Zürcher Hochschule
für Angewandte Wissenschaften

Life Sciences and
Facility Management

Appendix to the Study Regulations for the Master's of Applied Science Programme in Life Sciences

at the School of Life Sciences and Facility Management, Zurich University of Applied Sciences (ZHAW)

Based on § 2 of the General Academic Regulations for Bachelor's and Master's degree programmes of the Zurich University of Applied Sciences (ZHAW) of 29 January 2008, supplementing the Study Regulations for the Master's Programme in Life Sciences of 30 June 2009, the following appendix to the Study Regulations for the Master of Science in Life Sciences of the School of Life Sciences and Facility Management was:

- first enacted by the executive board on 26.10.2009

Disclaimer

This is a non-binding, unofficial translation of the original German version, "Anhang zur Studienordnung für den Master in Life Sciences der Zürcher Hochschule für Angewandte Wissenschaften des Departement Life Sciences und Facility Management". While it was prepared with all due care, the ZHAW School of Management and Law takes no responsibility for any remaining omissions and/or errors. The legally binding document is the original German version, which shall prevail in any case of doubt or differences of interpretation.

Please note that English is not an official language of the Swiss Confederation or the Canton of Zurich. This document is provided for information purposes only and has no legal force.

1. Admission requirements

1.1 Direct admission

Persons who have completed a bachelor's degree from a university of applied science and graduated with an ECTS grade of A or B, or a final mark of at least 5.0 (Swiss grading system) in one of the following fields can begin their studies without any further requirements in the following specialisations:

- Food Technology
- Biotechnology and Pharmacy
- Chemistry

For the Applied Computational Life Sciences (ACLS) specialisation, students who have graduated from a university of applied sciences and hold qualifications in accordance with the previous paragraph from all life sciences fields of study can also begin their studies without any further requirements.

Applicants with a bachelor's degree from a university of the Swiss Federal Institute of Technology (ETH) who meet the final grade requirements (without relevant work experience in the field of the relevant specialisation) are eligible for study in the Master's programme at the Zurich University of Applied Sciences after they have completed a practical bridging programme (6 months internship in the field of the desired specialisation).

1.2 Additional admission requirements (for all students) and admission dependent on an entrance examination (for students who do not fully but to a large extent meet the admission requirements)

Specific admission requirements for admission to the School of Life Sciences and Facility Management's Master of Science in Life Sciences:

1.2.1 Specialisation in Food and Beverage Innovation (FBI)

Students with a tertiary level qualification in the field of food technology (from a university of applied sciences, a university, or the Swiss Federal Institute of Technology - ETH) or with an equivalent qualification in a field related to food technology (e.g., food economics, food science, ecotrophology, beverage technology, etc.) are eligible for the study in the master's programme.

The Programme Director will decide on the equivalence of other degrees in consultation with the Head of Specialisation.

The entrance examination assesses whether applicants meet the level of professional competence that is required to complete a bachelor's degree.

1.2.2 Specialisation in Pharmaceutical Biotechnology (PB)

Students with a tertiary level qualification (from a university of applied sciences, a university, or the Swiss Federal Institute of Technology - ETH) in the field of biotechnology, pharmaceutical biotechnology or pharmaceutical sciences or with a relevant equivalent degree and corresponding proof of practical experience are eligible for study in the master's programme.

The Programme Director will decide on the equivalence of other degrees in consultation with the Head of Specialisation.

The entrance examination assesses whether applications meet the level of professional competence that is required to complete a bachelor's degree.

1.2.3 Specialisation in Chemistry for Life Sciences (CLS)

Students with a tertiary level qualification (from a university of applied sciences, a university, or the Swiss Federal Institute of Technology - ETH) in the field of chemistry or with a relevant equivalent degree and corresponding proof of practical experience are eligible for study in the master's programme.

The Programme Director will decide on the equivalence of other degrees in consultation with the Head of Specialisation.

The entrance examination assesses whether applications meet the level of professional competence that is required to complete a bachelor's degree.

1.2.4 Specialisation in Applied Computational Life Sciences (ACLS)

Students with a tertiary level qualification (from a university of applied sciences, a university, or the Swiss Federal Institute of Technology - ETH) in the fields of food technology, biotechnology, chemistry, environmental sciences, biology, pharmacology, pharmaceutical technology, medical technology or any other discipline related to the life sciences are eligible to be admitted to the master's programme.

The Programme Director will decide on the equivalence of other degrees in consultation with the Head of Specialisation.

The entrance examination assesses whether applications meet the level of professional competence that is required to complete a bachelor's degree.

2. Master's programme organization

The Master's degree in Life Sciences is organised as follows:

2.1 ECTS credits according to specialisation

Module Type	FBI	PB	CLS	ACLS
Cooperation Modules	27-30	30	30	24-30
Specialisation Skills	20-23	20	20	30-36
Master's Thesis	40	40	40	30

The Cooperation Modules are offered in cooperation with the Bern University of Applied Sciences (BFH), the University of Applied Sciences and Arts Northwest Switzerland (FHNW) and the University of Applied Sciences and Arts Western Switzerland (HES-SO). The Specialisation Skills and the Master's Thesis are completed at the ZHAW.

2.2 Abbreviations

Abbreviation	Description
FBI	Specialisation in Food and Beverage Innovation
PB	Specialisation in Pharmaceutical Biotechnology
CLS	Specialisation in Chemistry for the Life Sciences
ACLS	Specialisation in Applied Computational Life Sciences
CO	Computation Cluster
CC	Core Competences
CS	Cluster-specific
CM	Compulsory module (Pflichtmodule)
EM	Elective module (Wahlpflichtmodule)
OM	Optional module (Wahlmodule)
oS	For the modules marked with "oS" (out of semester), assignments or courses may take place outside of the normal semester period. The schedule can be found in the "Annual Schedule for the master's Programme in Life Sciences" document. The modules are run on an annual basis.

3. Module composition

3.1 Individual Study Agreement

The modules to be attended are defined in the Individual Study Agreement (ISA). Students will be registered for all modules indicated in this agreement. The agreement is developed in consultation with the supervising lecturer for the master's thesis, checked by the Head of Specialisation and approved by the Programme Director. The Individual Study Agreement can be amended up to the final deadline each semester. Students wishing to attend extra modules must gain prior approval from the Programme Director.

Credits for the Master of Science in Life Sciences are awarded as follows:

In principle, students should attend modules worth a total of 30 ECTS credits per semester. Exceptions are permitted if the workload is exceeded or not reached as a result of the selected Elective Modules, and it will be compensated for in a subsequent semester.

3.2 Cooperation Modules

3.2.1 Core Competences (CC) and Cluster-specific (CS) Modules:

The Cooperation Modules consist of Core Competences in the area of Data and Business and Cluster-specific Modules. In the Cooperation Master, the specialisations from all partner schools are assigned to so-called clusters (subject areas). Students must select at least 15 out of 24 ECTS credits from the Core Competences modules.

The students choose from the Core Competences and from the specialisation-specific offer of the Cluster-specific Modules to the extent of the required ECTS credits according to the above point 2.1.

Students must take at least 12 ECTS credits from the Core Competences and at least 9 ECTS credits from the Cluster-specific Modules.

3.2.2 Core Competencies

Minimum 12 out of 24 ECTS credits

Module	ECTS Credits	Assessment	FBI	PB	CLS	ACLS
Handling and Visualising Data	3	Grade	EM	CM	EM	CM
Design and Analysis of Experiments	3	Grade	EM	EM	EM	CM
Modelling and Exploration of Multivariate Data	3	Grade	EM	EM	EM	CM
Data and Ethics	3	Grade	EM	EM	EM	EM
Business Administration for Life Sciences	3	Grade	EM	EM	EM	EM
Management and Leadership for Life Sciences	3	Grade	EM	EM	EM	EM
Innovation and Project Management	3	Grade	EM	EM	EM	EM

Module	ECTS Credits	Assess-ment	FBI	PB	CLS	ACLS
Politics and Society	3	Grade	EM	EM	EM	EM

G = Grade, CM = Compulsory module, EM = Elective module

3.2.3 Cluster-specific modules

Minimum 9 ECTS credits

Specialisation in Food and Beverage Innovation (FBI)

Minimum 9 ECTS credits in the Food Cluster

Module	ECTS Credits	Assessment	Type	Cluster/ Group
Progresses in Food Processing	3	Grade	EM	Food
Nutrition and Nutrition Related Chronic Diseases ^{oS}	3	Grade	EM	Food
Foodomics	3	Grade	EM	Food
Sustainable Food Supply Chains	3	Grade	EM	Food
Advanced Sensory Techniques	3	Grade	EM	Food
Journal Club Food and Nutrition Sciences	3	Grade	EM	Food
Life Cycle Assessment	3	Grade	EM	Environment
Sustainable Natural Resource Management	3	Grade	EM	Environment

G = Grade, CM = Compulsory module, EM = Elective module

Specialisation in Pharmaceutical Biotechnology (PB)

Minimum 9 ECTS credits in the Bio/Pharma Cluster

Module	ECTS Credits	Assessment	Type	Cluster/ Group
Compound Profiling in Pharmaceutical Drug Discovery	3	Grade	EM	Bio/Pharma
Physicochemical Principles in Pharmaceutics	3	Grade	EM	Bio/Pharma
Design of Biopharmaceutical Production Facilities	3	Grade	EM	Bio/Pharma
Regulatory Affairs ^{oS}	3	Grade	EM	Bio/Pharma
Physiology and Immunotherapies	3	Grade	EM	Bio/Pharma
Tissue Engineering for Drug Discovery	3	Grade	EM	Bio/Pharma
Bioanalytics in a Regulated Environment	3	Grade	EM	Bio/Pharma
Modelling of Complex Systems	3	Grade	EM	CO
Chemistry and Energy	3	Grade	EM	Chemistry

G = Grade, CM = Compulsory module, EM = Elective module

Specialisation in Chemistry for the Life Sciences (CLS)

Minimum 9 ECTS credits in the Chemistry Cluster

Module	ECTS Credits	Assessment	Type	Cluster/ Group
Materials Science	3	Grade	EM	Chemistry
Surface Characterisation	3	Grade	EM	Chemistry
Polymers and Applications [oS]	3	Grade	EM	Chemistry
Green Chemistry	3	Grade	EM	Chemistry
Chemistry and Energy	3	Grade	EM	Chemistry
Industrial Chemical Process Safety	3	Grade	EM	Chemistry
Modelling of Complex Systems	3	Grade	EM	CO
Machine Learning and Pattern Recognition	3	Grade	EM	CO
Imaging for the Life Sciences	3	Grade	EM	CO
Optimisation and Bio-Inspired Algorithms	3	Grade	EM	CO
Physiology and Immunotherapies	3	Grade	EM	Bio/Pharma
Tissue Engineering for Drug Discovery	3	Grade	EM	Bio/Pharma
Life Cycle Assessment	3	Grade	EM	Environment
Sustainable Natural Resource Management	3	Grade	EM	Environment
Biodiversity	3	Grade	EM	Environment
Nutrition and Nutrition Related Chronic Diseases [oS]	3	Grade	EM	Food
Sustainable Food Supply Chains	3	Grade	EM	Food

G = Grade, CM = Compulsory module, EM = Elective module

Specialisation in Applied Computational Life Sciences (ACLS)

Minimum 6 ECTS credits from the CO Group and a minimum 3 ECTS credits from other the below cluster-specific modules

Module	ECTS Credits	Assess-ment	Type	Clute / Group
Modelling of Complex Systems	3	Grade	CM	CO
Optimisation and Bio-Inspired Algorithms	3	Grade	CM	CO
Imaging for the Life Sciences	3	Grade	EM	CO
Compound Profiling in Pharmaceutical Drug Discovery	3	Grade	EM	Bio/Pharma
Physicochemical Principles in Pharmaceutics	3	Grade	EM	Bio/Pharma
Design of Biopharmaceutical Production Facilities	3	Grade	EM	Bio/Pharma
Regulatory Affairs [oS]	3	Grade	EM	Bio/Pharma
Physiology and Immunotherapies	3	Grade	EM	Bio/Pharma
Tissue Engineering for Drug Discovery	3	Grade	EM	Bio/Pharma
Bioanalytics in a Regulated Environment	3	Grade	EM	Bio/Pharma
Materials Science	3	Grade	EM	Chemistry
Surface Characterisation	3	Grade	EM	Chemistry
Polymers and Applications [oS]	3	Grade	EM	Chemistry
Green Chemistry	3	Grade	EM	Chemistry
Chemistry and Energy	3	Grade	EM	Chemistry
Industrial Chemical Process and Safety	3	Grade	EM	Chemistry
Progress in Food Processing	3	Grade	EM	Food
Nutrition and Nutrition Related Chronic Diseases [oS]	3	Grade	EM	Food
Foodomics	3	Grade	EM	Food
Sustainable Food Supply Chains	3	Grade	EM	Food
Advanced Sensory Techniques	3	Grade	EM	Food
Journal Club Food and Nutrition Sciences	3	Grade	EM	Food
Digital Food Business	3	Grade	EM	Spec. FBI
Journal Club Environmental and Natural Resource Sciences	3	Grade	EM	Environment
Life Cycle Assessment	3	Grade	EM	Environment
Sustainable Natural Resource Management	3	Grade	EM	Environment
Ecological Infrastructure in Landscapes [oS]	3	Grade	EM	Environment
Biodiversity	3	Grade	EM	Environment
Water Management for Households, Industry and Agriculture	3	Grade	EM	Environment

CO = Computation Cluster , CM = Compulsory module, EM = Elective module, oS = For modules marked 'oS' (outside semester), students may be required to obtain Proofs of Performance or to attend courses outside of the semester. The course dates are set out in the document "Annual Plan for the MSc in Life Sciences". The modules are run according to an annual cycle.

3.3 Specialisation Skills

3.3.1 Specialisation in Food and Beverage Innovation (FBI)

Minimum 20 ECTS credits, max. 23 ECTS-Credits

Module	ECTS Credits	Assess-ment	Type
Food Innovation	5	Grade	CM
Product and Process Design	5	Grade	CM
Managing the Food Supply Chain	5	Grade	CM
Food, Society and Nutrition	5	Grade	CM
Digital Food Business*	3	Grade	EM

* Supplementary Additional elective module in the specialisation
CM = Compulsory module, EM = Elective module, oS = For modules marked 'oS' (outside semester), students may be required to obtain Proofs of Performance or to attend courses outside of the semester.

3.3.2 Specialisation in Pharmaceutical Biotechnology (PB)

20 ECTS credits

Module	ECTS Credits	Assess-ment	Type
Biodesign: Ways to active pharmaceutical ingredients oS	5	Grade	CM
Bioprocessing and Bioanalytics oS	5	Grade	CM
Downstream and Safety oS	5	Grade	CM
Drug Formulation and Biological Test Systems oS	5	Grade	CM

CM = Compulsory module, EM = Elective module, oS = For modules marked 'oS' (outside semester), students may be required to obtain Proofs of Performance or to attend courses outside of the semester.

3.3.3 Specialisation in Chemistry for the Life Sciences (CLS)

20 ECTS credits

Module	ECTS Credits	Assess-ment	Type
Small Active Molecules oS	4	Grade	CM
Big Active Molecules oS	4	Grade	CM
Biomaterial and Functional Surfaces oS	4	Grade	CM
Analytical Technologies oS	4	Grade	CM
Green Chemistry – Advanced Concepts oS	4	Grade	CM

G = Grade, CM = Compulsory module, EM = Elective module, oS = For modules marked 'oS' (outside semester), students may be required to obtain Proofs of Performance or to attend courses outside of the semester.

3.3.4 Specialisation in Applied Computational Life Sciences (ACLS)

Minimum 30 ECTS credits, max. 36 ECTS credits

Module	ECTS Credits	Assess-ment	Type
Programming, Algorithms and Data-Structures oS	5	Grade	CM
Mathematical Modelling oS	5	Grade	CM
Databases and Data Architecture Systems oS	4	Grade	CM
Machine Learning and Pattern Recognition oS	3	Grade	CM
Neural Networks and Deep Learning oS	3	Grade	CM
Computational Life Science Seminar oS *	3	Grade	EM
Advanced Deep Learning oS *	3	Grade	EM
Specialisation track module 1 in accordance with Master's Thesis topic	5	Grade	CM
Specialisation track module 2 in accordance with Master's Thesis topic	5	Grade	CM

* Additional elective module in the specialisation
CM = Compulsory module, EM = Elective module, oS = For modules marked 'oS' (outside semester), students may be required to obtain Proofs of Performance or to attend courses outside of the semester.

3.4 Master's thesis

ECTS credits per Specialisation

Distribution of the Milestones for a 40 ECTS credits Master's Thesis:

Module	Type	Assessment	FBI	PB	CLS
Master's Thesis Milestone 1 oS	CM	Grade	10	10	10
Master's Thesis Milestone 2 oS	CM	Grade	10	10	10
Master's Thesis Milestone 3 oS	CM	Grade	10	10	10
Master's Thesis Milestone 4 oS	CM	Grade	10	10	10

Distribution of the Milestones for a 30 ECTS credits Master's Thesis:

Module	Type	Assessment	ACLS
Master's Thesis Milestone 1 oS	CM	Grade	10
Master's Thesis Milestone 2 oS	CM	Grade	10
Master's Thesis Milestone 3 oS	CM	Grade	10

The Master's Thesis is completed in three or four modules (Milestones 1, 2 and 3 or Milestones 1, 2, 3 and 4) with 10 ECTS credits awarded for each module. Several modules can be completed per semester.

3.5 Optional modules

3.5.1 Offers

All cooperation modules and compulsory elective modules of the specialisations are offered as elective modules. The enrolment of elective modules must be discussed in advance with the head of the specialisation and approved by the head of the degree programme.

3.5.2 Overview of available optional Modules for all Specialisations

Module	Module Category	ECTS Credits	Assess-ment	FBI	PB	CLS	ACLS
Handling and Visualis-ing Data	CC	3	Grade	OM	OM	OM	-
Design and Analysis of Experiments	CC	3	Grade	OM	OM	OM	-
Modelling and Exploration of Multivariate Data	CC	3	Grade	OM	OM	OM	-
Data and Ethics	CC	3	Grade	OM	OM	OM	OM
Business Administration for Life Sciences	CC	3	Grade	OM	OM	OM	OM
Management and Leadership for Life Sci-ences	CC	3	Grade	OM	OM	OM	OM
Innovation and Project Management	CC	3	Grade	OM	OM	OM	OM
Politics and Society	CC	3	Grade	OM	OM	OM	OM
Progresses in Food Processing	CS Food	3	Grade	OM	OM	OM	OM
Nutrition and Nutrition Related Chronic Diseases [oS]	CS Food	3	Grade	OM	OM	OM	OM
Foodomics	CS Food	3	Grade	OM	OM	OM	OM
Sustainable Food Supply Chains	CS Food	3	Grade	OM	OM	OM	OM
Advanced Sensory Techniques	CS Food	3	Grade	OM	OM	OM	OM
Journal Club Food and Nutrition Sciences	CS Food	3	Grade	OM	OM	OM	OM
Digital Food Business	Specialisation Skills, FBI	3	Grade	OM	-	-	OM
Compound Profiling in Pharmaceutical Drug Discovery	CS Bio/Pharma	3	Grade	OM	OM	OM	OM

Module	Module Category	ECTS Credits	Assess-ment	FBI	PB	CLS	ACLS
Physicochemical Principles in Pharmaceutics	CS Bio/Pharma	3	Grade	OM	OM	OM	OM
Design of Biopharmaceutical Production Facilities	CS Bio/Pharma	3	Grade	OM	OM	OM	OM
Regulatory Affairs oS	CS Bio/Pharma	3	Grade	OM	OM	OM	OM
Physiology and Immunotherapies	CS Bio/Pharma	3	Grade	OM	OM	OM	OM
Tissue Engineering for Drug Discovery	CS Bio/Pharma	3	Grade	OM	OM	OM	OM
Bioanalytics in a Regulated Environment	CS Bio/Pharma	3	Grade	OM	OM	OM	OM
Materials Science	CS Chemistry	3	Grade	OM	OM	OM	OM
Surface Characterisation	CS Chemistry	3	Grade	OM	OM	OM	OM
Polymers and Applications oS	CS Chemistry	3	Grade	OM	OM	OM	OM
Green Chemistry	CS Chemistry	3	Grade	OM	OM	OM	OM
Chemistry and Energy	CS Chemistry	3	Grade	OM	OM	OM	OM
Industrial Chemical Process Safety	CS Chemistry	3	Grade	OM	OM	OM	OM
Journal Club Environmental and Natural Resource Sciences	CS Environment	3	Grade	OM	OM	OM	OM
Life Cycle Assessment	CS Environment	3	Grade	OM	OM	OM	OM
Sustainable Natural Resource Management	CS Environment	3	Grade	OM	OM	OM	OM
Ecological Infrastructure in Landscapes oS	CS Environment	3	Grade	OM	OM	OM	OM
Biodiversity	CS Environment	3	Grade	OM	OM	OM	OM
Water Management for Households, Industry and Agriculture	CS Environment	3	Grade	OM	OM	OM	OM
Modelling of Complex Systems	CS CO	3	Grade	OM	OM	OM	-
Machine Learning and Pattern Recognition	CS CO	3	Grade	OM	OM	OM	-
Medical Imaging and Image Processing	CS CO	3	Grade	OM	OM	OM	OM

Module	Module Category	ECTS Credits	Assess-ment	FBI	PB	CLS	ACLS
Optimisation Methods	CS CO	3	Grade	OM	OM	OM	-
Computational Life Science Seminar oS	Specialisation Skills, ACLS	3	Grade	-	-	-	OM
Advanced Deep Learn-ing oS	Specialisation Skills, ACLS	3	Grade	-	-	-	OM
External Effort I (2 ECTS credits)	-	2	Pass/Fail	OM	OM	OM	OM
External Effort II (2 ECTS credits)	-	2	Pass/Fail	OM	OM	OM	OM
External Effort I (3 ECTS credits)	-	3	Pass/Fail	OM	OM	OM	OM
External Effort II (3 ECTS credits)	-	3	Pass/Fail	OM	OM	OM	OM

CO = Computation Cluster, CC = Core Competences, CS = Cluster-specific, OM = Optional module, oS = For modules marked 'oS' (outside semester), students may be required to obtain Proofs of Performance or to attend courses outside of the semester. The course dates are set out in the document "Annual Plan for the MSc in Life Sciences". The modules are run according to an annual cycle.

4. German translations for the specialisations

German titles for the specialisations

a. Masterstudium ZHAW in Life Sciences mit Spezialisierung in Lebensmittel- und Getränkeinnovation.

b. Masterstudium ZHAW in Life Sciences mit Spezialisierung in Pharmazeutische Biotechnologie.

c. Masterstudium ZHAW in Life Sciences mit Vertiefung in Chemie für die Lebenswissenschaften.

d. Masterstudium ZHAW in Life Sciences mit Vertiefung in Applied Computational Life Sciences.

5. Time-dependent conditions

5.1 Time-dependent conditions from 30 January 2018

5.1.1 General information

Students who commenced their studies before the Autumn Semester 2018/2019 are subject to the following transitional conditions:

a. Students who passed all Cooperation Modules by the end of the Spring Semester 2018 are subject to the Appendix of 11 April 2017.

b. Students who did not pass all the Cooperation Modules by the end of the Spring Semester 2018 will continue their studies in accordance with the current Appendix.

The assessment of the modules still to be attended and the amendment of the Individual Study Agreement takes into account academic achievements already attained and is based on the following table in section 5.1.2. In principle, new modules offered as of Autumn Semester 2018 may not be taken if a majority of the content has already been covered as part of an already completed module. The Head of Specialisation and the Programme Director must approve exceptions.

5.1.2 Overview of old and new modules

All modules on offer until the end of the Spring Semester 2018 which have been passed are credited towards the degree. The following table shows the contents of the old curriculum (modules offered until the end of Spring Semester 2018) compared to the new modules valid from Autumn Semester 2018:

Code	Old module offered until the end Spring Semester 2018	New module in new curriculum	Alignment with content of a new module	New module content	Code	New modules from Autumn Semester 2018
A1	Innovation and Knowledge Management	No	-	-	-	-
A2	Leadership	No	-	-	-	-
A3	Business Management	No	-	-	-	-
A4	Communication and Market	No	-	-	-	-
A5	Society and Politics	No	-	-	-	-
T17	Management of R&D Projects	No	-	-	-	-
-	-	-	-	Yes	B1	Business Administration for Life Sciences
-	-	-	-	Yes	B2	Management and Leadership for Life Sciences
-	-	-	-	Yes	B3	Innovation and Project Management
-	-	-	-	Yes	B4	Politics and Society
T3	Applied Statistics	No	-	-	-	-
T4	Data Management and Visualisation	No	-	-	-	-
-	-	-	-	Yes	D1	Handling and Visualising Data

Code	Old module offered until the end Spring Semester 2018	New module in new curriculum	Alignment with content of a new module	New module con-tet	Code	New modules from Autumn Semester 2018
-	-	-	-	Yes	D2	Design and Analysis of Experiments
-	-	-	-	Yes	D3	Modelling and Exploration of Mul-tivariate Data
T8	Cellular and Molecular Physiology	No	-	-	-	-
-	-	-	-	Yes	BP5	Physiology and Immun therapies
T2	Nutrition and Nutrition-related Chronic Dis-eases	-	Yes	-	F2	Nutrition and Nutrition Related Chronic Diseases
T7	Biodiversity	-	Yes	-	E5	Biodiversity
T12	Sustainable Develo Ment in NRM	-	Yes	-	E3	Sustainable Natural Resource man-agement
T13	Materials Science	-	Yes	-	C1	Materials Science
T14	Polymers & Applications	-	Yes	-	C3	Polymers and Applications
T15	Modeling of Complex Systems	-	Yes	-	CO1	Modelling of Complex Systems
T16	Sustainable Sourcing, Processing and Trac-ing of Food	-	Yes	-	F4	Sustainable Food Sup-ply Chains
T18	Life Cycle Assessment	-	Yes	-	E2	Life Cycle Assessment
T1	Quality Excellence	No	-	-	-	-
T10	Natural Substances	No	-	-	-	-

B: Management, Business and Society, D: Handling and Understanding Data

CO, BP, C, E and F are cluster-specific modules in the following clusters: Computation Cluster, Bio/Pharma, Chemistry, Environ-ment and Food

5.2 Time-dependent conditions from 07 May 2019

Students who commenced their studies before the Autumn Semester 2019/2020 are subject to the following conditions:

a. Students who passed all Cooperation Modules by the end of the Spring Semester 2018 will continue their studies in accordance with the Appendix from 11 April 2017.

b. Students who did not pass all Cooperation Modules by the end of the spring semester 2018 and were subject to the Appendix from 30 January 2018, or who commenced their studies in accordance with the Appendix from 30 January 2018, shall continue their studies in accordance with the current Appendix.

The transition from the Appendix dated 11 April 2017 to the Appendix dated 30 January 2018 shall be governed by sections 5.1.1 para. 2 and 5.1.2 above.

For the transition to the current Appendix, all modules passed in accordance with a previous Appendix or credited in accordance with section 5.1.1 para. 2 and section 5.1.2, including their evaluation and weighting, shall be retained.

5.3 Time-dependent conditions from 21 January 2020

Students who commenced their studies before the Autumn Semester 2020/2021 are subject to the following conditions:

a. Students who passed all Cooperation Modules by the end of the Spring Semester 2018 will continue their studies in accordance with the Appendix dated 11 April 2017.

b. Students who did not pass all Cooperation Modules by the end of the Spring Semester 2018 and were subject to the Appendix dated 7 May 2019, or who commenced their studies in accordance with the Appendix dated 7 May 2019, shall continue their studies in accordance with the current Appendix.

The transition from the Appendix dated 11 April 2017 to the Appendix dated 30 January 2018 shall be governed by sections 5.1.1 para. 2 and 5.1.2 above.

For the transition to the present Appendix, all modules passed in accordance with a previous Appendix or credited in accordance with section 5.1.1 para. 2 and section 5.1.2, including their evaluation and weighting, shall be retained.

5.4 Time-dependent conditions from 01 April 2021

Students who commenced their studies before the Autumn Semester 2021/2022 are subject to the following conditions:

a. Students who passed all Cooperation Modules by the end of the Spring Semester 2018 will continue their studies in accordance with the Appendix dated 11 April 2017.

b. Students who did not pass all Cooperation Modules by the end of the Spring Semester 2018 and who were subject to the Appendix dated 21 January 2020, or who commenced their studies in accordance with the Appendix dated 21 January 2020, shall continue their studies in accordance with the current Appendix.

The transition from the Appendix dated 11 April 2017 to the Appendix dated, 30 January 2018 shall be governed by sections 5.1.1 para. 2 and 5.1.2 above.

For the transition to the current Appendix, all modules passed in accordance with a previous Appendix or credited in accordance with section 5.1.1 para. 2 and section 5.1.2, including their evaluation and weighting, shall be retained.

5.5 Time-dependent conditions from 28 January 2022

Students who commenced their studies before the Autumn Semester 2022/2023, are subject to the Appendix dated 28 January 2022.

The transition from the Appendix dated 11 April 2017 to the Appendix dated 30 January 2018 shall be governed by sections 5.1.1 para. 2 and 5.1.2 above.

For the transition from the Appendices dated 30 January 2018, 7 May 2019, and 21 January 2020, all modules passed in accordance with these Appendices or in accordance with section 5.1.1 para. 2 and section 5.1.2, including their evaluation and weighting, shall be retained.

For the transition from the Appendix dated 1 April 2021, all previously completed modules will be recognised and transferred unchanged along with their evaluation and weighting. For the "Drug Formulation and Delivery for Solid Dosage Forms" module, as per the Appendix dated 01 April 2021, the following table shall apply:

Code	Old module range offered until the end Spring Semester 2018	Alignment with content in the new	New module content	Code	New modules from Autumn Semester 2018
BP2	Drug Formulation and Delivery for Solid Dosage Forms	-	Yes	BP8	Physicochemical Principles in Pharmaceutics

BP is the abbreviation for the Bio/Pharma clusters

5.6 Time-dependent conditions from 13 January 2023

Students who commenced their studies before the Autumn Semester 2023/2024 are subject to the following conditions:

a. Students who passed all Cooperation Modules by the end of the Spring Semester 2023 remain subject to the Appendix dated 28 January 2022.

b. Students who did not pass all Cooperation Modules by the end of the Spring Semester 2023 shall continue their studies in accordance with the current Appendix.

c. For the transition from the Appendix of 30 January 2018, 7 May 2019, 21 January 2020 and 28 January 2022, all modules passed according to these Appendix or credited according to Clause 5.1.1 Para. 2, Clause 5.1.2 and Clause 5.5, including assessment and weighting, shall be transferred.

The assessment of the modules still to be attended as well as the adjustment of the individual study agreement takes into account the academic achievements already made and is based on

the following table (5.6.1). In principle, modules that are newly offered in accordance with the appendix from autumn semester 2023 may not be taken if the majority of the content has already been covered within the framework of a module that has already been completed. Exceptions must be approved by the head of the specialisation and the head of the degree programme.

5.6.1 Overview old and new modules

All modules passed according to the module offer until the end of spring semester 2023 will be counted towards the degree. The following concordance list shows the contents of the old curriculum (module offer until the end of spring semester 2023) compared to the new module offer valid from autumn semester 2023:

Old Module				Follow-up module				Repetition
Code	**Module title**	**ECTS**	**Last execution**	**Code**	**Module title**	**ECTS**	**First execution**	
- BECS3	Medical Imaging and Image Processing	3	FS 23	- CO4	Imaging for the Life Sciences	3	FS 24	1. attempt
- BECS4	Optimisation Methods	3	FS 23	- CO3	Optimisation and Bio-Inspired Algorithms	3	FS 24	1. attempt

6. Issuing information

6.1 Metadata

Issued by	Head of Education
Decided by	Executive Board
Classification	1.04.01 Führungsgrundlagen
Publication type	Public

6.2 Issuing Process

Version	Beschluss	Beschlussinstanz	Inkrafttreten	Beschreibung Änderung
1.0.0	26.10.2009	HSL	-	Original version
1.1.0	11.05.2012	HSL	01.08.2012	Addition para. 2.1 Admission "English proficiency", para. 3 "aS", addition para. 3.6 Consolidation NRS, para. 4 Adjustment English titles incl. "with specia-lisation".
1.2.0	10.04.2013	HSL	01.08.2013	Para. 1.2 new naming of module categories, amendments in Para. 2 and Para. 3
1.3.0	15.05.2014	HSL	01.08.2014	Para. 2.2 Additional admission requirements
1.4.0	11.04.2017	HSL	01.08.2017	Complementary specialisation Applied Computational Life Sciences (ACLS)
2.0.0	30.01.2018	HSL	01.08.2018	New curriculum from autumn semester 2018, structure completely revised

2.0.1	-	-	-	Revision layout, 31.10.2018
2.1.0	07.05.2019	HSL	01.08.2019	Adjustment of ECTS credits scope (Table 2.0), adjustment of module name F4, reformulation of variants (3.2)
3.0.0	21.01.2020	HSL	01.08.2020	Listing of NRS specialisation deleted, shift in ECTS for ACLS, extension of CS module offer
4.0.0	01.04.2021	Rector	01.08.2021	Adaptation of module title F1 and new WPM in ACLS specialisation
5.0.0	28.01.2022	Rector	01.08.2022	Addition of admission regulations, expansion of the CC module offer, replacement of a module and introduction of empty module envelopes (external efforts) as elective modules
5.0.1	-	-	-	Editorial adjustment as of 1.1.2023 due to dissolution of ZFH Zurich University of Applied Sciences. The title will now be awarded by the ZHAW.
6.0.0	13.01.2023	Head of Education	01.08.2023	Adaptation of curriculum (e.g. reduction of CC compulsory part)