Discipline-Specific Regulations for Study and Examinations for the Master's Program in Mathematics at the University of Potsdam

Dated February 26, 2019

The Faculty Committee of the Faculty of Science at the University of Potsdam has approved on February 26, 2019 the following degree and examination regulations on the basis of Section 19 subsection 1 and Section 22 subsection 1-2 in combination with Section 72 subsection 2 no. 1 of the Brandenburg Higher Education Act (BbgHG) of April 28, 2014 (Law and Ordinance Gazette [GVBl.] I/14, [no. 18]), last amended by Section 2 of the Act of September 20, 2018 (Law and Ordinance Gazette [GVBl.] I/18 [no. 21], p. 2) in combination with the Ordinance on the Design of Examination Regulations to Guarantee the Equivalency of Studies, Examinations, and Degrees (University Examination Ordinance - HSPV) of March 4, 2015 (GVBl. II/15 [no. 12]), and with Section 21 subsection 2 no. 1 of the Basic Constitution of the University of Potsdam (GrundO) dated December 17, 2009 (Bulletin UP no. 4/2010 p. 60) in the FifthAmended Version of the Basic Constitution of the University of Potsdam (GrundO) of August 24, 2018 (Bulletin UP no. 11/2018 p. 634) and Section 1 subsection 2 of the new version of the General Regulations for Study and Examinations for Bachelor's and Master's Degrees at the University of Potsdam Not For Teachers In Training dated January 30, 2013 (BAMA-O) (Bulletin UP no. 3/2013, p. 35), last amended on April 18, 2018 (Bulletin UP 6/2018, p. 370):[1]

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§ 1 Applicability

(1) These regulations apply to the Master's program in Mathematics at the University of Potsdam. These discipline-specific regulations supplement the new version of the General Regulations for Study and Examinations for Bachelor's and Master's Degrees (not for teachers in training) at the University of Potsdam (BAMA-O).

(2) In the event that these regulations contradict the BAMA-O, then the provisions in the BAMA-O supersede these regulations.

§ 2 Degree

The Faculty of Science at the University of Potsdam awards the degree of "Master of Science" (abbreviated as "MSc") to students who have completed the necessary credit points and graduation requirements.

§ 3 Objectives of Master's Program

(1) The academic degree of Master of Science in the field of Mathematics is a graduate degree serving as a professional qualification. The Master's program is research-oriented.

(2) The Mathematics Master's program builds upon the knowledge, skills, abilities, and methods acquired during the Bachelor's degree course. Graduates of this program have a comprehensive overview of the fields and methods of mathematics and can make their own research contributions to a subfield of mathematics. In addition, via the supplementary subjects, students have the opportunity to deepen the skills they acquired during their Bachelor's studies and to extend their scientific competencies in order to enter one of the field of applied mathematics.

(3) They work in industry, at banks and insurance companies, in ecology, in public administration, at research institutes, and in universities. The application areas are very diverse: processing data; developing and applying algebraic, analytical, geometrical, numerical, and stochastic methods; solving optimization problems; and modeling and simulating complex circumstances. These tasks often rely not only on the mathematic skills the graduate has acquired, but also the analytical skills developed there.

(4) Graduates will be able to integrate knowledge, to handle complexity, and to reach scientifically sound decisions even on the basis of incomplete or limited data. They will have time-management skills and be able to acquire new knowledge and skills self-sufficiently and, largely self-directed, carry out research projects or application-oriented projects.

[1] Approved by the President of the University of Potsdam on Xxx ##, 2019

(5) They will be able to convey their conclusions and the underlying information and reasoning clearly and unambiguously at the state of the art of research and applications to laypeople and members of the field; to discuss information, ideas, problems, and solutions at a scholarly level with laypeople and members of the field; and take on extra responsibility within a team.

§ 4 Duration and Organization of Master's Program

(1) The consecutive Master's program in Mathematics is offered at the University of Potsdam as a single-discipline program with a standard completion time (full-time study) of four semesters and 120 credit points (CP). It is possible to begin the program in either winter or summer semester.

(2) The Master's program is subdivided as follows:

Mandatory module	6 CPs
Elective modules	66 CPs
Supplementary subject	18 CPs
Master's thesis	30 CPs

§ 5 Part-time Studies

The Master's program is suitable for part-time study. Part-time study requires advising from the relevant faculty so that an individualized plan of study can be created. Proof of this advising must be attached to an application for part-time study in accordance with Section 3 of the Regulations for Part-Time Studies at the University of Potsdam (Part-Time Regulations). The provisions of the Part-Time Regulations also apply.

§ 6 Modules and the Course of Study for the Master's Program

(1) The mandatory portion of the Master's program in Mathematics comprises the following modules:

Mandatory Modules	Name of Module	CPs
MATVMD861	Academic Reading and Writing	6
Total CPs for mandatory modules to be completed		**6**

(2) In total, 66 CPs must be completed for the elective portion of the Master's program in Mathematics. Of these, a total of 54 LPs must be completed from the modules MATVMD811-816, MATVMD821-828, MATVMD831-838, MATVMD841-844, MATVMD911-912, MATVMD921-922, MATVMD931-932 or MATVMD941-942, and MATMBIP05. Modules must be selected from at least three fields, and in at least two fields, a total of 15 CPs must be completed including the modules listed above. Also, two of the following modules must be completed: MATVMD1011-1012, MATVMD1021-1022, MATVMD1031-1032, and MATVMD1041-1042. The student may select from the following modules:

1. Department: Algebra, Discrete Mathematics, and Geometry

Elective Modules	Name of Module	CPs
MATVMD811	Advanced Topics in Algebra, Discrete Mathematics, and Geometry I	9
MATVMD812	Advanced Topics in Algebra, Discrete Mathematics, and Geometry II	9
MATVMD814	Differential Geometry I	9
MATVMD815	Differential Geometry II	9
MATVMD816	Analysis on Graphs	9
MATVMD911	Advanced Topics in Algebra, Discrete Mathematics, and Geometry I	6
MATVMD912	Advanced Topics in Algebra, Discrete Mathematics, and Geometry II	6
MATVMD1011	Advanced Seminar in Algebra, Discrete Mathematics, and Geometry I	6
MATVMD1012	Advanced Seminar in Algebra, Discrete Mathematics, and Geometry II	6

2. Department: Analysis and Mathematical Physics

Elective Modules	Name of Module	CPs
MATVMD821	Advanced Topics in Analysis and Mathematical Physics I	9
MATVMD822	Advanced Topics in Analysis and Mathematical Physics II	9

MAT-VMD824	Partial Differential Equations I	9
MAT-VMD825	Partial Differential Equations II	9
MAT-VMD826	Functional Analysis I	9
MAT-VMD827	Functional Analysis II	9
MAT-VMD828	Complex Analysis	9
MAT-VMD921	Advanced Topics in Analysis and Mathematical Physics I	6
MAT-VMD922	Advanced Topics in Analysis and Mathematical Physics II	6
MAT-VMD1021	Advanced Seminar in Analysis and Mathematical Physics I	6
MAT-VMD1022	Advanced Seminar in Analysis and Mathematical Physics II	6

3. Department: Probability Theory and Statistics

Elective Modules	Name of Module	CPs
MAT-VMD831	Advanced Topics in Probability Theory and Statistics I	9
MAT-VMD832	Advanced Topics in Probability Theory and Statistics II	9
MAT-VMD834	Stochastic Processes	9
MAT-VMD835	Stochastic Analysis	9
MAT-VMD837	Statistical Data Analysis	9
MAT-VMD931	Advanced Topics in Probability Theory and Statistics I	6
MAT-VMD932	Advanced Topics in Probability Theory and Statistics II	6
MAT-VMD1031	Advanced Seminar in Probability Theory and Statistics I	6
MAT-VMD1032	Advanced Seminar in Probability Theory and Statistics II	6

4. Department: Applied Mathematics and Numerics

Elective Modules	Name of Module	CPs
MAT-VMD841	Advanced Topics in Applied Mathematics and Numerics I	9
MAT-VMD842	Advanced Topics in Applied Mathematics and Numerics II	9
MAT-VMD844	Survey of Interdisciplinary Mathematics: A Project-Based Introduction	9
MAT-VMD838	Bayesian Inference and Data Assimilation	9
MAT-VMD941	Advanced Topics in Applied Mathematics and Numerics I	6
MAT-VMD942	Advanced Topics in Applied Mathematics and Numerics II	6
MAT-MBIP05	Introduction to Theoretical Systems Biology	6
MAT-VMD1041	Advanced Seminar in Applied Mathematics and Numerics I	6
MAT-VMD1042	Advanced Seminar in Applied Mathematics and Numerics II	6

(3) The supplementary subject has a scope of 18 credit points. The following subjects may be selected as supplementary subjects:

a) Computer science

b) Physics

c) Economics

d) Business administration

e) Cognitive sciences

f) Life sciences with a concentration on animal physiology

g) Life sciences with a concentration on bioinformatics

Instead of one of the listed supplementary subjects, the student may choose Mathematics as their supplementary subject. In that case, the student would select modules from the Mathematics electives under subsection 2 adding up to 18 CPs, provided that these modules were not already selected for the elective requirement.

(4) The supplementary subject of computer science is taught in German. Of the following elective modules, 18 credit points must be completed.

Elective Modules	Name of Module	CPs
Total CPs for elective modules to be completed		**18 CPs**
INF-1040	Concepts of Parallel Programming	6
INF-1070	Smart Data Analysis	6
INF-7010	Architectures and Middleware for Scientific Calculations	6
INF-8020	Machine Learning I	6
INF-8021	Machine Learning II	6

(5) The supplementary subject of physics is taught in English and German. Of the following elective modules, 18 credit points must be completed (2x9 CPs or 3x6 CPs).

Elective Modules	Name of Module	CPs
Total CPs for elective modules to be completed		**18 CPs**
PHY_411	Theoretical Physics III Quantum Mechanics	9
PHY_511	Theoretical Physics IV: Thermodynamics and Statistical Physics	9
PHY_541c	Advanced Module in Statistical and Nonlinear Physics	9
PHY_541d	Advanced Module: Photons and Other Quanta	9
PHY_541e	Advanced Module in Climate Physics	9
PHY_701	Upper-Level Experimental Physics	9
PHY_711	Upper-Level Theoretical Physics	9
PHY_731a	Astroparticle Physics	6
PHY_731c	Advanced Topics of Climate Physics	6
PHY_731e	Advanced Topics in Gravitational Physics	6
PHY_731g	Gravitation and Cosmology	6
PHY_731i	Quantum Information	6
PHY_731k	Space Physics and Space Weather	6
PHY_731m	Material Science	6
PHY_731p	Particles and Fields	6
PHY_731q	Quantum Optics	6
PHY_731s	Advanced Topics in Solid State Physics	6
PHY_731t	Advanced Topics in Modern Astrophysics	6
PHY_731z	Frontiers of Physics	6

(6) The supplementary subject of economics is taught in German. Of the following elective modules, 18 credit points must be completed.

Elective Modules	Name of Module	CPs
Total CPs for elective modules to be completed		**18 CPs**
BVMVWL 111	Public Economics	6
BVMVWL 112	State and Allocation	6
BVMVWL 211	International Economic Policy I	6
BVMVWL 212	International Economic Policy II	6
BVMVWL 311	Competition Theory and Policy	6
BVMVWL 312	Economic Policy	6
BBMVWL 420	Empirical Economic Research	6

(7) The supplementary subject of Business Administration is taught in German. Of the following elective modules, 18 credit points must be completed.

Elective Modules	Name of Module	CPs
Total CPs for elective modules to be completed		**18**
BBMBWL 300	Introduction to Marketing	6

BBMBWL 400	Annual Financial Statements	6
BBMBWL 500	Entrepreneurial Thought and Founding a Business	6
BBMBWL 600	Comptrolling, Calculating Costs and Performance	6

(8) For the supplementary subject of Cognitive Sciences, 18 credit points must be completed (2x9 CPs or 3x6 CPs) of the following elective modules.

Elective Modules	**Name of Module**	**CPs**
Total CPs for elective modules to be completed		**18**
CSEMA--040	Cognitive Science and Embodied Cognition	9
CSE-MA-011	Mathematical Modeling in Neurocognitive Psychology	9
CSE-MA-012	Neuroscience of Embodied Cognition	9
CSE-MA-013	Advanced Methods: Experimental Programming	6
CSE-MA-014	Advanced Methods: Multivariate Statistics	9
CSE-MA-020	Developmental Science and Embodiment	6
CSE-MA-021	Language and Development	6
CSE-MA-022	Cognitive and Sensorimotor Development	6
CSE-MA-030	Neurolinguistic Perspectives	6
PHI_MA_015	Philosophy of Neuroscience and Embodied Cognition	6
CSE-MA-031	Cognitive Neuroscience, Neuropsychology, and the Body	6

(9) The supplementary subject of Life Sciences with a Concentration on Animal Physiology is taught in German. Of the following elective modules, 18 credit points must be completed.

Elective Modules	**Name of Module**	**CPs**
Total CPs for elective modules to be completed		**18**
BIO-B-KM1	State of the Art in Biochemistry and Molecular Biology	6
BIO-1.06MA	Foundations of General Zoology	6
BIO-1.13MA	Animal Physiology	6

(10) For the supplementary subject of Life Sciences with a Concentration on Bioinformatics, 18 credit points must be completed of the following elective modules.

Elective Modules	**Name of Module**	**CPs**
Total CPs for elective modules to be completed		**18**
BIO-B-KM1	State of the Art in Biochemistry and Molecular Biology	6
BIO-MBIB04	Molecular, Structural, and Evolutionary Biology for Informaticians	6
BIO-MBIP01	Algorithmic and Mathematical Bioinformatics	6
BIO-MBIP04	Analysis of Cellular Networks	6
BIO-MBIP06	Constraint-Based Modeling of Cellular Networks	6
BIO-MBIW01	Data Integration in Cellular Networks	6
BIO-MBIW02	Advanced Methods for Analysis of Biochemical Networks	6
BIO-MBIW06	Machine Learning in Bioinformatics	6

(11) The language of instruction and examinations for the program is English. The exceptions to this are the supplementary subjects of Computer Science, Physics, Economics, Business Administration, and Life Sciences with a Concentration on Animal Physiology. In these fields, the language of instruction and examinations is generally German.

(12) Further details of the modules listed in subsection 1 are governed by Appendix 1 of these regulations.

(13) Sample courses of study for the Master's program are provided in Appendix 4 of these regulations.

§ 7 Profiles of Master's Program

(1) The modules MATVMD811, MATVMD814, MATVMD815, MATVMD821, MATVMD824, MATVMD825, MATVMD826, MATVMD827, , MATVMD834, MATVMD835, MATVMD911, MATVMD921 MATVMD931, MATVMD1011, MATVMD1021, and MATVMD1031 are associated with the focus area*Structures in Mathematics Inspired by Physics*.

(2) The modules MAT-MBIP05, MATVMD822, MATVMD824, MATVMD826, MATVMD832, MATVMD834, MATVMD835, MATVMD837, MATVMD838, MATVMD842, MATVMD844, MATVMD922, MATVMD932, MATVMD942, MATVMD1022, MATVMD1032, and MATVMD1042 are associated with the focus area *Mathematical Modeling and Data Analysis*.

(3) A Master's thesis shall be attributed to one of the two focus areas by the first reviewer of the Master's thesis; this attribution shall be approved by the Examining Board when the Master's thesis is registered. A master's thesis can be associated with one focus area at most.

(4) If at least 27 CPs and the Master's thesis are in one of the focus areas, the focus area shall be listed on the student's certificate.

§ 8 Passes

In the Master's program in Mathematics, students have two passes (non-binding exams).

§ 9 Stay Abroad

It is recommended that students in the Master's degree program should spend the third semester abroad.

§ 10 Mentor System

At the beginning of the program, students in the Master of Science degree program shall be assigned as a mentor one of the authorized examiners as defined in BAMA-O Section 7 subsection 1 and 2. The mentors regularly advise the students assigned to them with all questions of organizing and individually planning their studies. In consultation with the mentors, students may change mentors.

§ 11 Master's Thesis

(1) As soon as the student has completed 75 percent of the total credit points to be earned in the degree program, excluding the credit points for the thesis (72 points), he or she must immediately propose a topic for his/her Master's thesis.

(2) The Master's thesis, including the oral defense, is equivalent to 30 credit points.

(3) The Master's thesis may be written in English or German.

§ 12 Application, Expiration, and Transitional Provisions

(1) These regulations take effect on the day after their publication in the Official Public Notices of the University of Potsdam.

(2) These regulations apply to all students who enroll in the Master's program in Mathematics at the University of Potsdam after these regulations are published officially.

Appendix 1: Module Catalog

The descriptions of the program's modules listed in Section 6 subsection 1 and the tables below are governed by the statutes of the module catalog of the Faculty of Science as a supplement to the Bachelor's and Master's programs at the University of Potsdam (Math & Sciences module catalog). Supplementary regulations and/or deviations from the Math & Sciences module catalog are indicated in the tables that follow.

Module number:	Module name:	Mand./ Elec.	CPs	Prerequisite for taking the module:
MATVMD811	Advanced Topics in Algebra, Discrete Mathematics, and Geometry I	Elec.	9	see the Math & Sciences module catalog
MATVMD812	Advanced Topics in Algebra, Discrete Mathematics, and Geometry II	Elec.	9	see the Math & Sciences module catalog
MATVMD814	Differential Geometry I	Elec.	9	see the Math & Sciences module catalog
MATVMD815	Differential Geometry II	Elec.	9	see the Math & Sciences module catalog
MATVMD816	Analysis on Graphs	Elec.	9	see the Math & Sciences module catalog
MATVMD821	Advanced Topics in Analysis and Mathematical Physics I	Elec.	9	see the Math & Sciences module catalog
MATVMD822	Advanced Topics in Analysis and Mathematical Physics II	Elec.	9	see the Math & Sciences module catalog
MATVMD824	Partial Differential Equations I	Elec.	9	see the Math & Sciences module catalog
MATVMD825	Partial Differential Equations II	Elec.	9	see the Math & Sciences module catalog
MATVMD826	Functional Analysis I	Elec.	9	see the Math & Sciences module catalog
MATVMD827	Functional Analysis II	Elec.	9	see the Math & Sciences module catalog
MATVMD828	Complex Analysis	Elec.	9	see the Math & Sciences module catalog
MATVMD831	Advanced Topics in Probability Theory and Statistics I	Elec.	9	see the Math & Sciences module catalog
MATVMD832	Advanced Topics in Probability Theory and Statistics II	Elec.	9	see the Math & Sciences module catalog
MATVMD834	Stochastic Processes	Elec.	9	see the Math & Sciences module catalog
MATVMD835	Stochastic Analysis	Elec.	9	see the Math & Sciences module catalog
MATVMD837	Statistical Data Analysis	Elec.	9	see the Math & Sciences module catalog
MATVMD838	Bayesian Inference and Data Assimilation	Elec.	9	see the Math & Sciences module catalog
MATVMD841	Advanced Topics in Applied Mathematics and Numerics I	Elec.	9	see the Math & Sciences module catalog
MATVMD842	Advanced Topics in Applied Mathematics and Numerics II	Elec.	9	see the Math & Sciences module catalog
MATVMD844	Survey of Interdisciplinary Mathematics: A Project-Based Introduction	Elec.	9	see the Math & Sciences module catalog
MATVMD861	Academic Reading and Writing	Mand.	6	see the Math & Sciences module catalog
MATVMD911	Advanced Topics in Algebra, Discrete Mathematics, and Geometry I	Elec.	6	see the Math & Sciences module catalog
MATVMD912	Advanced Topics in Algebra, Discrete Mathematics, and Geometry II	Elec.	6	see the Math & Sciences module catalog
MATVMD921	Advanced Topics in Analysis and Mathematical Physics I	Elec.	6	see the Math & Sciences module catalog

MATVMD922	Advanced Topics in Analysis and Mathematical Physics II	Elec.	6	see the Math & Sciences module catalog
MATVMD931	Advanced Topics in Probability Theory and Statistics I	Elec.	6	see the Math & Sciences module catalog
MATVMD932	Advanced Topics in Probability Theory and Statistics II	Elec.	6	see the Math & Sciences module catalog
MATVMD941	Advanced Topics in Applied Mathematics and Numerics I	Elec.	6	see the Math & Sciences module catalog
MATVMD942	Advanced Topics in Applied Mathematics and Numerics II	Elec.	6	see the Math & Sciences module catalog
MAT-MBIP05	Introduction to Theoretical Systems Biology	Elec.	9	see the Math & Sciences module catalog
MATVMD1011	Advanced Seminar in Algebra, Discrete Mathematics, and Geometry I	Elec.	6	see the Math & Sciences module catalog
MATVMD1012	Advanced Seminar in Algebra, Discrete Mathematics, and Geometry II	Elec.	6	see the Math & Sciences module catalog
MATVMD1021	Advanced Seminar in Analysis and Mathematical Physics I	Elec.	6	see the Math & Sciences module catalog
MATVMD1022	Advanced Seminar in Analysis and Mathematical Physics II	Elec.	6	see the Math & Sciences module catalog
MATVMD1031	Advanced Seminar in Probability Theory and Statistics I	Elec.	6	see the Math & Sciences module catalog
MATVMD1032	Advanced Seminar in Probability Theory and Statistics II	Elec.	6	see the Math & Sciences module catalog
MATVMD1041	Advanced Seminar in Applied Mathematics and Numerics I	Elec.	6	see the Math & Sciences module catalog
MATVMD1042	Advanced Seminar in Applied Mathematics and Numerics II	Elec.	6	see the Math & Sciences module catalog
INF-1040	Concepts of Parallel Programming	Elec.	6	see the Math & Sciences module catalog
INF-1070	Smart Data Analysis	Elec.	6	see the Math & Sciences module catalog
INF-7010	Architectures and Middleware for Scientific Calculations	Elec.	6	see the Math & Sciences module catalog
INF-8020	Machine Learning I	Elec.	6	see the Math & Sciences module catalog
INF-8021	Machine Learning II	Elec.	6	see the Math & Sciences module catalog
PHY_411	Theoretical Physics III Quantum Mechanics	Elec.	9	see the Math & Sciences module catalog
PHY_511	Theoretical Physics IV: Thermodynamics and Statistical Physics	Elec.	9	see the Math & Sciences module catalog
PHY_541c	Advanced Module in Statistical and Nonlinear Physics	Elec.	9	see the Math & Sciences module catalog
PHY_541d	Advanced Module: Photons and Other Quanta	Elec.	9	see the Math & Sciences module catalog
PHY_541e	Advanced Module in Climate Physics	Elec.	9	see the Math & Sciences module catalog
PHY_701	Upper-Level Experimental Physics	Elec.	9	see the Math & Sciences module catalog
PHY_711	Upper-Level Theoretical Physics	Elec.	9	see the Math & Sciences module catalog
PHY_731a	Astroparticle Physics	Elec.	6	see the Math & Sciences module catalog

PHY_731c	Advanced Topics of Climate Physics	Elec.	6	see the Math & Sciences module catalog
PHY_731e	Advanced Topics in Gravitational Physics	Elec.	6	see the Math & Sciences module catalog
PHY_731g	Gravitation and Cosmology	Elec.	6	see the Math & Sciences module catalog
PHY_731i	Quantum Information	Elec.	6	see the Math & Sciences module catalog
PHY_731k	Space Physics and Space Weather	Elec.	6	see the Math & Sciences module catalog
PHY_731m	Material Science	Elec.	6	see the Math & Sciences module catalog
PHY_731p	Particles and Fields	Elec.	6	see the Math & Sciences module catalog
PHY_731q	Quantum Optics	Elec.	6	see the Math & Sciences module catalog
PHY_731s	Advanced Topics in Solid State Physics	Elec.	6	see the Math & Sciences module catalog
PHY_731t	Advanced Topics in Modern Astrophysics	Elec.	6	see the Math & Sciences module catalog
PHY_731z	Frontiers of Physics	Elec.	6	see the Math & Sciences module catalog
BIO-B-KM1	State of the Art in Biochemistry and Molecular Biology	Elec.	6	see the Math & Sciences module catalog
BIO-1.06MA	Foundations of General Zoology	Elec.	6	see the Math & Sciences module catalog
BIO-1.13MA	Animal Physiology	Elec.	6	see the Math & Sciences module catalog
BIO-MBIB04	Molecular, Structural, and Evolutionary Biology for Informaticians	Elec.	6	see the Math & Sciences module catalog
BIO-MBIP01	Algorithmic and Mathematical Bioinformatics	Elec.	6	see the Math & Sciences module catalog
BIO-MBIP04	Analysis of Cellular Networks	Elec.	6	see the Math & Sciences module catalog
BIO-MBIP06	Constraint-Based Modeling of Cellular Networks	Elec.	6	see the Math & Sciences module catalog
BIO-MBIW01	Data Integration in Cellular Networks	Elec.	6	see the Math & Sciences module catalog
BIO-MBIW02	Advanced Methods for Analysis of Biochemical Networks	Elec.	6	see the Math & Sciences module catalog
BIO-MBIW06	Machine Learning in Bioinformatics	Elec.	6	see the Math & Sciences module catalog

CP = Number of credit points; Mand. = Mandatory/core module; Elec. = Elective module

The descriptions of the program's modules listed in Section 6 subsection 1 and the tables below are governed by the statutes of the module catalog of the Faculty of Economics and Social Sciences as a supplement to the Bachelor's and Master's programs at the University of Potsdam (Econ & Social Sci module catalog). Supplementary regulations and/or deviations from the Econ & Social Sci module catalog are indicated in the tables that follow.

Module number:	**Module name:**	**Mand./ Elec.**	**CPs**	**Prerequisites**
BVMVWL111	Public Economics	Elec.	6	see Econ & Social Sci module catalog
BVMVWL112	State and Allocation	Elec.	6	see Econ & Social Sci module catalog

BVMVWL211	International Economic Policy I	Elec.	6	see Econ & Social Sci module catalog
BVMVWL212	International Economic Policy II	Elec.	6	see Econ & Social Sci module catalog
BVMVWL311	Competition Theory and Policy	Elec.	6	see Econ & Social Sci module catalog
BVMVWL312	Economic Policy	Elec.	6	see Econ & Social Sci module catalog
BBMVWL420	Empirical Economic Research	Elec.	6	see Econ & Social Sci module catalog
BBMBWL300	Introduction to Marketing	Elec.	6	see Econ & Social Sci module catalog
BBMBWL400	Annual Financial Statements	Elec.	6	see Econ & Social Sci module catalog
BBMBWL500	Entrepreneurial Thought and Founding a Business	Elec.	6	see Econ & Social Sci module catalog
BBMBWL600	Comptrolling, Calculating Costs and Performance	Elec.	6	see Econ & Social Sci module catalog

CP = Number of credit points; Mand. = Mandatory/core module; Elec. = Elective module

The descriptions of the program's modules listed in Section 6 subsection 1 and the tables below are governed by the statutes of the module catalog of the Faculty of Human Sciences as a supplement to the Bachelor's and Master's programs at the University of Potsdam (Human Sciences module catalog). Supplementary regulations and/or deviations from the Human Sciences module catalog are indicated in the tables that follow.

Module number:	**Module name:**	**Mand./ Elec.**	**CPs**	**Prerequisites**
CSE-MA-040	Cognitive Science and Embodied Cognition	Elec.	9	see Human Sciences module catalog
CSE-MA-011	Mathematical Modeling in Neurocognitive Psychology	Elec.	9	see Human Sciences module catalog
CSE-MA-012	Neuroscience of Embodied Cognition	Elec.	9	see Human Sciences module catalog
CSE-MA-013	Advanced Methods: Experimental Programming	Elec.	6	see Human Sciences module catalog
CSE-MA-014	Advanced Methods: Multivariate Statistics	Elec.	9	see Human Sciences module catalog
CSE-MA-020	Developmental Science and Embodiment	Elec.	6	see Human Sciences module catalog
CSE-MA-021	Language and Development	Elec.	6	see Human Sciences module catalog
CSE-MA-022	Cognitive and Sensorimotor Development	Elec.	6	see Human Sciences module catalog
CSE-MA-030	Neurolinguistic Perspectives	Elec.	6	see Human Sciences module catalog
CSE-MA-031	Cognitive Neuroscience, Neuropsychology, and the Body	Elec.	6	see Human Sciences module catalog

The descriptions of the program's modules listed in Section 6 subsection 1 and the tables below are governed by the statutes of the module catalog of the Faculty of Philosophy as a supplement to the Bachelor's and Master's programs at the University of Potsdam (Phil module catalog). Supplementary regulations and/or deviations from the Philosophy module catalog are indicated in the tables that follow.

Module number:	**Module name:**	**Mand./ Elec.**	**CPs**	**Prerequisites**
PHI_MA_015	Philosophy of Neuroscience and Embodied Cognition	Elec.	6	see Phil module catalog

Appendix 1 Courses of study

Course of study version 1a for the supplementary subject of Computer Science, program starting in winter semester

1st semester	2nd semester	3rd semester	4th semester
MATVMD824 Elective module 9 CPs	MATVMD825 or 827 Elective module 9 CPs	MATVMD837 Elective module 9 CPs	Master's thesis 30 CPs
MATVMD826 Elective module 9 CPs	MATVMD814 Elective module 9 CPs	MATVMD844 Elective module 9 CPs	
MATVMD1011 Advanced Seminar 6 CPs	Module II of Supplementary Subject 6 CPs	Module III of Supplementary Subject 6 CPs	
MATVMD1012 Advanced Seminar 6 CPs	Module I of Supplementary Subject 6 CPs	MATVMD861 Academic Reading and Writing 6 CPs	
30 CPs	30 CPs	30 CPs	30 CPs

Modules for Supplementary Subject (***Computer Science***, beginning program in winter semester):

Module I of Supplementary Subject: INF-8020 Machine Learning I

Module II of Supplementary Subject: INF-1040 Concepts of Parallel Programming or
INF-1070 Smart Data Analysis

Module III of Supplementary Subject: INF-8021 Machine Learning II

Course of study version 1b for the supplementary subject of Computer Science, program starting in summer semester

1st semester	2nd semester	3rd semester	4th semester
MATVMD814 Elective module 9 CPs	MATVMD824 Elective module 9 CPs	MATVMD827 or 825 Elective module 9 CPs	Master's thesis 30 CPs
MATVMD834 Elective module 9 CPs	MATVMD826 Elective module 9 CPs	MATVMD838 Elective module 9 CPs	
MATVMD1031 Advanced Seminar 6 CPs	MATVMD1032 Advanced Seminar 6 CPs	MATVMD861 Academic Reading and Writing 6 CPs	
Module I of Supplementary Subject 6 CPs	Module II of Supplementary Subject 6 CPs	Module III of Supplementary Subject 6 CPs	
30 CPs	30 CPs	30 CPs	30 CPs

Modules for Supplementary Subject (***Computer Science***, beginning program in summer semester):

Module I of Supplementary Subject: INF-8020 Machine Learning I

Module II of Supplementary Subject: INF-8021 Machine Learning II

Module III of Supplementary Subject: INF-1070 Smart Data Analysis or
INF-1040 Concepts of Parallel Programming

Course of study version 2a for the supplementary subject of Economics, program starting in winter semester

1st semester	2nd semester	3rd semester	4th semester
MATVMD824 Elective module 9 CPs	MATVMD825 or 827 Elective module 9 CPs	MATVMD837 Elective module 9 CPs	Master's thesis 30 CPs
MATVMD826 Elective module 9 CPs	MATVMD838 Elective module 9 CPs	MATVMD844 Elective module 9 CPs	
MATVMD1011 Advanced Seminar 6 CPs	MATVMD1021 Advanced Seminar 6 CPs	MATVMD861 Academic Reading and Writing 6 CPs	
Module I of Supplementary Subject 6 CPs	Module II of Supplementary Subject 6 CPs	Module III of Supplementary Subject 6 CPs	
30 CPs	30 CPs	30 CPs	30 CPs

Modules for Supplementary Subject (***Economics***, beginning program in winter semester):

Module I or III of Supplementary Subject: B.VM.VW112 State and Allocation or
B.VM.VWL312 Economic Policy

Module II of Supplementary Subject: B.VM.VWL111 Public Economics or
B.VM.VWL211 International Economic Policy I
B.VM.VWL311 Competition Theory and Policy

Module III of Supplementary Subject: B.VM.VWL420 Empirical Economic Research or
B.VM.VWL212 International Economic Policy II

Course of study version 2b for the supplementary subject of Economics, program starting in summer semester

1st semester	2nd semester	3rd semester	4th semester
MATVMD814 Elective module 9 CPs	MATVMD824 Elective module 9 CPs	MATVMD825 or 827 Elective module 9 CPs	Master's thesis 30 CPs
MATVMD834 Elective module 9 CPs	MATVMD837 Elective module 9 CPs	MATVMD838 Elective module 9 CPs	
MATVMD1031 Advanced Seminar 6 CPs	MATVMD1041 Advanced Seminar 6 CPs	MATVMD861 Academic Reading and Writing 6 CPs	
Module I of Supplementary Subject 6 CPs	Module II of Supplementary Subject 6 CPs	Module III of Supplementary Subject 6 CPs	
30 CPs	30 CPs	30 CPs	30 CPs

Modules for Supplementary Subject (***Economics***, beginning program in summer semester):

Module I of Supplementary Subject: B.VM.VWL111 Public Economics or
B.VM.VWL211 International Economic Policy I

Module II of Supplementary Subject: B.VM.VW112 State and Allocation or
B.VM.VWL312 Economic Policy or
B.VM.VWL420 Empirical Economic Research or
B.VM.VWL212 International Economic Policy II

Module III of Supplementary Subject: B.VM.VWL311 Competition Theory and Policy

Course of study version 3 for the supplementary subject of Business Administration, program starting in summer semester

1st semester	2nd semester	3rd semester	4th semester
MATVMD814 Elective module 9 CPs	MATVMD824 Elective module 9 CPs	MATVMD825 or 827 Elective module 9 CPs	Master's thesis 30 CPs
MATVMD834 Elective module 9 CPs	MATVMD826 Elective module 9 CPs	MATVMD838 Elective module 9 CPs	
MATVMD1031 Advanced Seminar 6 CPs	MATVMD1011 Advanced Seminar 6 CPs	MATVMD861 Academic Reading and Writing 6 CPs	
Module I of Supplementary Subject 6 CPs	Module II of Supplementary Subject 6 CPs	Module III of Supplementary Subject 6 CPs	
30 CPs	30 CPs	30 CPs	30 CPs

Modules for Supplementary Subject (***Business Administration***, beginning program in summer semester):

Module I or III of Supplementary Subject: B.BM.BWL500 Entrepreneurial Thought and Founding a Business or
B.BM.BWL600 Comptrolling, Calculating Costs and Performance
B.BM.BWL400 Annual Financial Statements

Module II of Supplementary Subject: B.BM.BWL300 Introduction to Marketing or

Course of study version 4a for the supplementary subject of physics, program starting in winter semester

1st semester	2nd semester	3rd semester	4th semester
MATVMD824 Elective module 9 CPs	MATVMD825 or 827 Elective module 9 CPs	MATVMD837 Elective module 9 CPs	Master's thesis 30 CPs
MATVMD826 Elective module 9 CPs	MATVMD838 Elective module 9 CPs	MATVMD844 Elective module 9 CPs	
MATVMD1011 Advanced Seminar 6 CPs	MATVMD1031 Advanced Seminar 6 CPs	MATVMD861 Academic Reading and Writing 6 CPs	
Module I of Supplementary Subject 6 CPs	Module II of Supplementary Subject 6 CPs	Module III of Supplementary Subject 6 CPs	
30 CPs	30 CPs	30 CPs	30 CPs

Modules for Supplementary Subject (***Physics***, beginning program in winter semester):

Module I or III of Supplementary Subject: PHY_731g Gravitation and Cosmology or
PHY_731m Material Science or
PHY_731q Quantum Optics or
PHY_731s Advanced Topics in Solid State Physics or
PHY_731z Frontiers of Physics

Module II of Supplementary Subject: PHY-731a Astroparticle Physics or
PHY_731m Material Science or
PHY_731s Advanced Topics in Solid State Physics or
PHY_731z Frontiers of Physics

Course of study version 4b for the supplementary subject of physics, program starting in summer semester

1st semester	2nd semester	3rd semester	4th semester
MATVMD814 Elective module 9 CPs	MATVMD824 Elective module 9 CPs	MATVMD825 or 827 Elective module 9 CPs	Master's thesis 30 CPs
MATVMD834 Elective module 9 CPs	MATVMD826 Elective module 6 CPs	MATVMD838 Elective module 9 CPs	
MATVMD1031 Advanced Seminar 6 CPs	MATVMD1011 Advanced Seminar 6 CPs	MATVMD861 Academic Reading and Writing 6 CPs	
Module I of Supplementary Subject 6 CPs	Module II of Supplementary Subject 6 CPs	Module III of Supplementary Subject 6 CPs	
30 CPs	30 CPs	30 CPs	30 CPs

Modules for Supplementary Subject (***Physics***, beginning program in summer semester):

Module I or III of Supplementary Subject: PHY-731a Astroparticle Physics or
PHY_731m Material Science or
PHY_731s Advanced Topics in Solid State Physics or
PHY_731z Frontiers of Physics

Module II of Supplementary Subject: PHY_731g Gravitation and Cosmology or
PHY_731m Material Science or
PHY_731q Quantum Optics or
PHY_731s Advanced Topics in Solid State Physics or
PHY_731z Frontiers of Physics II

Course of study version 5a for the supplementary subject of Cognitive Sciences, program starting in winter semester

1st semester	2nd semester	3rd semester	4th semester
MATVMD824 Elective module 9 CPs	MATVMD825 or 827 Elective module 9 CPs	MATVMD826 Elective module 9 CPs	Master's thesis 30 CPs
MATVMD837 Elective module 9 CPs	MATVMD834 Elective module 6 CPs	MATVMD844 Elective module 6 CPs	
MATVMD1011 Advanced Seminar 6 CPs	MATVMD1031 Advanced Seminar 6 CPs	MATVMD861 Scholarly Work and Writing 6 CPs	
Module I of Supplementary Subject 6 CPs	Module II of Supplementary Subject 6 CPs	Module III of Supplementary Subject 6 CPs	
30 CPs	30 CPs	30 CPs	30 CPs

Modules for Supplementary Subject (***Cognitive Sciences***, beginning program in winter semester):

Module I or III of Supplementary Subject: CSE-MA-020 Developmental Science and Embodiment or
CSE-MA-030 Neurolinguistic Perspectives or
CSE-MA-031 Cognitive Neuroscience, Neuropsychology, and the Body

Module II of Supplementary Subject: CSE-MA-021 Language and Development or
PHI_MA_015 Philosophy of Neuroscience and Embodied Cognition or
CSE-MA031 Cognitive Neuroscience, Neuropsychology, and the Body

Course of study version 5b for the supplementary subject of Cognitive Sciences, program starting in summer semester

1st semester	2nd semester	3rd semester	4th semester
MATVMD814 Elective module 9 CPs	MATVMD824 Elective module 9 CPs	MATVMD825 or 827 Elective module 9 CPs	Master's thesis 30 CPs
MATVMD834 Elective module 9 CPs	MATVMD826 Elective module 6 CPs	MATVMD838 Elective module 9 CPs	
MATVMD1031 Advanced Seminar 6 CPs	MATVMD1011 Advanced Seminar 6 CPs	MATVMD861 Scholarly Work and Writing 6 CPs	
Module I of Supplementary Subject 6 CPs	Module II of Supplementary Subject 6 CPs	Module III of Supplementary Subject 6 CPs	
30 CPs	30 CPs	30 CPs	30 CPs

Modules for Supplementary Subject (***Cognitive Sciences***, beginning program in summer semester):

Module I or III of Supplementary Subject: CSE-MA-021 Language and Development or
PHI_MA_015 Philosophy of Neuroscience and Embodied Cognition or
CSE-MA-031 Cognitive Neuroscience, Neuropsychology, and the Body

Module II of Supplementary Subject: CSE-MA-020 Developmental Science and Embodiment or
CSE-MA-030 Neurolinguistic Perspectives or
CSE-MA031 Cognitive Neuroscience, Neuropsychology, and the Body

Course of study version 6 for the supplementary subject of Life Sciences with a focus on Animal Physiology, program only guaranteed starting in winter semester

1st semester	2nd semester	3rd semester	4th semester
MATVMD824 Elective module 9 CPs	MATVMD834 Elective module 9 CPs	MATVMD826 Elective module 9 CPs	Master's thesis 30 CPs
MATVMD837 Elective module 9 CPs	MATVMD838 Elective module 9 CPs	MATVMD844 Elective module 9 CPs	
Module I of Supplementary Subject 6 CPs	MATVMD1021 Advanced Seminar 6 CPs	MATVMD861 Scholarly Work and Writing 6 CPs	
Module II of Supplementary Subject 6 CPs	MATVMD1031 Advanced Seminar 6 CPs	Module III of Supplementary Subject 6 CPs	
30 CPs	30 CPs	30 CPs	30 CPs

Modules for Supplementary Subject (Life Sciences with a Concentration on ***Animal Physiology***, beginning program in winter semester):

Modules I-III of Supplementary Subject: BIO-B-KM1 State of the Art in Biochemistry and Molecular Biology or

BIO-1.06MA Foundations of General Zoology

or

BIO-1.13MA Animal Physiology

Course of study version 7a for the supplementary subject of Life Sciences with a Concentration on Bioinformatics, program starting in winter semester

1st semester	2nd semester	3rd semester	4th semester
MATVMD824 Elective module 9 CPs	MATVMD825 or 827 Elective module 9 CPs	MATVMD837 Elective module 9 CPs	Master's thesis 30 CPs
MATVMD826 Elective module 9 CPs	MATVMD814 Elective module 9 CPs	MATVMD844 Elective module 9 CPs	
MATVMD1011 Advanced Seminar 6 CPs	MATVMD1021 Advanced Seminar 6 CPs	MATVMD861 Scholarly Work and Writing 6 CPs	
Module I of Supplementary Subject 6 CPs	Module II of Supplementary Subject 6 CPs	Module III of Supplementary Subject 6 CPs	
30 CPs	30 CPs	30 CPs	30 CPs

Modules for Supplementary Subject (Life Sciences with a Concentration on ***Bioinformatics***, beginning program in winter semester):

Module I or III of Supplementary Subject: BIO-B-KM1 State of the Art in Biochemistry and Molecular Biology or

BIO-MBIP01 Algorithmic and Mathematical Bioinformatics or

BIO-MBIP06 Constraint-based Modeling of Cellular Networks or

BIO-MBIW02 Advanced Methods for Analysis of Biochemical Networks

Module II of Supplementary Subject: BIO-MBIB04 Molecular, Structural and Evolutionary Biology for Informaticians or

BIO-MBIP04 Analysis of Cellular Networks or

BIO-MBIW01 Data Integration in Cellular Networks or

BIO-MBIW06 Machine Learning in Bioinformatics

Course of study version 7b for the supplementary subject of Life Sciences with a focus on Bioinformatics, program starting in summer semester

1st semester	2nd semester	3rd semester	4th semester
MATVMD814 Elective module 9 CPs	MATVMD824 Elective module 9 CPs	MATVMD827 or 825 Elective module 9 CPs	Master's thesis 30 CPs
MATVMD834 Elective module 9 CPs	MATVMD826 Elective module 9 CPs	MATVMD838 Elective module 9 CPs	
MATVMD1031 Advanced Seminar 6 CPs	MATVMD1032 Advanced Seminar 6 CPs	MATVMD861 Scholarly Work and Writing 6 CPs	
Module I of Supplementary Subject 6 CPs	Module II of Supplementary Subject 6 CPs	Module III of Supplementary Subject 6 CPs	
30 CPs	30 CPs	30 CPs	30 CPs

Modules for Supplementary Subject (Life Sciences with a Concentration on ***Bioinformatics***, beginning program in summer semester):

Module I or III of Supplementary Subject: BIO-MBIB04 Molecular, Structural and Evolutionary Biology for Informaticians or
BIO-MBIP04 Analysis of Cellular Networks or
BIO-MBIW01 Data Integration in Cellular Networks or
BIO-MBIW06 Machine Learning in Bioinformatics

Module II of Supplementary Subject: BIO-B-KM1 State of the Art in Biochemistry and Molecular Biology or
BIO-MBIP01 Algorithmic and Mathematical Bioinformatics or
BIO-MBIP06 Constraint-based Modeling of Cellular Networks or
BIO-MBIW02 Advanced Methods for Analysis of Biochemical Networks

Course of study version 8a for the supplementary subject of Mathematics, program starting in winter semester

1st semester	2nd semester	3rd semester	4th semester
MATVMD824 Elective module 9 CPs	MATVMD825 or 827 Elective module 9 CPs	MATVMD837 Elective module 9 CPs	Master's thesis 30 CPs
MATVMD826 Elective module 9 CPs	MATVMD814 Elective module 9 CPs	MATVMD844 Elective module 9 CPs	
MATVMD1011 Advanced Seminar 6 CPs	Module II of Supplementary Subject 6 CPs	Module III of Supplementary Subject 6 CPs	
MATVMD1012 Advanced Seminar 6 CPs	Module I of Supplementary Subject 6 CPs	MATVMD861 Academic Reading and Writing 6 CPs	
30 CPs	30 CPs	30 CPs	30 CPs

Modules for Supplementary Subject (***Mathematics***, beginning program in winter semester):

Module I or III of Supplementary Subject: MATVMD911 Advanced Topics in Algebra, Discrete Mathematics and Geometry II or
MATVMD921 Advanced Topics in Analysis and Mathematical Physics I or
MATVMD932 Advanced Topics in Probability Theory and Statistics II or

MATVMD942 Advanced Topics in Applied Mathematics and Numerics II

Module III of Supplementary Subject: MATVMD912 Advanced Topics in Algebra, Discrete Mathematics and Geometry II or

MATVMD922 Advanced Topics in Analysis and Mathematical Physics II or

MATVMD931 Advanced Topics in Probability Theory and Statistics I or

MATVMD941 Advanced Topics in Applied Mathematics and Numerics I

Course of study version 8b for the supplementary subject of Mathematics, program starting in summer semester

1st semester	2nd semester	3rd semester	4th semester
MATVMD814 Elective module 9 CPs	MATVMD824 Elective module 9 CPs	MATVMD827 or 825 Elective module 9 CPs	Master's thesis 30 CPs
MATVMD834 Elective module 9 CPs	MATVMD826 Elective module 9 CPs	MATVMD838 Elective module 9 CPs	
MATVMD1031 Advanced Seminar 6 CPs	MATVMD1032 Advanced Seminar 6 CPs	MATVMD861 Academic Reading and Writing 6 CPs	
Module I of Supplementary Subject 6 CPs	Module II of Supplementary Subject 6 CPs	Module III of Supplementary Subject 6 CPs	
30 CPs	30 CPs	30 CPs	30 CPs

Modules for Supplementary Subject (***Mathematics***, beginning program in summer semester):

Module I or III of Supplementary Subject: MATVMD911 Advanced Topics in Algebra, Discrete Mathematics and Geometry II or

MATVMD921 Advanced Topics in Analysis and Mathematical Physics I or

MATVMD932 Advanced Topics in Probability Theory and Statistics II or

MATVMD942 Advanced Topics in Applied Mathematics and Numerics II

Module II of Supplementary Subject: MATVMD912 Advanced Topics in Algebra, Discrete Mathematics and Geometry II or

MATVMD922 Advanced Topics in Analysis and Mathematical Physics II or

MATVMD931 Advanced Topics in Probability Theory and Statistics I or

MATVMD941 Advanced Topics in Applied Mathematics and Numerics I