

# Master degree programme Physics

## Appendices to the Teaching and Examination Regulations

### Appendix A Aim of the degree programme (art. 1.3)

The degree programme aims to train the students in such a way that they acquire the insight, skills and knowledge that allows the recipient of the degree to establish a professional career in the field of Physics.

### Appendix B Specializations of degree programme (art. 2.2)

The degree programme has the following specializations:

- Theoretical Physics
- Experimental Physics
- Instrumentation and Informatics
- Science, Business and Policy

### Appendix C Content of degree programme (art. 2.3)

#### Specialization Theoretical Physics

module	ECTS	assessment	practical
Symmetry in Physics	5	written examination	
Computational Physics	5	assignments	x
Relativistic Quantum Mechanics	5	written examination, assignments	
Quantum Field Theory	5	oral examination, assignments	
Theoretical Condensed Matter Physics	5	written examination, assignments ?	
Statistical Mechanics	5	oral examination, assignments	
Student Seminars	5	see appendix D	see app. D
Optional Courses in Science	20	see appendix D	see app. D
Free Electives	5	see appendix D	see app. D
Research	60	assessment of performance, report, presentation	
General Physics Colloquium	-	attendance	

#### Specialization Experimental Physics

module	ECTS	assessment	practical
Symmetry in Physics	5	written examination	
Computational Physics	5	assignments	x
Statistical Methods in Physics	5	written examination	
Principles of Measurement Systems	5	written examination	
Student Seminars	5	see appendix D	see app. D
Optional Courses in Science	25	see appendix D	see app. D
Free Electives	10	see appendix D	see app. D
Research	60	assessment of performance, report, presentation	
General Physics Colloquium	-	attendance	

## Specialization Instrumentation and Informatics

module	ECTS	assessment	practical
Computational Physics	5	assignments	x
Principles of Measurement Systems	5	written examination	
Control Engineering	5	written examination	
Applied Signal Processing	5	written examination	
Basic Detection Techniques	5	written examination	
Astronomical Space Missions	5	written examination	
Numerical Mathematics 1	5	written examination	
Optional courses in Science	5	see appendix D	see app. D
Optional courses in Instrumentation and Informatics	10	see appendix D	see app. D
Project Information Technology	10	assessment of performance, report, presentation	x
Internship in Industry	20	assessment of performance, report, presentation	x
Physics research / thesis	40	assessment of performance, report, presentation	x
General Physics Colloquium	-	attendance	

## Specialization Science, Business and Policy

module	ECTS	assessment	practical
Computational Physics	5	assignments	x
Principles of Measurement Systems	5	written examination	
Optional courses in Science	20	see appendix D	see app. D
Course Science, Business and Policy	20	assignment, exam	
Internship Science, Business and Policy	40	assessment of performance, reports	
Physics research / thesis	30	assessment of performance, report, presentation	
General Physics Colloquium	-	attendance	

## Appendix D Optional modules (art. 2.4)

### Student Seminars

module	ECTS	assessment	practical
Student Seminar on Modern Cosmology	5	presentations	
Student Seminar on Quantum Computation	5	presentation, assignments	
Student Seminar on Subatomic Physics	5	presentation, oral examination	
Fundamental Interactions and Symmetry	5	presentations	

### Optional Courses in Science

module	ECTS	assessment	practical
Courses that are obligatory in another specialization	5	as indicated in appendix C	
Student seminars in excess of the minimal requirement	5	as indicated under Student Seminars	
Optional courses in Instrumentation and Informatics in excess of the minimal requirement	5	as indicated under Optional Courses in Instrumentation and Informatics	
Optional courses at master level in Mathematics, Astronomy, Chemistry or Computer Science	5	as indicated in appendix C or D of the corresponding programme	as indicated in appendix C or D of the corresponding programme

Astroparticle Physics	5	written examination	
Atomic Interactions	5	written examination	
Capita Selecta Materials Science	5	oral examination	
Computer Simulation of Quantum Systems	5	assignments	
Contemporary Experiments in Molecular Physics	5	written examination	
Elementary Particles	5	oral examination	
Environmental Physics	5	written examination	
General Relativity	5	written examination, assignments	
Introduction to String Theory	5	written examination, assignments	
Introduction to Supersymmetry	5	oral examination	
Introductory Plasma Physics	5	written examination	
Isotope Production	5	oral examination	
Key Experiments in Atomic Physics	5	oral examination	
Many Particle Systems	5	written examination	
Mathematical Methods for Physicists	5	assignments	
Mechatronics	5	written examination	
Mesoscopic Physics	5	written examination	
Micromechanics	5	written examination, assignments	
Non Linear Optics	5	written examination, assignments	
Nuclear Physics	5	written examination, assignments, presentation	
Physical Materials Science	5	written examination	
Physics of Continuous Media	5	written examination	
Quantum Many Body Physics	5	oral examination	
Radiation Physics	5	written examination	
Robotics	5	written examination	
Solid Mechanics	5	written examination, assignments, report	
Spintronics	5	written examination, assignments, report	
Surfaces and Interfaces	5	written examination	

### Optional Courses in Instrumentation and Informatics

module	ECTS	assessment	practical
Accelerator Physics and Ion Optics	5	oral examination	
Device Physics	5	written examination	
Experimental Methods of Trace Gas Research	5	written examination, report	
Imaging Techniques in Radiology	5	as indicated in appendix C or D of the MSc programme in Biomedical Engineering	as indicated in appendix C or D of the MSc programme in Biomedical Engineering
Interferometry	5	written examination	
Laser Cooling and Trapping	5	oral examination	
Scientific Visualization	5	as indicated in appendix C or D of the MSc programme in Computer Science	as indicated in appendix C or D of the MSc programme in Computer Science
Virtual Observations	5	written examination, assignments	

### Free Electives

module	ECTS	assessment	practical
Optional courses in any field taught at the university, on individual approval of the	5	as indicated in appendix C or D of the corresponding programme	

