



NVAO • THE NETHERLANDS

# PEER REVIEW NEW PROGRAMME

WO-BACHELOR

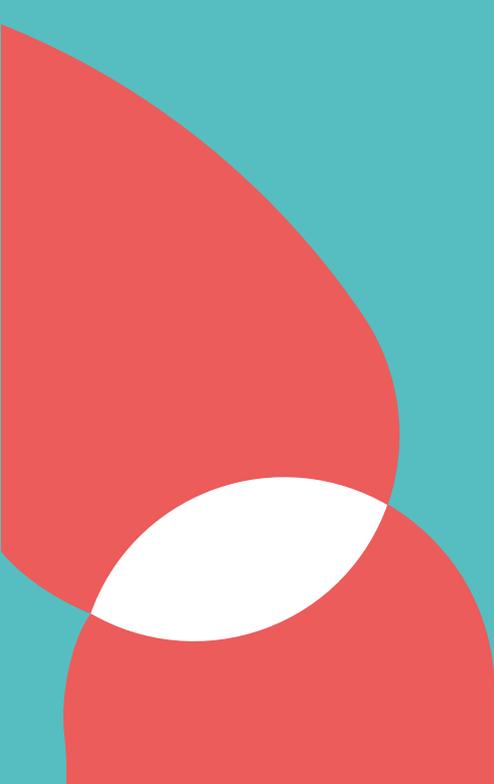
MOLECULAR AND BIOPHYSICAL LIFE

SCIENCES

Utrecht University

SUMMARY REPORT

27 November 2020



## 1 Peer Review

The quality of a new programme is assessed by means of peer review. A panel of independent peers including a student reviews the plans during a site visit to the institution. A discussion amongst peer experts forms the basis for the panel's final judgement and the advisory report. The focus is on the curriculum, the teaching and learning environment, and student assessment.

The Accreditation Organisation of the Netherlands and Flanders (NVAO) takes a formal decision on the quality of the new programme based on the outcome of the peer review. This decision can be positive, conditionally positive or negative. Following a positive NVAO decision with or without conditions the institution can proceed to offer the new programme. Upon completion of the programme graduates are entitled to receive a legally accredited degree.

This summary report contains the main outcomes of the peer review. A full report with more details including the panel's findings and analysis is also available. NVAO bases an accreditation decision on the full report.

Both the full and summary reports of peer reviews are published on NVAO's website [www.nvao.net](http://www.nvao.net). There you can also find more information on NVAO and peer reviews of new programmes.

Because of COVID-19 temporary measures apply for this peer review.

## 2 Panel

### Peer experts

- Prof. dr. J.W.M. (John) Creemers (chair), Director Doctoral School of Biomedical Sciences, Department of Human Genetics, KU Leuven, Belgium;
- Prof. dr. S. (Stanley) Brul, chair Molecular Biology and Microbial Food Safety (SILS) University of Amsterdam; chair of the Dutch Institute for Biology (NIBI);
- Prof. dr. A.F.P.M. (Ton) de Goeij, Emeritus professor Curriculum Development at Maastricht University, Faculty of Health Medicine and Life sciences;
- J. (Jeffrey) Verhoeff, student-member.

### Assisting staff

- Dr. M.J.V. (Meg) Van Bogaert, secretary
- Drs F. Wamelink, NVAO policy advisor and process coordinator

Site visit: 22 October 2020

### 3 Outcome

The NVAO approved panel reaches a positive conclusion regarding the quality of the plans for the bachelor programme Molecular and Biophysical Life Sciences (MBLS), issued for assessment by Utrecht University. The plans for the programme comply with all standards of the limited NVAO framework.

The MBLS bachelor's programme responds to the increasing demand for and attention to interdisciplinary programmes in the life sciences. The panel finds the choice of the underlying disciplines convincing, namely biology, chemistry, physics, pharmaceutical sciences, mathematics and bioinformatics. The work field also indicates a need for graduates with integrated knowledge of these disciplines. In addition to interdisciplinarity, intercultural knowledge and skills are a spearhead of the programme. The intended learning outcomes match the profile, level and orientation of the programme.

The curriculum is well designed and constructed. It starts with a monodisciplinary basis in the founding disciplines, with links between the disciplines being made early on in the curriculum. As the curriculum progresses, interdisciplinary aspects become increasingly stronger. In the further development of the courses, the panel asks for attention to be paid to the visibility of the learning lines for students, in terms of skills, content and interdisciplinarity. Students have a great deal of choice, allowing them to choose their own path within the programme. At the same time, the decisions students make have a major influence on their choice for master programmes and future career. For this reason, the panel recommends that students receive intensive guidance in making the many choices, including use of an e-portfolio and individual meetings at set times. Students conclude the curriculum with a final project in which they actively participate in a research group for eight weeks, after which a thesis is written. The panel recommends to introduce a formal preparation stage a few months before the actual project starts. The lecturer team is enthusiastic, of high quality and actively involved in setting up an interdisciplinary curriculum. Integration of teaching and research is clearly present.

The programme has a robust system of assessment with variation in assessment forms, informative rubrics and both formative and summative assessments. Constructive alignment is visible and the sample examinations are of good quality. In the report, the panel makes several suggestions for optimising the assessment of the final project. Finally, the assurance of the assessment is in order, with an experienced board of examiners that covers all programmes in the undergraduate school.

## 4 Commendations

The programme is commended for the following features of good practice.

1. Profile – The interdisciplinary and intercultural profile of the programme is well chosen and offers added value in the spectrum of current programmes in the Netherlands and abroad. It fits in with current developments in the life sciences, is well embedded in a strong education and science environment, and responds to a need of the professional field. An interdisciplinary approach is achieved by involving different departments that actively collaborate in the development of the programme. By setting up an international classroom, students learn about and together with other cultures in practice.
2. Curriculum – The intended curriculum is coherent and well-designed. It starts with monodisciplinary basic knowledge and skills, after which more and more multidisciplinary links are made as the curriculum proceeds towards an interdisciplinary final project. The skills training is an integral part of the curriculum and both content and skills lines run through the entire curriculum.
3. Student association – In addition to its social function, the student association Amino also plays an important role in developing a future professional perspective for the students, for example the exceptionally strong focus on the buddy programme.
4. Teaching staff – Collaboration between disciplines and departments is crucial for interdisciplinary programmes. The group of lecturers is enthusiastic and qualified and ensures, in addition to interdisciplinarity, a good connection between education and science.
5. Assessment – The system of assessment is well-designed for use in life sciences programmes. Formative and summative assessment take place and well-structured rubrics are used. There is also an experienced and well-functioning Board of Examiners (BoE) that not only takes care of the MBLS programme, but of all undergraduate programmes of the school.

## 5 Recommendations

For further improvement to the programme, the panel recommends a number of follow-up actions.

1. Intended learning outcomes (ILOs) – The already well-defined ILOs can gain further strength by 1) explicitly naming bioinformatics at ILO1 and 2) adding “semi-independently” at ILO 2, which makes this learning outcome suitable for an academic bachelor.
2. Curriculum - The development of the first phase of the curriculum is already well advanced. The panel stimulates the programme to further develop the second phase of the curriculum in the short term. In doing so, the panel advises taking into account the continuous learning lines and interdisciplinarity, and how the expectations can be communicated clearly to the students. In the course description a heading could be introduced with an explanation of which skills are worked on, which ILO’s fit in with this and how these are being assessed. This applies to the learning lines of the disciplines, and in particular to the skills learning line.
3. Student counselling - Although the programme and the undergraduate school have a clear plan for student counselling, the panel advises to add an e-portfolio and to structure the individual conversations with students. Students have to make many choices in the curriculum that determine their options after the programme. Personal guidance and the use of an e-portfolio for self-reflection are essential for a balanced educational career planning, by bachelor students.
4. Final project - The opinion of the panel on the design and implementation of the final project is positive. A point for its strengthening is the formalisation of a preparatory stage a number of months prior to the start of the actual project. When assessing the final project, the panel emphasises the independent assessment by both assessors, recommends that the assessment of the process should also be included in the rubric for Practical Work and that room for further written explanation should be included in the assessment forms for narrative input.

## 6 What comes next?

NVAO grants initial accreditation to a new programme on the basis of a panel’s full report. The decision is valid for a maximum of six years. Upon accreditation the new programme will follow the NVAO review procedures for existing programmes. NVAO publishes the accreditation decision together with the full report. A summary report is also available.<sup>1</sup>

Each institution has a system of quality assurance in place ensuring continuous follow-up actions and periodic peer-review activities. Peer reviews help the institution to improve the quality of its programmes. The progress made since the last review is therefore taken into consideration when preparing for the next review. The follow-up activities are also part of the following peer-review report. For more information, visit the institution’s website.<sup>2</sup>

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<sup>1</sup> <https://www.nvao.net/nl/besluiten>

<sup>2</sup> <https://www.uu.nl>

## 7 Summary in Dutch

Het panel oordeelt positief over de kwaliteit van de bacheloropleiding Molecular and Biophysical Life Sciences (MBLS) van de Universiteit Utrecht. Dit is de uitkomst van de kwaliteitstoets uitgevoerd door een panel van *peers* op verzoek van de Nederlands-Vlaamse Accreditatieorganisatie (NVAO). Voor deze beoordeling heeft het panel gesprekken gevoerd met de opleiding op 22 oktober 2020.

De MBLS-bacheloropleiding speelt goed in op de toenemende vraag naar interdisciplinaire opleidingen in de *life sciences* en combineert de vakgebieden biologie, scheikunde, natuurkunde, farmaceutische wetenschappen, wiskunde en bio-informatica. Het werkveld heeft behoefte aan afgestudeerden met geïntegreerde kennis van deze disciplines. Naast interdisciplinariteit zijn interculturele kennis en vaardigheden een speerpunt. De beoogde leerresultaten sluiten aan bij het profiel, het niveau en de oriëntatie van de opleiding. Op een aantal punten adviseert het panel een (minimale) aanscherping van de beoogde leerresultaten

Het programma begint met een basis in de genoemde vakgebieden, waarna de interdisciplinaire aspecten steeds sterker worden. De leerlijnen kunnen zichtbaarder worden aangebracht, zowel vaardigheden, inhoudelijk en interdisciplinair. Studenten hebben veel keuzemogelijkheden die samen grote invloed hebben op hun toekomst (masteropleiding en toekomstige carrière). De opleiding speelt in op een behoefte van het werkveld en is ingebed in een sterke onderwijs- en onderzoeksomgeving. De samenwerking tussen betrokken afdelingen is goed en leidt tot een interdisciplinaire aanpak in het onderwijs. Het panel adviseert om studenten intensief en individueel te begeleiden bij het maken van deze keuzes en daar een e-portfolio bij in te zetten. Voor het afstuderen werken studenten acht weken actief mee bij een onderzoeksgroep met een scriptie als eindproduct. Het panel is van mening dat een voorbereidingsfase, enkele maanden voor het eigenlijke project, de studenten een vliegende start geeft. Het docententeam is enthousiast, van hoge kwaliteit en actief betrokken bij het opzetten van het programma. Integratie van onderwijs en onderzoek is duidelijk aanwezig.

Het systeem van beoordeling is robuust met variatie in beoordelingsvormen, zowel formatieve als summatieve toetsing en gebruik van informatieve rubrics. De voorbeeldtoetsen zijn van goede kwaliteit. De beoordeling van het eindproject kan nog worden aangescherpt, in het rapport doet het panel daar een aantal suggesties voor. Tot slot is de borging van de toetsing op orde, met een ervaren examencommissie die alle bacheloropleidingen in de undergraduate school overziet.

Meer informatie over de NVAO-werkwijze en de toetsing van nieuwe opleidingen is te vinden op [www.nvao.net](http://www.nvao.net). Voor informatie over de Universiteit Utrecht verwijzen we naar de website van de instelling.<sup>3</sup>

Als gevolg van de beperkende omstandigheden door COVID-19 geldt voor deze kwaliteitstoets een tijdelijke en versnelde procedure.

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<sup>3</sup> <https://www.uu.nl>

