

Physics BSc							Jacobs Track Modules (General Education)						
Matriculation Fall 2019													
Program-Specific Modules	Type	Assessment	Period	Status <sup>1</sup>	Sem.	CP	Type	Assessment	Period	Status <sup>1</sup>	Sem.	CP	
<b>Year 1 - CHOICE</b>							<b>Year 1 - CHOICE</b>						
Take the mandatory CHOICE modules listed below, these are a requirement for the physics program.							Take the mandatory CHOICE modules listed below, these are a requirement for the physics program.						
<b>Unit: Classical and Modern Physics (default minor)</b>							<b>Unit: Skills / Methods</b>						
<b>CH-140</b> <b>Module: Classical Physics (default minor)</b>							<b>JTMS-MAT-09</b> <b>Module: Calculus and Elements of Linear Algebra I</b>						
CH-140-A	Classical Physics	Lecture	Written exam	Examination period	1	5	JTMS-09	Calculus and Elements of Linear Algebra I	Lecture	Written exam	Examination period	5	
CH-140-B	Classical Physics Lab	Lab	Lab report	During the semester	1	2.5							
<b>CH-141</b> <b>Module: Modern Physics (default minor)</b>							<b>JTMS-MAT-10</b> <b>Module: Calculus and Elements of Linear Algebra II</b>						
CH-141-A	Modern Physics	Lecture	Written exam	Examination period	2	5	JTMS-10	Calculus and Elements of Linear Algebra II	Lecture	Written exam	Examination period	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).							Take one of the two mandatory elective CHOICE modules listed below, these are a requirement for the physics program (see study program handbook).						
<b>CH-202</b> <b>Module: Applied Mathematics</b>							<b>Unit: Language</b>						
CH-202-A	Advanced Calculus and Methods of Mathematical Physics	Lecture	Written exam	Examination period	2	5	German is default language. Native German speakers take modules in another offered language.						
CH-202-B	Numerical Software Lab	Lab	Lab report	During the semester	2	2.5							
<b>CH-220</b> <b>Module: Introduction to Robotics and Intelligent Systems</b>							<b>JTLA</b> <b>Module: Language 1</b>						
CH-220-A	Introduction to Robotics and Intelligent Systems	Lecture	Written examination	Examination period	2	5	JTLA-xxx	Language 1	Seminar	Various	Various	me	
CH-220-B	Intro to RIS - lab	Lab			2	2.5	JTLA	Module: Language 2				m	
<b>Unit: CHOICE (own selection)</b>							<b>JTLA-xxx</b> <b>Module: Language 2</b>						
Take three further CHOICE modules from those offered for other study programs: Two modules in 1st, one in 2nd semester.							Language 2						
							Seminar						
							Various						
							Various						
							me						
							m						
							2						
							2.5						
							me						
							1/2						
							22.5						
<b>Year 2 - CORE</b>							<b>Year 2 - CORE</b>						
Take all modules listed below or replace 15 CP of mandatory elective ("me") modules by suitable CORE modules from other study programs <sup>3</sup>							Take all modules listed below or replace 15 CP of mandatory elective ("me") modules by suitable CORE modules from other study programs <sup>3</sup>						
<b>Unit: Advanced Physics I</b>							<b>Unit: Skills / Methods (take a total of 10 CP of skills/methods modules, see list below)</b>						
<b>CO-480</b> <b>Module: Analytical Mechanics (default minor)<sup>2</sup></b>							<b>JTMS-MAT-12</b> <b>Module: Probability and Random Processes</b>						
CO-480-A	Analytical Mechanics	Lecture	Written exam	Examination period	3	5	JTMS-12	Probability and Random Processes	Lecture	Written exam	Examination period	5	
<b>CO-481</b> <b>Module: Quantum Mechanics (default minor)<sup>2</sup></b>							<b>JTMS-MAT-13</b> <b>Module: Numerical Methods</b>						
CO-481-A	Quantum Mechanics	Lecture	Written exam	Examination period	4	5	JTMS-13	Numerical Methods	Lecture	Written exam	Examination period	5	
<b>CO-482</b> <b>Module: Computational Physics (default minor)<sup>2</sup></b>							<i>Alternatives:</i>						
CO-482-A	Computational Physics I	Lecture	Project	During the semester	3	2.5							
CO-482-B	Computational Physics II	Lecture			4	2.5							
<b>Unit: Advanced Physics II</b>							<b>JTMS-SKI-14</b> <b>Module: Programming in Python</b>						
<b>CO-483</b> <b>Module: Electrodynamics</b>							<b>JTMS-14</b> <b>Module: Programming in Python</b>						
CO-483-A	Electrodynamics	Lecture	Written exam	Examination period	3	5	JTMS-14	Programming in Python	Lecture	Written exam	Examination period	5	
<b>CO-484</b> <b>Module: Statistical Physics</b>							<b>CO-501</b> <b>Module: Discrete Mathematics</b>						
CO-484-A	Statistical Physics	Lecture	Written exam	Examination period	4	5	CO-501-A	Discrete Mathematics	Lecture	Written exam	Examination period	5	
<b>CO-485</b> <b>Module: Renewable Energy</b>							<b>Unit: Language</b>						
CO-485-A	Renewable Energy	Lecture	Project	During the semester	4	5	German is default language. Native German speakers take modules in another offered language.						
<b>Unit: Advanced Physics Labs</b>							<b>JTLA</b> <b>Module: Language 3</b>						
<b>CO-486</b> <b>Module: Advanced Physics Lab I</b>							Language 3						
CO-486-A	Advanced Physics Lab I	Lab	Lab report	During the semester	3	5	JTLA-xxx	Language 3	Seminar	Various	Various	me	
<b>CO-487</b> <b>Module: Advanced Physics Lab II</b>							<b>JTLA</b> <b>Module: Language 4</b>						
CO-487-A	Advanced Physics Lab II	Lab	Lab report	During the semester	4	5	JTLA-xxx	Language 4	Seminar	Various	Various	me	
<b>CO-488</b> <b>Module: Advanced Physics Lab III</b>							<b>Unit: Big Questions</b>						
CO-488-A	Advanced Physics Lab III	Lab	Lab report	During the semester	5/3	5	<b>JTBQ</b> <b>Module: Big Questions</b>						
<b>Year 3 - CAREER</b>							<b>Year 3 - CAREER</b>						
Take a total of 10 CP of Big Questions modules with each 2.5 or 5 CP							Take a total of 10 CP of Big Questions modules with each 2.5 or 5 CP						
<b>CA-INT-900</b> <b>Module: Internship / Startup and Career Skills</b>							<b>Unit: Community Impact Project</b>						
CA-INT-900-0	Internship / Startup and Career Skills	Internship	Report/Business Plan	During the 5 <sup>th</sup> semester	4/5	15	<b>JTCI-CI-950</b> <b>Module: Community Impact Project</b>						
<b>CA-PHY-800</b> <b>Module: Thesis / Seminar Physics</b>							Community Impact Project						
CA-PHY-800-S	Thesis Physics	Project	Thesis and	15 <sup>th</sup> of May	6	15	JTCI-950	Community Impact Project	Project	Project	Examination period	5	
CA-PHY-800-T	Seminar Physics	Seminar	Presentation	During the semester	3	3							
<b>Unit: Specialization Physics (Take a total of 15 CP of specialization modules)</b>							<b>Unit: Community Impact Project</b>						
<b>CA-S-PHY-801</b> <b>Module: Condensed Matter Physics</b>							<b>JTCI-950</b> <b>Module: Community Impact Project</b>						
CA-S-PHY-801-A	Condensed Matter and Electronic Devices	Lecture	Written exam	Examination period	5	5	Community Impact Project						
<b>CA-PHY-802</b> <b>Module: Particles, Fields and Quanta</b>							<b>Unit: Big Questions</b>						
CA-PHY-802-A	Elementary Particles and Fields	Lecture	Presentation	During the semester	6	2.5	<b>JTBQ</b> <b>Module: Big Questions</b>						
CA-PHY-802-B	Advanced Quantum Physics	Lecture			6	2.5	Take a total of 10 CP of Big Questions modules with each 2.5 or 5 CP						
<b>CA-PHY-803</b> <b>Module: Advanced Applied Physics</b>							<b>Unit: Community Impact Project</b>						
CA-PHY-803-A	Biophysics / Nanotechnology	Lecture	Presentation	During the semester	6	2.5	<b>JTCI-CI-950</b> <b>Module: Community Impact Project</b>						
CA-PHY-803-B	Advanced Optics / Atoms and Molecules	Lecture			6	2.5	Community Impact Project						
<b>Specialization electives from other study programs (see physics study program handbook)</b>							<b>Unit: Big Questions</b>						
							<b>JTBQ</b> <b>Module: Big Questions</b>						
							Take a total of 10 CP of Big Questions modules with each 2.5 or 5 CP						
							Lecture						
							Various						
							Various						
							me						
							m						
							5/6						
							5						
							5						
<b>Total CP</b>							<b>Total CP</b>						
							180						

<sup>1</sup> Status (m = mandatory, me = mandatory elective). <sup>2</sup> Alternative module choices for a minor in physics are possible (see physics study program handbook).

<sup>3</sup> For a full listing of all CHOICE / CORE / CAREER / Jacobs Track modules please consult the CampusNet online catalogue and /or the study program handbooks.