

# Lectures, seminars and lab courses

Please note that the **yellow highlighted** lab courses cannot be visited at the same time.

event nr.	event	description	mode	duration	examination	contact person	precondition	ECTS
07460010 / 07460420	<p><b>Chemie I für Pharmazeuten und Lebensmittelchemiker (Allgemeine und analytische Chemie der anorganischen Arznei-, Hilfs- und Schadstoffe)<sup>1</sup></b></p> <p>Chemistry I for Pharmacists and food chemists (general and analytical chemistry of inorganic medicinal, excipients and pollutants)<sup>1</sup></p> <p><b>Seminar zur Toxikologie der Hilfs- und Schadstoffe<sup>1</sup></b></p> <p>Seminar on the toxicology of excipients and pollutants<sup>1</sup></p>	Basics of general chemistry and inorganic chemistry	lecture and seminar	1 semester <sup>2</sup> (SWS <sup>3</sup> = 5)	written <sup>1,4</sup>	Prof. Dr. Sottriffer	-	6
07460400	<p><b>Praktikum der allgemeinen und analytischen Chemie der anorganischen Arznei-, Hilfs- und Schadstoffe (unter Einbeziehung von Arzneibuch-Methoden) und Seminar)<sup>1</sup></b></p> <p><b>Lab course:</b> general and analytical chemistry of inorganic medicines, excipients and pollutants (including methods of the European Pharmacopoeia) and seminar)<sup>1</sup></p>	<p>Basics of general chemistry and classical qualitative inorganic chemistry</p> <p>PLEASE NOTE: the lab course is only available if there are enough empty spaces</p>	lab course	1 semester <sup>2</sup> (164 h)	oral <sup>1,4</sup>	Prof. Dr. Sottriffer	-	10
07460020	<b>Quantitative Anorganische Chemie<sup>1</sup></b>	Basics of classical quantitative inorganic chemistry		1 semester <sup>2</sup> (SWS <sup>3</sup> = 5)	written <sup>1,4</sup>	Dr. Schmitz	Basics of general chemistry and inorganic qualitative chemistry	6

	Quantitative Inorganic chemistry <sup>1</sup>							
07460430	<p><b>Praktikum der quantitativen Bestimmung von Arznei-, Hilfs- und Schadstoffen (unter Einbeziehung von Arzneibuch-Methoden)</b><sup>1</sup></p> <p>lab course: quantitative determination of inorganic drugs, excipients and pollutants (including methods of the European Pharmacopoeia)<sup>1</sup></p>	<p>Basics of classical quantitative inorganic chemistry.</p> <p>PLEASE NOTE: the lab course is only available if there are enough empty spaces</p>	lab course	1 semester <sup>2</sup> (140 h)	oral <sup>1,4</sup>	Dr. Schmitz	Basics of general chemistry and inorganic qualitative chemistry	9
07460480	<p><b>Seminar zur Stereochemie für Pharmazeuten und Lebensmittelchemiker</b><sup>1</sup></p> <p>Seminar on stereochemistry for pharmacists and food chemists<sup>1</sup></p>	Basics in stereochemistry.	lecture	1 semester <sup>2</sup> (SWS <sup>3</sup> = 1.5)	written <sup>1,4</sup>	Dr. Schmitz	-	2
07460490	<p><b>Seminar zur Nomenklatur in der Organischen und Pharmazeutischen Chemie für Pharmazeuten und Lebensmittelchemiker</b><sup>1</sup></p> <p>Seminar on the nomenclature in organic and pharmaceutical chemistry for pharmacists and food chemists<sup>1</sup></p>	Basics in IUPAC nomenclature of organic compounds.	lecture	1 semester <sup>2</sup> (SWS <sup>3</sup> = 1.5)	written <sup>1,4</sup>	Dr. Schmitz	-	2
07460050	<p><b>Chemie II für Pharmazeuten (Organische Arzneistoffe) und Organische Chemie für Lebensmittelchemiker</b><sup>1</sup></p> <p>Chemistry II for Pharmacists (organic drugs) and organic</p>	Basics of organic chemistry.	lecture	1 semester <sup>2</sup> (SWS <sup>3</sup> = 4)	written <sup>1,4</sup>	Prof. Dr. Decker	-	5

	chemistry for food chemists <sup>1</sup>							
07460460	<b>Praktikum der Chemie einschl. der Analytik der organischen Arznei-, Hilfs- und Schadstoffe<sup>1</sup></b>  Lab course: chemistry incl. analysis of organic compounds, excipients and pollutants <sup>1</sup>	Basics of organic chemistry.  PLEASE NOTE: the lab course is only available if there are enough empty spaces	lab course	1 semester <sup>2</sup> (168 h)	oral <sup>1,4</sup>	Prof. Dr. Decker	Basics of general chemistry and inorganic qualitative chemistry	11
07460060	<b>Einführung in die Instrumentelle Analytik<sup>1</sup></b>  Introduction to instrumental analytics <sup>1</sup>	Basic principles of instrumental analytics (DC, HPLC, GC, UV, NMR, UV, electrochemistry, fluorimetry, IR, etc.)	lecture	1 semester <sup>2</sup> (SWS <sup>3</sup> = 4)	oral <sup>1,4</sup> (30 min)	Dr. Scholl-mayer	knowledge in: - qualification and quantification of drugs - physics and mathematics	5
07460500	<b>Praktikum Instrumentelle Analytik<sup>1</sup></b>  lab course: instrumental analytics <sup>1</sup>	Basic principles of instrumental analytics (DC, HPLC, GC, UV, NMR, UV, electrochemistry, fluorimetry, IR, etc.)  PLEASE NOTE: the lab course is only available if there are enough empty spaces	lab course	1 semester <sup>2</sup> (196 h)	written <sup>1,4</sup> (120 min)	Dr. Scholl-mayer	knowledge in: - qualification and quantification of drugs - physics and mathematics	13
07460080	<b>Pharmazeutische/ Medizinische Chemie II (Organische Analytik)</b>  Pharmaceutical/Medicinal Chemistry II (analysis of organic compounds)	Classical qualitative and quantitative analysis of organic compounds	lecture	1 semester <sup>2</sup> (SWS <sup>3</sup> = 2)	oral <sup>1,4</sup> (30 min)	Dr. Schmitz	knowledge in: - qualification and quantification of inorganic drugs - basics in organic chemistry	3
07460140	<b>Pharmazeutische Chemie II: Reaktivität und Stabilität von Arzneistoffen, Arzneibuchanalytik<sup>1</sup></b>  Pharmaceutical Chemistry II: reactivity and stability of drugs, drug analysis according to the European Pharmacopoeia <sup>1</sup>	identification, limit tests, and quantification of drugs according to the European Pharmacopoeia; stability of drugs	lecture	1 semester <sup>2</sup> (SWS <sup>3</sup> = 2)	oral <sup>1,4</sup> (30 min)	Dr. Schmitz	knowledge in: - qualification and quantification of drugs - organic drug syntheses and analytics - basic principles of instrumental analysis (DC, GC, HPLC, UV-VIS, IR, NMR)	3

07460600	<b>Praktikum Pharmazeutische Chemie II (Arzneibuchuntersuchungen)<sup>1</sup></b>  lab course: drug analysis according to the European Pharmacopoeia <sup>1</sup>	identification, limit tests, and quantification of drugs according to the European Pharmacopoeia; stability of drugs  PLEASE NOTE: the lab course is only available if there are enough empty spaces	lab course	1 semester <sup>2</sup> (112 h)	written <sup>1</sup> (3h)	Dr. Schmitz	knowledge in: - qualification and quantification of drugs - organic drug syntheses - basic principles of instrumental analysis (DC, GC, HPLC, UV-VIS, IR, NMR)	8
07460190	<b>Pharmazeutische Chemie III: Physikalisch-chemische Eigenschaften von Arzneistoffen, Trennung von Stoffgemischen, Arzneimittelanalytik und Metabolismus<sup>1</sup></b>  Pharmaceutical Chemistry III: Physicochemical properties of drugs, separation of mixtures, drug analysis and metabolism <sup>1</sup>	Identification and quantification of drugs in medicinal/drug products using wet chemistry and instrumental analysis (HPLC, CE, MS)	lecture	1 semester <sup>2</sup> (SWS <sup>3</sup> = 2)	oral <sup>1,4</sup> (30 min)	Dr. Schmitz	knowledge in: - qualification and quantification of drugs - organic drug syntheses and analytics - basic principals of instrumental analysis (DC, GC, HPLC, UV-VIS, IR, NMR) - drug analysis according to the European Pharmacopoeia	3
07460660	<b>Praktikum Pharmazeutische Chemie III<sup>1</sup></b>  lab course: medicinal chemistry III <sup>1</sup>	identification and quantification of drugs, development of analytical methods (HPLC, CE, UV-VIS)  PLEASE NOTE: the lab course is only available if there are enough empty spaces	lab course	1 semester <sup>2</sup> (168 h)	written <sup>1</sup> (2h)	Dr. Schmitz	knowledge in: - qualification and quantification of drugs - organic drug syntheses and analytics - basic principles of instrumental analysis (DC, GC, HPLC, UV-VIS, IR, NMR) - drug analysis according to the European Pharmacopoeia	12
07460070	<b>Pharmazeutische/ Medizinische Chemie III<sup>1</sup></b> Medicinal chemistry III <sup>1</sup>	Drugs: synthesis and analysis, chemical and physicochemical properties, mode of action, structure activity relationships, metabolism	lecture	4 semesters <sup>2</sup>  (SWS <sup>3</sup> = 3)	oral <sup>1,4</sup> (30 min)	Prof. Dr. Holzgrave	knowledge in: - qualification and quantification of drugs - organic drug syntheses - basic principles of instrumental analysis (DC, GC, HPLC, UV-VIS, IR, NMR)	16 (4 per semester)
07460120/ 07460550	<b>Grundlagen der Klinischen Chemie einschließlich Pathobiochemie und Krankheitslehre<sup>1</sup></b>	Course with emphasis on clinical chemistry and interpreting clinical lab data  PLEASE NOTE: the lab course	lecture and lab course	1 semester <sup>2</sup>  Lectures	written <sup>1,4</sup> (homework assignment)	Prof. Dr. Högger	knowledge in: - physiology - anatomy	4 (3 without lab course)

	Clinical chemistry, pathophysiology and pathology <sup>1</sup> <b>Praktikum Biochemische Untersuchungsverfahren und Klinische Chemie<sup>1</sup></b> Biochemical analysis and clinical chemistry <sup>1</sup>	is only available if there are enough empty spaces		(SWS <sup>3</sup> = 3) <b>Lab course (SWS<sup>3</sup> = 1)</b>			- basic biochemistry - basic chemistry - mathematics - basic principles of instrumental analysis	
07460090/ 07460550	<b>Biochemie und Molekularbiologie<sup>1</sup></b> Biochemistry and molecular biology <sup>1</sup> <b>Praktikum Biochemische Untersuchungsverfahren und Klinische Chemie<sup>1</sup></b> Biochemical analysis and clinical chemistry <sup>1</sup>	Course with emphasis on biochemistry and molecular biology  PLEASE NOTE: the lab course is only available if there are enough empty spaces	lecture and <b>lab course</b>	1 semester <sup>2</sup>  Lectures (SWS <sup>3</sup> = 2) <b>Lab course (SWS<sup>3</sup> = 1)</b>	written <sup>1,4</sup> (homework assignment)	Prof. Dr. Högger	knowledge in: - physiology - anatomy - basic biochemistry - basic principles of instrumental analysis	3 (2 without lab course)
<b>07460110</b>	<b>Klinische Pharmazie<sup>1</sup></b> <b>Clinical pharmacy<sup>1</sup></b>	Evaluation of clinical studies, clinical pharmacokinetics, therapeutic drug monitoring, pharmaceutical care, clinical nutrition, drug information, needs of special patient groups: newborns and children, pregnant women, senior patients, oncology patients	lecture and seminars	2 semesters <sup>2</sup>  (SWS <sup>3</sup> = 2 x 3)	written <sup>1,4</sup> (homework assignment)	Prof. Dr. Högger	knowledge in: - physiology - pathophysiology - anatomy	6 (3 if course is taken over one semester only)
07460170	<b>Pharmakoepidemiologie<sup>1</sup></b> Pharmacoepidemiology <sup>1</sup>	Basics of pharmacoepidemiology, study designs in pharmacoepidemiology	lecture	1 semester <sup>2</sup> (SWS <sup>3</sup> = 1) <b>only in winter periods</b>	written <sup>1,4</sup> (homework assignment)	Prof. Dr. Högger	knowledge in: - mathematics	1
07460100	<b>Biotransformation von Arzneistoffen und Pharmakogenetik<sup>1</sup></b> Drug metabolism and pharmacogenetics <sup>1</sup>	Basics of drug metabolism and pharmacogenetics	seminar	1 semester <sup>2</sup> (SWS <sup>3</sup> = 1) <b>only in summer periods</b>	oral <sup>1,4</sup> (30 min)	Dr. Schmitz	knowledge in: - biochemistry - basics of medicinal chemistry	1
03531400 / 03531500 / 03531600	<b>Pharmakologie, Toxikologie und Pharmakologisch-toxikologischer Demonstrationskurs I+II<sup>1</sup></b>	Pharmacology and toxicology of drugs	lecture and lab course	2 semester <sup>2</sup> (SWS <sup>3</sup> = 2x5)	oral <sup>1,4</sup> (30 min)	Prof. Dr. Gohla	knowledge in: - anatomy - physiology - biochemistry	10 (5 if course is taken over one semester only)

	Pharmacology, toxicology and lab course in pharmacology and toxicology I + II <sup>1</sup>							
07460040	<b>Grundlagen der Arzneiformenlehre</b> Basics of pharmaceutical technology and production of pharmaceutical dosage formulations	Fundamentals and basic concepts of pharmaceutical laws (AMG) and regulations (ApBetrO).  Principles in production and quality testing of simple pharmaceutical dosage forms on the recipe scale (liquid, semi-solid, solid, herbal, homeopathic).  Function of pharmaceutical excipients when used in formulations.  Therapeutic use of dosage forms (application, dosage, maximum doses).	lecture	1 semester <sup>2</sup> (SWS <sup>3</sup> = 3)	written or oral <sup>1,4</sup>	Dr. Zügner	Basic knowledge in scientific facts (on high school level), esp.:  - mathematics  - physics  - chemistry  - biology	5
07460450	<b>Praktikum Arzneiformenlehre I</b>  lab course: drug formulation and delivery I	Basic knowledge of GMP, hygiene strategies and occupational safety in the production of dosage forms.  Pharmaceutical-technological unit operations for the production and testing of pharmaceutical dosage forms.  Quality control (identity, in-process controls, final checks).  PLEASE NOTE: the lab course is only available if there are enough empty spaces	lab course	1 semester <sup>2</sup> (70 h)	Practical examination <sup>1,4</sup>	Dr. Zügner	Basic knowledge in scientific facts (on high school level), esp.:  - mathematics  - physics  - chemistry  Quality awareness regarding accuracy and cleanliness (GMP, hygienic standards)	5
07460650	<b>Praktikum Arzneiformenlehre II</b>  lab course: drug formulation and delivery II	Development, production and quality assurance of (industrial) drug forms and medical devices in batches up to pilot scale.  Special focus on: <ul style="list-style-type: none"><li>• Granulation and coating</li><li>• Controlled drug delivery</li><li>• Drug targeting</li><li>• Aseptic / sterile dosage forms</li><li>• Protein formulations</li></ul>	lab course	1 semester <sup>2</sup> (196 h)	written and/or oral <sup>1,4</sup>	Dr. Zügner	<b>Praktikum Arzneiformenlehre I</b>  Practical course in drug formulation and delivery I  Quality awareness regarding accuracy and cleanliness (GMP, hygienic standards)  Basics in lab safety	13

		<ul style="list-style-type: none"> <li>• Biopharmacy</li> <li>• Design of experiments</li> <li>• Stability (physical, chemical, microbial, thermodynamic)</li> </ul> <p>Project planning and development of solutions to selected scientific problems in small projects.</p> <p>PLEASE NOTE: the lab course is only available if there are enough empty spaces</p>					<p>Basic technical skills</p> <p>Teamwork (course organized in small groups)</p>	
07460620 / 07460630	<p><b>Seminar: Biopharmazie einschließlich arzneiformbezogener Pharmakokinetik</b></p> <p>Biopharmacy including drug-related pharmacokinetics</p> <p><b>Seminar: Qualitätssicherung bei der Herstellung und Prüfung von Arzneimitteln</b></p> <p>Quality assurance in the production and testing of drugs</p>	<p>Advanced knowledge of biopharmaceutical, pharmacokinetic and pharmacodynamic aspects in the use of medicinal products.</p> <p>In-depth consideration of mathematical-statistical, thermodynamic and physical relationships in the drug forms discussed.</p> <p>Quality assurance and quality control mechanisms.</p>	seminar	1 semester <sup>2</sup> (SWS <sup>3</sup> = 3)	oral presentation <sup>1,4</sup>	Dr. Zügner	<p>Knowledge in:</p> <ul style="list-style-type: none"> <li>- basics of pharmaceutical technology and production of pharmaceutical dosage formulations</li> <li>- basics of pharmacokinetics and biopharmacy</li> </ul>	2
07460070	<p><b>Pharmazeutische Technologie II einschließlich Medizinprodukte<sup>1</sup></b></p> <p>Pharmaceutical Technology II including medical devices<sup>1</sup></p>	<p>Introduction in sophisticated methods and high-tech devices besides the conventional methods. Practical education is composed of modules: solid dosage forms, disperse dosage forms and sterile dosage forms and biopharmaceutical testing of drug delivery systems.</p> <p>Drug targeting by use of pharmaceutical-technological excipients and / or unit operations.</p> <p>Application of pharmaceutical-technological and biopharmaceutical analysis methods.</p>	lecture	3 semesters <sup>2</sup> (SWS <sup>3</sup> = 4)	oral <sup>1,4</sup> (30 min)	Dr. Zügner	<p>Advanced knowledge in:</p> <ul style="list-style-type: none"> <li>- mathematics</li> <li>- physics</li> <li>- physical chemistry</li> </ul> <p>Basics of pharmaceutical technology and production of pharmaceutical dosage formulations</p>	12 (4 per semester)



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- 1: in German
  - 2: 1 semester: 14 weeks
  - 3: SWS: semester periods per week (each 45 min)
  - 4: in English