

# Master degree programme Astronomy

## 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 Astronomy.

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

The degree programme has the following specializations:

- Theoretical and Observational Astronomy
- Instrumentation and Informatics
- Science, Business and Policy

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

#### Specialization Theoretical and Observational Astronomy

| module                        | ECTS | assessment   | practical  |
|-------------------------------|------|--|------------|
| Advanced astrophysics courses | 30   | see appendix D   | see app. D |
| Optional courses in science   | 20   | see appendix D   | see app. D |
| Optional courses              | 10   | see appendix D   | see app. D |
| Master research / thesis      | 60   | assessment of performance, report, presentation, attendance Astronomy colloquium |            |

#### Specialization Instrumentation and Informatics

| module  | ECTS | assessment   | practical  |
|---|------|--|------------|
| Advanced astrophysics courses                       | 10   | see appendix D   | see app. D |
| Optional courses in Instrumentation and Informatics | 10   | see appendix D   | see app. D |
| 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 2                             | 5    | written examination  |            |
| Project Information Technology                      | 10   | assessment of performance, report, presentation                                  |            |
| Internship in Industry                              | 20   | assessment of performance, report, presentation                                  |            |
| Master research / thesis                            | 40   | assessment of performance, report, presentation, attendance Astronomy colloquium |            |

#### Specialization Science, Business and Policy

| module                                  | ECTS | assessment  | practical  |
|---|------|---|------------|
| Advanced astrophysics courses           | 30   | see appendix D  | see app. D |
| Course Science, Business and Policy     | 20   | assignment, exam  |            |
| Internship Science, Business and Policy | 40   | assessment of performance, reports  |            |
| Master research / thesis                | 30   | assessment of performance, report, presentation , attendance Astronomy colloquium |            |

## Appendix D Optional modules (art. 2.4)

### Advanced Astrophysics Courses

| module                                | ECTS | assessment                                | practical |
|---------------------------------------|------|---|-----------|
| Formation and Evolution of Galaxies   | 5    | written examination                       |           |
| Dynamics of Galaxies                  | 5    | written examination, assignments          |           |
| Stellar Structure and Evolution       | 5    | written examination                       |           |
| Large Scale Structure of the Universe | 5    | written and oral reports, assignments     |           |
| Active Galaxies                       | 5    | written examination                       |           |
| High Energy Astrophysics              | 5    | as in due time determined by the lecturer |           |
| Basic Detection Techniques            | 5    | written examination                       |           |
| Astronomical Space Missions           | 5    | written examination, assignments          |           |
| Star and Planet Formation             | 5    | written examination                       |           |
| Virtual Observations                  | 5    | written examination, assignments          |           |
| Inter Academy Course                  | 5    | written examination                       |           |
| Gravitational Lensing                 | 3    | oral examination, paper                   |           |
| Milky way                             | 3    | presentation, paper                       |           |
| Dark Matter in Galaxies               | 3    | written examination, paper                |           |
| Epoch of Reionisation Physics         | 3    | written examination, paper                |           |
| HI in the Universe                    | 3    | presentation, paper                       |           |
| High Redshift Galaxies                | 3    | written examination, paper                |           |
| Dwarf Galaxies                        | 3    | written examination, paper                |           |
| The Cosmic Web                        | 3    | written examination, paper                |           |
| Starburst Galaxies                    | 3    | presentations, paper                      |           |

### Optional Courses in Science

| module  | ECTS | assessment   | practical |
|---|------|--|-----------|
| Optional courses at master level in Mathematics, Physics, Astronomy Chemistry or Computer Science | 5    | as indicated in appendix C or D of the corresponding MSc Programme |           |

### Optional Courses

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

### 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   |  |

