Examination Regulations (Rules) of the Faculty of Mathematics and Natural Sciences at Christian-Albrechts-Universität zu Kiel (Kiel University) for students of the degree programme in “Physics of the Earth System: Meteorology – Oceanography – Geophysics” leading to a Bachelor of Science degree (B.Sc.) and the degree programmes in "Geophysics" and "Climate Physics: Meteorology and Physical Oceanography" leading to a Master of Science degree (M.Sc.) - 2019 of 13 June 2019

Extract: Master of Science in Climate Physics

Published on 11 July 2019 (NBl. HS MBWK Schl.-H. p 38), amended by statute of 12 July 2019, published on 26 September 2019 (NBl. HS MBWK Schl.-H. p 47)

Based on Section 52 (1) Sentence 1 of the Schleswig-Holstein Higher Education Act (HSG) of 5 February 2016 (GOVOBl. Schl.-H. p 39), most recently amended off he Act 10 February 2018 (GOVOBl. Schl.-H. p 68), after a resolution was passed by the Convention of the Faculty of Mathematics and Natural Science of 27 June 2018 and of 22 May 2019 the following rules were issued:

Table of contents:
I. General Examination Provisions
   § 1 Scope of Application
   § 2 Academic year
   § 3 Teaching and examination language
   § 4 Module examinations and module grades
   § 5 Further prerequisites for admission to examinations
   § 6 Bachelor's and Master's thesis
   § 7 Restriction of admission to compulsory or compulsory elective lectures

II. Special Examination Provisions for the Bachelor's Degree Programme

III. Special Examination Provisions for the Master's Degree Programme

§ 13 Objective of the degree programme
§ 14 Structure of the curriculum
§ 15 Admission to the Master's degree programme
§ 16 Academic title
§ 17 Master's thesis
§ 18 Calculation of the final grade

IV. Transitional and Final Provisions
§ 19 Entry into force, expiry and transitional provisions

Annex 1: […]
Annex 2: […]
Annex 3: Programme schedule for the Master of Science in “Climate Physics: Meteorology and Physical Oceanography”
I. General Examination Provisions

§ 1 Scope of Application

(1) These Examination Regulations in conjunction with the Examination Procedure Regulations (Rules) of Kiel University for students of Bachelor’s and master’s Degree Programmes (PVO) apply to the teaching and assessment of the Bachelor’s subject “Physics of the Earth system: Meteorology – Oceanography – Geophysics” and to the Master’s Degree programmes “Climate Physics: Meteorology and Physical Oceanography” and “Geophysics” at Kiel University.

(2) Admission to modules offered by other faculties or other institutes of the same faculty and the respective module examinations are subject to the examination regulations of the respective faculties or institutes.

§ 2 Academic year

The academic year applies to the courses in these Examination Regulations. Courses for both new students and returning students from odd-numbered semesters are only offered in a winter semester.

Registrations for the Bachelor’s degree programme in “Physics of the Earth: Meteorology – Oceanography – Geophysics” and the Master’s degree programme in “Climate Physics: Meteorology and Physical Oceanography” during odd-numbered semesters are only possible for a winter semester. Registrations during even-numbered semesters are only possible for a summer semester.

It is possible to begin the “Geophysics” Master’s degree programme either in a winter or summer semester.

§ 3 Teaching and examination language

(1) Lectures for the Bachelor’s degree programme in “Physics of the Earth System: Meteorology – Oceanography – Geophysics” and the Master’s degree programme in “Geophysics” will usually be held in German. Modules can also be offered in English.

(2) In the Master’s degree programme in “Climate Physics: Meteorology and Physical Oceanography”, all compulsory, compulsory elective and specialization modules will only be offered in English.

(3) Examinations will always be held in the same language as lectures.

§ 4 Module examinations and module grades

(1) The type and number of module examinations required as part of the modules can be found in the Annex.

(2) The duration of a written examination must be at least 30 minutes and no longer than 2 hours. An oral examination shall last at least 15 and no more than 30 minutes.

(3) If a module examination consists of several examinations, the module grade will be calculated using the arithmetic average of the grades for individual examinations or in accordance with the weighting of the individual examinations indicated in the Annex.
§ 5
Further prerequisites for admission to examinations

(1) If a module contains field trips, lab courses, practical exercises or one of the seminars listed in (2), admission to the examination requires regular attendance to these courses.

(2) Regular attendance to the seminars accompanying lab courses is necessary because they address safety aspects as well as aspects related to performing experiments.

climCOL:
Attendance to the climCOL module is compulsory. Presentations are made by scientists who have been invited to speak on current research topics. The aim is to teach students to critically evaluate current research on ocean circulation and climate dynamics, participate in scientific discussions and come into contact with new research topics and methods. Attendance is therefore crucial.

climMESEM:
Attendance to the climMESEM module is compulsory. Presentations are made by scientists on current research topics in meteorology. The aim is to teach students to critically evaluate current research, participate in scientific discussions and come into contact with new research topics and methods. The students also hold their own presentation which is jointly discussed and assessed. Attendance is therefore crucial.

climOMSEM, climCSEM:
Attendance to the climOMSEM, climCSEM modules is compulsory. Presentations are given by students on current research topics in the field of interaction between ocean and atmosphere (climOMSEM) and climate research (climSEM). The aim is to teach students to critically evaluate current research, participate in scientific discussions and come into contact with new research topics and methods. An important element is the student’s own presentation about his/her current literature, which is jointly discussed and assessed. Attendance is therefore crucial.

climMEMODEL, climMEASSIM, climMECARBON, climMECLOUD, climPOTROPIC, climPOLAGRANGE, CLIMPOENSO, climPOSHALLOW:
Attendance to the seminars for the modules listed is compulsory. Presentations are given by students on current research topics, which should accompany and consolidate the respective topic of the lecture. The aim is to teach students to critically evaluate current research, participate in scientific discussions and come into contact with new research topics and methods. An important element is the student’s own presentation about his/her current literature, which is jointly discussed and assessed. Attendance is therefore crucial.

(3) Attendance is considered regular if the student does not miss more than 10% of the dates. The Examination Board decides regarding justified exceptional cases.

(4) If a student misses more dates - but not more than a total of 40% of all course dates - due to illness or other good reasons, the responsible examiners may authorise the student to make up for the parts missed by delivering an equivalent achievement in terms of (5). However, students do not have the right to demand this. The reasons for failing to attend courses must be proven immediately; in the case of illness by a doctor’s note.

(5) As a precondition for admission to examinations, the following examination prerequisites may be required: practical reports, written reports, seminar presentations, completion of calculation exercises, working out practical exercises, attendance certificates, term papers, oral presentations. The modules in which examination prerequisites may be required are marked as such in the annex. The specific examination prerequisites along with further details will be suitably announced at the beginning of the respective semester.

§ 6
Bachelor’s and Master’s thesis

(1) When applying for admission to the Bachelor’s or Master’s thesis, the candidate may propose supervisors and a topic for the thesis. This does not give rise to any claims.
(2) In exceptional cases and with the consent of the Examination Board, the Bachelor’s or Master’s thesis may be prepared at an institution outside the University, provided that appropriate supervision of the candidate is available there. Supervision may also be provided by people working at the supervising facility, who are qualified in accordance with the Examination Procedure Regulations for students of Bachelor’s and Master’s Degree Programmes (PVO). In cases of doubt the Examination Board will decide.

(3) The Bachelor’s or Master’s thesis may be produced in English.

(4) The Bachelor’s or Master’s thesis shall be accompanied by an abstract, written in both English and German.

(5) The results of the Bachelor’s or Master’s thesis are to be presented orally in a scientific lecture with a discussion, before submitting the written version.

(6) The Bachelor’s and Master’s thesis is to be submitted to the responsible Examination Office in the form of two hard copies and additionally one copy in a form suitable for electronic data processing.

(7) The Bachelor’s or Master’s thesis will be assessed within six weeks of submission in the form of two written reports by the examiners.

§ 7
Restriction of admission to compulsory or compulsory elective lectures

(1) The number of places available for the individual compulsory or compulsory elective lectures will be determined by the Faculty Convention upon request by the Department of Marine Sciences or Geosciences. If more students initially register for the lab courses, seminars or exercises than there are places available, the Examination Board will determine whether the remaining students can be accommodated through other or additional courses.

(2) If it is not possible to accommodate all the remaining students, the course administrator will select a number of students from those registered for a degree programme in which the course is envisaged as part of the curriculum, who have promptly registered by the date stipulated by the course administrator and who satisfy the conditions of attendance, according to the following criteria:

a. The first entitlement goes to students for whom attendance at this specific course is essential for them to duly complete their studies according to the curriculum, and who, in the previous semester, were set back by one semester due to capacities.

b. The second entitlement goes to students who are currently in the semester for which the course is envisaged according to the curriculum, and to students who did not obtain the necessary certificate in the previous semester and therefore would have to retake the course in accordance with these examination regulations. Within this entitlement, the first group is entitled to 90% of the places and the second group to 10%.

c. The third entitlement goes to students who are not currently in the semester for which the course is envisaged according to the curriculum and who register for the course at issue for the first time, and to students who already received a place on the course at issue in a previous semester but had to give it up with valid reasons in accordance with Section 52 (4) of the Schleswig-Holstein Higher Education Act, or for a comparable reason.

d. The fourth entitlement goes to students who already received a place on the course at issue in a previous semester and who vacated the course without evidence of a valid reason.

II. Special Examination Provisions for the Bachelor’s Degree Programme

III. Special Examination Provisions for the Master’s Degree Programmes
§ 13

Objective of the degree programme

In the research-oriented Master's degree programmes which are the subject of these Regulations, students are provided with advanced knowledge in the selected subject areas as well as the skills required for independently carrying out project work and presenting the results. The Master’s degree is regarded as proof that graduates are capable of performing independent, scientific work in their subject area. They are also accordingly qualified for professional careers. The degree also serves to qualify for a doctoral degree programme.

§ 14

Structure of the curriculum

(1) The standard period of study for the Master’s degree programme is four semesters. The degree programme encompasses approximately 100 weekly 45-minute teaching units for the duration of one semester of about 12 weeks (Semesterwochenstunden - SWS) and 120 ECTS credit points, including 25 ECTS for the Master's thesis in the Master's degree programme in "Climate Physics: Meteorology and Physical Oceanography" and 30 ECTS in the Master’s degree programme in “Geophysics”. The number of SWS may deviate slightly from this, depending on the optional modules chosen.

(2) The Master's degree programme in "Geophysics" is divided into the following sections, with the number of ECTS credit points for each in brackets: foundation modules (20 ECTS), specialization modules (30 ECTS), practical modules (20 ECTS), seminars (5 ECTS), free optional modules (15 ECTS) and Master's thesis with lecture (30 ECTS).

(3) In the free optional modules section for the Master's degree programme in “Geophysics”, modules from the Bachelor's programme can also be included, depending on the requirements of the subject selected. However, their extent should not exceed 10 ECTS credit points. The Examination Board decides regarding justified exceptional cases.

(4) The Master's degree programme in "Climate Physics: Meteorology and Physical Oceanography" is divided into the following sections, with the number of ECTS credit points for each in brackets: Pflichtmodule/Compulsory Modules (C) (30 ECTS, Wahlpflichtmodule/Compulsory Elective Modules (CE) (20 ECTS), Wahlpflichtmodule Vertiefung/Specialization Modules (SP) (45 ECTS) and the Master's thesis with 25 ECTS. Compulsory modules - these are the modules given in the binding programme schedule (Annex 3).

For the “compulsory elective modules” section, students must complete two of the three compulsory elective modules given in the programme schedule (i.e. climAPO, climAME and climAPC).

In the “specialization modules” section, students must complete modules from the table “Specialization modules from the field of Climate Physics” (Annex 3) or graded modules from the range offered by the Faculty of Mathematics and Natural Sciences, mainly from geosciences and marine sciences, or the physical subjects.

§ 15

Admission to the Master’s degree programme

(1) Admission to the Master's degree programme requires that the applicant has completed a Bachelor's degree programme (B.Sc.) in either Geophysics, Climate Physics, Meteorology, Oceanography or a related subject after a standard period of study of at least three years at a German or comparable foreign institution of higher education. The candidate must have obtained at least 180 ECTS credit points or passed a comparable final examination.

(2) The following additional conditions apply for admission to the Master's degree programme: a. For the Master's degree programme in "Climate Physics: Meteorology and Physical Oceanography", the following applies: applicants with a university degree in a related subject can be admitted without satisfying further conditions, if they have obtained at least a total of 50 ECTS credit points in modules from the subjects of Physics and
Mathematics. The content of these modules must correspond with the knowledge upon achievement of the Bachelor's degree programme in “Physics of the Earth System: Meteorology – Oceanography– Geophysics”. If the applicant has obtained fewer than 50 ECTS credit points but at least 40 ECTS credit points in modules from the subjects of Physics and Mathematics, then admission is possible under the condition that the student catches up with the required ECTS credit points as part of the optional studies.

b. For the Master's degree programme in “Geophysics”, the following applies: applicants with a university degree in a related subject can be admitted without satisfying further conditions, if they have obtained at least a total of 50 ECTS credits in modules from the subjects of Physics, Geophysics and Mathematics. The content of these modules must meet the entry requirements for the Master's degree programme. They must also provide evidence of basic knowledge in Geology. If fewer than 50 but more than 40 ECTS were gained in modules from Physics, Geophysics and Mathematics, or if the applicant is missing basic skills in Geology, admission may be granted under the condition that the missing skills/knowledge is caught up with during the first academic year by completing appropriate study modules from the Bachelor's programme.

c. For the Master's degree programme in “Geophysics”, the following applies: study modules of the Bachelor's programme, which have been completed as part of the admission requirements, can be recognised towards completion of the free optional modules for up to 10 ECTS credit points.

(3) In addition, admission to the Master's degree programme in “Climate Physics: Meteorology and Physical Oceanography”, requires evidence of the following:

a. A special motivation, evidenced by a motivational letter written in English which presents:
   1. the specific talents and interests on account of which the applicant considers him or herself particularly suited to this degree programme.
   2. to what extent he or she possesses sufficient prior knowledge of the scientific basics of the Master's degree, obtained from a first degree programme and/or previous professional activities.
   3. how this Master's degree programme will enable the applicant to achieve his/her professional goals.

b. Programming skills in at least one programming language, as well as knowledge of Unix or Linux.

c. English language skills in accordance with the study qualification rules (Studienqualifikationssatzung).

(4) The responsible Examination Board determines whether the requirements for admission to the Master's degree programme are met and a motivational letter was submitted.

§ 16
Academic title

The student is awarded the degree of Master of Science (M.Sc.) if he or she has obtained at least a final grade of 'sufficient'.

§ 17
Master's thesis

(1) Any candidate who has obtained at least 60 ECTS credits from module examinations in compulsory and optional modules may be admitted to the Master's thesis.

(2) The period from when the topic is issued until the Master's thesis is submitted is 6 months. This deadline may be extended upon application, but not by more than three months, in accordance with the PVO for Bachelor's and Master's degree programmes.

(3) The topic of the Master's thesis may be handed back only once and only within the first six weeks.
§ 18
Calculation of the final grade

The grades for all graded modules and the grade for the Master's thesis are used to calculate the overall grade for the Master's degree programme in Geophysics.

In the Master's degree programme in "Climate Physics: Meteorology and Physical Oceanography", the overall grade includes the section grades for the compulsory modules (weighting of 30), compulsory elective modules (weighting of 20) and specialization modules (weighting of 45) as well as the grade for the Master’s thesis (weighting of 50).

The section grades are calculated as the weighted average of the grades from the modules allocated to the section in Section 14. the ECTS credit points of the allocated modules are used as the weighting factors.

IV. Transitional and Final Provisions

§ 19
Entry into force, expiry and transitional provisions

(1) These Examination Regulations enter into force as of 1 October 2019.

(2) At the same time, the Examination Regulations (Rules) of the Faculty of Mathematics and Natural Sciences at Christian-Albrechts-Universität zu Kiel (Kiel University) for students of the Bachelor of Science (B.Sc.) degree programme in "Physics of the Earth: Meteorology – Oceanography – Geophysics“ and the Master of Science (M.Sc.) degree programmes in "Geophysics" and "Climate Physics: Meteorology and Physical Oceanography" of 15 July 2015 HS MSGWG Schl.-H., p. 137), last amended by the Rules of 10 January 2018 (NBl. HS MBWK Schl.-H. p. 4) cease to be in force.

(3) The provisions in the previous degree-specific examination regulations in accordance with Paragraph 2 apply to

1. Students of the degree programme in "Physics of the Earth System: Meteorology - Oceanography - Geophysics“ leading to a Bachelor of Science (B.Sc) degree, who are registered in the 5th semester or a later semester at the time when these rules come into effect.

2. Students of the degree programme in "Climate Physics" leading to a Master of Science (M.Sc) degree, who are registered in the 3rd semester or a later semester at the time when these rules come into effect.

This does not apply for the regulations on regular attendance or examination prerequisites. Section 5 of these rules apply for these.

(4) Students of the degree programme in “Physics of the Earth System: Meteorology - Oceanography - Geophysics“ leading to a Bachelor of Science (B.Sc) degree, who continue their studies in accordance with the degree-specific examination regulations in accordance with Paragraph 2 automatically change over to the new degree-specific examination regulations for the winter semester 2021/22. Students of the degree programme in "Climate Physics" leading to a Master of Science (M.Sc) degree, who continue their studies in accordance with the degree-specific examination regulations in accordance with Paragraph 2 automatically change over to the new degree-specific examination regulations for the winter semester 2021/22.

(5) Module examinations which have been completed and passed in full by the date these rules enter into force will remain valid and can potentially be recognised as equivalent achievements for modules which are newly introduced with these rules.

(6) If a student has completed and passed independent parts of a module examination, these will be recognised. The Examination Board determines which additional examinations are necessary to complete the module, under consideration of the module’s learning targets.
and the purpose of the examination.

(7) If an independent part of an examination, for a module that has not yet been completed, has been taken and passed at the time these rules enter into force, and this examination is ungraded in accordance with the new stipulations, the grade will not be included.

(8) Examinations failed before these rules entered into force will be set off against the number of attempts in accordance with the new examination regulations, provided the structure of the new module examinations permits recognition.

(9) The Examination Board decides regarding special cases of hardship for which the student is not responsible.

The University Board at Kiel University granted its approval in accordance with Article 1 § 52 (1) Clause 1 of the Schleswig-Holstein Higher Education Act in its letter dated 12 June 2019.

Kiel, 13 June 2019

Prof. Dr. Frank Kempken
Dean of the Faculty of Mathematics and Natural Science
Kiel University

**Article 2 of the amendment of 12 July 2019**

These rules enter into force on 1 October 2019. The changes to Section 15 apply for the first time for students enrolling in the winter semester 2020/21.
Annex 3:

3. Programme schedule for the Master of Science in “Climate Physics: Meteorology and Physical Oceanography”

The module sections cover C "Compulsory Modules", CE "Compulsory Elective Modules", SP "Specialization Modules".

<table>
<thead>
<tr>
<th>Modul</th>
<th>Modulbezeichnung</th>
<th>LF</th>
<th>SWS</th>
<th>P / WP</th>
<th>Voraussetzung</th>
<th>PL</th>
<th>LP</th>
<th>Sem.</th>
<th>Jahr</th>
<th>Bereich</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st semester</td>
<td>climaAGFD Advanced Geophysical Fluid Dynamics</td>
<td>V/PU #</td>
<td>2/1</td>
<td>P</td>
<td>M*</td>
<td>5</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>climaOMSE Oceanography-Meteorology Seminar</td>
<td>S#</td>
<td>2</td>
<td>P</td>
<td>P*</td>
<td>5</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>climaAPO Advanced Physical Oceanography1 Part 1: Thermohaline Circulation</td>
<td>V/PU #</td>
<td>2/1</td>
<td>WP</td>
<td>-</td>
<td>(5)</td>
<td>CE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>climaAME Advanced Meteorology1 Part 1: Stratospheric Physics &amp; Dynamics</td>
<td>V/PU #</td>
<td>2/1</td>
<td>WP</td>
<td>-</td>
<td>(5)</td>
<td>CE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Specialization2 V/S od. V/PU #</td>
<td>2/1</td>
<td>WP</td>
<td>j.n.M. *</td>
<td>5</td>
<td>SP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Specialization2 V/S od. V/PU #</td>
<td>2/1</td>
<td>WP</td>
<td>j.n.M. *</td>
<td>5</td>
<td>SP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Specialization2 V/S od. V/PU #</td>
<td>2/1</td>
<td>WP</td>
<td>j.n.M. *</td>
<td>5</td>
<td>SP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>17/20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2nd semester</td>
<td>climDAT Data Analysis and Statistics</td>
<td>V/PU #</td>
<td>2/1</td>
<td>P</td>
<td>M*</td>
<td>5</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>climCSEM Climate Seminar</td>
<td>S#</td>
<td>2</td>
<td>P</td>
<td>P*</td>
<td>5</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>climaAPO Advanced Physical Oceanography1 Part 2: Wind-driven Circulation</td>
<td>V/PU #</td>
<td>2/1</td>
<td>WP</td>
<td>M*</td>
<td>(5) 10</td>
<td>CE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>climaAME Advanced Meteorology1 Part 2: Tropospheric Physics &amp; Dynamics</td>
<td>V/PU #</td>
<td>2/1</td>
<td>WP</td>
<td>M*</td>
<td>(5) 10</td>
<td>CE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Specialization2 V/S od. V/PU #</td>
<td>2/1</td>
<td>WP</td>
<td>j.n.M. *</td>
<td>5</td>
<td>SP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Specialization2 V/S od. V/PU #</td>
<td>2/1</td>
<td>WP</td>
<td>j.n.M. *</td>
<td>5</td>
<td>SP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Specialization2 V/S od. V/PU #</td>
<td>2/1</td>
<td>WP</td>
<td>j.n.M. *</td>
<td>5</td>
<td>SP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>17/20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd semester</td>
<td>climNUM Numerical Methods and Models</td>
<td>V/PU #</td>
<td>2/1</td>
<td>P</td>
<td>M*</td>
<td>5</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>climGD Geostrophic Dynamics</td>
<td>V/PU #</td>
<td>2/1</td>
<td>P</td>
<td>M*</td>
<td>5</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>climaPC Advanced Physical Climate1 Part 1: Climate Feedbacks</td>
<td>V/PU #</td>
<td>2/1</td>
<td>WP</td>
<td>-</td>
<td>(5)</td>
<td>CE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Specialization2 V/S od. V/PU #</td>
<td>2/1</td>
<td>WP</td>
<td>j.n.M*</td>
<td>5</td>
<td>SP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Specialization2 V/S od. V/PU #</td>
<td>2/1</td>
<td>WP</td>
<td>j.n.M*</td>
<td>5</td>
<td>SP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Specialization2 V/S od. V/PU #</td>
<td>2/1</td>
<td>WP</td>
<td>j.n.M*</td>
<td>5</td>
<td>SP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>15/18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4th semester</td>
<td>climPC Advanced Physical Climate1 Part 2: Regional Climate Variability</td>
<td>V/PU #</td>
<td>2/1</td>
<td>WP</td>
<td>M*</td>
<td>(5) 10</td>
<td>CE</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Date: 27.09.2019
<table>
<thead>
<tr>
<th>climTHES</th>
<th>Master's Thesis &amp; Presentation</th>
<th>-</th>
<th>-</th>
<th>P</th>
<th>Min. 60 LP</th>
<th>S+M3</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note:
1 A total of two of the three modules climAPO, climAME and climAPC must be completed in the compulsory elective section.
2 See the table for the "Specialization Modules" section "M.Sc. specialization modules from the Climate Physics section.
3 The Master's thesis is made up of a graded, written paper and an ungraded presentation (composite examination).

Note: due to the alternating courses on offer, it is possible that the modules from the 3rd semester need to be taken in the 1st semester, and modules from the 1st semester in the 3rd semester.
### “Specialization Modules” section

Table for the M.Sc. specialization modules from the Climate Physics section

<table>
<thead>
<tr>
<th>Abbr.</th>
<th>Modulname</th>
<th>Module elements and SWS</th>
<th>P/WP</th>
<th>LP</th>
<th>PL</th>
<th>N</th>
<th>Zugangs-voraussetzung</th>
</tr>
</thead>
<tbody>
<tr>
<td>climCOL</td>
<td>Ocean Circulation and Climate Dynamics Colloquium</td>
<td>1S#</td>
<td>WP</td>
<td>2</td>
<td>Tt#</td>
<td>n</td>
<td>-</td>
</tr>
<tr>
<td>climSCHOOL</td>
<td>Environmental Science Summer School</td>
<td>Mind. 5 Tage Blockvorlesung / Block Lecture</td>
<td>WP</td>
<td>5</td>
<td>H</td>
<td>n</td>
<td>-</td>
</tr>
<tr>
<td>climINTERN</td>
<td>Ocean and Climate Physics Research Internship</td>
<td>Variable Projektarbeit / Research Internship</td>
<td>WP</td>
<td>5</td>
<td>H</td>
<td>n</td>
<td>-</td>
</tr>
<tr>
<td>climSUSTAIN</td>
<td>Ocean Sustainability</td>
<td>2V+1K</td>
<td>WP</td>
<td>6</td>
<td>PL</td>
<td>j</td>
<td>-</td>
</tr>
<tr>
<td>climMESEM</td>
<td>Meteorological Lunch Seminar</td>
<td>2S#</td>
<td>WP</td>
<td>5</td>
<td>P#</td>
<td>j</td>
<td>-</td>
</tr>
<tr>
<td>climMEMODEL</td>
<td>Modern Aspects in Meteorology I: Climate Modeling</td>
<td>2V+1S#</td>
<td>WP</td>
<td>5</td>
<td>P#</td>
<td>j</td>
<td>-</td>
</tr>
<tr>
<td>climMEASSIM</td>
<td>Modern Aspects in Meteorology II: Data Assimilation</td>
<td>1V/1S#/1PU#</td>
<td>WP</td>
<td>5</td>
<td>P#</td>
<td>j</td>
<td>-</td>
</tr>
<tr>
<td>climMECARBON</td>
<td>Modern Aspects in Meteorology III: Carbon Cycling in a Changing Climate</td>
<td>1V/1S#/1PU#</td>
<td>WP</td>
<td>5</td>
<td>M#</td>
<td>j</td>
<td>-</td>
</tr>
<tr>
<td>climMECLOUD</td>
<td>Modern Aspects in Meteorology IV: Cloud Physics</td>
<td>2V+1S#</td>
<td>WP</td>
<td>5</td>
<td>P#</td>
<td>j</td>
<td>-</td>
</tr>
<tr>
<td>climPOSEM</td>
<td>Physical Oceanography Lunch Seminar</td>
<td>2S</td>
<td>WP</td>
<td>5</td>
<td>P*</td>
<td>j</td>
<td>-</td>
</tr>
<tr>
<td>climPOTROPIC</td>
<td>Modern Aspects in Physical Oceanography I: Tropical Ocean Dynamics</td>
<td>2V+1S#</td>
<td>WP</td>
<td>5</td>
<td>M#</td>
<td>j</td>
<td>-</td>
</tr>
<tr>
<td>climPOLAGRANGE</td>
<td>Modern Aspects in Physical Oceanography II: Lagrangian analysis and dispersion in the ocean</td>
<td>2V+1S#</td>
<td>WP</td>
<td>5</td>
<td>RS#</td>
<td>j</td>
<td>-</td>
</tr>
<tr>
<td>climPOENSO</td>
<td>Modern Aspects in Physical Oceanography III: The El Niño-Southern Oscillation</td>
<td>2V+1S#</td>
<td>WP</td>
<td>5</td>
<td>P#</td>
<td>j</td>
<td>-</td>
</tr>
<tr>
<td>climPOSHALLOW</td>
<td>Modern Aspects in Physical Oceanography IV: Shallow water analogues of ocean/atmosphere processes</td>
<td>2V+1S#</td>
<td>WP</td>
<td>5</td>
<td>H#</td>
<td>j</td>
<td>-</td>
</tr>
<tr>
<td>climPOOGCM</td>
<td>Modern Aspects in Physical Oceanography V: Ocean General Circulation Modelling</td>
<td>2V+1S</td>
<td>WP</td>
<td>5</td>
<td>SB#</td>
<td>j</td>
<td>-</td>
</tr>
<tr>
<td>climPOMODCIRC</td>
<td>Modern Aspects in Physical Oceanography VI: The modelled wind-driven and thermohaline circulation</td>
<td>2V+1S</td>
<td>WP</td>
<td>5</td>
<td>SB#</td>
<td>j</td>
<td>-</td>
</tr>
<tr>
<td>climPOCOAST</td>
<td>Modern Aspects in Physical Oceanography VII: Coastal Oceanography</td>
<td>2V+1S</td>
<td>WP</td>
<td>5</td>
<td>P#</td>
<td>j</td>
<td>-</td>
</tr>
</tbody>
</table>

Erläuterungen/Explanations:

Modul: Titel des Moduls in Form des Modulcodes
Module title given as module code

Modulbezeichnung: Name des Moduls
Module name

LF: Lehrform, Art der Lehrveranstaltung
Course type
V: Vorlesung/Lecture, S: Seminar/Seminar, PÜ: Praktische Übung/Practical Exercise (mit Anwesenheitspflicht/compulsory attendance), K: Kolloquium/Colloquium

SWS: Semesterwochenstunden der LF
Course semester hours

P / WP:  Status des Moduls (Pflicht / Wahlpflicht)
Module status (P = compulsory / WP = compulsory elective)

Voraussetzung:  Zugangsvoraussetzung für das Modul
Module prerequisite

PL:  Prüfungsleistung
Exam requirements

LP:  Leistungspunkte
ECTS credit points

N:  Note: j:benotet, n:unbenotet
Grade: j:graded, n:ungraded

(#) Regular attendance in accordance with Section 5 (1) is an examination prerequisite.

(*) Examination prerequisites in accordance with Section 5 (5) may be required.
**Appendix**  
*(not part of the rules)*

**Exported modules:**

<table>
<thead>
<tr>
<th>Exported to degree programme:</th>
<th>Module No.</th>
<th>Module description</th>
<th>LF</th>
<th>SWS</th>
<th>P / WP</th>
<th>Voraussetzung</th>
<th>PL</th>
<th>LP</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.Sc. Marine Geosciences</td>
<td>klim101b</td>
<td>Introduction to Oceanography</td>
<td>L</td>
<td>3</td>
<td>P</td>
<td>WE (100%)</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>M.Sc. Biological Oceanography</td>
<td>MNF-ozgr-151</td>
<td>Introduction to Physical Oceanography</td>
<td>L</td>
<td>3</td>
<td>C</td>
<td>WE (100%)</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>M.Sc. Biological Oceanography</td>
<td>MNF-ozgr-152</td>
<td>Advanced Physical Oceanography for Minors</td>
<td>L/E</td>
<td>2/2</td>
<td>CE</td>
<td>MNF-ozgr-151</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>M.A. Philosophy of Economics and Environmental Ethics</td>
<td>MNF-klim-405</td>
<td>Climate research and climate ethics</td>
<td>V/S</td>
<td>2/2</td>
<td>WP</td>
<td>R (100%)</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Degrees with Geophysics as the optional subject</td>
<td>MNF-geop-SGP 01</td>
<td>Geophysical seminar</td>
<td>S</td>
<td>2</td>
<td>+</td>
<td>V</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Degrees with Geophysics as the optional subject</td>
<td>MNF-geop-AGP 04</td>
<td>Geophysikalische Feld- und Seemessungen</td>
<td>Ex</td>
<td>++</td>
<td>+</td>
<td>B</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

LF: Lehrform, Art der Lehrveranstaltung/ course type: L: Lecture, E: Exercises, V: Vorlesung/lecture, S: Seminar, Ex: Exkursion/field trip  
P/WP: Pflicht-/Wahlpflichtmodul, C: Compulsory, CE: Compulsory elective  
PL: Leistungspunkte/ECTS credit points  
WP: Prüfungsleistungen/examinations: WE: Klausur/written examination, V: Vortrag/presentation  
(++): Participation in 10 days of geophysical measurements in the field or at sea.  
(+): In accordance with the respective degree-specific examination regulations.