Please note: The only official and thus legally valid version of the subject-specific examination regulations of the master course Environmental Physics is in German. This document is only for informational purposes for persons who are not proficient in the German language.

Subject-Specific Examination Regulations for the Master Course „Environmental Physics“ at the University of Bremen

dated 15 July 2020

These subject-specific examination regulations apply along with the General Part of the Master's Degree Examination Regulations (AT MPO) at the University of Bremen dated 27 January 2010 in the respectively valid version.

§ 1

Scope of Studies and Final Degree

(1) For the successful completion of the master course „Environmental Physics“ (short title: „PEP“) a total of 120 credit points (CP) according to the European Credit Transfer and Accumulation System (ECTS) must be acquired. This corresponds to a regular degree duration of 4 semesters.

(2) The academic degree

Master of Science
(abbreviated M.Sc.)

is conferred on the basis of the passed master examination.

§ 2

Structure of Studies, Modules and Credit Points

(1) The master course „Environmental Physics“ is studied as a Master's degree course according to § 4 paragraph 1 AT MPO.

(2) The course of study is structured as follows:

a) Master Thesis (incl. colloquium), 30 CP,

b) Compulsory Modules with a total of 69 CP,

c) Elective Modules with a total of 21 CP: The list of Elective Modules offered can be supplemented upon a decision of the examination board.

(3) Appendix 1 shows the recommended course of studies, appendix 2 regulates the required examination performances.

(4) Modules are conducted as compulsory or elective modules. Students may take up to two more elective modules than necessary to achieve the required number of credit points. Prior to the beginning of the last semester of study, students must indicate which elective modules are to be included in the final master grade

(5) The compulsory and elective modules provided in the curriculum are offered at least once a year.

(6) Modules are conducted in English.

(7) The courses assigned to the modules are indicated in the module guide.

(8) Courses are conducted according to § 6 paragraph 1 AT MPO.

(9) An optional study abroad is possible in the degree program. The recognition of achievements in the context of a study abroad are to be clarified with the examination board prior to the start of the study abroad. For further details see appendix 5 § 2.

§ 3

Examinations

(1) Examinations are conducted in formats pursuant to § 8 et seq. AT MPO. Furthermore, examinations can be conducted in the following formats:

- portfolio in the form of exercise sheets pursuant to § 8 paragraph 8 AT MPO,
- portfolio in the form of experiments with accepted reports pursuant to § 8 paragraph 8 AT MPO,
- report as final product of the preparatory project

In individual cases and upon request of an examiner, the examination board can accept further examination formats.

(2) According to § 20 paragraph 4 AT MPO, the repetition of an examination not passed can be conducted in a format deviating from the previous one.

(3) Deadlines and scopes of examinations are communicated to the students at the beginning of a module.

(4) Examinations can be conducted as multiple choice examinations or electronic examinations. Further details are set out in appendix 4.

(5) Examinations are conducted in English.

§ 4

Recognition and Accreditation

The recognition or accreditation of achievements is carried out according to § 22 AT MPO in the respectively valid version.

§ 5

Admission Requirements for Modules

Except for the framework of § 6 paragraph 2, there are no admission requirements for modules.

§ 6

Module Master Thesis (including Colloquium)

(1) The module “Master Thesis” (30 CP) comprises the master’s thesis including a colloquium.

(2) 66 CP and thus passing all the compulsory modules except the module “Presentation Techniques in Environmental Physics” are required for the registration of the master’s thesis.

(3) The master’s thesis is to be completed within 24 weeks. Upon a written and justified request to the examination board this period may be extended once for a maximum of eight weeks.

(4) The master’s thesis is done as an individual work.

(5) The master’s thesis is written in English.

(6) A colloquium is part of the module “Master Thesis”. Master’s thesis and colloquium are marked with one common grade. The grade for the master’s thesis is considered with 2/3 and the grade for the colloquium with 1/3 for the common grade.

§ 7

Overall Grade of the Master Examination

The overall grade is made up of the grade of the master’s thesis and the grades of the modules weighted with credit points. Non-graded modules are not included in the calculation.

§ 8

Scope and Entry into Force

(1) These examination regulations come into force on 1 October 2020 after being approved by the President of the University of Bremen. They are published in the official gazette of the Free Hanseatic City of Bremen. They apply to students who start their studies in the master course “Environmental Physics” from the winter semester 2020/21.

(2) Students who started their studies before the winter semester 2020/21, can switch to these examination regulations upon request to the examination board. The request has to be submitted by 15 November 2020 at the latest. The examination board decides on the recognition of achievements depending on the individual case.

(3) The examination regulations of 9 July 2014, last amended on 26 June 2019, will expire on 30 September 2023. Students who won’t have finished their studies by 30 September 2023 switch to these examination regulations. The examination board decides on the recognition of achievements depending on the individual case.

Approved, Bremen, 23 July 2020
The President of the University of Bremen

Appendices:

Appendix 1: Course/Module plan of the master course „Environmental Physics“

Appendix 2: Modules and examination requirements

Appendix 3: Further examination formats (not applicable)

Appendix 4: Procedures for multiple-choice examinations and “e-examinations” (electronic examinations)

Appendix 5: Regulations for Students studying the Sino-German Master Programme in Marine Sciences (Double Degree Program

Appendix 1: Course/Module Plan of the Master Course „Environmental Physics“

The course plan represents a recommendation for the course of studies. Students may attend the modules in a different order.

<table>
<tr><th colspan="2"></th><th colspan="3">Compulsory Modules,
69 CP</th><th>Master Thesis,
30 CP</th><th>Elective Modules,
21 CP</th><th>∑ 120 CP
Distribution
CP/Semester</th></tr>
<tr><td rowspan="5">1. Year</td><td rowspan="2">1.Sem.</td><td>AMMDA
Applied Mathematical Methods and Data Analysis,
6 CP</td><td>AtC
Atmospheric Chemistry,
6 CP</td><td>AtPhy
Atmospheric Physics,
6 CP</td><td></td><td rowspan="2"></td><td rowspan="2">30</td></tr>
<tr><td>Dyn1
Dynamics I,
6 CP</td><td>PhyO1
Physical Oceanography I,
6 CP</td><td></td><td></td></tr>
<tr><td rowspan="3">2.Sem.</td><td>CliS1
Climate System I,
3 CP</td><td>Dyn2
Dynamics II,
3 CP</td><td>MeTe
Measurement Techniques,
6 CP</td><td></td><td rowspan="3">Elective Modules according to appendix 2.3,
12 CP</td><td rowspan="3">30</td></tr>
<tr><td>MES
Modelling of the Earth System,
3 CP</td><td>RemS
Remote Sensing,
3 CP</td><td></td><td></td></tr>
<tr><td rowspan="2">2. Year</td><td rowspan="2">3.Sem.</td><td rowspan="2">PresT
Presentation Techniques in Environmental Physics,
3 CP</td><td colspan="2" rowspan="2">PrEPhy
Preparatory Project,
18 CP</td><td rowspan="2"></td><td rowspan="2">Elective Modules according to appendix 2.3,
9 CP</td><td rowspan="2">30</td></tr>
<tr><td></td></tr>
<tr><td>4.Sem.</td><td colspan="3"></td><td>MTEPhy
Master Thesis,
30 CP</td><td></td><td>30</td></tr>
</table>

CP = Credit Points, Sem. = Semester

Appendix 2: Module and Examination Requirements

2.1 Master Thesis, 30 CP

Ref.-No.	Module Title	Module Type P/WP/W	CP	MP/TP/KP	Distribution of CP for TP	PL/SL (Number)
MTEPhy	Module Master Thesis (inclusive Colloquium)	P	30	MP	Thesis and Colloquium	PL: 2 SL: 0

Ref.-No. = Reference Number; P: Compulsory Module, WP: Compulsory Elective Module, W: Elective Module; CP = Credit Points; MP = Module Exam, TP = Partial Exam, KP = Combination Exam; PL = Exam Performance (= graded), SL = Course Performance (= not graded)

2.2 Compulsory Modules, 69 CP

Ref.-No.	Module Title	Module Type P/WP/W	CP	MP/TP/KP	Distribution of CP for TP	PL/SL (Number)
AMMDA	Applied Mathematical Methods and Data Analysis	P	6	MP		PL: 1 SL: 0
AtC	Atmospheric Chemistry	P	6	MP		PL: 1 SL: 0
AtPhy	Atmospheric Physics	P	6	MP		PL: 1 SL: 0
Dyn1	Dynamics I	P	6	MP		PL: 1 SL: 0
PhyO1	Physical Oceanography I	P	6	MP		PL: 1 SL: 0
CliS1	Climate System I	P	3	KP		PL: 1 SL: 1
Dyn2	Dynamics II	P	3	KP		PL: 1 SL: 1
MeTe	Measurement Techniques	P	6	KP		PL: 1 SL: 1
MES	Modelling of the Earth System	P	3	MP		PL: 1 SL: 0
RemS	Remote Sensing	P	3	KP		PL: 1 SL: 1
PresT	Presentation Techniques in Environmental Physics	P	3	KP		PL: 1 SL: 2
PrEPhy	Preparatory Project	P	18	MP		PL: 1 SL: 0

Ref.-No. = Reference Number; P: Compulsory Module, WP: Compulsory Elective Module, W: Elective Module; CP = Credit Points; MP = Module Exam, TP = Partial Exam, KP = Combination Exam; PL = Exam Performance (= graded), SL = Course Performance (= not graded)

2.3 Elective Modules, 21 CP

The modules listed here are a selection of the possible elective modules. The list can be supplemented upon a decision of the examination board, see also § 2 paragraph 2 letter c.

Ref.-No.	Module Title	Module Type P/WP/W	CP	MP/TP/KP	Distribution of CP for TP	PL/SL (Number)
AtCM1	Atmospheric Chemistry Modelling – (Part 1, Theory)	W	3	MP		PL: 1 SL: 0
AtSp	Atmospheric Spectroscopy	W	3	MP		PL: 1 SL: 0
BGC	Biogeochemistry	W	3	MP		PL: 1 SL: 0
CliM1	Climate Modelling: Part 1	W	3	MP		PL: 1 SL: 0
CliM2	Climate Modelling: Part 2	W	3	MP		PL: 1 SL: 0
CliS2	Climate System II	W	3	MP		PL: 1 SL: 0
ITE	Instrumental Techniques for Environmental Measurements	W	3	MP		PL: 1 SL: 0
IEPhy	Isotopes in Environmental Physics	W	3	KP		PL: 1 SL: 1
OOOC	Ocean Optics and Ocean Color Remote Sensing	W	3	KP		PL: 1 SL: 2
PhyO2	Physical Oceanography II	W	3	MP		PL: 1 SL: 0
PoOc	Polar Oceanography	W	3	KP		PL: 1 SL: 1

Ref.-No. = Reference Number; P: Compulsory Module, WP: Compulsory Elective Module, W: Elective Module; CP = Credit Points; MP = Module Exam, TP = Partial Exam, KP = Combination Exam; PL = Exam Performance (= graded), SL = Course Performance (= not graded)

Appendix 3: – not applicable –

Appendix 4: Procedures for multiple-choice examinations and “e-examinations” (electronic examinations)

§ 1

Procedure for Multiple-Choice Examinations

(1) In the case of a multiple-choice examination, the candidates can only achieve the minimum requirements for the passing of an examination by marking or matching the correct or incorrect answers. Multiple-choice examinations/examination questions are only permitted if they are suitable to provide evidence that the candidate masters the content and methods of the module in the essential contexts and can apply the knowledge and skills acquired. A multiple-choice examination must be prepared by an examiner in accordance with § 27 AT MPO. The examiner selects the examination material, formulates the questions and determines possible answer options. Furthermore, he or she creates the evaluation scheme according to paragraph 4 and applies it after the examination. The deduction of points within an examination task in the multiple-choice examination is permitted.

(2) The questions must be clearly understandable, clearly answerable and suitable to assess the candidate’s knowledge according to paragraph 1, sentence 2. The examiner can also create a pool of equivalent questions. In the examination, students receive different questions from this pool. The questions are randomly allocated. The equivalence of the examination questions must be ensured. The conditions for passing the examination must be specified in advance. For each examination

- the selected questions,
- the sample solution and
- the evaluation scheme according to paragraph 4

have to be determined.

(3) The examination is passed if the candidate has achieved at least 50 percent of the total achievable points. If the total average of the points achieved in an examination is lower than 50 percent of the total achievable points, the examination is also passed if the number of points achieved by the candidate is not more than 15 percent below this average. An evaluation scheme that only defines an absolute pass mark is not permitted.

(4) The achievements are to be evaluated as follows: If the required minimum number of achievable points to pass the examination according to paragraph 3 has been achieved, the grade will be

„very good“,	if at least 75 percent,
„good“,	if at least 50 but less than 75 percent,
„satisfactory“,	if at least 25 but less than 50 percent,
„sufficient“,	if none or less than 25 percent

of the achievable points beyond that were achieved.

(5) Should an exceptionally high number of incorrect answers to certain questions be ascertained during the evaluation of multiple-choice examination performances, the examiner must check these questions immediately and before the announcement of the examination results to see if they are incorrect according to requirements of paragraph 2 sentence 1.

If the review reveals that individual examination questions are incorrect, these examination questions must be re-evaluated or excluded from the examination result. The number of examination questions to be taken into account for the determination of the examination result must be reduced accordingly. The reduction of the number of examination questions may not be disadvantageous for the students. If the number of points attributable to the examination questions to be excluded exceeds 20 percent of the total achievable points, the whole examination must be repeated; this also applies to examinations only partly consisting of multiple-choice questions.

(6) If only parts of a written exam consists of multiple-choice questions, this appendix, with the exception of paragraph 5, sentence 5, 2nd half-sentence, applies only to the multiple-choice part.

§ 2

Procedure for „E-Examinations“ (Electronic Examinations)

(1) An “e-examination” is an examination that is created, carried out and evaluated (with the exception of open questions) using a computer. An “e-examination” is permitted if it is suitable to provide evidence that the candidate masters the content and methods of the module in the essential contexts and can apply the knowledge and skills acquired; if necessary, it can be complemented by other examination formats.

(2) The "e-examination” is to be carried out in the presence of a qualified person (taker of the minutes). Minutes of the course of the examination are to be made, in which at least the name of the person taking the minutes as well as the names of the examination candidates, the beginning and the end of the examination and any special occurrences must be recorded. It must be ensured that the electronic data can be clearly and permanently assigned to the candidates. In accordance with the provisions of § 24 paragraph 6 AT MPO, the candidates must be given the possibility of inspecting the computer-aided examination and the result they have achieved. The examination task including the sample solution, the evaluation scheme, the individual examination results and the minutes must be archived in accordance with the legal provisions.

Appendix 5: Regulations for Students Studying the Sino-German Master Programme in Marine Sciences (Double Degree Program)

§ 1

Scope

(1) This appendix applies to students who are enrolled in one of the degree programs of the Sino-German Master Programme at the Ocean University of China (OUC), Qingdao, P.R. of China or at the University of Bremen (UB) and who want to acquire a Master of Science, Double Degree within the framework of the cooperation agreement between these two universities.

(2) Students of the Double Degree Program are distinguished as follows:

- students with home university Bremen acquire a total of 120 credit points (CP) according to the European Credit Transfer and Accumulation System (ECTS) at the UB for the successful completion of the master course “Environmental Physics”; this corresponds to a regular degree duration of 4 semesters.
- students with home university OUC study at the OUC three years for the successful completion of the respective master course.

(3) This appendix applies in conjunction with the cooperation agreement between the OUC and the UB in the respectively valid version.

§ 2

Scope, Duration and Structure of Studies

(1) In order to acquire a double degree, students with home university Bremen have to complete the first and the second semester at the OUC and thus obtaining 60 credit points according to ECTS.

(2) In order to acquire a double degree, students with home university OUC have to complete their third and fourth semester at the UB and thus obtaining 60 credit points according to ECTS.

(3) The appendices 5.1 (OUC requirements for students with home university Bremen) and 5.2 (UB requirements for students with home university OUC) show the modules to be completed at the partner university.

(4) At the UB, already completed modules may not be done again or already completed compulsory modules may not be done as electives.

§ 3

Admission Requirements and Application Deadline

(1) As a precondition for the participation in this master program at the UB, students have to meet the admission requirements of the master course „Environmental Physics“ according to the admission regulations in the respectively valid version.

(2) The application deadline is set out in the admission regulations for the respective course of studies. It is recommended to apply earlier in order to secure a timely processing of the application documents by the persons in charge at the faculty 1.

(3) The application for the Sino-German Master Programme is submitted together with the application for master course „Environmental Physics“. Students must express their interest in both, the master course „Environmental Physics“ and the Sino-German Master Programme in Marine Sciences, in the letter of motivation..

(4) Students applying for the Sino-German Master Programme in Marine Sciences complete an additional application procedure of the OUC.

§ 4

Examinations

(1) The examination performances in the modules of the semesters abroad and the examination conditions are regulated by the examination regulations of the OUC.

(2) The examination performances in the modules of the University of Bremen and the examination conditions are regulated by the subject-specific examination regulations of the master course „Environmental Physics“.

§ 5

Recognition and Accreditation

(1) The recognition or accreditation of achievements at the UB is carried out according to § 22 AT MPO in the respectively valid version.

(2) A deviation of the course program completed at the OUC from the course program shown in appendix 5.1 requires a recognition by the examination board of the master course “Environmental Physics”.

§ 6

Master Thesis

The master’s thesis has to be completed at the respective home university according to the respective examination regulations.

§ 7

Conversion of Grades

The grades are converted as follows:

Percentage OUC	Grade UB
96 - 100	1.0
91 - 95	1.3
86 - 90	1.7
81 - 85	2.0
76 - 80	2.3
71 - 75	2.7
66 - 70	3.0
61 - 65	3.3
56 - 60	3.7
50 - 55	4.0

§ 8

Final Degree, Examination Certificate and Degree Certificate

(1) For the successful completion of the double degree program students with home university Bremen have to acquire a total of 120 CP. On the basis of the passed master examination, the academic degree Master of Science (abbreviated M.Sc.) with a reference to the double degree program is conferred.

(2) For the successful completion of the double degree program students with home university OUC have to fulfill the respective requirements of the examination regulations of the OUC within the framework of the double degree program after three years of study. On the basis of the passed master examination, the academic degree Master of Science (abbreviated M.Sc.) with a reference to the double degree program is conferred.

(3) According to their respective regulations, the partner universities issue a degree certificate and an examination certificate for the graduates of their university. These documents include an information that the degree was obtained within the framework of the double degree program.

Appendices

Appendix 5.1: OUC Requirements for Students with Home University Bremen
Appendix 5.2: UB Requirements for Students with Home University Ocean University of China

Appendix 5.1: OUC Requirements for Students with Home University Bremen

5.1.a Winter Semester/Autumn Semester (Sep – Feb)

Module 1	
Mathematical Methods in Data Analysis	2 CP
Introduction to Chinese Culture	1 CP
Chinese Language	2 CP
Add: Spoken Chinese	
Module 2	
Physical Oceanography	3 CP
Marine Chemistry	3 CP
Marine Biology and Fisheries	3 CP
Marine Geology	3 CP
Module 4	
Immunology (new)	3 CP
Aquaculture Nutrition and Feeds (new)	3 CP
Major Module 2: Marine Biology	
Marine Microbiology	3 CP
Sum	**26 CP**

CP = Credit Points; Add = Additional Performance

5.1.b Sommer Semester/Spring Semester (Mar – Jul)

Module 3	
Climate Changes	2 CP
GIS and Remote Sensing	4 CP
Introduction to Environmental Science	3 CP
Introduction: Sub-Marine Exploration Methodology	1 CP
Law of Sea	3 CP
General Ecology (new)	3 CP
Aquatic Feed Manufacturing Technology (new)	3 CP
Module 1	
Add: Spoken Chinese	
Major Module 1: Physical and Environmental Oceanography	
Introduction to Marine Biogeochemistry	3 CP
Ocean General Circulation	2 CP
Waves in the Ocean	2 CP
Analytical Chemistry of Seawater	2 CP
Major Module 2: Marine Biology	
Marine Ecology and Benthic Ecosystem	3 CP
Molecular Ecology	3 CP
Summe	**34 CP**

CP = Credit Points; Add = Additional Performance

Appendix 5.2: UB Requirements for Students with Home University OUC

5.2.1 Course Plan

Course Plan with Home University Ocean University of China (OUC)							
1. year at the OUC	Compulsory Modules, see appendix 5.1						60 CP
2. year at the UB	**Compulsory Modules, 45 CP**					**Elective Modules, 15 CP**	
3. Sem.	APhOc Advanced Physical Oceano-graphy, 6 CP	PhyO1 Physical Oceano-graphy I, 6 CP	Dyn1 Dynamics I, 6 CP	AMMDA Applied Mathematical Methods and Data Analysis, 6 CP	AtPhy Atmos-pheric Physics, 6 CP	Modules according to appendix 2.3, 3 CP	30
4. Sem.		PhyO2 Physical Oceano-graphy II, 3 CP	Dyn2 Dynamics II, 3 CP	MeTe Measurement Techniques, 6 CP	CliS1 Climate System I, 3 CP	Modules according to appendix 2.3, 12 CP	30
3. year at the OUC	Master Thesis and, if applicable, further modules/courses according to the requirements of the OUC						

CP = Credit Points, Sem. = Semester

5.2.2 Modules and Examination Requirements of Modules in the Double Degree Program

Modules not listed in this table correspond to the modules of the regular course plan according to appendix 1, information on these modules can be found in appendix 2.

Ref.-No.	Module Title	Module Type P/WP/W	CP	MP/TP/KP	Distribution of CP for TP	PL/SL (Number)
APhOc	Advanced Physical Oceanography	P	6		KP	PL: 2 SL: 0

Ref.-No. = Reference Number; P: Compulsory Module, WP: Compulsory Elective Module, W: Elective Module; CP = Credit Points; MP = Module Exam, TP = Partial Exam, KP = Combination Exam; PL = Exam Performance (= graded), SL = Course Performance (= not graded)