

Assessment plan of the Master's degree programmes 2023-2024:

Marine Biology

Introduction

- 1) This assessment plan is a description of the testing and assessment modes for all study components in the curriculum of the Master's degree programme Marine Biology. The plan is based on the assessment policy of the Faculty of Science and Engineering, as set out in the FSE [Quality Assurance Manual](#) (Chapter 6: Assessment appendix B) and the protocol setting out the duties and powers of the Faculty's Board of Examiners (Chapter 6: Assessment appendix G)

The assessment plan for the curriculum consists of the following parts:

1. the objective(s) of the degree programme
2. the learning outcomes of the degree programme
3. descriptions of the study components, as set out in the appendices to the Teaching and Examination Regulations 2023-2024 of the degree programme
4. descriptions of the content of each study component in Ocasys, the online course catalogue. The following elements are relevant in this context:
 - objectives
 - description of content
 - lecturers
 - assessment mode(s) and calculation of final mark
 - mode(s) of instruction.
5. an overview of the mentors and examiners (Appendix 1 and 2) and the assessment mode for each study component (Table 1 and Appendix 3). This overview is based on the curriculum approved by the Programme Committee, as set out in the appendices to the Teaching and Examination Regulations 2023-2024 for the degree programme.
6. A matrix showing the relationship between the study components and the learning outcomes for each competence area.

Parts 3 and 4 are not included in this document. For the descriptions of the study components, see the Appendix to the Teaching and Examination Regulations for the degree programme Marine Biology. Descriptions of the content of each study component can be found in Ocasys, the online course catalogue (<http://www.rug.nl/ocasys/>).

1. Objectives of the degree programme

The master's programme is research oriented. It has two tracks: a research track (R) and a Science, Business and Policy (SBP) track. Students have to choose a track.

The Research-track focuses entirely on research to prepare for a career in academia or other research institutes. The study programme therefore mainly consists of research projects, which focus on learning about conducting research by actually doing it. Students will not only independently perform experiments in the laboratory or the field, they will also go through the whole process of conducting science developing skills such as searching for and studying scientific literature, formulating hypotheses, designing and performing experiments, and presenting results.

The SBP-track comprises one year of research and one year aimed at the development of policy and management-related understanding and skills to prepare for a career in a company, consultancy or policy organization. This track is especially for students who are not only interested in science but also in the social and commercial aspects of scientific developments and products. Additional training in interactions with other disciplines, communication with non-scientists and general management skills is also part of this track.

In consultation with a study mentor (Appendix 1) students design their own study programme tailored to their interests. The Board of Examiners must approve of each individual programme.

2. Learning outcomes of the degree programme

The taxonomy of Bloom has been adopted as an adequate means to describe the teaching objectives and their level, the teaching and student activities to reach these objectives and the unambiguous assessment of the extent to which the objectives have been reached.

The graduate:

- 1) a) has acquired in depth knowledge on one or more scientific disciplines within the field of Marine Biology and can use this knowledge to explain in detail the relevant concepts, using the appropriate terminology
b) has acquired a cross disciplinary knowledge of issues across scientific disciplines within the field of Marine Biology and can use this knowledge to explain current societal and scientific challenges for marine ecosystems, from the shore to the deep sea;
- 2) can design, and conduct scientific research, and systematically organize his/her work in scientific research;
- 3) can independently investigate and critically evaluate scientific literature;
- 4) can identify new developments in the relevant disciplines, and can become familiar with these developments;
- 5) can formulate realistic, and original solutions to complex problems;
- 6) can participate in and contribute to a multidisciplinary team;
- 7) can effectively communicate acquired knowledge, insights and skills to others, both in writing and in oral presentation;
- 8) can identify societal and ethical implications of scientific research and is able to critically reflect on his/her actions in this context;
- 9) can independently acquire new knowledge and skills that are relevant for his/her professional career, in science, in policy & management or society.

Curriculum

The major part of the master's degree programme consists of 80 ECTS of compulsory individual elements (research projects, colloquium, essay, see table 1) within the domain of Marine Biology. These are graded by examiners appointed by the Board of Examiners (Appendix 2).

In addition to the 80 ECTS individual elements, maximally 40 ECTS of the student's programme is composed of course units. In these courses, the student increases their domain-specific knowledge and skills. Four courses are compulsory:

1. Principles of Biological Oceanography; 5 ECTS
2. Principles of Marine Biology; 5 ECTS
3. Principles of Population Genetics in Natural Populations; 5 ECTS
4. Marine Conservation; 5 ECTS

With the individual elements the student acquire most of the qualifications/ learning outcomes (table 3). In the courses, the student increases their domain-specific knowledge and skills and acquires the qualifications/learning outcomes as indicated in table 4.

Master modules,

At most 40 ECTS of the student's programme is composed of courses. Of these, 4 are compulsory for the research track and all for the SBP track. The student increases their domain-specific knowledge and skills in these courses.

The coordinators of the courses have been asked to update or provide information in the form of a so called Course Unit Assessment Overview (CUAO) and to provide information on the contribution to the teaching outcomes of the programme. See table 4.

Students may also choose electives organized by other programmes of the FSE or elsewhere. These are not included in this assessment plan but are chosen in consultation with the mentor to make sure the individual programme of the student adheres to all learning outcomes of the programme (Appendix 1 mentors).

Table 1. An overview of the master's degree programme.

Research

COURSE UNIT	ECTS	TEACHING FORM	ASSESSMENT
Essay	5	Individual literature study	Written report
Research project	≥ 30	Research	Technical and/or laboratory skills, written report, oral presentation
Research project	≥ 40	Research	Technical and/or laboratory skills, written report, oral presentation
Colloquium	5	Individual literature study	Oral presentation
Principles of Biological Oceanography	5	Lectures and practical work	Practical work and written exam
Principles of Marine Biology	5	Lectures and Practical work, Seminar, Tutorial	Assignment, oral exam, presentation
Principles of Population Genetics in Natural Populations	5	Assignment, Lectures and practical work, Tutorial	Assignment, Presentation
Marine Conservation	5	Assignment, Lecture, Practical work, Seminar, Tutorial	Assignment, Presentation and Practical work
Electives	20	Various	Various

Science Business and Policy

COURSE UNIT	ECTS	TEACHING FORM	ASSESSMENT
Research project	≥ 30	Research	Technical and/or laboratory skills, written report, oral presentation
Colloquium	5	Individual literature study	Oral presentation
Principles of Biological Oceanography	5	Lectures and practical work	Practical work and written exam
Principles of Marine Biology	5	Lectures and Practical work, Seminar, Tutorial	Assignment, oral exam, presentation
Principles of Population Genetics in Natural Populations	5	Assignment, Lectures and practical work, Tutorial	Assignment, Presentation
Marine Conservation	5	Assignment, Lecture, Practical work, Seminar, Tutorial	Assignment, Presentation and Practical work
Electives	5	Various	Various
SBP work placement	40	Project assignment	Performance, written report, reflection report
Modules SBP	20	Lectures, tutorials, project assignments	Assignments, exam

3. Overview of examiners and testing and assessment modes for study components

Table 2 shows the study components for each year of the programme, and the intended examiner(s) and assessment modes. Not all elective course units are part of this table but can be found in the Teaching and Examination Regulations (OERs) and/or Ocasys. This satisfies requirement 3 in the Protocol of Duties and Powers of the Board of Examiners of the Faculty of Science and Engineering.

Course name	Course code	EC	Coordinator/first examiner	Second examiner	Mode of assessment
Marine Conservation	WMMB011-05	5	Prof. Dr. L. L. Govers	S.E.T. van der Meij, PhD	P/PR/AST
Marine ecosystem service & global change	WMMB008-05	5	Prof. Dr. K. Timmermans	Prof. Dr. R. Middag	WE/R/P
Polar Ecosystems	WMMB009-05	5	Dr. W.H.van de Poll	Prof. Dr. R. Bintanja	WE/P
Principles of Biological Oceanography	WMMB003-05	5	Dr. W.H.van de Poll	Dr. M.K. de Boer	WE/PR
Principles of Marine Biology	WMMB004-05	5	Prof. dr. B.D.H.K. Eriksson	Dr. D. W. Thieltges	OE/P/AST
Principles of Population Genetics in Natural Populations	WMMB005-05	5	Prof. Dr. P.J. Palsboll	Dr. M. Bérubé	P/AST
Practical Computing for Biologists	WMBY008-05	5	Prof. dr. P.J. Palsboll	Dr. S.J.J. Lequime	PR/AST
Practical modelling for biologists	WMBY009-05	5	Prof. dr. J. van de Koppel	Dr. G.S. van Doorn	R/P

Assessment abbreviations:

- (WE) Written Exam
- (MC) Multiple choice
- (IT) Interim Test
- (OE) Oral Exam
- (R) Report
- (P) Presentation
- (PR) Practical Work
- (AST) Assignment

4. Relationship between course units and details of the learning outcomes

Table 3 (individual elements) and table 4 (Master and elective courses) show the relationship between the learning outcomes and the course units of the curriculum.

*Table 3. Relation between learning outcomes compulsory individual elements of the master's degree programme Research and SBP track**

Research track→	Essay	Research projects	Colloquium		
Science Business & Policy Track→		Research project	Colloquium	Work placement	SBP courses
1 knowledge	+++	+++	+++	+	++
2 research design		+++		+	
3 scientific literature	+++	+++	+++	++	+
4 new developments	+++	+++	+++	++	+
5 solving complex problems	++	+++	++	+	++
6 team contribution		+++		+++	+++
7 communication	+++	+++	+++	+++	+++
8 reflection	++	+++	++	+++	++
9 learning abilities	+++	++	+++	++	+

*The number of + indicates to what extent the module contributes to the learning outcomes. Numbers correspond to learning outcomes of the master's degree programmes. Course units for both tracks are marked grey.

Students are allowed to do a research assignment of 5-20 ECTS as an elective. Since these research assignments are individual assignments, their contribution to the degree programme's end terms vary as well.

Table 4: Contribution to the learning outcomes of the course units:

Course name	E1	E2	E3	E4	E5	E6	E7	E8	E9
Marine Conservation	X	X	X	X	X	X	X	X	X
Marine ecosystem service & global change	X	x	x	X	X	x	x	X	x
Polar Ecosystems	x	0	X	X	x	0	X	0	0
Principles of Biological Oceanography	X	0	0	X	0	0	0	x	x
Principles of Marine Biology	X	X	0	0	X	X	X	0	X
Principles of Population Genetics in Natural Populations	X	x	X	X	X	X	x	x	X
Practical Computing for Biologists	X	X	x	X	X	x	X	0	X
Practical modelling for biologists	x	X	x	x	X	x	x	X	0

Appendix 1. Mentors

Dr. M.K. de Boer	Ocean Ecosystems, Science and Society Group
Prof. Dr. B.D.H.K. Eriksson	Genomics Research in Ecology & Evolution in Nature
Dr. L.L. Govers	Conservation Ecology
S.E.T. van der Meij, PhD	Genomics Research in Ecology & Evolution in Nature
Prof. Dr. P.J. Palsboll	Genomics Research in Ecology & Evolution in Nature
Dr. W.H. van de Poll	Ocean Ecosystems

Appendix 2: List of examiners

List of appointed examiners

The list presented in this chapter provides names of staff members that are formally appointed as Examiner by the Board of Examiners of Biology. Examiners can be contacted for research projects, essays, colloquia and research assignments. New Examiners can be appointed during the year by the Board of Examiners. Their names and (other) revisions of the list of Examiners will be published on the Student Portal.

It should be noted that most SBP- track staff members are appointed as Examiner for the modules science and business, science and policy and the internship of the SBP-track only. For the SBP internship, besides the SBP- Examiner, you also need to have an appointed 'Science Examiner' from this list.

Contact details also are available on Student Portal.

Name	Field of expertise/ Research group
Dr. M. Bérubé	Genomics Research in Ecology & Evolution in Nature
Prof. Dr. Matty P. Berg	Conservation Ecology
Prof. dr. R. Bintanja	Climate and Environmental Change
Dr. M.K. de Boer	Ocean Ecosystems, Science and Society Group
Prof.dr. T.J. Bouma	Conservation Ecology
Prof. Dr. B.D.H.K. Eriksson	Genomics Research in Ecology & Evolution in Nature
Prof. Dr. J.A. van Gils	Conservation Ecology Group
Dr. L.L. Govers	Conservation Ecology
Prof. Dr. T. van der Heide	Conservation Ecology
Prof. Dr. J. van de Koppel	Community & Conservation ecology
Dr. S.J.J. Lequime	Genomics Research in Ecology & Evolution in Nature
Dr. M.J.J.E. Loonen	Arctic Centre
S.E.T. van der Meij, PhD	Genomics Research in Ecology & Evolution in Nature
Prof. Dr. R. Middag	Ocean Ecosystems
Prof. Dr. P.J. Palsboll	Genomics Research in Ecology & Evolution in Nature
Dr. W.H. van de Poll	Ocean Ecosystems
Prof. dr. E.J. Stamhuis	Biomimetics
Dr. J. Stefels	Genomics Research in Ecology & Evolution in Nature
Dr. D.W. Thieltges	Department of Coastal Systems
Prof.Dr. K.R. Timmermans	Ocean Ecosystems

SBP Supervisors	
Drs M. Berger	Science and Society
Dr. M.K. de Boer	Science and Society
Prof. Dr. G.J.W. Euverink	Science and Society

Drs. S. Grooters	Science and Society
Dr. J. Krooneman	Science and Society
G.A.H Laugs, MSc	Science and Society
Dr. A.S. Maqbool	Science and Society
M. J. van den Nieuwenhof- Schilstra, MSc	Science and Society
Dr. M. van Rijssel	Science and Society
J. Zevenberg, MSc	Science and Society