their skills in advanced methods in theoretical chemistry. Students will be expected to conduct their work in the lab independently, write a lab report documenting their findings and deliver a presentation.

Intended learning outcomes

Students are able to use advanced methods in theoretical chemistry and to interpret their findings. They are able to write a lab report documenting their findings and deliver a presentation.

Courses (type, number of weekly contact hours, language — if other than German)

P (10)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

report on practical course (approx. 40 pages) and talk including discussion (approx. 30 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

Additional information on module duration: block placement with a duration of approx. 40 working days.
At student's option, the placement may be divided up into two individual placements with a duration of approx. 20 working days each. If the placement is divided up into two individual placements, students will be required to prepare a placement report (approx. 15 pages) and deliver a talk (including discussion, approx. 10 minutes) for each of the placements.

Workload

240 h

Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) FOKUS Chemistry (2016)