HAN_UNIVERSITY OF APPLIED SCIENCES

# Appendix to the Degree Statute: units of study Master Molecular Life Sciences

This appendix to the Degree Statute and Education and Examination Regulations of the Master's degree course Molecular Life Sciences describes the units of study (modules). The master has a study load of 120 credits (one credit equals 28 hours of study) and combines workplace learning – in an internship or at your current work, for the full duration of the programme – with applied research. Students and staff get the latest insights from the HAN BioCentre, which conducts contract research for the life sciences industry.

## OVERVIEW

| Module | Year | Content |
|---|---|---|
| 1 Fundamentals | 1 | Refreshing basic knowledge and skills: product development pipeline, molecular biology, cell biology, biochemistry, gene technology, statistics, using databases, reading scientific articles, presentation skills. Weekly assignments with feedback. |
| 2 Drug Discovery and Development | 1 | The entire drug development process, from target discovery to pre-clinical testing, in the context of cancer medicines: molecular aspects of cancer, targets and drugs, assay development, pharmacology, toxicology, pharmacokinetics, bio-informatics, drug registration, structure elucidation and pharmaceutical chemistry (online component with the University of Florida). Laws and regulations through case studies. |
| 3 Production of Biomolecules | 1–2 | Efficient production of biomolecules for industrial applications: production strains, fermentation technology, downstream processing, bio-analysis methods, good manufacturing practice, gene annotation and metabolic engineering; project proposals for the production of enzymes and microbial oil. |
| 4 Vaccines and Diagnostics | 2 | The development of vaccines and diagnostic tests: the science as well as the practical and regulatory side. |
| 5 Research and Product Development Skills | 1–2 | Professional products relating to the internship: scientific report, presentation and business plan; applied research, scientific writing and presenting, experimental design, quality assurance and control, business development. |
| 6 Project Management | 1–2 | Professional conduct and identity, interpersonal effectiveness, communication styles, networking, situational leadership, meeting techniques, project planning and control, risk analysis. |
| 7 Graduation project | 2 | Planning and running a project in applied research or product development. |

## ASSESSMENT

For each unit the regulations state the credits, the learning outcomes, the forms of education and the exams. Learning outcomes that have to be developed in a work setting require a workplace; if you do part of your learning route at your workplace, this is recorded in an agreement between you, your employer and HAN. Regular testing and feedback help you keep track of your progress.