
M Climate Studies
Wageningen University

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Project code P2314

# Contents

# Summary


### Standard 1. Intended learning outcomes

The panel finds that the broad set-up of the programme and the inclusion of multiple scientific domains reveal the societal complexities of climate change. The intended learning outcomes are in line with the programme's objective, orientation and profile. The programme is firmly grounded in different chair groups at Wageningen University and has strong connections to the professional field.

### Standard 2. Teaching-learning environment

The multi-disciplinary curriculum is encompassing and offers students the flexibility to specialize either in a core discipline or in a multi-disciplinary domain. The core and optional courses include various disciplines and encourage exploring multiple perspectives. The panel believes the breadth of the curriculum speaks to a wide range of students and likes the possibility for students to set specific learning goals at the start of courses. The panel is satisfied with the programme's implemented measures to further increase student cohesion. The implemented and planned changes in the curriculum characterize the programme's search for continuous improvement. Admission requirements are realistic, and the use of English as the language of instruction fits the profile and orientation of the programme.

The programme is highly supportive of the students' learning journey. Study advisors play an essential and well-appreciated role in guiding students throughout the programme and in supporting the choice of specialisations in the master's programme. The mentor programme and university-wide policies for students with an impairment further support students on their challenging but feasible learning journey. It is praiseworthy that students are asked to think about and plan for their specialisation before the start of their studies.

The teaching staff consists of a diverse group of disciplinary experts motivated to face the challenges associated with dealing with a student population from diverse scientific and cultural backgrounds. They have broad expertise, are approachable by students, and are inspired by the issues and dilemmas emerging from the wide range of geopolitical and personal perspectives on climate change.

### Standard 3. Student assessment

The assessment of student performance is generalized in a university-wide system and therefore it is well-organized, rigorous and transparent. The variety of assessment methods in the respective courses allows students to do well and according to individual abilities. Students receive information on assessment rules and criteria in a timely manner. The assessment of master theses is extensive and transparent. The various categories and the weighing used to determine the grade reflect the careful consideration given to the thesis assessment process. The Examining Board operates effectively and efficiently and is supported by the programme. There is a structured process in place for reviewing and approving individual programmes.

### Standard 4. Achieved learning outcomes

The quality of theses and the subsequent employment of alumni demonstrate that students in the programme achieve the intended learning outcomes. Student theses are scientifically rigorous, methodologically transparent and well written. They reflect students' ability to independently carry out advanced research and showcase the depth of learning students achieve. Alumni look back on the programme positively, applauding the programme for providing them with a deep understanding of climate systems and with the knowledge, skills and attitude needed for a successful career in the field of climate change.

## Score table

The panel assesses the programmes as follows:

| | |
|---|---|
| *Master's programme Climate Studies* | |
| Standard 1: Intended learning outcomes | meets the standard |
| Standard 2: Teaching-learning environment | meets the standard |
| Standard 3: Student assessment | meets the standard |
| Standard 4: Achieved learning outcomes | meets the standard |
| | |
| General conclusion | positive |

Prof. dr. Jacqueline van Muijlwijk, panel chair

Dr. Rik Ligthart, panel secretary

Date: 7 April 2025

# Introduction

## Procedure

### Assessment

On 30 January 2025, the master's programme Climate Studies of Wageningen University was assessed by an independent peer review panel as part of the cluster assessment WO Life Sciences and Natural Resources 3. The assessment cluster consisted of ten programmes, offered by Wageningen University. The assessment followed the procedure and standards of the NVAO Assessment Framework for the Higher Education Accreditation System of the Netherlands (September 2024).

Quality assurance agency Academion coordinated the assessment upon request of Wageningen University. Jessica van Rossum acted as coordinator and panel secretary. Anne-Lise Kamphuis, Rik Ligthart and Sarah Boer also acted as panel secretaries in the cluster assessment. They have been certified and registered by the NVAO. Rik Ligthart acted as panel secretary for the site visit in which the master's programme Climate Studies was assessed.

### Preparation

Academion composed the peer review panel in cooperation with the institution and taking into account the expertise and independence of the members, as well as consistency within the cluster. On 6 September 2024, the NVAO approved the composition of the panel. The coordinator instructed the panel chair on her role in the site visit according to the Panel chair profile (NVAO 2016).

The programme composed a site visit schedule in consultation with the coordinator (see Appendix 3). The programme selected representative partners for the various interviews. They also determined that the development dialogue would be made part of the site visit. A separate development report was made based on this dialogue.

The programme provided the secretary with a list of graduates of the academic years 2022-2023 and 2023-2024. In consultation with the coordinator, the panel chair selected 15 theses of the master's programme Climate Studies. They took the diversity of final grades into account. Prior to the site visit, the programme provided the panel with the theses and the accompanying assessment forms. It also provided the panel with a Self-Evaluation Report (see Appendix 4).

The panel members studied the information and sent their findings to the panel secretary, who then collected the panel's questions and remarks in a document and shared this with the panel members. In a preliminary meeting, the panel discussed the initial findings on the Self Evaluation Report and the theses, as well as the division of tasks during the site visit. The panel was also informed on the assessment framework, the working method and the planning of the site visit and report.

### Site visit

During the site visit, the panel interviewed various programme representatives (see Appendix 3). The panel also offered students and staff members an opportunity for confidential discussion during a consultation hour. No consultation was requested. The panel used the final part of the site visit to discuss its findings in an internal meeting. Afterwards, the panel chair publicly presented the preliminary findings.

### Report

The panel secretary wrote a draft report based on the panel's findings and submitted it to the coordinator for peer assessment. Subsequently, the secretary sent the report to the panel for feedback. After processing this feedback, the secretary sent the draft report to Wageningen University in order to have it checked for factual irregularities. The secretary discussed the ensuing comments with the panel chair and changes were implemented accordingly. The panel then finalized the report, and the coordinator sent it to Wageningen University.

## Panel

The following panel members were involved in the cluster assessment:

- Prof. dr. J.E. (Jacqueline) van Muijlwijk-Koezen, professor in Innovations in Human Health and Life Sciences at the Vrije Universiteit Amsterdam (chair);
- Ir. M.L. (Margot) Kok, Director of Education at the Faculty of Science at Utrecht University;
- Dr. A.A.J. (Annik) Van Keer, Deputy Director at the Department of Policy Education at the Faculty of Science at Utrecht University;
- Dr. Ir. L.G.J. (Luc) Boerboom, associate professor at the Faculty of Geo-Information Science and Earth Observation at the Universiteit Twente;
- Dr. G.M. (Garrett) Broad PhD, associate professor in Communication Studies at Rowan University (United States of America);
- Prof. V.B. (Vilis) Brukas, professor in Forest Planning at the Swedish University of Agricultural Sciences (Sweden);
- Prof. dr. M. (Marleen) De Troch, associate professor in Marine Ecology at Ghent University (Belgium);
- Prof. dr. M.P. (Michael) Gilek, professor in Environmental Science at Södertörn University (Sweden);
- Prof. dr. Ir. B.J.J.M. (Bart) van der Hurk, Scientific Director at Deltares and professor in Climate Interactions with the Socio-Ecological System at the Vrije Universiteit Amsterdam;
- Prof. dr. P.L. (Pierre) Ibisch, professor in Socio-ecology of Forest Ecosystems at the Hochschule für nachhaltige Entwicklung Eberswalde (Germany);
- Dr. T. (Torsten) Krause, associate professor at the Lund University Centre for Sustainability Studies of Lund University (Sweden);
- Em. prof. dr. B.A. (Bruce) Lankford, professor emeritus in Water and Irrigation Policy at the University of East Anglia (United Kingdom);
- Prof. dr. T. (Tatiana) Loboda, professor at the Department of Geographical Sciences of the University of Maryland (United States of America);
- Prof. dr. ing. S. (Steffen) Nijhuis, professor in Landscape-based Urbanism at the Delft University of Technology, Department of Urbanism, Section Landscape Architecture (referee panel member);
- Dr. M.A.F. (Mirjam) Ros-Tonen, researcher and former associate professor at the Faculty of Social and Behavioural Sciences of the University of Amsterdam;
- Prof. dr. S.T. (Sabine) Timpf, professor in Geoinformatics at the University of Augsburg (Germany);
- Prof. dr. V.B. (Veerle) Van Eetvelde, professor in Landscape research at Ghent University (Belgium);
- Prof. C.W. (Christian) Werthmann, professor in Landscape Architecture and Design at Leibniz University Hannover (Germany);
- J.A. (Job) Tuinder, master's student Earth Sciences at the University of Amsterdam (student member);
- F. (Finn) van der Straaten, master's student International Development Studies at the University of Amsterdam (student member).

The panel assessing the master's programme Climate Studies at Wageningen University & Research consisted of the following members:

- Prof. dr. J.E. (Jacqueline) van Muijlwijk-Koezen, professor in Innovations in Human Health and Life Sciences at the Vrije Universiteit Amsterdam (chair);
- Ir. M.L. (Margot) Kok, Director of Education at the Faculty of Science at Utrecht University;
- Prof. dr. Ir. B.J.J.M. (Bart) van der Hurk, Scientific Director at Deltares and professor in Climate Interactions with the Socio-Ecological System at the Vrije Universiteit Amsterdam;
- Dr. T. (Torsten) Krause, associate professor at the Lund University Centre for Sustainability Studies of Lund University (Sweden);
- F. (Finn) van der Straaten, master's student International Development Studies at the University of Amsterdam (student member).

## Information on the programmes

| | |
|---|---|
| Name of the institution: | Wageningen University |
| Status of the institution: | Publicly funded institution |
| Result institutional quality assurance assessment: | Positive |
| | |
| Programme name: | M Climate Studies |
| CROHO number: | 60107 |
| Level: | Master |
| Orientation: | Academic |
| Number of credits: | 120 EC |
| Specializations or tracks: | A. The Physical Climate System<br>B. Biogeochemical Cycles<br>C. Ecological and Agroecological Systems<br>D. Human-Environment Interaction<br>E. Climate, Society and Economics |
| Location: | Wageningen |
| Mode(s) of study: | Fulltime |
| Language of instruction: | English |
| Submission date NVAO: | 1 May 2025 |

# Description of the assessment

## Organization

Wageningen University comprises of one faculty with five science groups, also known as departments. These science groups are Agrotechnology and Food Sciences, Animal Sciences, Environmental Sciences, Plant Sciences and Social Sciences. The science groups deliver education through chair groups. The science groups are responsible for the management of the activities of the chair groups and the research institutes of Wageningen Research (WR). Chair groups are usually clustered according to similarities under the broad field of a particular science group. A chair group is the organizational component within Wageningen University to give shape to academic teaching and research and create societal value in a specific field. There are about ninety chair groups, each of them led by a professor to conduct research in the specific domain. Despite the exclusiveness of every chair group, they all work under the thematic area of healthy food and living environment. A chair group can be involved in the education of more than one programme. The involvement of chair groups in a programme is evident in the courses and the specialization. Regarding a programme, the Board of Education oversees that the programme director and the programme committee, consisting of students, teachers develop, and update bachelor's and master's programmes and align with the chair group(s) on whether new courses and specializations are needed or existing courses or thesis specializations have to be enhanced.

## Recommendations previous accreditation panel

The previous accreditation of the master's programme Climate Studies of Wageningen University took place in 2019. In the self-evaluation report of the current assessment, the programme described the actions taken in response to the recommendations. Among other things, the programme is designing a new set of intended learning outcomes following their updated vision, and planning to redesign the programme accordingly. Also, the thesis and internship learning outcomes, rubrics, guidance, and assessment have been aligned, university-wide, and implemented via OSIRIS. Some examples of changes in response to the previous accreditation are discussed under the relevant standards. In addition, several improvements were discussed during the site visit. The panel concludes that the programme management has taken the recommendations from the previous accreditation seriously and is satisfied with the improvement measures taken.

## Standard 1. Intended learning outcomes

The intended learning outcomes tie in with the level and orientation of the programme; they are geared to the expectations of the professional field, the discipline, and international requirements.

### Findings

*Programme objective and profile*

The objective of the master's programme Climate Studies is to educate academic professionals who can address global climate change challenges and who can contribute to sustainable solutions, taking into account social, personal and ethical responsibilities. Students are educated to become responsible changemakers in the field of climate change and are prepared for a job as researcher, consultant, policy officer, entrepreneur, or international relations officer. The programme spurs academic debate on how the climate is changing, how to cope with the impact, and how to limit climate change in the long run. It focuses on the mechanisms of climate change and their interactions with society and the economy, on covering geophysical and biogeochemical processes involved in climate change and the socio-economic aspects of

causes and effects of climate change, and on the importance of international collaboration for dealing with climate change. The programme combines knowledge and expertise from three domains: earth sciences, life sciences and social sciences. Students can choose to follow education in multiple domains or to specialize in one specific domain. A central characteristic of the programme is that students develop an understanding and attitude that climate change challenges are wicked problems requiring knowledge from and collaboration between multiple domains and perspectives. Recently, the programme has updated its vision, further emphasizing the importance of interconnecting the three lenses (earth, life, social) to address climate change. By integrating the three domains and its multidisciplinary nature, the programme wants to distinguish itself from climate change programmes at other universities.

The panel appreciates the broad set-up of the programme, which resonates well with the societal dynamics of climate change which are governed by complex interactions between science, economy, behaviour and nature. According to the panel, the programme is meeting demand from both society and students: there is a clear added value in being able to address the climate topic from multiple (political, technical, economic, social and cultural) perspectives and in underlining the role of scientific expertise in the academic and societal debate.

The panel notes that the width of topics introduces the risk of shallow coverage of each domain. During the site visit, the programme assured the panel that they are well aware of this trade-off between broadness and depth, and that they ensure students first get a grasp of the broadness of the domain before giving the choice to specialise in a specific area. The panel appreciates this attention to balancing broad and in-depth coverage of climate-related issues.

*Learning outcomes*
The programme has translated its programme objective and profile into a set of twelve intended learning outcomes (see Appendix 1). The intended learning outcomes incorporate among others the acquiring of relevant scientific knowledge, the development of research and critical thinking skills, and the understanding of diverging economic and cultural situations in different parts of the world. They are described in reference to the Dublin descriptors to reflect the required master's level. The programme is currently working on reshaping the intended learning outcomes, based on the programme's updated vision, and plans to implement them from the academic year 2026-2027 onwards. Reshaping the learning outcomes follows up on one of the recommendations from the previous panel, stating that the learning outcomes would benefit from more specificity and vision.

The panel believes that the programme's intended learning outcomes fit the programme's objective, orientation and profile. The learning outcomes are generally well-designed and aligned with relevant standard to reflect the master's level and the programme's academic orientation. The panel is enthusiastic about the updated vision because of its ambition and explicit focus on the importance of interdisciplinarity for dealing with climate change.

*Research and connection to the professional field*
The programme is connected to the academic field through the chair groups. Eleven chair groups clustered in four disciplines/domains (Earth Sciences, Life Sciences, Social Sciences and Integrative Systems Sciences) offer students thesis research projects (or, thesis tracks) related to climate change. Students can opt for different study paths within the disciplinary thesis tracks. Collaboration with other relevant chair groups is possible for students as well. Next to the chair groups, the programme has an External Advisory Committee (EAC) which connects the programme to the professional field. The EAC comprises climate change experts who have regular discussions with the Programme Committee on the (shifting) requirements in the

professional field and labour market and their impact on the programme's content. The EAC advised the programme, for instance, on the updated vision. Connection to the professional field is further established through real-life projects commissioned by external stakeholders like governments or research institutes and through guest lectures given by external experts including alumni.

The panel concludes that the chair groups offer students a strong research component and personalized learning path. The ability to follow courses from multiple chair groups enhances the multidisciplinary character of the programme. The presence of the EAC, externally commissioned projects and guest lectures make for a relevant connection to the professional field and signal that the programme successfully combines its academic orientation with professional practice.

### Considerations

The panel finds that the broad set-up of the programme and the inclusion of multiple scientific domains reveal the societal complexities of climate change. The intended learning outcomes are in line with the programme's objective, orientation and profile. The programme is firmly grounded in different chair groups at Wageningen University and has strong connections to the professional field.

### Conclusion

The panel concludes that the master's programme Climate Studies meets standard 1.

## Standard 2. Teaching-learning environment

The curriculum, the teaching-learning environment and the quality of the teaching staff enable the incoming students to achieve the intended learning outcomes.

### Findings

*Curriculum*

The curriculum spans two years and is thesis-oriented and tailor-made. Students can personalize the curriculum based on their own interests. The curriculum consists of three main parts: a common part (18 to 24 EC), a specialization and thesis track (78-90 EC), and free space (6-24 EC). In the common part, students analyse climate challenges from socio-economic and natural-scientific perspectives, next to developing an academic and interdisciplinary attitude. Students select a specific course in the academic masters cluster – a WU-wide set of courses which are meant to help students develop professional and academic skills – depending on their preferred career orientation. Most students opt for 'Design of Climate Change Adaptation and Mitigation Strategies', specifically designed for Climate Studies, an interdisciplinary real-life consultancy group project related to climate change, commissioned by (non)governmental agencies, private companies or research institutes. In this specific course, students set their own learning goals, for instance with regards to professional or personal development.

In the personalization part, students choose one out of five available specializations: The Physical Climate System, Biogeochemical Cycles, Ecological and Agroecological Systems, Human-Environment Interactions, and Climate, Society and Economics. The Physical Climate System and Climate, Society and Economics are the most disciplinary-oriented specializations, while the other specializations have a more interdisciplinary focus. The five specializations offer in total eleven thesis tracks. The choice for a specialization determines the options students have in choosing thesis tracks and preparatory courses for their internship and thesis. The internship (24 to 30 EC) takes place at an external host organization. The learning goals of the internship

can vary per student and are agreed upon in consultation with the student's supervisors, one from the university and one from the host organization.

The thesis is the final product of the programme (36-39 EC). In their thesis, students individually design, plan and execute research in the field of Climate Studies. Most students complete their internship (24-30 EC) as the final step in their study programme, hoping to secure a job afterwards. The decision in the sequence of thesis and internship depends on students' individual preferences.

In the elective part students can further specialize or broaden their scope and develop additional skills, like research skills. The free space is specifically aimed at self- and career development. Finally, students can take part in extracurricular activities, including a 15 EC honours programme.

The curriculum combines disciplinary courses as well as interdisciplinary courses. Some courses include boundary spanning projects specifically aimed at bridging disciplines and cultures. In courses, practical examples of developing countries adapting to climate change are used, for instance video clips of indigenous individuals sharing their experiences. Students can bring in their own examples as well and there is room for discussion and reflection, including on the ethical part of climate change.

Recently, the programme made several changes in the curriculum in consultation with students and the Programme Committee to improve the learning experience of students. The curriculum now pays increased attention to the topic of climate anxiety and presents and discusses more solutions for handling climate change. Also, there is more explicit attention for post-colonial perspectives emphasizing that climate solutions and adaptation measures which are perceived beneficial in Western Europe can be perceived differently in other regions of the world. And following up on a recommendation of the previous panel, the programme took several measures in order to improve cohort building. The programme includes a compulsory course that must be attended by all students at the beginning of their studies. In addition, a restricted optional course where students from different specializations interact and work together is part of the programme. The mentor programme, which aims at helping incoming students to find their place within the university and within the programme, has been improved. Furthermore, cohort activities are organized as well as a Studium Generale reflection programme. For the future, the Programme Director and Programme Committee are considering the introduction of a longitudinal course for all students so they can meet regularly throughout the year. In addition, the programme explores adding data science skills (programming languages like R or Python) to the curriculum in response to students expressing to miss this course content. There are already supporting data science courses students can take and these may become compulsory.

During the student interview, students indicated they are positive about the interdisciplinary nature of the programme, the inclusion of ethical and social perspectives during classes, the diversity of students, thesis supervision (including the possibility to have two supervisors from different chair groups) and the setup of the curriculum with courses in the first year and the thesis and internship in the second year. Students further like the options for personalization, the possibility to choose elective courses from other chair groups and the choice between an interdisciplinary or more disciplinary-focused programme.

Based on the documentation and discussions during the site visit, the panel finds the multi-disciplinary curriculum encompassing, offering students the option to truly design their own learning process and choose their own focus. Its flexibility to either specialize in one of the core disciplinary pillars or develop a tailored specialization somewhere in the multi-disciplinary domain is a great asset. The package of core and optional courses includes a wide range of disciplines and encourages exploring multiple perspectives. The

panel believes the breadth of the curriculum speaks to a wide of range of students and likes the possibility for students to set their own specific learning goals at the start of courses. The implemented and planned changes in the curriculum are a display of the programme's search for continuous improvement.

The panel notes that the curriculum has a relatively large number of specializations and thesis tracks relative to the average number of students. While this enables students to tailor their programme to their specific needs, it limits the possibilities for developing a cohesive student group. The panel understands that this is a consequence of the personalized character of the programme but nevertheless encourages the programme to continue the search for organizing everyday activities. The panel is satisfied with the actions taken by the programme so far and expects that introducing a longitudinal course for all students will further improve group cohesiveness.

Some of the specializations offer field trips for the students. In specializations where field trips are absent, students desire to have them included. The panel considers the field trips relevant for student exposure to the professional field. The panel encourages the programme to explore opportunities to organize these trips in all specializations so that all students can benefit from this valuable exposure to the professional field during the programme. The panel is confident that a field trip at the beginning of the programme for the entire cohort could offer additional advantages in community development.

Regarding the sequence of the thesis and the internship, the panel acknowledges that the flexibility for students is an important attribute of the programme. The possibility for students to land their first job at their internship organization is appealing, and thesis supervisors can help students in finding internships through their contacts. At the same time, the panel learnt from the student interview that finding an internship during thesis work can be stressful and choosing a thesis as the last step in the study path can also have its benefits, such as the ability to dive deeper into a topic encouraged and assisted by internship experiences. The panel suggests keeping an open discussion at the programme level on the sequencing of the internship and thesis.

*Admission and language*
The programme targets recently qualified BSc graduates with basic academic training in the domains of earth sciences, life sciences, environmental sciences, or social sciences as well as more experienced climate change professionals. The criterion used for admission is a WU BSc degree in Environmental Sciences, Forest and Nature Conservation, International Land and Water Management, Landscape Architecture and Planning, and Soil, Water, Atmosphere, or an equivalent of these programmes. Students come from a wide range of bachelor's programmes and from all over the world: in the past six years, the share of international students was around 30 to 50 percent.

The language of instruction is English, and students are trained to work in an international context where mastering the English language is important. Also, it is a condition for facilitating an international classroom, one of the basic principles of education at Wageningen University where English has been the language of instruction for all master's programmes since the introduction of the bachelor's and master's system. The international classroom concept is applied to train students in dealing with diverse cultures and perspectives and to strengthen global collaboration.

The panel finds the admission requirements realistic and well-selected in relation to the intended learning outcomes. The use of English as the language of instruction as well as for the programme name matches with the international profile and orientation of the programme.

*Feasibility and guidance*
Most students graduate within three years (cohort 2021: 71%, cohort 2020: 67%). From the 2022 cohort, 23% gained a diploma after two years. The programme has a low number of dropouts, especially in the last two years (2023: 3, 2022: 2, 2021: 7). Students tend to graduate with slightly more credits than needed, on average approximately 130 EC. The programme offers study support already before students start the programme. Prospective students receive information on the programme and are asked to motivate their choice for the programme and to design a preliminary programme. Once students have delivered the information, they have an intake meeting with a study advisor to discuss their motivations, wishes and needs. The study advisor offers individual guidance on academic choices, provides support and refers students to specialized resources when needed. Students are informed about thesis research topics and internship possibilities early in the programme. Throughout their studies students stay in contact with the same study advisor. There is also a mentor programme in place aiming to make students feel at home and part of a group. During thesis supervision it is emphasized that supervisors are available not only for content matters but for personal questions as well.

Students with a functional impairment can appeal, next to the study advisor, to the student deans and psychologists for guidance. In addition, a student doctor is available for select cases. If necessary, support staff can suggest individual measures to help students with a functional impairment such as additional exam time for students with dyslexia. Policies for this are available at the central university level.

From the documentation and discussions during the site visit, it becomes clear to the panel that students appreciate the support they receive from study advisors in tailoring their programme. It makes students feel comfortable to know that they can always rely on the study advisor for help. International students are particularly happy with the offered help in getting acquainted with the Dutch education system. Students point out that all relevant information on the programme is also available online in Osiris and in Brightspace. Overall students consider the programme to be feasible.

Based on the documentation and discussions during the site visit, the panel finds that the programme is highly supportive of the students' learning journey. Study advisors play an essential and appreciated role in the guidance of students, and university policies ensure that students with impairments receive the support they need. The mentor programme and study advisors greatly support students throughout their studies. Regarding the admission, the panel found it praiseworthy that students are asked to already think about and plan for their specialization in advance, which makes the process easier once they commence. All these elements combined make for a personalized and challenging yet feasible programme, evidenced also by a low number of dropouts.

*Teaching staff*
Full professors, tenured scientific staff and other academics teach the students in the programme, supported by technicians, research assistants and PhD students. The programme has 68 lecturers and each lecturer is part of a chair group and involved in research. The core chair groups are represented in the Programme Committee. In addition to the core lecturers there is a larger group of lecturers who are connected to courses in the programme. Around 75% of total teaching staff have obtained the University Teaching Qualification (UTQ) while another 10% is currently in a UTQ trajectory. Some of the teaching staff are following the senior UTQ. Most courses are lectured by multiple chair groups. Teaching staff is content with the collaboration among themselves which is formally structured but also occurs regularly on an informal level. Teaching staff engages in university-wide teacher days where they meet staff from other programmes. The programme also organizes programme-specific teacher days to discuss topics like the intended learning outcomes or

decolonization. These teacher days occur approximately once per year. During the student interview, students express they are satisfied with teachers' enthusiasm and describe teaching staff as knowledgeable and approachable.

The panel finds that the teaching staff consists of a very diverse group of disciplinary experts motivated to face the challenges of dealing with a wide range of student interests, backgrounds and skills. Teaching staff is mostly senior (post-PhD), has broad scientific expertise and is approachable by students. They get inspiration from the issues and dilemmas emerging from the wide range of geopolitical and personal perspectives on climate change, raised both by students and from interacting with fellow teachers. Teaching staff have a sufficient command of the English language. The requirement of having teaching certificates contributes to the overall quality of the education. The panel is happy to see that the core chair groups are represented in the Programme Committee.

The panel understands that there are options for teaching staff to engage with fellow lecturers but that these options are limited due to organizational and resource constraints. Teaching staff expresses that a higher frequency as well as more possibilities to attend each other's lectures and to educate themselves would be warmly welcomed. In addition, learning to deal with ethical dilemmas or psychological stress of students, or the ability to update teaching material to address the diversity in cultural and geopolitical views on climate change causes, impacts and solutions could be enhanced. The panel recommends increasing the options for teaching staff interaction and training in order to further stimulate interdisciplinary perspectives in courses and theses and to further cater for the needs and backgrounds of a diversified student group.

### Considerations

The multidisciplinary curriculum is encompassing and offers students the flexibility to specialize either in a core discipline or in a multi-disciplinary domain. The core and optional courses include a wide range of disciplines and encourages exploring multiple perspectives. The panel believes the breadth of the curriculum speaks to a wide range of students and appreciates the possibility for students to set their own specific learning goals at the start of courses. The panel is satisfied with the implemented measures the programme takes to further increase student cohesion. The implemented and planned changes in the curriculum characterize the programme's search for continuous improvement. Admission requirements are realistic, and the use of English as the language of instruction fits the profile, orientation and name of the programme.

The programme is highly supportive of the students' learning journey. Study advisors play an important and well-appreciated role in guiding students throughout the programme. The mentor programme and university-wide policies further support students on their challenging yet feasible learning journey. Measures for students with a functional impairment are well in place. It is praiseworthy that students are asked to already think about and plan for their specialization before the start of their studies.

Teaching staff consists of a diverse group of disciplinary experts motivated to face the challenges associated with dealing with a diverse student population. They have broad expertise, are approachable for students and get inspired by the issues and dilemmas emerging from the wide range of geopolitical and personal perspectives.

### Conclusion

The panel concludes that the master's programme Climate Studies meets standard 2.

## Standard 3. Student assessment

The programme has an adequate system of student assessment in place.

### Findings

*System of assessment*
Based on the institution-wide assessment policy, the programme has created an assessment matrix showing how the learning outcomes are linked to the different elements of the curriculum and which types of assessment take place in the courses, internship and thesis. Each course includes an assessment of students' knowledge, understanding and skills in relation to the course's learning outcomes. The educational activities and assessment methods are designed to align with these outcomes. The programme utilizes a variety of assessment methods including written exams with a mix of closed and open-ended questions, individual and group assignments, papers or essays, presentations, and participation in coursework (such as laboratory and field work and discussion sessions). Students are provided with example exams in the case of written exams and are informed beforehand about assessment criteria for papers and presentations. In the case of group assessment, extensive rubrics are used to assess the individual contribution of students. Some courses include intermediate tests or interim self-tests. Peer review and feedback is organized to develop students' reflective attitude.

At the end of the internship, students are assessed based on a written report, an oral presentation and a reflection report looking back at the previously defined learning outcomes. The external supervisor offers input for the evaluation of the student's performance. The university supervisor assesses the student using a university-wide assessment form and rubric.

The thesis is the final product of the programme. It comprises between 36 and 39 EC and is finalized with a written report that counts for 50% of the final grade. The other elements of the assessment are student performance (40%), oral presentation (5%) and oral defense (5%). The theses are assessed independently by at least two examiners. A thesis rubric assists in assessing the performance of students on each component. Osiris imposes assessors to provide written feedback on the thesis. The programme has continuous attention for the quality of the feedback, among others by sharpening the instructions for assessors, responding to a recommendation from the previous panel to improve the quality of feedback.

During the student interview, students indicate that they are satisfied with the quality and quantity of feedback the teaching staff provides. They receive sufficient explanation of the application of rubrics and additional, more detailed feedback on tests or reports is given upon request. In case of differences of opinion between student and assessor on a grade, there can be an open discussion and based on the outcome of that discussion, grades may be altered. Students appreciate this flexibility.

Based on the documentation and conversations during the site visit, the panel concludes that student assessment is well-organized, rigorous and transparent. Using a variety of assessment methods gives students the chance to do well and according to individual abilities. It is laudable that students receive rubrics and specific information on how their exams are being assessed in advance and at the start of the courses. Thesis and internship supervision by two supervisors increase the reliability of student performance assessment. The thesis assessment follows an extensive and transparent process. The different categories and the weighing that are used to make up the grade attest to the thoughtfulness of the assessment process. The panel finds that the assessment is transparent and appropriate for the theses they reviewed.

*Examining Board*

The WU has four Examining Boards. Each board is responsible for the examination arrangements for one of the four groups of study programmes: Life Sciences, Social Sciences, Environment & Landscape, and Technology & Nutrition. The master's programme in Climate Studies falls under the Examining Board Environment and Landscape (EBEL). EBEL appoints examiners for each course based on nomination by the chair holder. They ensure the transparency, validity, and reliability of examinations and intermediate assessments, considering the Education & Examination Regulations and the Examining Board's Rules and Regulations. EBEL assesses theses randomly and visits the chair groups once every three to five years to review assessment procedures. EBEL is satisfied with the quality and transparency of thesis assessment in the programme. They see the programme, with the help of Osiris, has improved in this respect as now supervisors have to give feedback separately, responding to a recommendation from the previous panel. According to EBEL, further improvement lies in the argumentation for grading individual components.

EBEL also approves individual study programmes. After discussions with the study advisors, EBEL checks whether the particular programme complies with the programme's intended learning outcomes and whether the level and content of course levels are appropriate. Courses abroad, double degrees and restricted optional choices are also checked by EBEL. Restricted optional choices are checked automatically by Osiris.

From the discussions with the Examining Board, the panel concludes that the Examining Board operates effectively and efficiently and can count on solid support from the programme. The panel sees a structured process in place to review individual programmes. It considers this process important as students value the opportunity to design their own personalized programme. The approval process is manageable though intensive. To further improve manageability as well as transparency the panel recommends taking further steps to formalize the boundaries of elective packages. Instead of solely relying on the expertise of study advisors and the Examining Board, the definition of clear criteria and rules is advised.

### Considerations

The assessment of student performance is well-organized, rigorous and transparent. The variety of assessment methods gives students the chance to do well and according to individual abilities. Students receive information on assessment rules and criteria in a timely manner. The assessment of theses is extensive and transparent. The various categories and the weighing used to determine the grade reflect the careful consideration given to the thesis assessment process.

The Examining Board operates effectively and efficiently and is solidly supported by the programme. There is a structured process in place for reviewing and approving individual programmes.

### Conclusion

The panel concludes that the master's programme Climate Studies meets standard 3.

## Standard 4. Achieved learning outcomes

The programme demonstrates that the intended learning outcomes are achieved.

### Findings

*Thesis quality*

The panel reviewed fifteen theses to assess whether the students realize the achieved learning outcomes. Over the past three years most students have written their thesis in the thesis track 'Water Systems and Global Change', followed by 'Environmental Policy' and 'Environmental Systems Analysis'. Based on the review, the panel concludes that the theses are of high quality, scientifically rigorous, methodologically transparent, and sound. Theses display a variety in topics and different research approaches. Some theses are natural science focused using advanced sampling (aerial CO2 sampling for instance) and apply quite advanced computational & mathematical methods. This signals the quantitative focus and quality of the programme, the depth of student learning and their independence in carrying out advanced research. The panel finds that students elaborate a complete chain of work, and that the documentation of their work is comprehensive and thorough. In general, the theses are well written and structured.

Most of the theses reviewed by the panel are disciplinary. This is understandable from the perspective of the chair groups (students write their thesis as part of one, disciplinary-organized research group) and because students are free in choosing an (inter)disciplinary topic. Yet, the panel believes that from the programme's viewpoint, disciplinary theses represent a missed opportunity. Especially in the field of climate studies, added value lies in the ability to address challenges from multiple (political and cultural) perspectives driven by an immense curiosity to understand these perspectives. The panel believes the theses could improve by having a more critical reflection throughout the report regarding an overall discussion on the findings' societal implications and political relevance, including an integration of other domains and perspectives. The panel therefore suggests organizing interdisciplinary thesis rings in which students from different specializations present and discuss their theses, and to add a paragraph on interdisciplinarity and positioning in the theses.

*Alumni*

Graduates find employment in various sectors. Most graduates start working in education and research (33% of the graduates), at consultancy firms (27%) or for government institutions (12%). Others find employment in trade and industry, organisations and associations, or other services. Looking back on the programme, alumni feel they have a deep understanding of climate systems, and they are well-prepared for a variety of jobs in research, business or government. The External Advisory Committee appreciates the programme's graduates. They praise graduates' ability to think in complex systems, to integrate natural and social science perspectives, to effectively communicate with stakeholders and to tackle complex contemporary climate challenges. Based on the documentation and conversations, the panel concludes that employers and alumni are satisfied with the programme and that alumni are widely employable and well-equipped for a variety of jobs.

### Considerations

The quality of theses and the employment of alumni demonstrate that students in the programme achieve the intended learning outcomes. Student theses are scientifically rigorous, methodologically transparent and sound and well written. They reflect the ability to independently carry out advanced research and the depth of student learning. Alumni look back on the programme positively, applauding the programme for

providing them with a deep understanding of climate systems and with the knowledge, skills and attitude needed for a successful career in the field of climate change.

### Conclusion

The panel concludes that the master's programme Climate Studies meets standard 4.

## General conclusion

The panel's assessment of the master's programme Climate Studies is positive.

## Development points

1. Explore opportunities to organize field trips in all specializations to further improve the connection with the professional field. In addition, a joint field trip for all students at the beginning of the programme could offer additional advantages in terms of community development, student collaboration and peer-to-peer learning.
2. Increase the options for teaching staff interaction and training to stimulate interdisciplinary perspectives in courses and in theses, and to further cater for the needs and backgrounds of a diversified student group.
3. Expand the interdisciplinary character of theses by organizing interdisciplinary thesis rings in which students from different specializations present and discuss their theses, and by encouraging students to add a paragraph on interdisciplinarity and positioning their theses in relevant current societal and political debates on climate change.

| | After succesful completion of the programme graduates are expected to be able to: | Dublin descriptors* |
|---|---|---|
| 1 | Explain the scientific concepts of the Earth's climate system and its regulating mechanisms, and classify the major processes that result in global change | 1, 2 |
| 2 | Explain the social-scientific concepts that are relevant to understanding the interactions between climate and society | 1, 2 |
| 3 | Distinguish between natural and anthropogenic driving forces and their effects on biogeochemical cycles and the climate system | 1, 2 |
| 4 | Apply the basic techniques of studying global change and climate variability such as statistics and modelling tools | 2 |
| 5 | Use various methodological approaches to studying climate-related physical, socio-political and economic issues, including the prospects of mitigation of, and adaptation to climate change | 2 |
| 6 | Independently design and execute research plans in accordance with academic standards, thus contributing to the development of the body of knowledge in the field | 2, 3 |
| 7 | Cooperate within a multidisciplinary team by contributing to the development of policy and management measures dealing with climate change and its effects on society | 2, 3, 4 |
| 8 | Integrate scientific information and research results, and convincingly communicate the results to specialist and non-specialist audiences, both verbally and in writing, with due attention to the uncertainties involved in scientific insights | 2, 3, 4 |
| 9 | Critically reflect on opinions on the causes and effects of climate change, and the validity of arguments brought forward | 3 |
| 10 | Appreciate the widely divergent economic and cultural situations in which people live in different parts of the world, the varying effects that climate change and mitigating or adaptive measures may have on their well-being, and the different perceptions of climate risks they may have | 3 |
| 11 | Reflect on the ethical aspects of their research and their recommendations of measures and interventions | 3 |
| 12 | Design and plan their own learning processes by virtue of continuous reflection on personal knowledge, skills, attitudes and performance. | 5 |

*Dublin Descriptors: description of master's level

# Appendix 2. Programme curriculum

| Year 1 | Period 1 | Period 2 | Period 3 | Period 4 | Period 5 | Period 6 |
|---|---|---|---|---|---|---|
| Morning | WSG20306<br>Climate Change Topics and Approaches | SOC36306**<br>Biogeochemical Cycles and Climate Change Mitigation | Thesis preparatory course | Free choice | Thesis preparatory course | (continuation)<br>WSG60812<br>Design of Climate Change Mitigation and Adaptation Strategies |
| Afternoon | ENR22806 Principles of Climate Change Economics and Policy*<br>or<br>SOC23306 Principles of Earth and Ecosystem Science* | ENP36306**<br>Climate Governance | | | WSG60812<br>Design of Climate Change Mitigation and Adaptation Strategies<br>(or another AMC option) | Free choice |

| Year 2 | Period 1 | Period 2 | Period 3 | Period 4 | Period 5 | Period 6 |
|---|---|---|---|---|---|---|
| Morning | Thesis | | | | Internship | |
| Afternoon | | | | | | |

Common part; *based on the student's previous education

Specialisation; ** students have to choose at least one of these courses depending on their specialisation

Free choice

**Figure 1. Schematic overview of the MSc Climate studies**

# Appendix 3. Programme of the site visit

**Thursday 30 January 2025**

| Time | | What | Who |
|---|---|---|---|
| 09.00 | 09.45 | Interview programme management | Dean of Education<br>Member of the Board of Education<br>Staff member Programme Committee, Associate Professor<br>Student member Programme Committee and Daily Board<br>Programme Director |
| 09.45 | 10.15 | Internal panel session | |
| 10.15 | 11.00 | Interview MSc students and alumni | 1st year students (2)<br>2nd year students (2)<br>3 Alumni (graduated in 2020, 2022, and 2023) |
| 11.00 | 11.15 | Break | |
| 11.15 | 12.00 | Interview MSc teaching staff | Assistant Professor and PC member<br>Assistant Professor<br>Professor and chair holder<br>Professor<br>Associate Professor<br>Associate Professor |
| 12.00 | 13.00 | Lunch | |
| 13.00 | 13.45 | Examining Board + Study advisors | Chair Examining Board, Associate Professor<br>Secretary Examining Board, Assistant Professor<br>Member Examining Board, Associate Professor<br>Study Advisor<br>Study Advisor |
| 13.45 | 14.30 | Internal panel session | |
| 14.30 | 15.15 | Concluding session programme management | Same group as management interview |
| 15.15 | 16.00 | Concluding panel session | |
| 16.00 | 17.00 | Development dialogue | Assistant Professor and PC member<br>Staff member Programme Committee, Associate Professor<br>Assistant Professor<br>Student member Programme Committee and Daily Board<br>Student<br>Student<br>Programme Director<br>Policy Advisor |
| 17.00 | 17.30 | Oral report panel | |

# Appendix 4. Materials

Prior to the site visit, the panel studied 15 theses of the master's programme Climate Studies. Information on the theses is available from Academion upon request.

The panel also studied other materials, which included:

- Assessment policy WUR
- Education and Examination Regulations Wageningen University 2024-2025
- Framework for education Wageningen University 2024-2025
- Governance structure and the organization of WU Degree Programmes
- Study advice Service level commitment
- WU Vision for Education
- Manual Personal Study Plan
- Nationale Studenten Enquete MCL 2024
- Self-Evaluation Report MCL
- Course materials
- Theses (sample selected)
- Annual report Examining Boards 2022-2023, 2021-2022, 2020-2021
- Annual report Programme Committee MCL 21-22, 22-23, 23-24
- Development meeting topics
- Draft updated MCL learning outcomes