

Assessment report  
Limited Framework Programme Assessment

**Bachelor Environmental Sciences**

Open University of the Netherlands

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## 1. Executive summary

In this executive summary, the panel presents the main considerations which led to the assessment of the quality of the Bachelor Environmental Sciences programme of Open University of the Netherlands. The programme was assessed according to the standards of the limited framework, as laid down in the NVAO Assessment framework for the higher education accreditation system of the Netherlands, as published on 20 December 2016 (Staatscourant nr. 69458).

The panel considers the programme objectives to be sound and relevant. The programme distinguishes itself by educating students to be able to contribute to the diagnosis and research of environmental problems, to contribute to the design of interventions and by training students in a range of academic and professional skills. Students are predominantly introduced to the natural sciences dimensions of environmental and sustainability subjects and problems. The panel regards the programme profile to be relevant, the programme having a position of its own among the academic programmes in Environment and Sustainability Sciences in the Netherlands.

The objectives have been well translated into the intended learning outcomes of the programme. These are well articulated and appropriately reflect knowledge and understanding of the domain, research skills and academic and more professional skills. The panel noted the intended learning outcomes to be drafted in 2006 and considers them to some extent outdated. The panel proposes to update them. The intended learning outcomes conform to the bachelor level.

The programme objectives are within the boundaries of the domain-specific reference framework for academic programmes in Environment and Sustainability Sciences. The panel is very positive about the effort by the joint academic programmes in Environment and Sustainability Sciences in the Netherlands to draft this framework and regards this to be a sound and up-to-date description of this domain.

The panel welcomes the regular discussions by programme management with the external Advisory Board to align the programme with the requirements of the professional field. The panel appreciates the programme objectives to train students to continue their studies in this domain at master level.

The panel regards the organisation of the programme to be appropriate.

The number of incoming students is satisfactory. The increase in student numbers may be expected, which is looked upon favourably by the panel.

The panel is very positive about the contents and the coherence of the curriculum. The competencies stated in the intended learning outcomes serve as explicit teaching-learning trajectories, strongly adding to the curriculum coherence. The whole of the competence road map is implemented in the curriculum and each of the competencies is addressed very appropriately. The panel regards the study materials and literature to be up to standard, inviting the programme to keep these up-to-date. The panel supports programme management's intentions to strengthen the management, data and computer science components of the curriculum.

The panel noted the vast majority of the lecturers in the programme to have PhDs and to be intensively engaged in current, relevant research. Their educational capabilities are regarded by the panel to be up to standard, as the proportion of BKO-certified lecturers is very substantial. The panel noted the lecturers to be much appreciated by students and to be easily approachable for students.

The panel approves of the open admission of the bachelor and the admission procedures for transfer students and especially welcomes the self-tests, study material and tasks offered to students to remedy deficiencies.

The panel finds the educational concept of the programme appropriate and welcomes the structuring of tasks in the courses as well as the interaction with lecturers and fellow students, being accommodated by the yOUlearn learning system. The study methods in the programme, being self-study, learning through the learning system, virtual classes and face-to-face education are adequate. The study guidance by the lecturers and the study advisor is satisfactory.

The panel considers the examination and assessment policies for the programme to be up to standard. The position and the authority of the Examination Board are appropriate. This Board is active in monitoring the examinations and assessments quality. The panel regards the selection of examination methods to be appropriate. The examination methods are in alignment with the course goals. The number of multiple-choice examinations is limited and confined to the beginning of the curriculum. The panel considers the organisation, supervision and assessment of the Bachelor thesis project to be up to standard. The supervision of the thesis process is intensive. The assessment is organised adequately, involving two qualified examiners, who use elaborate scoring forms. The panel regards the measures taken by programme management to ensure the examinations and assessments quality to be adequate. This may be seen from the introduction of assessment profiles, the peer-review of examinations, the requirements regarding examiners and the usage of answer keys and scoring models. The panel advises to introduce test matrices.

The panel regards the course examinations to be up to standard. The subjects covered in the Bachelor theses are in alignment with the programme domain. The panel finds the theses well-structured and well-written. Programme graduates show having acquired academic knowledge in this domain to satisfactory levels. The panel feels in some of the Bachelor theses subjects may have been addressed more in-depth. The panel agrees with the grades given by the programme examiners.

The panel feels the students completing the programme have reached the intended learning outcomes and considers the graduates to be well prepared to continue their studies at master level in this domain.

The panel that conducted the assessment of the Bachelor Environmental Sciences programme of Open University of the Netherlands assesses this programme to meet the standards of the limited framework, as laid down in the NVAO Assessment framework for the higher education accreditation system of the Netherlands, judging the programme to be satisfactory. Therefore, the panel recommends NVAO to accredit this programme.

Rotterdam, 27 August 2018

Prof. dr. W.A. Hafkamp  
(panel chair)

drs. W. Vercouteren  
(panel secretary)

## 2. Assessment process

The evaluation agency Certiked VBI received the request by Open University of the Netherlands to support the limited framework programme assessment process for the Bachelor Environmental Sciences programme of this University. The objective of the programme assessment process was to assess whether the programme would conform to the standards of the limited framework, as laid down in the NVAO Assessment framework for the higher education accreditation system of the Netherlands, published on 20 December 2016 (Staatscourant nr. 69458).

Management of the programmes in the assessment cluster Environment and Sustainability Sciences convened to discuss the composition of the assessment panel and to draft the list of candidates.

Having conferred with management of the Bachelor Environmental Sciences programme of Open University, Certiked invited candidate panel members to sit on the assessment panel. The panel members agreed to do so. The panel composition was as follows:

- Prof. dr. W.A. Hafkamp, full professor of Environmental Sciences, Erasmus University Rotterdam (panel chair);
- Prof. dr. M.C.E. van Dam-Mieras, emeritus professor Sustainable Development and Educational Innovation, Leiden University (panel member);
- Prof. dr. L. Hordijk, emeritus professor Environmental Systems Analysis, Wageningen University (panel member);
- P. Aarts BSc, student Master Biological Sciences, University of Amsterdam (student member).

On behalf of Certiked, drs. W. Vercoouteren served as the process coordinator and secretary in the assessment process.

All panel members and the secretary confirmed in writing being impartial with regard to the programme to be assessed and observing the rules of confidentiality. Having obtained the authorisation by the University, Certiked requested the approval of NVAO of the proposed panel to conduct the assessment. NVAO have given their approval.

To prepare the assessment process, the process coordinator convened with management of the programme to discuss the outline of the self-assessment report, the subjects to be addressed in this report and the site visit schedule. In addition, the planning of the activities in preparation of the site visit were discussed. In the course of the process preparing for the site visit, programme management and the Certiked process coordinator regularly had contact to fine-tune the process. The activities prior to the site visit have been performed as planned. Programme management approved of the site visit schedule.

Well in advance of the site visit date, programme management sent the list of final projects of graduates of the programme of the most recent years. Acting on behalf of the assessment panel, the process coordinator selected the final projects of 15 graduates from the years 2013 – 2017, being the Bachelor thesis group projects and the individual work package reports. The grade distribution in the selection was ensured to conform to the grade distribution in the list, sent by programme management. No additional criteria applied.

The panel chair and the panel members were sent the self-assessment report of the programme, including appendices. In the self-assessment report, the student chapter was included. In addition, the expert panel members were forwarded a number of final projects of the programme graduates, these final projects being part of the selection made by the process coordinator.

A number of weeks before the site visit date, the assessment panel chair and the process coordinator met to discuss the self-assessment report provided by programme management, the procedures regarding the assessment process and the site visit schedule. In this meeting, the profile of panel chairs of NVAO was discussed as well. The panel chair was informed about the competencies, listed in the profile. Documents pertaining to a number of these competencies were presented to the panel chair. The meeting between the panel chair and the process coordinator served as the briefing for panel chairs, as meant in the NVAO profile of panel chairs.

Prior to the date of the site visit, all panel members sent in their preliminary findings, based on the self-assessment report and the final projects studied, and a number of questions to be put to the programme representatives on the day of the site visit. The panel secretary summarised this information, compiling a list of questions, which served as a starting point for the discussions with the programme representatives during the site visit.

Shortly before the site visit date, the complete panel met to go over the preliminary findings concerning the quality of the programme. During this preliminary meeting, the preliminary findings of the panel members, including those about the final projects were discussed. The procedures to be adopted during the site visit, including the questions to be put to the programme representatives on the basis of the list compiled, were discussed as well.

On 6 April 2018, the panel conducted the site visit on the Open University campus. The site visit schedule was in accordance with the schedule as planned. In a number of separate sessions, the panel was given the opportunity to meet with Faculty Board representatives, programme management, Examination Board representatives, lecturers and final projects examiners, and students and alumni.

In a closed session at the end of the site visit, the panel considered every one of the findings, weighed the considerations and arrived at conclusions with regard to the quality of the programme. At the end of the site visit, the panel chair presented a broad outline of the considerations and conclusions to programme representatives.

Clearly separated from the process of the programme assessment, the assessment panel members and programme representatives met to conduct the development dialogue, with the objective to discuss future developments of the programme.

The assessment draft report was finalised by the secretary, having taken into account the findings and considerations of the panel. The draft report was sent to the panel members, who studied it and made a number of changes. Thereupon, the secretary edited the final report. This report was presented to programme management to be corrected for factual inaccuracies. Programme management were given two weeks to respond. Having been corrected for these factual inaccuracies, the Certiked bureau sent the report to the University Board to accompany their request for re-accreditation of this programme.

### 3. Programme administrative information

Name programme in CROHO: B Environmental Sciences (B Milieu-natuurwetenschappen)  
Orientation, level programme: Academic Bachelor  
Grade: BSc  
Number of credits: 180 EC  
Specialisations: None  
Location: Heerlen (main office)  
Mode of study: Part-time online education (instruction language Dutch; 45 EC English)  
Registration in CROHO: 22NC-56988

Name of institution: Open University of the Netherlands  
Status of institution: Government-funded University  
Institution's quality assurance: Approved

## 4. Findings, considerations and assessments per standard

### 4.1 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.
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#### *Findings*

The objectives of this programme are to educate students to be able to contribute to the scientific mapping and defining of environmental problems (diagnostic competency area), to contribute to the scientific investigation of problems and to report this to the professional field (research competency area) and to contribute to the design of strategies for sustainable solutions on environmental issues (intervention competency area). The programme objectives also include to train students in academic and professional skills, such as collaboration skills in multidisciplinary teams, taking account of stakeholders perspectives, dealing with uncertainties, oral and written reporting skills and self-reflective skills. The programme may be regarded to be primarily natural sciences focused.

These objectives have been translated into the intended learning outcomes of the programme. The intended learning outcomes are quite numerous and specify rather detailed the domain-specific, natural sciences knowledge components, research knowledge and skills and professional and academic skills.

Programme management drafted a table from which the correspondence of the intended learning outcomes to the Dublin descriptors for bachelor programmes may be inferred.

The objectives of the programme conform to the domain-specific reference framework for academic programmes in Environment and Sustainability Sciences, which has been drafted by the joint programmes in the Netherlands. In this domain-specific reference framework, reference has been made to international frameworks and benchmark statements. This Open University programme may be regarded to be positioned in the *Natural Systems Emphasis* part of the Environment and Sustainability Sciences domain.

For the programme, an external Advisory Board has been installed. Programme management discusses on a regular basis the programme objectives and curriculum from the professional field perspective with this Board.

#### *Considerations*

The panel considers the programme objectives to be sound and relevant. The programme distinguishes itself by educating students to be able to contribute to the diagnosis and research of environmental problems, to contribute to the design of interventions and by training students in a range of academic and professional skills. Students are predominantly introduced to the natural sciences dimensions of environmental and sustainability subjects and problems. About 20 EC of the programme focuses more on the social dimensions. The panel regards the programme profile to be relevant, the programme having a position of its own among the academic programmes in Environment and Sustainability Sciences in the Netherlands.

The objectives have been well translated into the intended learning outcomes of the programme. These are well articulated and appropriately reflect knowledge and understanding of the domain, research skills and academic and more professional skills. The panel noted the intended learning outcomes to be drafted in 2006 and considers them to some extent outdated. The panel recommends to update them.

The intended learning outcomes conform to the bachelor level. This is exemplified by the Dublin descriptors criteria for bachelor level programmes matching the intended learning outcomes.

The programme objectives are within the boundaries of the domain-specific reference framework for academic programmes in Environment and Sustainability Sciences, this programme having a clear profile within this framework. The panel is very positive about the effort by the joint academic programmes in Environment and Sustainability Sciences in the Netherlands to draft this framework and regards this to be a sound and up-to-date description of this domain.

The panel welcomes the regular discussions by programme management with the external Advisory Board to align the programme with the requirements of the professional field. The panel appreciates the programme objectives to train students to continue their studies in this domain at master level.

*Assessment of this standard*

These considerations have led the assessment panel to assess standard 1, Intended learning outcomes, to be satisfactory.



## 4.2 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*

The Bachelor Environmental Sciences programme is a programme of the Faculty of Management, Science & Technology of Open University. The Faculty offers four Bachelor and five Master programmes. On behalf of the Dean, the Director of Education is responsible for the quality of this and the other programmes of the Faculty. The programme leader of the Bachelor programme supervises programme contents and programme quality on a day-to-day basis. The programme leader consults the Curriculum Committee, being composed of all lecturers in the programme, every two months on the programme curriculum. The Programme Committee, consisting of lecturers and students, advises programme management on the programme quality. The Examination Board is responsible for overseeing the quality of examinations and assessments. The Curriculum Committee, Programme Committee and Advisory Board are shared by this and the Master Environmental Sciences programmes. The Examination Board has the authority for all programmes of the Faculty.

Students entering the programme not necessarily register for the degree programme, but may only be interested in specific courses. Students, collecting 15 EC of credits or more per year, are regarded to be degree programme students. For the years 2013 to 2017, this number was on average 60 to 70 students every year. These students are entitled to study planning mentoring and monitoring by the study advisors.

Programme management presented a table to demonstrate the alignment of the curriculum to the intended learning outcomes. Diagnostic, research and intervention competencies and academic and professional skills, mentioned above when discussing the programme objectives, are the building blocks or teaching-learning trajectories of the curriculum. Each of the courses in the curriculum is part of one of these building blocks. Courses on, among others, mathematics, geology, life sciences, chemistry and physics are part of the diagnostic competencies. These subjects are offered in the context of the environment and sustainability sciences. Courses as *Understanding Scientific Reasoning*, *Integrated Sciences Practical*, and *Environmental Systems Analysis and Scenarios* are meant to cover the research competencies, going into a range of research methods and techniques. Courses as *Energy Analysis*, *Environmentally Improved Production* and *Corporate Responsibility for Sustainable Development* address the intervention competencies. In a number of courses, academic and professional skills are covered. The courses *Environmental and Sustainability Sciences*, *Virtual Environmental Consultancy: Research Methods* and *Virtual Environmental Consultancy: BSc Thesis Research* are meant for students to learn and to show how to integrate these competencies. Programme management wants to intensify the collaboration within the faculty with the other departments to strengthen the management science, data science and computer science components of the curriculum.

Anyone of 18 years or older is admitted to the programme without restrictions. Prospective students are informed about the programme through the Open University website or the Open University study centres. Before entering the programme and in the first introductory courses, applicants may take part in self-assessment tests, do tasks and study remedial material on mathematics. Lecturers give feedback on these assignments. In addition, students are offered remedial tasks in academic knowledge and skills and on chemistry and biology. At the beginning of the programme, students meet for a full day, analysing a case study, learning academic skills and being introduced to their lecturers and the study advisor.

In the programme, 18 lecturers are involved. Some lecturers have academic positions at other Universities as well. About 87 % of them have PhDs (figure is fte-based). Lecturers in the programme spend 30 % of their time on research. All are members of the Department of Science within the Faculty. They conduct their research mainly as part of the Faculty research programme, *Learning and Innovation in Resilient Systems*. The proportion of lecturers having obtained BKO-certificates is 86 % (figure is fte-based). Students expressed to be very content about the teaching capabilities of the lecturers. Lecturers may easily be contacted by students.

The educational concept of the programme is in line with the Open University educational principles, being named yOUteach and implying studying in cohorts, active learning on the part of students, organising courses in well-defined tasks and intensifying moments of contact between lecturers and students and among students. The study methods are self-study, learning through the Open University learning system yOUlearn and, in each of the 5 EC courses, on average three virtual classes and one face-to-face session. The learning system includes course schedules, course materials and learning tasks. The system allows students to ask questions to the lecturers and to upload assignments and papers. The students-to-staff ratio is 13 : 1 for the Bachelor and Master Environmental Sciences together. Study advisors assist students in designing study paths and selecting electives and in case of other questions or problems. They track students' study progress. Student success rates are not easy to calculate, as students starting in the programme may be interested in taking specific courses instead of wanting to complete the degree programme. The average number of students completing the programme, is about 14 students per year.

#### *Considerations*

The panel regards the organisation of the programme to be appropriate.

The number of incoming students is satisfactory. An increase in student numbers may be expected, which is looked upon favourably by the panel.

The curriculum matches the intended learning outcomes of the programme. The panel is very positive about the contents and the coherence of the curriculum. The competencies stated in the intended learning outcomes serve as explicit teaching-learning trajectories, strongly adding to the curriculum coherence. The whole of the competence road map is implemented in the curriculum and each of the competencies is addressed very appropriately. The panel regards the study materials and literature to be up to standard, inviting the programme to keep these up-to-date. The panel supports programme management's intentions to strengthen the management, data and computer science components of the curriculum.

The panel noted the vast majority of the lecturers in the programme to have PhDs and to be intensively engaged in current, relevant research, both at Open University and in other Universities. Their educational capabilities are regarded by the panel to be up to standard, as the proportion of BKO-certified lecturers is very substantial. The panel noted the lecturers to be much appreciated by students and to be easily approachable for students.

The panel approves of the open admission of the bachelor and the admission procedures for transfer students and especially welcomes the self-tests, study material and tasks offered to students to remedy any deficiencies.

The panel finds the educational concept of the programme appropriate and welcomes the structuring of tasks in the courses as well as the interaction with lecturers and fellow students, being accommodated by the yOUlearn learning system. The study methods in the programme, being self-study, learning through the yOUlearn learning system, virtual classes and face-to-face education are adequate. The study guidance by the lecturers and the study advisor is satisfactory.

*Assessment of this standard*

These considerations have led the assessment panel to assess standard 2, Teaching-learning environment, to be good.

### 4.3 Standard 3: Student assessment

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

#### *Findings*

The programme examination and assessment regulations correspond to the Open University examination framework and the Faculty assessment policy plan. The Faculty Examination Board has the authority to ensure and monitor the quality of the examinations and assessments of this programme. The chair of the Board has an independent position vis-à-vis the Faculty.

In the courses, examination methods are multiple-choice examinations, written examinations with open questions, assignments and presentations. Courses in the beginning of the curriculum are directed towards knowledge acquisition and tend to be assessed by means of written examinations. The number of multiple-choice examinations is limited. Courses later in the curriculum tend to have assignments as examinations methods, as application of knowledge may be more central to these courses. Assignments are predominantly individual but may involve group projects.

The Bachelor thesis of the programme is the final project, commissioned by an external organisation. Students work in groups of three to four on the research assignment. The project is supervised by an Open University supervisor. The Open University supervisor ensures the academic quality of the project. Supervisors check the thesis subjects to be within the domain of the programme. Students present the draft findings at three meetings, being given feedback by two or more lecturers and by their fellow students. The Bachelor thesis is composed of two separate parts, being the group product and the individual product. The group product accounts for 40 % of the grade, whereas the individual product has a weight of 60 % of the final grade. The thesis is assessed by two examiners, being the Open University supervisor and the external academic commissioner. They use the thesis assessment form, which specifies assessment criteria.

For all of the courses, assessment profiles have been drafted, specifying the relations between course learning goals and examination methods. Test matrices for examinations are not yet implemented. The programme and all other programmes of the Faculty intend to do so per September 2018. In all courses, examinations are peer-reviewed by fellow examiners. The examiners are appointed by the Examination Board and must be BKO-certified. Multiple-choice examinations are generated automatically from a large database of questions and are assessed automatically as well. For open questions examinations and assignments, answer keys and scoring models are drafted. Oral examinations are assessed by two examiners. Calibration sessions for examiners to compare and discuss assessments are scheduled. The Examination Board inspects examinations and theses of this and other programmes every four years. The Board reviews specific types of examinations. Fraud and plagiarism procedures are strict. Cases are handled by the Examination Board.

#### *Considerations*

The panel considers the examination and assessment policies for the programme to be up to standard. The position and the authority of the Examination Board are appropriate. This Board is active in monitoring the examinations and assessments quality.

The panel regards the selection of examination methods to be appropriate. The examination methods are in alignment with the course goals. The number of multiple-choice examinations is limited and confined to the beginning of the curriculum.

The panel considers the organisation, supervision and assessment of the Bachelor thesis project to be up to standard. The supervision of the thesis process is intensive. The assessment is organised adequately, involving two qualified examiners, using elaborate scoring forms.

The panel regards the measures taken by programme management to ensure the examinations and assessments quality to be adequate. This may be seen from the introduction of assessment profiles, the peer-review of examinations, the requirements regarding examiners and the usage of answer keys and scoring models. The panel advises to introduce test matrices.

*Assessment of this standard*

The considerations have led the assessment panel to assess standard 3, Student assessment, to be satisfactory.

#### 4.4 Standard 4: Achieved learning outcomes

The programme demonstrates that the intended learning outcomes are achieved.

##### *Findings*

The panel studied the examinations of a number of courses of the programme as well as a number of Bachelor theses, these being both the group projects and the individual work packages within these projects.

The average grade for the Bachelor theses, for both the group projects and the individual parts, is 7.5 (figure for all graduates from 2012 to 2016). Over the last years, ten programme graduates succeeded in having articles published in journals or presented at conferences (total number of graduates in this period are about 70 graduates).

Programme management conducted a survey among the alumni of 2013 – 2017 of the programme. Almost 90 % of them rated the programme as having been sufficient or more than sufficient. Completing the programme opens up job opportunities, the programme graduates told the panel. Almost 70 % of the alumni actually continued their studies at master level in this domain.

##### *Considerations*

The panel regards the course examinations, which were reviewed by the panel, to be up to standard.

The subjects covered in the Bachelor theses are in alignment with the programme domain. The panel finds the Bachelor theses well-structured and well-written. Programme graduates show having acquired academic knowledge in this domain to satisfactory levels. The panel feels in some of the Bachelor theses subjects may have been addressed more in-depth. The panel agrees with the grades given by the programme examiners.

The panel feels the students completing the programme have reached the intended learning outcomes and considers the graduates of this programme to be well prepared to continue their studies at master level in this domain.

##### *Assessment of this standard*

The considerations have led the assessment panel to assess standard 4, Achieved learning outcomes, to be satisfactory.

## 5. Overview of assessments

Standard	Assessment
Standard 1. Intended learning outcomes	Satisfactory
Standard 2: Teaching-learning environment	Good
Standard 3: Student assessment	Satisfactory
Standard 4: Achieved learning outcomes	Satisfactory
Programme	Satisfactory

## 6. Recommendations

In this report, a number of recommendations by the panel have been listed. For the sake of clarity, these have been brought together below.

- To update the intended learning outcomes to better meet the current state of the domain.
- To introduce test matrices for the examinations.