

## Besluit

### Besluit strekkende tot het verlenen van accreditatie aan de opleiding wo-master Bioinformatics van de Vrije Universiteit Amsterdam

	<b>Gegevens</b>	
datum	30 september 2016	Naam instelling : Vrije Universiteit Amsterdam
onderwerp	Besluit	Naam opleiding : wo-master Bioinformatics (120 EC)
accreditatie wo-master	accreditatie wo-master	Datum aanvraag : 3 mei 2016
Bioinformatics	Bioinformatics	Variant opleiding : voltijd
Vrije Universiteit Amsterdam	(004849)	Afstudeerrichtingen : Bioinformatics, Systems Biology, Bioinformatics & Systems Biology
uw kenmerk	CvB/JWB/2016/373	Locatie opleiding : Amsterdam
ons kenmerk	NVAO/20161982/ND	Datum goedkeuren panel : 15 februari 2016
bijlagen	2	Datum locatiebezoek : 16 februari 2016
		Datum visitatierapport : 19 april 2016
		Instellingstoets kwaliteitszorg : ja, positief besluit van 14 juni 2016

#### 2 Beoordelingskader

Beoordelingskader voor de beperkte opleidingsbeoordeling van de (Stcrt. 2014, nr 36791).

#### Bevindingen

De NVAO stelt vast dat in het visitatierapport deugdelijk en kenbaar is gemotiveerd op welke gronden het panel de kwaliteit van de opleiding voldoende heeft bevonden.

#### Advies van het visitatiepanel

Samenvatting bevindingen en overwegingen van het panel.

At the time of the external programme assessment, the intended learning outcomes, the curricula, the courses and the examinations of this Master Bioinformatics of the Vrije Universiteit Amsterdam and the Master Life Sciences of the University of Amsterdam are identical. The programme management informed the panel having the intention to submit to NVAO a request for a joint-degree programme.

#### Standard 1 – Intended Learning Outcomes

The panel assesses standard 1 to be satisfactory.

The panel supports the plan of the programme management to acquire the formal status of a joint-degree programme.

Pagina 2 van 6 Both programmes are identical and students in effect are in one and the same programme, taking courses at both universities. The joint-degree status would appropriately reflect this situation on the students' diplomas.

The panel is positive about the objectives of the programme and welcomes the interdisciplinary nature of the programme. The combination of the two disciplines bioinformatics and systems biology in one programme is regarded by the panel to be an asset. It gives the students the opportunity to acquire knowledge and skills in both domains, at the same time enabling them to specialize in one of these. The programme management received some favorable comments on a peer reviewed publication outlining the programme design, published by the chair groups organizing the programme.

The intended learning outcomes represent the programme objectives fairly appropriately. They also comply with the Dublin-descriptors for the master's level and meet the master's requirements. The panel feels, however, the learning outcomes to be rather unfocused and recommends drafting them in a sharper way.

#### *Standard 2 – Teaching-learning environment*

The panel assesses standard 2 to be good.

The collaboration between the two programmes is very good, leading to a nearly seamless organization across both universities. In the opinion of the panel, this is quite an achievement.

The entry requirements of the programme are appropriate, admitting only students who have a fair chance of completing the programme. The panel is especially positive about the classes in biology, computer programming and mathematics in the first part of the curriculum, allowing students to remedy their deficiencies. The panel recommends to intensify the external information about the programme and to consider offering a major in this field for bachelor students, in order to attract more students.

The curriculum meets the intended learning outcomes of the programme. All subjects to be expected on the basis of the learning outcomes, are adequately covered. The curriculum is well-designed and very coherent.

The teaching methods in the programme fit the students' learning processes and allow them to achieve the intended learning outcomes. In the panel's opinion, an effective system has been put in place to balance the study load and to improve the study guidance for the courses in the first year as well as for the research projects in the second year.

Programme management and programme representatives are actively engaged in the research community in the Netherlands. The lecturers in the programme are renowned researchers and experienced teachers, being very capable of teaching the students effectively the concepts and applications in this field. As there is a somewhat limited number of core lecturers, coming from only three research groups and as the lecturers experience quite a demanding workload, the panel recommends to increase the number of lecturers and to involve more research groups and researchers in the programme.

The panel observed the programme management has taken up the recommendations made in the previous assessment in 2009.

Pagina 3 van 6 In particular, the programme management has taken steps to balance the study load, improve the study guidance and raise the student success rate. The panel concludes that the quality assurance system of the programme is adequate. The importance of the position and the role of the Education Committee in this respect are evident.

#### *Standard 3 – Assessment*

The panel assesses standard 3 to be satisfactory.

The panels considers the assessment system that has been set up to be very solid and to ensure the validity, reliability and transparency of the assessments. In their meeting with the panel the programme management, the lecturers and the Examination Board confirmed working in accordance with the rules and regulations. The protocol for the guidance and assessment of the research projects is adequate and ensures, among other things, valid and reliable assessments. The assessment methods used for the course components are appropriate, matching the learning goals of these components.

The Examination Board, so the panel observed, monitors the quality of examinations and assessments on a regular basis and is, therefore, in a position to assure the assessment quality in the programme.

#### *Standard 4 – Achieved Learning Outcomes*

The panel assesses standard 4 to be satisfactory.

All of the theses, which the panel studied, were found to be at least satisfactory. No unsatisfactory theses have been detected by the panel. A number of these theses were good to very good with relevant, clearly formulated hypotheses or scientific questions, a solid scientific structure and addressing topics of high computational or biological complexity. In some of the theses, the cycle of hypothesis-driven, data-driven or model-driven research seemed to be less explicitly addressed. For some of the theses, the panel would have given a somewhat lower but not substantially lower grade than the examiners in the programme did.

Some of the theses addressed subject matter, more closely related to the field of molecular biology than to the bioinformatics or systems biology study fields. The panel feels these theses in a strict sense would be somewhat outside of the domain of the programme and recommends making clear to what extent these theses may be regarded to be within the domain of the programme.

The panel observed the breadth of the programme not always to have been fully reflected in the second year of the Systems Biology profile and the computer programming aspects to have been somewhat underrepresented. The panel recommends ensuring both biology and computer programming to be covered in the research projects.

For the panel, the favourable opinion of the graduates about the programme, as expressed by the professional field representatives, indicates these graduates having achieved the intended learning outcomes and meeting the requirements of these research institutions and commercial businesses.

The panel assesses the programme Master Bioinformatics of the Vrije Universiteit Amsterdam to be satisfactory and recommends NVAO to grant re-accreditation to this programme.

#### **Aanbevelingen**

De NVAO onderschrijft de aanbevelingen van het panel.

#### **Besluit**

Ingevolge het bepaalde in artikel 5a.10, derde lid, van de WHW heeft de NVAO het college van bestuur van de Vrije Universiteit Amsterdam te Amsterdam in de gelegenheid gesteld zijn zienswijze op het voornemen tot besluit van 8 augustus 2016 naar voren te brengen. Bij e-mail van 26 augustus 2016 heeft het college van bestuur ingestemd met het voornemen tot besluit.

De NVAO besluit accreditatie te verlenen aan de wo-master Bioinformatics (120 EC; variant: voltijd; locatie: Amsterdam) van de Vrije Universiteit Amsterdam te Amsterdam. De opleiding kent de volgende afstudeerrichtingen: Bioinformatics, Systems Biology, Bioinformatics & Systems Biology. De NVAO beoordeelt de kwaliteit van de opleiding als voldoende.

Dit besluit treedt in werking op 30 september 2016 en is van kracht tot en met 29 september 2022.

Den Haag, 30 september 2016

De NVAO  
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.

Standaard		Beoordeling door het panel
1. Beoogde eindkwalificaties	De beoogde eindkwalificaties van de opleiding zijn wat betreft inhoud, niveau en oriëntatie geconcretiseerd en voldoen aan internationale eisen.	voldoende
2. Onderwijsleeromgeving	Het programma, het personeel en de opleidingsspecifieke voorzieningen maken het voor de instromende studenten mogelijk de beoogde eindkwalificaties te realiseren.	goed
3. Toetsing	De opleiding beschikt over een adequaat systeem van toetsing.	voldoende
4. Gerealiseerde eindkwalificaties	De opleiding toont aan dat de beoogde eindkwalificaties worden gerealiseerd.	voldoende
Eindoordeel		voldoende

De standaarden krijgen het oordeel *onvoldoende, voldoende, goed of excellent*. Het eindoordeel over de opleiding als geheel wordt op dezelfde schaal gegeven.

Pagina 6 van 6 **Bijlage 2: Panelsamenstelling**

- Prof. Y. Moreau, Professor in Engineering and programme director of the Master of Bioinformatics, University of Leuven (*chair*);
- Prof. V. Martins dos Santos, Professor in Systems and Synthetic Biology and director of Wageningen Centre for Systems Biology, Wageningen University;
- Prof. B. Snel, Professor in Bioinformatics and head of the executive board of Utrecht Bioinformatics Centre, Utrecht University;
- J. van Campenhout LLB, student in the pre-master programme in Law, University of Tilburg (*student member*).

Het panel is ondersteund door W. Vercouteren MSc, secretaris (gecertificeerd).