

Courses in Pharmacy at the TU Braunschweig A1:J18										
A	B	C	D	E	F	G	H	I	J	
Modul	ECTS total	Title and type of the individual courses V: Lecture (Vorlesung); P: Practical course with seminar; S: Seminar; Ü: Exercise (Übung); T: Tutorial	Cycle and semester* (Fachsemester, FS) of the course	important information about the course	ECTS of the course	Semester hours per week (SWS)		Total number of hours	Hours per ECTS	
						Presence	Self-study			
Modul 1	14	Chemie für Pharmazeuten (V) (<i>Pharmaceutical chemistry I</i>)	every semester (FS 1)		4	3 SWS	6 SWS	428,4 h	30,6 h	
		Allgemeine und analytische Chemie der anorganischen Arznei-, Hilfs- und Schadstoffe (unter Einbeziehung von Arzneibuch-Methoden) (P) (<i>practical course "General and inorganic chemistry of drugs, excipients and contaminants"</i>)	every semester(FS 1)		10	9,6 SWS (P) 2,4 SWS (S)	4,8 SWS (P) 4,8 SWS (S)			
Modul 2	16	Chemie für Pharmazeuten (V) (<i>Chemistry for pharmacists II</i>)	every semester (FS 3)		2	2 SWS	4 SWS	470,4 h	29,4 h	
		Stereochemie (S) (<i>Stereochemistry</i>)	every semester (FS 3)		2	1 SWS	2 SWS			
		Chemische Nomenklatur (S) (<i>Chemical nomenclature</i>)	every semester (FS 2)		2	1 SWS	2 SWS			
		Chemie einschließlich der Analytik der organischen Arznei-, Hilfs- und Schadstoffe (P) (<i>practical course "Chemistry and analysis of organic drugs, excipients and contaminants"</i>)	every semester (FS 3)		10	9,6 SWS (P) 2,4 SWS (S)	4,8 SWS (P) 4,8 SWS (S)			
Modul 3	13	Pharmazeutische/medizinische Chemie: Quantitative Analytik (V) / <i>Pharmaceutical/medicinal chemistry</i>	every semester (FS 2)		3	2 SWS	4 SWS	378 h	29,1 h	
		Pharmazeutische/medizinische Chemie: Organische Stoffklassen (V) / <i>Pharmaceutical/medicinal chemistry</i>	every semester (FS 2)		2	1 SWS	2 SWS			
		Quantitative Bestimmung von Arznei-, Hilfs- und Schadstoffen (P) (<i>practical course "Quantitative analysis of drugs, excipients and contaminants"</i>)	every semester (FS 2)		8	8 SWS (P) 2 SWS (S)	4 SWS (P) 4 SWS (S)			
Modul 4	14	Instrumentelle Analytik (V) (<i>Introduction to instrumental analysis</i>)	every semester (FS 3;4)		4	3 SWS	6 SWS	428,4 h	30,6	
		Instrumentelle Analytik (P) (<i>practical course "Instrumental analysis"</i>)	every semester (FS 4)		10	9,6 SWS (P) 2,4 SWS (S)	4,8 SWS (P) 4,8 SWS (S)			
Modul 5	6	Pharmazeutische und medizinische Terminologie (V, T) (<i>Pharmaceutical and medicinal terminology</i>)	every semester (FS 1)		3	1 SWS mandatory (V) 1 SWS optional (T)	2 SWS (V) 2 SWS (T)	168 h	28 h	
		Geschichte der Naturwissenschaften unter besonderer Berücksichtigung der Pharmazie (V, S) (<i>Introduction to history of pharmacy</i>)	every semester (FS 1)		3	1 SWS mandatory (V) 1 SWS optional (T)	2 SWS (V) 2 SWS (S)			
Modul 6a	10	Grundlagen der Arzneiformenlehre (V) (<i>Principles of pharmaceutical dosage forms</i>)	every semester (FS 1)		3	2 SWS	4 SWS	294 h	29,4 h	
		Arzneiformenlehre (P) (<i>practical course "Pharmaceutical dosage forms"</i>)	every semester (FS 2)	practical course begins approx. 2 weeks before the start of lecture period	4	4 SWS (P) 1 SWS (S)	2 SWS (P) 2 SWS (S)			
		Mathematische und statistische Methoden für Pharmazeuten (V+Ü) (<i>Mathematics and statistics for pharmacists</i>)	every semester (FS 1)		3	2 SWS	4 SWS			
Modul	10	Grundlagen der physikalischen Chemie (V) (<i>Principles of physical chemistry</i>)	Winter semester only (FS 1;2)		2	2 SWS	3 SWS	296,8 h	29,7 h	
		physikalisch-chemische Übungen für Pharmazeuten (P) (<i>Laboratory course in physical chemistry for students of pharmacy</i>)	every semester (FS 2)	very limited places available	2	1,6 SWS (P) 0,4 SWS (S)	0,8 SWS (P) 0,8 SWS (S)			

6b		Physik für Pharmazeuten (V) (Physics for pharmacists)	every semester (FS 1;2)	lecture length: 2 semesters; start possible at any semester; enrolment possible for 1 semester	2 (in one semester) 4 (in 2 semesters)	3 SWS	6 SWS		
		Physikalische Übungen für Pharmazeuten (P) (Laboratory course in physics for students of pharmacy)	every semester (FS 2)	very limited places available	2	1,6 SWS (P) 0,4 SWS (S)	0,8 SWS (P) 0,8 SWS (S)		
Modul 7	4	Systematik und Biologie Arzneistoffproduzierender Organismen - Allgemeine Biologie I (V) (Classification and physiology of pathogenic and drug-producing organisms)	Summer semester only (FS 1;2)		2	2 SWS	4 SWS	134,4 h	33,6 h
		Kurs Bestimmungsübungen, Arzneipflanzenexkursionen (P) (Vascular plant identification /Medicinal plants (with excursions))	Summer semester only (FS 1;2)		2	1,6 SWS (P) 0,4 SWS (S)	0,8 SWS (P) 0,8 SWS (S)		
Modul 8	11	Allgemeine Biologie für Pharmazeuten - Allgemeine Biologie II (V) (General biology for pharmacists)	Winter semester only (FS 2;3)		4	3 SWS	6 SWS	319,2 h	29 h
		Grundlagen der Biochemie (V) (principles of biochemistry)	Winter semester only (FS 2;3)		1	1 SWS	2 SWS		
Modul 9a	12	Pharmazeutische Biologie I: Untersuchungen arzneistoffproduzierender Organismen (P) (practical course "Pharmaceutical biology I: Plant anatomy and histology")	every semester (FS 3)	Pharmaceutical Biology I and II: joint practical course, no separate completion possible; very limited places available	3	2,4 SWS (P) 0,6 SWS (S)	1,2 SWS (P) 1,2 SWS (S)	352,8 h	29,4 h
		Pharmazeutische Biologie II: Pflanzliche Drogen (P) (practical course "Pharmaceutical biology II: Herbal medicines /macroscopic and microscopic analysis")	every semester (FS 3)		3	2,4 SWS (P) 0,6 SWS (S)	1,2 SWS (P) 1,2 SWS (S)		
Modul 9b	6	Grundlagen der Anatomie und Physiologie (V) (Principles of anatomy and physiology)	every semester (FS 2;3)	lecture length: 2 semesters; start possible at any semester; enrolment possible for 1 semester	4 (in one semester) 8 (in 2 semesters)	6 SWS (distributed over 2 semesters)	12 SWS	201,6 h	33,6 h
		Kursus der Physiologie (P) (practical course „Physiology“)	every semester (FS 4)	takes place during the lecture-free period	2	1,6 SWS (P) 0,4 SWS (S)	0,8 SWS (P) 0,8 SWS (S)		
		Zytologische und histologische Grundlagen der Biologie (P) (practical course "Principles of cytology and histology")	every semester (FS 2)	very limited places available	2	1,6 SWS (P) 0,4 SWS (S)	0,8 SWS (P) 0,8 SWS (S)		
Modul 10	15	Grundlagen der Ernährungslehre (v) (Principles of dietetics)	every semester (FS 4)		1	1 SWS	2 SWS	464,8 h	31 h
		Medizinische Mikrobiologie (P) (practical course "Microbiology")	every semester (FS 4)	practical course begins approx. 2 weeks before the start of lecture period; very limited places available	2	2,4 SWS (P) 0,6 SWS (S)	1,2 SWS (P) 1,2 SWS (S)		
		Toxikologie der Hilfs- und Schadstoffe (S) (Toxicology of excipients and harmful substances)	every semester (FS 4)		3	2 SWS	4 SWS		
		Einführung in die Biotechnologie (Pharmazeutische Biologie: Arzneipflanzen, biogene Arzneistoffe, Biotechnologie 33%) (V) (Introduction to biotechnology)	Summer semester only (FS 6;7)		2	2 SWS	3 SWS		
Modul 10	15	Biochemie und Molekularbiologie (V) (Methods of biochemistry and molecular biology)	every semester (FS 4;5)	these two lectures take place as one combined lecture; lecture length: 2 semesters; start possible at any semester; enrolment possible for 1 semester	1 (in one semester) 2 (in 2 semesters)	2 SWS	3 SWS	464,8 h	31 h
		Grundlagen der klinischen Chemie und Pathobiochemie (V) (Principles of clinical chemistry and pathobiochemistry)			1 (in one semester) 2 (in 2 semesters)	2 SWS	3 SWS		
		Immunologie, Impfstoffe und Sera Teil a (V) (Immunology, vaccines and sera - part A)	Winter semester only (FS 4; 5)		1	1 SWS	1,5 SWS		

		Bioogene Arzneimittel: Phytopharmaka, Antibiotika, biotechnologisch u. gentechnisch hergestellte Arzneimittel (50%) (S) <i>(Biogenous drugs - seminar)</i>	every semester (FS 7)		2	1,5 SWS	2,3 SWS		
		Biochemische Untersuchungsmethoden einschließlich klinischer Chemie (P) <i>(practical course "Analytical methods of biochemistry including clinical chemistry")</i>	every semester (FS 5)		6	5,6 SWS (P) 1,4 SWS (S)	1,4 SWS (P) 3,5 SWS (S)		
Modul 11		ein Modul 11 existiert nicht							
Modul 12	5	Biopharmazie einschließlich arzneiformenbezogener Pharmakokinetik (V) <i>(Biopharmacy including dosage forms related pharmacokinetics - lecture)</i>	every semester (FS 6)	Seminar and practical course should be attended together	1	1 SWS	1,5 SWS	148,4	29,7
		Biopharmazie einschließlich arzneiformenbezogener Pharmakokinetik (S) <i>(Biopharmacy including dosage forms related pharmacokinetics - seminar)</i>	every semester (FS 6)		3	2 SWS	3 SWS		
		Pharmakokinetik (P) <i>(practical course "pharmacokinetics")</i>	every semester (FS 6)	practical course usually lasts 1 week	1	1,6 SWS (P) 0,4 SWS (S)	0,5 SWS (P) 0,6 SWS (S)		
Modul 13	20	Pharmazeutische Technologie einschl. Medizinprodukten (V) <i>(Pharmaceutics including medical devices)</i>	every semester (FS 5;6)	lecture length: 2 semesters; start possible at any semester; enrolment possible for 1 semester	5 (in one semester) 9 (in 2 semesters)	8 SWS (distributed over 2 semesters)	12 SWS	609 h	30,5 h
		Qualitätssicherung bei der Herstellung und Prüfung von Arzneimitteln (S) <i>(Quality assurance for the manufacturing and testing of pharmaceuticals)</i>	every semester (FS 6)		1	1 SWS	1,5 SWS		
		Immunologie, Impfstoffe und Sera Teil b (V) <i>(Immunology, vaccines and sera - part B)</i>	Summer semester only (FS 5;6)		1	1 SWS	1,5 SWS		
		Pharmazeutische Technologie (P) <i>(practical course „Pharmaceutics including medical devices“)</i>	every semester (FS 6)		9	9,6 SWS (P) 2,4 SWS (S)	2,9 SWS (P) 3,6 SWS (S)		
Modul 14	11	Pharmazeutische Biologie I (Phenylpropane, Alkaloide, Polyketide) (V) und Pharmazeutische Biologie II (Kohlenhydrate, Lipide, Terpene) (V) <i>(Pharmaceutical biology)</i>	every semester (FS 6;7)	lecture length: 2 semesters; start possible at any semester; enrolment possible for 1 semester	2 (in one Semester) 5 (in 2 semesters)	4 SWS (distributed over 2 semesters)	6 SWS	322 h	29,3 h
		Biogene Arzneimittel: Phytopharmaka, Antibiotika, biotechnologisch u. gentechnisch hergestellte Arzneimittel (50%) (S) <i>(Biogenous drugs - seminar)</i>	every semester (FS 7)		2	1,5 SWS	2,3 SWS		
		Pharmazeutische Biologie III: Biologische und phytochemische Untersuchungen (P) <i>(practical course "Pharmaceutical biology III - Methods of phytochemistry")</i>	every semester (FS 7)		4	4,8 SWS (P) 1,2 SWS (S)	1,4 SWS (P) 1,8 SWS (S)		
Modul 15	7	Einführung in die Medizinische Chemie <i>(Pharmaceutical / medicinal chemistry - Introduction)</i>	every semester(FS 5)		1	1 SWS	1,5 SWS	207,2 h	29,6 h
		Arzneistoffanalytik unter besonderer Berücksichtigung der Arzneibücher (P) <i>(practical course "Analysis of drugs with special emphasis on pharmacopoeias")</i>	every semester (FS 5)		6	6,4 SWS (P) 1,6 SWS (S)	1,9 SWS (P) 2,4 SWS (S)		
Modul 16	19	Pharmazeutische/Medizinische Chemie (V) <i>(Pharmaceutical / medicinal chemistry)</i>	every semester (FS 6;7;8)	Course length: 3 semesters; start possible at any semester; enrolment possible for 1 semester	3/semester 10 (in 3 semesters)	9 SWS (distributed over 3 semesters)	13,5 SWS	574 h	30,2 h
		Arzneimittelanalytik, Drug Monitoring, toxikologischen und umweltrelevante Untersuchungen (P) <i>(practical course "Analysis of drug products - drug monitoring, toxicological analysis and environmental analysis")</i>	every semester (FS 8)	practical course begins approx. 2 weeks before the start of lecture period; first seminar contents must be worked out independently before the start of the practical course	9	9,6 SWS (P) 2,4 SWS (S)	2,9 SWS (P) 3,6 SWS (S)		

Modul 17	19	Pharmakologie, Pathophysiologie und Toxikologie (V) <i>(Pharmacology, toxicology and pathophysiology)</i>	every semester (FS 5;6)	Course length: 2 semesters; start possible at any semester; enrolment for 1 semester is not recommended. Reason: in order to receive ECTS credits, the written exam for the <i>Course of pharmacology and toxicology</i> (see next line) must be successfully completed. This course must be taken in parallel to the lecture - the written exam includes the content of the entire lecture <i>Pharmacology, toxicology and pathophysiology</i> (2 semesters) and the <i>Course of pharmacology and toxicology</i> .	10 (in 2 semesters)	9 SWS (SoSe: 4 SWS WiSe: 5 SWS)	13,5 SWS	583,8 h	30,7 h
		Pharmakologisch - toxikologischer Demonstrationskurs (P) <i>(Course of pharmacology and toxicology)</i>	every semester (FS 7)	the written exam includes also the content of the entire lecture <i>Pharmacology, toxicology and pathophysiology</i> (2 semesters) - this lecture should therefore be taken in parallel over 2 semesters (see one line above)	4	4,8 SWS (P) 1,2 SWS (S)	1,4 SWS (P) 1,8 SWS (S)		
		Klinik ausgewählter Krankheiten (V+S) <i>(Pathology)</i>	every semester (FS 6;7)	Course can only be attended over 2 semesters; if the student stays only for one semester, the course cannot be taken.	5	4 SWS (distributed over 2 semesters)	6 SWS		
Modul 18	10	Klinische Pharmazie (S) <i>(Clinical pharmacy)</i>	every semester (FS 8)		7	6 SWS	9 SWS	315 h	31,5 h
		Pharmakoepidemiologie und - ökonomie (V+S) <i>(pharmacoepidemiology and pharmacoeconomics)</i>	every semester (FS 7)		2	1 SWS (S) 1 SWS (V)	1,5 SWS (S) 1,5 SWS (V)		
		Spezielle Rechtsgebiete für Apotheker (V)	Winter semester only (FS 7;8)		1	1 SWS	1,5 SWS		
Modul 19	5	Pharmakotherapie (V + Ü) <i>(Drug therapy)</i>	every semester (FS 8)		5	2 SWS (V) 2 SWS (Ü)	3 SWS (V) 3 SWS (Ü)	140 h	28 h
Modul 20	7	Wahlpflichtfach (S+P) <i>(Compulsory optional course)</i>	every semester (FS 7)	takes place after the lecture period (duration approx. 3 weeks); can also be completed in English	7	4 SWS (P) 4 SWS (S)	1,2 SWS (P) 6 SWS (S)	212,8 h	30,4 h

*in this semester the mentioned course is offered at the TU Braunschweig for the pharmacy students of the TU Braunschweig; courses offered in the same semester do not overlap in time; if courses from different semesters are taken, it must first be checked whether there is an overlap in time. Erasmus students should therefore contact the study course coordinator for pharmacy at the TU Braunschweig (sgkpharmazie@tu-braunschweig). The check can always only be carried out after the timetables for the coming semester have been finalised; SoSe: summer semester; WiSe: winter semester