

Assessment plan for the curriculum of the Master's Track Science Business and Policy, 2024-2025

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Date advice Board of Examiners:

Date approval Faculty Board:

Introduction

This assessment plan is a systematic description of the testing and assessment modes for all study components in the curriculum of the Master's track *Science, Business and Policy* that is part of the following master degree programmes:

- MSc Physics:
- MSc Medical Pharmaceutical Sciences
- MSc Mathematics
- MSc Marine Biology
- MSc Computing Science
- MSc Biology
- MSc Astronomy
- MSc Biomedical Sciences
- MSc Chemistry
- MSc Energy and Environmental Sciences
- MSc Chemical Engineering
- MSc Artificial Intelligence

The plan is based on the assessment policy of the Faculty of Science and Engineering, as set out in the FSE Quality Assurance Manual and the protocol setting out the duties and powers of the Faculty's Board of Examiners. The Board of Examiners Biology is responsible for the control of the execution of the assessment policy of the Track Science Business and Policy on matters that concern all students, see [Faculty Regulations](#).

Note: In this assessment plan, there is a distinction between the Track SBP and the SBP curriculum (Table 1):

1. The **track** Science Business and Policy comprises the two-year master degree programme (60 ECTS domain specific curriculum plus 60 ECTS SBP curriculum).
2. The Science Business and Policy **curriculum** comprises the two SBP courses and SBP Work Placement (total of 60 ECTS)

Table 1: Overview of the track Science, Business and Policy. The domain specific elements are planned in consultation with the degree programme, the SBP specific elements are scheduled in the second year of the track. The domain specific research project is entry requirement for the SBP Work Placement.

Track Science Business and Policy	
Year 1	Degree programme domain specific elements: Including Research Project (30-40 ECTS)
Year 2	SBP curriculum: • Introduction Science and Business (10 ECTS) • Introduction Science and Policy (10 ECTS) • Work Placement (40 ECTS)

The assessment plan for the track Science Business and Policy consists of the following parts:

1. objective(s) of the track Science Business and Policy
2. the learning outcomes of the Track Science Business and Policy
3. descriptions of the study components, as set out in the appendices to the Teaching and Examination Regulations 2024-2025 of the degree programmes offering the track:
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 examiners and a detailed assessment mode for each study component as set out in the appendices to the Teaching and Examination Regulations 2024-2025. This overview is based on the curriculum approved by the Programme Committee Biomedical Science, for the degree programmes and the Faculty Regulations.
6. a matrix showing the relationship between the study components and the detailed learning outcomes for each competence area.
7. the method of regular evaluation

Parts 3 and 4 are not included in this document. For the descriptions of the study components, see the Appendices to the Teaching and Examination Regulations 2024-2025 for the degree programme in which the Science, Business and Policy-tracks is offered. Descriptions of the content of each study component can be found in Ocasys, the online course catalogue (<https://www.rug.nl/ocasys>).

1. Objectives of the Science Business and Policy curriculum

The key aim of the SBP track **is to offer students a distinct career perspective of applying their scientific expertise** - most notably in business and policy - rather than pursuing a traditional academic research career. Students acquire an in-depth base of scientific knowledge and skills through the disciplinary part of their Master's programme, e.g., Mathematics. By following the SBP-track, students are equipped with the skills to - on this scientific base - apply their expertise by providing science advice, by contributing to policy and governance, and by designing solutions for challenges in a variety of organisations, both governmental and non-governmental and companies.

Vision: the assessment is based on the following principles:

1. Assessment should aim on assessing and covering the SBP learning goals, that are focused on professional preparation;
2. The modes of assessment should be transparent to both teachers and students and match the nature of the course unit; (written exams, reports, oral presentation, field work);
3. The assessment of assignments and individual education includes extensive feedback, to help the students reflect on their performance and work on specific points that require improvement;
4. The various academic skills should be assessed;
5. ~~If a student does not pass a course unit, remedial work can be done, which is to be handed in at a date given in the Teaching and Examination Rules (TER). In general, reworking the work handed in will lead to a maximum grade of 6 because of the additional feedback received. For higher marks, a new assignment (i.e., on a new topic) needs to be produced. This assures a fair and level playing field in which students have similar chances and have to work within the same constraints (e.g., deadlines, access to support).~~

Guidelines for assessment quality:

1.	Graded assignments have criteria in the form of Rubrics, which are available at the start of the course and used in providing feedback. Rubrics are designed in collaboration with the PIE team and calibrated with the SBP team.
2.	The four-eyes principle applies for grading course assignments
3.	For grading, the Work Placement two SBP examiners determine the grade using the input of the work place instructor and the assessment of the scientific content by the examiner of the degree programme. Students that fail the scientific part fail the Work Placement (see Table 2).
4.	If a student does not pass a course unit, remedial work can be done, which is to be handed in at a date given in the Teaching and Examination Rules (TER). In general, reworking the work handed in will lead to a maximum grade of 6 because of the additional feedback received. For higher marks, a new assignment (i.e., on a new topic) needs to be produced. This assures a fair and level playing field in which students have similar chances and have to work within the same constraints (e.g., deadlines, access to support).

Table 2: Involvement of supervisors in assessment SBP Work Placements. For more details, consult the CUAO attached.

	Science Supervisor Examiner Degree Programme	Workplace Supervisor	SBP Tutor 1st SBP Examiner	2nd SBP Examiner
December: Assignment (contract)	Go/no Go	Go/no Go	Go/ no Go	
January: Plan of Action	Formative Pass/Fail (Go/no Go)	Formative Pass/Fail (Go/no Go)	Formative Pass/Fail (Go/no Go)	only If no Go
April: Mid-term week Performance Mid-term report	Formative	Formative Formative	Formative Formative	
June: Personal Portfolio Concept report	Formative	Formative	Formative	Pass/Fail
July: Conference Presentation Report	Pass/Fail Input: overall Assessment #3: Fail = overall Fail	Input: overall especially # 5A+B: Fail = overall Fail	Pass/Fail Assessment overall	Assessment report

2. Learning outcomes of the degree programme

The learning outcomes of the track Science Business and Policy adhere to the objectives for the Graduates of the Science, Business and Policy track¹:

¹ S. Grooters, E.L. Zaal, and M. P. Gerkema (2021). Science, Business, and Policy: A long-term reflection on multidisciplinary work-based learning in a master's track for societal integration of science. Tuning Journal for Higher Education Volume 8(2) 119-164, doi: [http://dx.doi.org/10.18543/tjhe-8\(2\)-2021pp119-164](http://dx.doi.org/10.18543/tjhe-8(2)-2021pp119-164).

	Learning Outcomes At the end of the programme,
1	Getting acquainted with other fields of knowledge • Graduates are able to write an independent advice with concepts from business administration, innovation management, public administration, policy sciences, and Science and Technology studies.
2	Personal development • Graduates are able to show leadership that fits their personality and the needs of the group. • Graduates will have the skills to do project work in a group and alone. • Graduates have insight in their own strengths and challenges.
3	Bridging fields of knowledge • Graduates are able to understand and to handle (business and policy) perspectives of others. • Graduates are able to create synergy from multiple domains.
4	Applying in social context • Graduates are able to judge their own discipline critically and in context to other disciplines and society. • Graduates are able to find a balance between the individual interest and the group interest. • Graduates are able to act as a science adviser in an ethical way. • Graduates know how to implement innovations in a sustainable way.
5	Effective communication • Graduates are able to communicate in an effective way to target groups. • Graduates are able to evaluate their advice so that it is implementable.
6	Overall Science advising • Graduates will be able to consider their role(s) in science advising critically.

5. Overview of assessment methods, test moments for course units, and examiners

The assessment of the degree domain specific elements of the degree programmes that offer the Science Business and Policy track is described in the assessment plans of the degree programmes. The SBP curriculum elements are assessed by SBP examiners in the case of the two courses. The SBP Work Placement is defined in consultation with an examiner of the degree programme who is also responsible for the guidance and assessment of the scientific part of the Work Placement. If the student does not pass the scientific part of the assignment -as judged by the examiner of the degree programme- the student fails the Work Placement (see assessment form attached).

Examiners with a specific role within the SBP curriculum are appointed by the Board of Examiners Biology applying the rules of the faculty for such appointments. The list of examiners for the Science Business and Policy track is:

- drs. S. Grooters
- dr. M. van Rijssel
- M.J. van den Nieuwenhof-Schilstra MSc
- J. Zevenberg MSc
- dr. M.K. de Boer
- dr. J. Krooneman
- dr. J.C. Graver
- drs. M.R. Berger
- G.A.H. Laugs MSc

Table 3. Overview of the course elements in the curriculum Science Business and Policy

* Formal First examiner, ** Formal Second examiner

*** Written Exam (WE), Report (R), Presentation (P), Assignment (AST)

Course	ECTS	Assessment methods	Does (part of the) assessment have a formative function?	Test moment(s) (E.g., mid-term, continuous assessment, exam week, etc.)	First examiner* Second examiner**
Introduction Science and Business	10	R, P, WE	Yes	WE, after 3 weeks P, R end after 7 weeks	dr. S. Grooters* M.J. van den Nieuwenhof-Schilstra MSc **
Introduction Science and Policy	10	R, P, WE	Yes	WE, after 3 weeks P, R end after 7 weeks	dr. S. Grooters* J. Zevenberg MSc **
Work Placement Business and Policy	40	P, AST	Yes	P, AST at the end, see also Table 2 for all (formative) assessments	drs. S. Grooters* dr. M. van Rijssel* M.J. van den Nieuwenhof-Schilstra MSc* J. Zevenberg MSc* dr. M.K. de Boer* dr. J. Krooneman* dr. J.C. Graver* drs. M.R. Berger* G.A.H. Laugs MSc*

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

The learning outcomes of the track Science Business and Policy adhere to the overall learning outcomes of the degree programmes with emphasis on the application of the disciplinary knowledge and skills (marked bold). To make sure that the research outcomes are met a research project (30-40 ECTS) is an entry requirement for the Work Placement so the focus can be on the application of science. In addition to that, an examiner of the degree programme is involved in the Work Placement to guide and guard the scientific part of the Work Placements in Science Business and Policy.

Table 4. Relation between the learning outcomes of the Track Science Business and Policy and the Dublin Descriptors. Text marked bold highlight the outcomes that have emphasis in the SBP track

Dublin descriptors for Master's degree programmes		Track outcomes
	Graduates	
1. Knowledge and understanding	have demonstrated knowledge and understanding that is founded upon and extends and/or enhances that typically associated with Bachelor's level, and that provides a basis or opportunity for originality in developing and/or applying ideas, often within a research context	1

2. Apply knowledge and understanding	can apply their knowledge and understanding, and problem-solving abilities in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study	1,3
3. Judgement	have the ability to integrate knowledge and handle complexity, and formulate judgements with incomplete or limited information, but that include reflecting on social and ethical responsibilities linked to the application of their knowledge and judgements	1,2,4,6
4. Communication	can communicate their conclusions, and the knowledge and rationale underpinning these, to specialist and nonspecialist audiences clearly and unambiguously	1,3,5
5. Learning skills	have the learning skills to allow them to continue to study in a manner that may be largely self-directed or autonomous	2,6

Table 5. Relation between learning outcomes and the content of the Master's degree Programmes.

Each + means that the learning outcome is explicitly assessed, the number of + indicates to what extent the module contributes to the learning outcomes. Knowledge: student has acquired in depth knowledge. Research design: student can design and conduct scientific research. Scientific literature: student can independently investigate and critically evaluate scientific literature. New developments: student can identify new developments in the relevant disciplines, and can become familiar with these developments. Solving complex problems: student can systematically organize his/her work in scientific research and formulate realistic and original solutions to complex problems. Team contribution: student can participate in and contribute to a multidisciplinary team. Communication: student can effectively communicate acquired knowledge, insights and skills to others, both in writing and in oral presentation. Reflection: student can identify societal and ethical implications of scientific research and is able to critically reflect on his/her actions in this context. Learning abilities: student can independently acquire new knowledge and skills that are relevant for his/her professional career, in science, in policy & management or society.

Learning outcomes	Course elements			
	Research Project	Master courses	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	++	+	++	+

7. Regular evaluation

The Board of Examiners Biology is responsible for the control of the execution of the assessment policy of the Track Science Business and Policy on matters that concern all students, see Faculty Regulations. Therefore, the curriculum of the curriculum Science Business and Policy is part of the visitation cycle of the life science programmes. The last report of this evaluation can be found here. Mid-term is due this year. The next visitation is due to take place in 2027.

Evaluation of assessment of the SBP course elements will be executed by the BoE Biology and shared in the BEM, evaluation of the assessment of the Work Placements will be executed in consultation with the BoE involved.

Appendices

- CUAO Introduction Science and Business
- CUAO Introduction Science and Policy
- CUAO Work Placement Business and Policy