

Besluit

Besluit strekkende tot een oordeel positief onder voorwaarde(n) van een aanvraag toets nieuwe opleiding van de wo-master Biobased Sciences van de Wageningen University

datum	Gegevens	
31 mei 2018	Instelling	: Wageningen University
onderwerp	Opleiding	: wo-master Biobased Sciences
Besluit		
Toets nieuwe opleiding	Variant	: voltijd
wo-master	Afstudeerrichtingen	:
Biobased Sciences van de	Locatie	: Wageningen
Wageningen University	Studieomvang (EC)	: 120
(005914)	Datum macrodoelmatigheidsbesluit	:
uw kenmerk	Datum aanvraag	: 13 juli 2017
17-12940		
ons kenmerk	Datum locatiebezoek(en)	: 16 februari 2018
NVAO/20181379/ND	Datum paneladvies	: 9 april 2018
bijlage	Instellingstoets kwaliteitszorg	: ja, positief besluit van 2 juli 2012
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Beoordelingskader(s)

- Beoordelingskader voor de beperkte toets nieuwe opleiding van de NVAO (Stcrt. 2014, nr 36791).
- Artikel 5a.11, vierde lid, van de Wet op het hoger onderwijs en wetenschappelijk onderzoek (WHW) (Stb. 2010, 293)
- Artikel 1 van het Accreditatiebesluit WHW (Stb. 2011, 536)

Bevindingen

De NVAO stelt vast dat het visitatierapport zorgvuldig tot stand gekomen is. In het rapport is deugdelijk en kenbaar gemotiveerd op welke gronden het panel de kwaliteit van de opleiding positief onder voorwaarden heeft bevonden.

Advies panel

Samenvatting bevindingen en overwegingen van het panel.

The two-year master programme Biobased Sciences aims to fulfil the training needs for the emerging biobased and circular economies, which require multi-and interdisciplinary as well

Pagina 2 van 8 as in depth disciplinary education and training. In this context the panel appreciates that the learning outcomes comply with the Dublin descriptors, obviously reflect an academic orientation and are divided in disciplinary, interdisciplinary and general ones. According to the panel they deserve more specification, as especially the interdisciplinary ones are rather vague and might not be sufficient informative on the qualifications of the graduates for the intended labour-market.

When discussing the concept of interdisciplinarity with representatives from the programme, the panel encountered mixed, not yet fully crystallised perceptions of interdisciplinarity. Stakeholders described more explicitly the balance and interdependence that they expect between disciplinarity and interdisciplinarity, especially when it comes to crucial concepts like climate and environmental impact assessment, chain management, ethics, policy developments and economic feasibility. The panel recommends to adjust the learning outcomes in order to better specify the programme's concept of interdisciplinarity, while retaining an appropriate balance between disciplinary and multi- or interdisciplinary aspects. The panel is convinced that more specified learning outcomes will remove its concerns. *The programme meets standard 1.*

The panel found an ambitious programme structured in line with WUR standards, which is to be realised by enthusiastic and qualified staff in a well-equipped environment. The curriculum consists of: two foundation courses (12 EC) followed by specialisation courses in three specialisations¹(24 EC), free optional courses (12 EC), Academic Consultancy Training (ACT, 12 EC), an internship (24 EC) and a MSc thesis (36 EC). The course objectives cover the intended learning outcomes and provide further specifications of these. The panel has some important concerns regarding the design of the programme. The issues are: (1) insufficient interdisciplinarity throughout the programme and in the assessments, (2) whether all study paths lead to full realisation of the intended learning outcomes and (3) lack of a coherent and substantial biobased orientation in courses.

(1) The foundation courses that were presented as interdisciplinary courses appear to have a more multidisciplinary than interdisciplinary character. This is especially the case for Principles of biobased economy. This course consists of ten separate modules of which students choose at least six in order to introduce students to the different subjects of the biobased sciences program in a general way and to compensate lack of prior knowledge (depending on their BSc). All students have to pass the same exam independent of the modules they chose. Thus the starting level of the students is to some extent harmonised. The other foundation course, Circular economy, includes face-to-face education and focuses on a systems approach as an interdisciplinary method. The thesis is presented as interdisciplinary.

The research project of the student focusses for 80% on one of the disciplinary specialisations, 20% will be used to broaden the research project to another specialisation. According to the panel this also has a more multi- than interdisciplinary character as it should address two separate research questions from two chair groups in a 80:20 balance which do not necessarily address the interaction. The panel appreciates the ACT project, which is a general WUR course element. However, such projects may also vary in multi- and interdisciplinarity although the staff emphasised that specific (interdisciplinary) projects will be designed for this programme.

¹ Biomass production and carbon capture, Biorefinery and conversion or Biobased and circular economy

Pagina 3 van 8 The panel concludes that in fact interdisciplinarity is mainly embedded in the foundation courses, especially in the second course and hence limited to approximately 5-10% of the curriculum.

The representatives from the professional field confirmed their appreciation for multi- and interdisciplinarity in the programme. However, given the interdisciplinary ambitions of the programme, the panel comes to the conclusion that the interdisciplinarity needs to be developed further. The panel therefore strongly recommends to a) define interdisciplinarity and multidisciplinary b) ensure a better interdisciplinary approach in the foundation of in the programme c) ensure more and aligned embedding of interdisciplinarity throughout the program courses and address this in assessments and d) improve the learning outcomes for the ACT and Master thesis to include interdisciplinarity.

(2) A potential risk according to the panel is that not all possible study paths indeed lead to full realisation of the intended learning outcomes. The programme provides several more or less conditioned choices of (combinations of) courses within specialisations. The complicated process for choosing adds to this concern. During the site visit some factors were mentioned that may reduce the risk noticed: criteria conditioning choices and substantial advice and guidance from mentors. According to the panel this risk may be reduced further if courses include 'biobased' and 'interdisciplinarity' more substantially.

(3) The panel noticed that only six biobased courses were newly developed for this programme²; all the other courses also serve other degree programmes. The programme management and teaching staff provided some examples of courses that have already been adapted to meet the needs of biobased sciences (like Sustainability analysis) or will be adapted (like Seaweed biology and cultivation).

The programme management has the intention to evaluate all courses on their contribution to the biobased and interdisciplinary approach. In doing so the programme will be assisted by the university's educational support service. The panel recommends to pursue this further in the near future in close cooperation with the programme committee.

The programme partially meets standard 2.

At first, the panel had confidence in the organisation of testing and assessment for the programme, as the WUR is known for its clear and effective organisation and practice in this respect.

During the site visit it became increasingly clear that interdisciplinary testing and assessment did not materialise yet to the extent one should expect. The panel welcomes the explicit expertise on testing and assessment in the examination committee and suggests to appoint an additional member from within the new programme.

The practice of using rubrics for assessing ACT, internships and the thesis is a good one, but the panel missed criteria regarding the interdisciplinary biobased sciences approach. The panel therefore recommends adjusting the assessment forms. It appreciates that this process has already started for some assessment forms and has been discussed at the level of the institution as well.

The programme partially meets standard 3.

² These courses are piloted in existing degree courses: Biosystems Engineering, Biotechnology en Plant Sciences.

Pagina 4 van 8 The extended duration of the programme is justified by several arguments. First of all, the programme aims for specialisation and interdisciplinarity as well as for a solid scientific focus with practice oriented components. This requires theoretical education and training, but also an internship with a workload of 24 EC.

Second, representatives of the professional field emphasised that students should not only have in depth disciplinary knowledge, but also ought to have acquired research skills, communication skills, practical lab skills and business skills. As the programme is interdisciplinary, the thesis should be the result of an interdisciplinary achievement with a work load of at least 36 EC.

The panel is convinced that these arguments are valid. It therefore agrees that the programme needs two years to cover all the qualifications that graduates should master in order to be competitive on the international academic Biobased Sciences job market.

The extended duration is justified

Het panel adviseert positief over de verlenging van de studieduur naar 180 EC.

Advies van het panel

The panel concludes that the master programme on Biobased Sciences offered by Wageningen University fully meets one out of three standards. The other two standards are met partially, but the panel is confident that the programme will be able to fulfil the necessary conditions to fully meet these standards within a reasonable period of time. Given these considerations, the panel advises NVAO to take a conditionally positive decision regarding the quality of the proposed programme wo-master Biobased Sciences at Wageningen University.

Het panel adviseert de NVAO om positief onder voorwaarden te besluiten ten aanzien van de kwaliteit van de nieuwe opleiding wo-master Biobased Sciences van de Wageningen University.

Ingevolge het bepaalde in artikel 5a.10, derde lid, in verbinding met artikel 5a.11, achtste lid, van de WHW heeft de NVAO het college van bestuur van de Wageningen University te Wageningen in de gelegenheid gesteld zijn zienswijze op het voornemen tot besluit d.d. 16 april 2018 naar voren te brengen. Van deze gelegenheid heeft het college van bestuur geen gebruik gemaakt.

De NVAO besluit de aanvraag beperkte Toets nieuwe opleiding van de opleiding wo-master Biobased Sciences (120 EC; variant: voltijd; locatie: Wageningen) van de Wageningen University te Wageningen als positief onder voorwaarden(n) te beoordelen. De voorwaarden zijn: The panel advises to impose the following conditions:

- a. Define and specify interdisciplinarity and multidisciplinary.
- b. Include interdisciplinarity in the learning outcomes, criteria and assessments.
For example, pay more attention to chain and systems thinking, climate and environmental impact, social impact analysis, supply chain management, policy developments, economic feasibility, (risk) perception and communication.
- c. Adapt (existing) courses to more explicit inclusion of interdisciplinarity in the learning outcomes.
- d. Provide a better foundation of interdisciplinary approaches in the programme to ensure a broadened and extended interdisciplinary basis in the programme for all students (independent from the specialisations they choose).
- e. Include academic level elements with appropriate learning outcomes and assessments for all students on 1) ethics and philosophy related to biobased sciences and transition paths; and 2) societal aspects of biobased sciences & innovation.

De termijn waarbinnen aan deze voorwaarden moet zijn voldaan bepaalt de NVAO op vierentwintig maanden.

Uiterlijk zes maanden voor afloop van de termijn van de voorwaarden, levert de instelling documentatie aan de NVAO waarin zij aangeeft hoe aan de voorwaarden is voldaan.

Graad: Master of Science

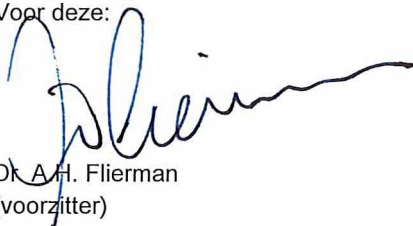
Advies Croho-onderdeel: landbouw en natuurlijke omgeving

Visitatiegroep : nader te bepalen³.

³ De opleiding dient ten minste twee jaar voor de vervaldatum gebruik te maken van de zogenoemde aprilronde om zelf zorg te dragen voor een indeling in een visitatiegroep. Daarna neemt de NVAO het besluit over de indeling in een visitatiegroep.

Den Haag, 31 mei 2018

De NVAO
Voor deze:

A handwritten signature in blue ink, appearing to read 'A.H. Flierman', written over the text 'Voor deze:'.

Dr. A.H. Flierman
(voorzitter)

Tegen dit besluit kan op grond van het bepaalde in de Algemene wet bestuursrecht door een belanghebbende bezwaar worden gemaakt bij de NVAO. De termijn voor het indienen van bezwaar bedraagt zes weken.

Onderwerp	Standaarden	Oordeel
1 Beoogde eindkwalificaties	De beoogde eindkwalificaties van de opleiding zijn wat betreft inhoud, niveau en oriëntatie geconcretiseerd en voldoen aan internationale eisen	Voldoet
2 Onderwijsleeromgeving	Het programma, het personeel en de opleidingsspecifieke voorzieningen maken het voor de instromende studenten mogelijk de beoogde eindkwalificaties te realiseren	Voldoet ten dele
3 Toetsing	De opleiding beschikt over een adequaat systeem van toetsing	Voldoet ten dele
Algemene conclusie		Positief onder voorwaarde

Chair:

- Prof. dr. P. (Patricia) Osseweijer – professor Science Communication and leader of the ‘Section Biotechnology and Society’ at Delft University of Technology;

Panel members:

- Prof. dr. M.J.E.C. (Marc) van der Maarel – professor Aquatic Biotechnology and Bioproduct Technology (ENTEG), University of Groningen;
- Dr. ir. A.P.H. (Annita) Westenbroek - Director Dutch Biorefinery Cluster;
- Prof. dr. J.H. (Han) de Winde – professor Industrial Biotechnology, Institute of Biology, Leiden University; Vice-dean Science Faculty, Leiden University;

Student member:

- M.J. (Menno) van Gameren - Student bachelor Future Planet Studies University of Amsterdam

On behalf of the NVAO, Frank Wamelink and Johanneke Braaksma were responsible for the process coordination and the drafting of the experts’ report.