



## 2013 Curriculum for the Master of Science in Human Biology at the Faculty of Health and Medical Sciences, University of Copenhagen

This curriculum is effective from 1 September 2013 and will apply in relation to students admitted on or after this date.

This curriculum was approved by the Dean on 14 March 2023 and 12 March 2024.

The curriculum leading to the degree of Master of Science in Human Biology is comprised by the subject-specific curriculum, the course and exam descriptions in the course database and the General Programme Regulations.

### Part 1 Objectives and qualification profile

#### § 1 Objectives

The objective of the Master of Science in Human Biology (leading to the degree of Master of Science in Human Biology (MSc in Human Biology) is to qualify graduates within the field of research at the highest international scientific level and to enable them to critically apply existing knowledge within the field of biomedicine.

1.2. Successful completion of the programme gives the graduate the right to use the title of Master of Science (MSc) in Human Biology. The corresponding title in Danish is Cand.scient. i Humanbiologi.

1.3. The degree is credited 120 ECTS points.

1.4. The MSc's programme is affiliated with the Study Board for Human Biology, Immunology and Neuroscience.

1.5 The MSc's programme is affiliated with the Core of Danish Medical Examiners (Censorkorpset for Lægeuddannelsen).

#### §2 Admission requirements

There are no bachelor's degrees that give legal right of admission to the MSc in Human Biology. To be admitted to the programme applicants must hold a bachelor's degree, professional bachelor's degree or equivalent from a Danish or international university in medicine, odontology, biochemistry, biology, pharmaceuticals, exercise and sport sciences or a corresponding bachelor's degree within the fields of health science or natural science. Additionally, the applicant must have obtained at least 5 ECTS within biology, biochemistry or pharmacology.

Furthermore, admission will be limited to applicants with English language skills corresponding to B level knowledge from a Danish high school (gymnasium) or an international TOEFL-score of minimum 560 on the paper-based test, or 83 on the internet-based test, or an IELTS test score above 6.5.

A total of 40 students are annually admitted to the MSc's programme.

2.2. Applications will be assessed by an admission committee.

2.3. The bachelor's degree must have been obtained within the last 5 years prior to the start of the 1st semester of the MSc's programme.

2.4. Under special circumstances the admissions committee may waive the requirement stipulated in 2.3 above.

2.5. One third of the spots may be reserved for students from countries outside of the EU/EEA.

### **§3 Competence profile**

As a minimum, the general competence profile of a Master of Science in Human Biology includes:

#### **Knowledge**

- Comprehensive factual and intuitive understanding of how the human organism functions in health and in disease. Such understanding is based on an ability to critically discuss, assess and put into perspective physiological, pathophysiological and pharmacological mechanisms of adjustment and action at various levels that include the molecular, cell, organ and the integrative system level
- Comprehensive knowledge of the original literature of their selected speciality and considerable overall knowledge of the original literature of other sub-fields within biomedical research
- Broad knowledge of research methods and approaches used in the field of biomedical research
- Knowledge of relevant bioinformatic tools and methods
- Knowledge of the clinical everyday life in the hospital sector
- Knowledge of relevant statistical theories and methods
- Knowledge related to the use of laboratory animals
- Comprehensive knowledge of biomedical scientific project design, execution, interpretation, dissemination and presentation, and the ability to put such knowledge into perspective

#### **Skills**

- Have the capacity to design, execute, interpret and present experimental studies in the field of biomedicine at a high international scientific level
- Have the ability to critically assess the research results of their peers in the biomedical research field
- Hold a license to work with laboratory animals in accordance with current legislation
- Have the capacity to independently initiate and perform intra- and interdisciplinary cooperative projects and to assume professional responsibilities
- Be able to convey research-based knowledge and to communicate at a high academic level with peers and non-specialists in the fields of biomedicine and health science

#### **Competencies**

- Has achieved considerable competence in the use of analytical skills, critical thinking and the ability to collect/find, compound and present information
- Has achieved considerable competence with regard to the retrieval, evaluation and summarizing of new knowledge in the fields of biomedicine and health science
- Has achieved competence with regard to controlling complex work and development situations that are not known in advance and therefore require new solutions
- Has achieved great competence with regard to taking responsibility of continued professional self-development and specialization

### **Part 2 Modules, instruction, maximum duration of study**

#### **§4 Modules and methods of instruction**

The programme is comprised of modules divided into 3 categories: Natural Science, Health Science and Clinical Subjects.

4.2. Training consists of a combination of lectures and laboratory exercises, and a clinical rotation at a hospital ward or department.

4.3. On the 3<sup>rd</sup> and 4<sup>th</sup> semester of the MSc's programme, an experimental thesis project must be completed. The master's thesis is credited 50 ECTS points.

### §5 Maximum duration of study

Students must complete the programme no more than three years following commencement.

5.2. Under special circumstances the study board may waive the deadlines set out in subsection 5.1.

## Part 3 Study and exam activities

### §6 Compulsory, constituent subject elements and elective elements

The programme's constituent subject elements are:

- Compulsory courses including exams: 60 ECTS
- Master's Thesis: 50 ECTS
- Electives: 10 ECTS

### §7 Study and exam activities

#### 7.1 Table of courses and exams

##### First semester, bloc 1, Outline of courses, exams and ECTS-points

Courses	Course attestation code	ECTS	Exams	ECTS
<u>Molecular Biology and Genetics</u> SHUA13041U	SHUA13041E	2.5	<u>Exam in Molecular Biology and Genetics, Bioinformatics and Systems Biology and Advanced Cell Biology</u>  SHUA13042E	7.5
<u>Bioinformatics and Systems Biology</u> SHUA13043U	SHUA13043E	2.5		
<u>Advanced Cell Biology</u> SHUA13045U	SHUA13045E	2.5		

**First semester, bloc 2, Outline of courses, exams and ECTS-points**

Courses	Course attestation code	ECTS-points	Exams	ECTS-points
<u>Human Anatomy and Physiology</u> SHUA13004U			<u>Exam in Human Anatomy and Physiology</u> SHUA13004E	7.5
<u>Immunology and Microbiology</u> SHUA13026U			<u>Exam in Immunology and Microbiology</u> SHUA13026E	7.5

**Second semester, bloc 3 & 4, Outline of courses, exams and ECTS-points**

Courses	Course attestation code	ECTS	Exams	ECTS
<u>Pharmacology and Toxicology</u> SHUA13053U Bloc 3	SHUA13053E	2.5	<u>Exam in Pharmacology and Toxicology</u> SHUA13054E	5
<u>Human Pathophysiology</u> SHUA13049U Bloc 3 + 4	SHUA13049E	2.5	<u>Exam in Human Pathophysiology</u> SHUA13050E	10
<u>Clinical Rotation</u> SHUA13051U Bloc 3 + 4	SHUA13051E	2.5		
<u>Laboratory Animal Science</u> SHUA13047U Bloc 4	SHUA13047E	2.5	<u>Exam in Laboratory Animal Science</u> SHUA13048E	2.5
<u>Statistics and Data Analysis for Human Biologists</u> SHUA13024U Bloc 4			<u>Exam in Statistics and Data Analysis for Human Biologists</u> SHUA13024E	2.5

**Third and fourth semester, bloc 1, 2, 3, 4 Master's Thesis and electives**

Courses	Exam registration code	ECTS
<u>Master's Thesis, Human Biology</u> SHUA13012E	SHUA13012E	50
<u>Electives</u>		10

**§8 Group exams**

There are no group exams in this programme.

**§9 Instruction and exam languages**

The programme is conducted in English.

**§10 Elective courses**

The MSc's programme includes an element of elective courses of 10 ECTS-points. This element may be scheduled as a Bloc prior to or concurrently with the master's thesis.

10. 2. The study board ensures a number of elective courses each credited 2.5 ECTS, 5 ECTS, 7.5 ECTS or 10 ECTS-points. These elective courses are described in the course database and published no later than 1 May.

10. 3. The study board offers elective courses that are aligned with the objective of the MSc's programme, see 1.1.

**§11 Master's thesis**

During the 3<sup>rd</sup> and 4<sup>th</sup> semester of the programme students must complete an experimental master's thesis. The thesis must demonstrate the student's ability to formulate, analyse and process issues within a relevant, limited subject in the health sciences in a qualified way.

11.2. The master's thesis is compiled by each student alone.

11.3. The thesis must be completed in accordance with the approved contract and comprise the equivalent of minimum 50 and maximum 70 A4 pages written in point 12, Times New Roman, line spacing 1.5 and excluding references and optional appendixes. The thesis must include an abstract in English or Danish of no more than one A4 page. The abstract must summarize the problem formulations, the methods used, significant results/findings, a discussion if relevant, and a conclusion. The abstract will be included in the overall assessment of the master's thesis.

11.4. When assessing master's thesis emphasis will be placed on the student's spelling and writing skills as well as the academic content.

11.5. The master's thesis is credited 50 ECTS points.

11.6. The master's thesis concludes the master's programme

**Part 4 Specific provisions****§12 Transitional arrangements**

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## Part 5 Concluding remarks

### **§13 Exemptions from these provisions**

In exceptional circumstances, the study board may grant exemptions from any curriculum provisions within the sole remit of the Study Board.

### **§14 Date of commencement**

This study curriculum takes effect on 1 September 2024.