

Study and Examination Plan

Physics BSc										
Matriculation Fall 2022										
Program-Specific Modules					Type	Assessment	Period	Status*	Sem.	CP
Year 1 - CHOICE										
Take the mandatory CHOICE modules listed below, these are a requirement for the physics program.										
Unit: Classical and Modern Physics (default minor)										
15										
CH-140	Module: Classical Physics (default minor)				m					7.5
CH-140-A	Classical Physics	Lecture	Written exam	Examination period					1	5
CH-140-B	Classical Physics Lab	Lab	Lab report	During the semester					1	2.5
CH-141	Module: Modern Physics (default minor)				m					7.5
CH-141-A	Modern Physics	Lecture	Written exam	Examination period					2	5
CH-141-B	Modern Physics Lab	Lab	Lab report	During the semester					2	2.5
Take one of the two mandatory elective CHOICE modules listed below, these are a requirement for the physics program (see study program handbook).										
CH-202	Module: Applied Mathematics				me					7.5
CH-202-A	Advanced Calculus and Methods of Mathematical Physics	Lecture	Written exam	Examination period					2	5
CH-202-B	Numerical Software Lab	Lab	Lab report	During the semester					2	2.5
CH-220	Module: Introduction to Robotics and Intelligent Systems				me					7.5
CH-220-A	Introduction to Robotics and Intelligent Systems	Lecture	Written examination	Examination period					2	5
CH-220-B	Intro to RIS - Lab	Lab							2	2.5
Unit: CHOICE (own selection)										
me 1/2 22.5										
Take three further CHOICE modules from those offered for other study programs: Two modules in 1st, one in 2nd semester.										
Year 2 - CORE										
Take all modules listed below or replace 15 CP of mandatory elective ("me") modules by suitable CORE modules from other study programs ¹										
Unit: Advanced Physics I										
15										
CO-480	Module: Analytical Mechanics (default minor) ²				m					5
CO-480-A	Analytical Mechanics	Lecture	Written exam	Examination period						3
CO-481	Module: Quantum Mechanics (default minor) ²				m					5
CO-481-A	Quantum Mechanics	Lecture	Written exam	Examination period						4
CO-482	Module: Computational Physics (default minor) ²				me					5
CO-482-A	Computational Physics I	Lecture							3	2.5
CO-482-B	Computational Physics II	Lecture	Project	During the semester					4	2.5
Unit: Advanced Physics II										
15										
CO-483	Module: Electrodynamics				m					5
CO-483-A	Electrodynamics	Lecture	Written exam	Examination period						3
CO-484	Module: Statistical Physics				m					5
CO-484-A	Statistical Physics	Lecture	Written exam	Examination period						4
CO-485	Module: Renewable Energy				me					5
CO-485-A	Renewable Energy	Lecture	Project	During the semester						4
Unit: Advanced Physics Labs										
15										
CO-486	Module: Advanced Physics Lab I				m					5
CO-486-A	Advanced Physics Lab I	Lab	Lab report	During the semester						3
CO-487	Module: Advanced Physics Lab II				m					5
CO-487-A	Advanced Physics Lab II	Lab	Lab report	During the semester						4
CO-488	Module: Advanced Physics Lab III				me					5
CO-488-A	Advanced Physics Lab III	Lab	Lab report	During the semester						5/3
Year 3 - CAREER										
45										
CA-INT-900	Module: Internship / Startup and Career Skills				m					4/5 15
CA-INT-900-0	Internship / Startup and Career Skills	Internship	Report/Business Plan	During the 5 th semester						
CA-PHY-800	Module: Thesis / Seminar Physics				m					6 15
CA-PHY-800-S	Thesis Physics	Project	Thesis and Presentation	15 th of May						12
CA-PHY-800-T	Seminar Physics	Seminar		During the semester						3
Unit: Specialization Physics (Take a total of 15 CP of specialization modules)³										
15										
CA-S-PHY-801	Module: Condensed Matter Physics				me					5
CA-PHY-801-A	Condensed Matter and Devices	Lecture	Written exam	Examination period						5
CA-PHY-802	Module: Particles, Fields and Quanta				me					5
CA-PHY-802-A	Elementary Particles and Fields	Lecture							6	2.5
CA-PHY-802-B	Advanced Quantum Physics	Lecture	Presentation	During the semester					6	2.5
CA-PHY-804	Module: Biophysics (A)				me					2.5
CA-PHY-804-A	Biophysics	Lecture	Presentation	During the semester						6 2.5
CA-PHY-805	Module: Atoms & Molecules (A)				me					2.5
CA-PHY-805-A	Atoms & Molecules	Lecture	Presentation	During the semester						6 2.5
CA-PHY-806	Module: Nanotechnology (B)				me					2.5
CA-PHY-806-A	Nanotechnology	Lecture	Presentation	During the semester						6 2.5
CA-PHY-807	Module: Advanced Optics (B)				me					2.5
CA-PHY-807-A	Advanced Optics	Lecture	Written exam	Examination period						6 2.5
Specialization electives from other study programs (see physics study program handbook)										
me 5/6 5										
Total CP										
180										

Jacobs Track Modules (General Education)									
Type	Assessment	Period	Status*	Sem.	CP				
Units: Skills / Methods									
10									
JTMS-MAT-09	Module: Calculus and Elements of Linear Algebra I				m	1 5			
JTMS-09	Calculus and Elements of Linear Algebra I	Lecture	Written exam	Examination period					
JTMS-MAT-10	Module: Calculus and Elements of Linear Algebra II				m	2 5			
JTMS-10	Calculus and Elements of Linear Algebra II	Lecture	Written exam	Examination period					
Unit: Language									
5									
German is default language. Native German speakers take modules in another offered language.									
JTLA	Module: Language 1				m	1 2.5			
JTLA-xxx	Language 1	Seminar	Various	Various	me				
JTLA	Module: Language 2				m	2 2.5			
JTLA-xxx	Language 2	Seminar	Various	Various	me				
Units: Skills / Methods (take a total of 10 CP of skills/methods modules, see list below)									
3+4 10									
JTMS-MAT-12	Module: Probability and Random Processes				me	3 5			
JTMS-12	Probability and Random Processes	Lecture	Written exam	Examination period					
JTMS-MAT-13	Module: Numerical Methods				me	4 5			
JTMS-13	Numerical Methods	Lecture	Written exam	Examination period					
Alternatives:									
JTMS-SKI-14	Module: Programming in Python				me	3 5			
JTMS-14	Programming in Python	Lecture	Written exam	Examination period					
CO-501	Module: Discrete Mathematics				me	4 5			
CO-501-A	Discrete Mathematics	Lecture	Written exam	Examination period					
Unit: Language									
5									
German is default language. Native German speakers take modules in another offered language.									
JTLA	Module: Language 3				m	3 2.5			
JTLA-xxx	Language 3	Seminar	Various	Various	me				
JTLA	Module: Language 4				m	4 2.5			
JTLA-xxx	Language 4	Seminar	Various	Various	me				
Unit: Big Questions									
10									
JTBQ	Module: Big Questions				m	5/6			
Take a total of 10 CP of Big Questions modules with each 2.5 or 5 CP									
Lecture Various Various me									
Unit: Community Impact Project									
5									
JTICI-950	Module: Community Impact Project				m	5 5			
JTICI-950	Community Impact Project	Project	Project	Examination period					

¹ Status (m = mandatory, me = mandatory elective). ² Alternative module choices for a minor in physics are possible (see physics study program handbook).
³ For a full listing of all CHOICE / CORE / CAREER / Jacobs Track modules please consult the CampusNet online catalogue and /or the study program handbooks.
⁴ Specialization modules indicated with A or B are offered biennially; the letter A refers to odd-numbered calendar years, the letter B refers to even-numbered calendar years.