

University of Tübingen exam regulations for the study program in Medizininformatik / Medical Informatics culminating in an examination for a Master of Science (M.Sc.) degree – Special Provisions –

In accordance with sections §§ 19 paragraph (1)(2)(9) and 32 paragraph (3) LHG (GBl. 2005, 1) in the version of April 2014 (GBl. p. 99), as amended on 23 February 2016 (GBl. p. 108), the University of Tübingen Senate on 28 April 2016 passed the Special Provisions of these exam regulations for the study program in Medizininformatik/ Medical Informatics at the University of Tübingen culminating in an examination for a Master of Science (M.Sc.) degree. Approved by the President on 11 July 2016.

Contents:

Special Provisions

§ 1 Validity of General Provisions

I. Goals, contents and structure of the program

§ 2 Contents and goals, prescribed minimum period for completion, volume, and start date of program

§ 3 Structure

II. Teaching of material

§ 4 Types of classes within the module

§ 5 Languages of instruction and examination

§ 6 Types of assessment

III. Organization of program

§ 7 Volume of material

IV. Master's examination and overall grade

§ 8 Nature and execution of Master's examination

§ 9 Master's thesis

§ 10 Calculation of the Master's overall grade

V. Closing remarks

§ 11 Effective date

§ 1 Validity of General Provisions

The University of Tübingen exam regulations for the study program in Informatics, Bioinformatics, Media Informatics and Medical Informatics culminating in an examination for a Master of Science (M.Sc.) degree – General Provisions – as amended are part of these exam regulations, insofar as no other special provisions have been made.

I. Goals, contents and structure of the program

§ 2 Contents and goals, prescribed minimum period for completion, volume, and start date of program

(1) ¹The Master's program is a research-oriented program following on from a Bachelor's degree in the same field.

²The M.Sc. in Medizininformatik/ Medical Informatics program allows students to obtain long-term scientific qualifications aimed at obtaining and increasing knowledge in a systematic and critical way, and justifying a general scientifically-based occupational qualification for students in the field of Medizininformatik/ Medical Informatics; the program builds upon a first degree in the field.

Media Informatics is the interdisciplinary science of systematic collation, administration, storage, processing and provision of data, information and knowledge in medicine and healthcare. Students must obtain knowledge of current relevant scientific methods in Medical Informatics and intensify that knowledge. Students must become able to analyze problems with the respective experts in the areas of medicine, healthcare and the sciences, and to develop solutions on that basis. Furthermore, graduates must be able to collaborate independently in the development of methods and processes for special problems and to evaluate these problems critically with an eye to effectiveness and efficiency, for instance in the areas of medical data analysis, medical image processing, embedded systems in medical technologies, software certification and information processing in health services.

(2) The prescribed minimum period of study in the Medizininformatik/ Medical Informatics Master's program is set out in § 1 (5) of the General Provisions of these exam regulations. A total of 120 credit points must be obtained to successfully complete this M.Sc. degree program.

The start of the program (winter or summer semester) is set out in the regulations governing admission and enrollment at the University of Tübingen, as amended.

(3) A prerequisite for enrollment in this Master's program is a Bachelor's degree in the subject of Medical Informatics or an equivalent degree with a grade of 2.5 or better. The board of examiners will decide on the equivalency of a degree. The board of examiners may transfer this decision revocably to the head of the board. If there is a set number for admission, the statutes may specify that the selection committee formed for the relevant selection process decides instead. The details may be set out in the selection articles. A further requirement for the Master's program is competence in English of at least level B2 of the Common European Framework of Reference for Languages.

§ 3 Structure

(1) The Master's degree program in Medizininformatik/ Medical Informatics is structured as a two-year program. It concludes with the Master's examination.

(2) Students complete a program of 120 credit points. The program consists of the following modules:

Module number	Compulsory/ Compulsory elective	Module name	Recommended semester (subject to availability and change)	ECTS credits
Study area Advanced Medical Informatics (MEDZ-MEDINFO) with a workload of 9 ECTS				
MEDZ-4110	P	Advanced Medical Informatics	1-3	9
Study area Advanced Bioinformatics (MEDZ-BIOINFO) with a workload of 9 ECTS ₁₎				
BIO-4110	WP	Sequence Bioinformatics	1-3	9

NB: This is a courtesy translation. The sole legally binding document is the German Studien- und Prüfungsordnung für den Studiengang Medizininformatik / Medical Informatics

BIO-4120	WP	Structure and Systems Bioinformatics	1-3	9
Study area Research Practice in Medical Informatics (MEDZ-RES) with a workload of 9 ECTS ¹⁾				
MEDZ-4998	WP	Research Project	1-3	9
Study area Seminar Medizininformatik (MEDZ-SEM) with a workload of 3 ECTS ¹⁾				
BIO-4322	WP	Metagenomics	1-3	3
Study area Biomedical Informatics (MEDZ-BIOMED) with a workload of 24 ECTS ¹⁾				
BIO-4352	WP	Computational Proteomics and Metabolomics	1-3	6
BIO-4110	WP	Sequence Bioinformatics	1-3	9
BIO-4371	WP	Drug Design 1	1-3	6
BIO-4372	WP	Drug Design 2	1-3	6
BIO-4220	WP	Integrative Bioinformatics	1-3	3
INFO-4176	WP	Computational Photography	1-3	6
Study area Medicine-Medical Technology (MEDZ-MEDTECH) with a workload of 18 ECTS ¹⁾				
AS4.1	WP	Bioimaging	1-3	6
AS6.1	WP	Nanoanalytics Interfaces I	1-3	6
AS7.1	WP	Implantology	1-3	6
INFO-4172	WP	Virtual Reality	1-3	6
INFO-4164	WP	Medical Image Processing	1-3	6
Study area Informatics (INFO-INFO) with a workload of 18 ECTS ^{1), 2)}				
INFO-4141	WP	Database systems II	1-3	9
INFO-4183	WP	Evolutionary Algorithms	1-3	6
INFO-4173	WP	Massively Parallel Computing	1-3	6
INFO-4185	WP	Basics of Machine Learning	1-3	6
INFO-4452	WP	Coding Theory	1-3	6
INFO-4482	WP	Proof Theory	1-3	6
INFO-4467	WP	Mathematical Logic II	1-3	6
INFO-4417	WP	Parameterized Algorithms and Complexity	1-3	9
INFO-4142	WP	Database Systems and Modern CPU Architecture	1-3	6
INFO-4341	WP	Communications Networks	1-3	9
INFO-4345	WP	Modelling and Simulation I	1-3	6
INFO-4361	WP	Mobile Robots	1-3	6
INFO-4998	WP	Research Project	1-3	9
Study area Master's Thesis (MASTER)				
MEDZ-4999	P	Master's Thesis including lecture	4	30

¹⁾ Students must select modules to make up the required total of ECTS credits. The modules given in the table above may be selected (subject to when each module is currently on offer). Further modules may be set out in the module handbook. For the study area INFO-INFO, modules from the Master's program in Informatics may be selected as electives, as set out in the handbook. For the study area MEDZ-SEM, modules of 3 ECTS credits from the Master's program in Bioinformatics, or modules from the Master's program in Informatics for the study area INFO-INFO, may be selected as electives. If such elective options exist, students must make use of them so that the required number of credit points is reached in each study area or sub-area, unless the board of examiners approves a differing points schedule.

A student may only select a module from a study area if he/she has not already selected that module in another study area.

2) In the INFO-INFO study area, a student may also select modules totaling up to 18 ECTS credits from the Bachelor's programs in Informatics, Bioinformatics, Media Informatics and Medical Informatics which are recommended for the third to sixth semester in those Bachelor's programs, provided the student has not already taken the modules within the framework of his/her Bachelor's degree studies.

II. Teaching of material

§ 4 Types of classes within the modules

1) Classes of the following types in particular are scheduled regularly:

1. Lectures
2. Seminars and colloquia
3. Exercises and practical experience
4. Guided project collaboration in the context of a working group (research project)
5. Tutorials

2) For classes which are wholly or largely made up of elements of the types listed in (1)(2-5) above, participant numbers may be limited under § 30(5)(1) Landeshochschulgesetz if training could not otherwise be guaranteed in accordance with the regulations or if a limitation is necessary for other reasons of research, teaching or patient care. 3) Subject-related techniques in particular are to be taught in these classes along with interdisciplinary, professionally-oriented qualifications. 4) In addition, students are to have the opportunity to work in small groups to develop the ability to present the knowledge obtained both verbally and in written form. 5) In addition, within the framework of § 30 (5)(1) LHG the right to participate in classes may be restricted or admission to part of the course may be made dependent on the completion of certain coursework, if training could not otherwise be guaranteed in accordance with the regulations or a limitation is necessary for other reasons of research, teaching or patient care.

§ 5 Languages of instruction and examination

1) German and English are the languages of instruction and examination in the Medizininformatik/ Medical Informatics Master's degree program. 2) Classes and exams may take place in German or English; students are required to be sufficiently competent in German and English. 3) The degree may also be obtained by completing the parts of the program offered in English; it is possible to gain enough credit points in the program's English-language classes to complete the degree, with all compulsory classes held in English and in these mandatory and elective classes the coursework may be assessed in English.

§ 6 Types of assessment

The assessed coursework required in each of the modules is set out in § 3 and/or in the module handbook.

III. Organization of program

§ 7 Volume of material

The required volume of study arises from the General Provisions of the exam regulations, the structure of the program and the modules - particularly from § 3 of the Special Provisions of the exam regulations and/or the module handbook.

IV. Master's examination and overall grade

§ 8 Manner and procedure of Master's examination

In addition to the prerequisites set out in the General Provisions of these exam regulations, there are no further requirements for admission to the Master's thesis process and other possible oral examinations to be completed in the final phase of the program under § 15 of the General Provisions.

§ 9 Master's thesis

Provisions governing the Master's thesis are set out in § 17 of the General Provisions of these exam regulations.

§ 10 Calculation of the Master's overall grade

The overall grade of the Master's examination is calculated on 25% of the grade for the Master's thesis module (Master's thesis and any further work required for this module according to the table set out under § 3) and 75% of the average (as weighted by credit points) of the grades of the other graded modules, taking account of the further provisions in § 21 of the General Provisions of these exam regulations.

V. Closing remarks

§ 11 Effective date

¹These exam regulations come into effect on the date of their publication in the University of Tübingen's official bulletin, the Amtliche Bekanntmachungen. ²Their first semester of validity is the winter semester 2016/2017.

Tübingen, 11 July 2016

Professor Dr. Bernd Engler
President