university of groningen

Appendices for the Bachelor's degree programme in Pharmacy 2026-2027

university of groningen

Appendix I. Learning outcomes of the Bachelor's degree programme (Art. 3.1.1)

The learning outcomes of the Bachelor's degree programme **Pharmacy** according to the 2016 Competency Framework are as follows:

A. Knowledge and understanding
Students who successfully complete a Bachelor of Pharmacy degree possess knowledge and understanding of:
1. The structural and physiological properties of cells and tissues and the links between the two.
2. The pathophysiological processes that underlie diseases and the relevant basic anatomy and physiology.
3. The binding sites of active pharmaceutical ingredients in the body, down to a molecular level.
4. The processes and factors that play a role in the route of administration and biological action of medicines and the pharmacon released in the body.
5. The chemical and physicochemical properties and analysis of low and high-molecular-weight active pharmaceutical ingredients and auxiliary pharmaceutical substances.
6. The compounding of medicines in appropriate pharmaceutical dosage forms and the associated quality criteria.
7. How the physicochemical properties of chemical compounds affect their potential use as medicine.
8. The (background to the) medicinal treatment of a number of common health conditions.
9. Desirable and undesirable effects of medicines in the biological system.
10. The main patient characteristics and product properties that may influence the effects of medicines and the diagnostic measurement methods used to assess them.
11. The links between genetic information and the associated phenotype and nongenetic factors that affect this phenotype.
12. The processes involved in the development of medicines.
13. The set-up, measurement methods and (statistical) data processing methods used in pharmaceutical research.
14. The pharmacy as an organisation and the pharmacist's role in healthcare.
15. Basic health psychology.

B. Skills
Students who successfully complete a Bachelor of Pharmacy degree:
1. Are able to apply qualitative, quantitative and statistical techniques in pharmaceutical research.
2. Are able to define a specific pharmaceutical research question, develop hypotheses and articulate explanations.
3. Knowhow to find relevant pharmaceutical and related medical information and perform qualitative and quantitative analysis.

4. Have demonstrated, in a graduation project, the ability to apply the knowledge, understanding and skills they have acquired to resolve pharmaceutical issues using the empirical cycle.
5. Possess knowledge and understanding of the context of pharmaceutical science, which encompasses philosophical, historical, ethical and/or social perspectives.
6. Are able to read, understand and critically assess pharmaceutical and biomedical professional literature, perform a review of the literature and critically assess relevant publications.
7. Are able to evaluate the quality of pharmaceutical and biomedical information they find.
8. Are aware of the principles of fundamental and applied scientific research.
9. Are able to form an opinion on pharmaceutical issues, based partly on a consideration of relevant societal, clinical, scientific and ethical aspects.
10. Are able to relate pharmaceutical issues to adjacent disciplines (such as medical, social and behavioural sciences, psychology, biology, chemistry and physics).
11. Are able to integrate their knowledge of the different subdomains of pharmacy in dealing with specific pharmaceutical issues.
12. Are able to communicate effectively and efficiently in Dutch and English, both verbally and in writing, tailoring their language to the target group.
13. Are able to adequately report, both verbally and in writing, on scientifically and socially relevant matters that pertain to pharmacy.
14. Are able to make an essential contribution to a scientific discussion.
15. Are able to form, and defend, well-reasoned opinions.
16. Are able to perform, and work independently on scientifically and socially relevant issues that pertain to pharmacy, as part of a team.
17. Are able to apply basic communication skills when conversing with (actors posing as) patients.

C. Professional behaviour
Students who successfully complete a Bachelor of Pharmacy degree:
1. Are able to independently conduct a targeted search for knowledge to deepen their understanding of pharmaceutical issues that are new to them.
2. Are able to think and act at an academic level, and are willing and able to keep developing their professional expertise. They have developed sufficient academic intellectual and professional proficiency to be able to embark on a master program that follows on from the bachelor program.
3. Know how to keep up with, and apply their knowledge of, developments relevant to the profession.
4. Are able to adopt a multidisciplinary approach and identify connections between different disciplines.
5. Are able to reflect on their own development and academic career and make informed decisions regarding appropriate next steps.
6. Are able to reflect on their actions and give, receive and implement (peer) feedback.
7. Demonstrate professional behaviour in pharmacy practice, when acting as an educator, and when performing research relevant to professional practice.
8. Understand the social significance of pharmacy and the associated responsibilities of pharmaceutical and pharmacy professionals.
9. Are aware of the career opportunities open to pharmaceutical and pharmacy professionals.

Appendix II. Majors and Minors (Art. 3.7.4 and 7.1.3)

The degree programme Pharmacy has the following two Majors:

1. Major in Pharmacy: consisting of the compulsory course units in the first, second and third years (165 ECTS), and a set of electives in Pharmacy (15 ECTS).
2. Major in Medical Pharmaceutical Sciences (MPS): consisting of the compulsory course units in the first, second and third years (135 ECTS), a minor of choice (30 ECTS), and a set of electives in Pharmacy (15 ECTS).

The degree programme has the following Minors:

Students following the Major Pharmacy do not have a free minor space.

Students following the Major MPS do have a free minor space (30 ECTS), with the following options:

A. a study period at another university (national or abroad)
B. a Teacher Training Minor
C. a broadening or deepening Minor, comprising of course units others than those taught in a student's own Major.*
D. a research traineeship
E. a placement/internship

* Note that Major MPS students are allowed to choose Pharmacy electives in their minor space, in addition to the compulsory 15 ECTS set of Pharmacy electives.

university of groningen

Appendix III. Course units in the first year of the degree programme

- **List of course units (Art. 4.1.1 and 9.4.3)**
- **Compulsory order of examinations (Art. 9.3)**

Naam cursuseenheid (NL)	Course unit name (EN)	Course code	ECTS	Practical	Entry requir.
Professionaliteit in Farmacie 1	Professionalism in Pharmacy 1	WBFA061-03	3	see Ocasys	n/a
Moleculaire Biologie van de Cel 1	Molecular Biology of the Cell 1	WBFA006-04	4	see Ocasys	n/a
Moleculaire Biologie van de Cel 2	Molecular Biology of the Cell 2	WBFA007-04	4	see Ocasys	n/a
Genetica	Genetics	WBFA004-03	3	see Ocasys	n/a
Practicum Moleculaire Biologie	The Cell, a practical approach	WBFA010-03	3	see Ocasys	n/a
	Mathematics and Statistics	WBFA054-05	5	see Ocasys	n/a
	Pharmaceutical Technology and Biopharmacy 1	WBFA017-05	5	see Ocasys	n/a
Fysiologie en Farmacologie	Physiology and Pharmacology	WBFA020-05	5	see Ocasys	n/a
Receptorfarmacologie	Receptor Pharmacology	WBFA036-05	5	see Ocasys	n/a
Humane Fysiologie	Human Physiology	WBFA022-03	3	see Ocasys	n/a
Pathologie	Pathology	WBFA024-05	5	see Ocasys	n/a
	Pharmaceutical Analysis	WBFA067-05	5	see Ocasys	n/a
	Molecules and Reactivity	WBFA055-05	5	see Ocasys	n/a
Farmacotherapie en Patiëntenzorg	Pharmacotherapy and Pharmaceutical Care	WBFA066-05	5	see Ocasys	n/a

Note: The language of instruction of courses with a Dutch course name is (mainly) Dutch. The language of instruction of courses with an English name is English.

university of groningen

Appendix IV. Course units in the second and third years of the degree programme

- **List of course units (Art. 7.1.1 and 9.4.3)**
- **Compulsory order of examinations (Art. 9.3)**

Year 2

Naam cursuseenheid (NL)	Course unit name (EN)	Course code	ECTS	Practical	Entry requirements
	Bioanalysis	WBFA032-05	5	see Ocasys	Pharmaceutical Analysis
	Biostatistics	WBFA011-05	5	see Ocasys	n/a
Immunofarmacologie	Immunopharmacology	WBFA015-05	5	see Ocasys	n/a
	Instrumental Analysis	WBFA005-05	5	see Ocasys	Pharmaceutical Analysis
	Medicines Group: Drugs for the Central Nervous System	WBFA033-05	5	see Ocasys	n/a
Metabolisme en Toxicologie	Metabolism and Toxicology	WBFA016-05	5	see Ocasys	Practicum Moleculaire Biologie; Fysiologie en Farmacologie
	Organic Synthesis and Biosynthesis	WBFA008-05	5	see Ocasys	n/a
Farmaceutische Microbiologie *	Pharmaceutical Microbiology	WBFA025-05	5	see Ocasys	Practicum Moleculaire Biologie
Farmaceutische Technologie en Biofarmacie 2	Pharmaceutical Technology and Biopharmacy 2	WBFA026-05	5	see Ocasys	Practicum Moleculaire Biologie; Pharm. Techn. and Biopharmacy 1
Farmacoepidemiologie	Pharmacoepidemiology	WBFA028-05	5	see Ocasys	n/a
Farmacokinetiek	Pharmacokinetics	WBFA018-05	5	see Ocasys	Practicum Moleculaire Biologie; Fysiologie en Farmacologie
Professionaliteit in Farmacie 2	Professionalism in Pharmacy 2	WBFA062-05	5	see Ocasys	n/a

* Students also obtain a certificate for Safe Microbiological Techniques / Veilige Microbiologische Technieken (BIVMT) via this course.

Note: The language of instruction of courses with a Dutch course name is (mainly) Dutch. The language of instruction of courses with an English name only is English.

Year 3

Compulsory course units Major Pharmacy:

Course unit name	Course code	ECTS	Practical	Entry requirements
Bachelor Research Project	WBFA902-15	15	see Ocasys	Completion of at least 130 ECTS, four weeks before the start of the project
Medicinal Chemistry and Biophysics	WBFA038-05	5	see Ocasys	n/a
Medicines Group: Drugs for the Circulatory System	WBFA040-05	5	see Ocasys	n/a
Medicines Group: Drugs for the Endocrine System, Digestive and Respiratory System	WBFA039-05	5	see Ocasys	n/a
Medicines Group: Drugs for Infectious Diseases and Oncology	WBFA041-05	5	see Ocasys	n/a
Organic Chemistry practical	WBFA056-05	5	see Ocasys	Molecules and Reactivity
Pharmacology practical	WBFA019-05	5	see Ocasys	Physiology and Pharmacology; Receptor Pharmacology

Compulsory course units Major MPS:

Course unit name	Course code	ECTS	Practical	Entry requirements
Bachelor Research Project	WBFA902-15	15	see Ocasys	Completion of at least 130 ECTS, four weeks before the start of the project

Electives in Pharmacy:

Course unit name	Course code	ECTS	Practical	Entry requir.
Advanced Human Disease Model Technologies	WBFA051-05	5	see Ocasys	n/a
From Clinical trials to Big Data Research	WBFA050-05	5	see Ocasys	n/a
Drug Toxicology and Translational Technology	WBFA049-05	5	see Ocasys	n/a
Herbal Medicine	WBFA058-05	5	see Ocasys	n/a
Introduction to Nanomedicine and Drug Targeting	WBFA060-05	5	see Ocasys	n/a
Introduction into Pharmacoeconomics	WBFA047-05	5	see Ocasys	n/a
Patient Perspectives in Pharmacy	WBFA046-05	5	see Ocasys	n/a
Pharmaceutical Technology and Biopharmacy 3	WBFA059-05	5	see Ocasys	n/a

Pharmacology of Chronic Diseases and Ageing	WBFA048-05	5	see Ocasys	n/a

Appendix V. Contact hours (Art. 3.6.1)

Degree programme year 1	
Structure contact hours	**Contact hours per year**
Lectures	360
Tutorials	115
Tutoring (study support / mentor groups)	10
Practicals (including computer practicals)	125
Supervision during an internship	-
Examinations	36

Degree programme year 2	
Structure contact hours	**Contact hours per year**
Lectures	290
Tutorials	80
Tutoring (study support / mentor groups)	4
Practicals (including computer practicals)	225
Supervision during an internship	-
Examinations	24

Degree programme year 3	
Structure contact hours	**Contact hours per year**
Lectures	260
Tutorials	35
Tutoring (study support / mentor groups)	-

Practicals (including computer practicals)	160
Supervision during an internship	-
Examinations	15

university of groningen

Appendix VI. Additional requirements Open Degree programmes (Art. 7.3)

This is not applicable to the bachelor Pharmacy.

Appendix VII. Transitional provisions (Art. 12.1)

Changes per 2026-2027

Another first-year course will transition to Dutch, namely Genetics (Genetica, in Dutch).

Seven out of twelve second-year course units will transition to Dutch, namely: Pharmacoepidemiology, Pharmacokinetics, Metabolism and Toxicology, Pharmaceutical Microbiology, Pharmaceutical Technology and Biopharmacy 2, Immunopharmacology, and Professionalism in Pharmacy 2 (for Dutch course names, see table in Appendix IV).

For students who need to (re)do the exam in English of courses transitioning to Dutch in 2026-2027, this opportunity will be offered (next to the regular exams in Dutch) in 2026-2027. After 2026-2027, the pertaining students are referred to the Board of Examiners to request an English exam (see Art. 9.7.5).

Five second-year courses will remain in English with an English exam: Instrumental Analysis, Biostatistics, Organic and Biosynthesis, Medicines Group: Drugs for the Central Nervous System, and Bioanalysis.

Discontinued course unit			**Replacement course unit**		
Course unit name	**Course code**	**ECTS**	**Course unit name**	**Course code**	**ECTS**
Pharmaceutical Analysis A	WBFA035-05	5	Pharmaceutical Analysis	WBFA067-05	5

Changes per 2025-2026

The majority of the first-year course units will transition to Dutch, with the exception of Genetics, Mathematics and Statistics, Pharmaceutical Technology and Biopharmacy 1, Pharmaceutical Analysis, and Molecules and Reactivity. These courses will remain in English with an English exam.

For students who need to (re)do the exam in English of courses transitioning to Dutch in 2025-2026, this opportunity will be offered (next to the regular exams in Dutch) in 2025-2026. After 2025-2026, the pertaining students are referred to the Board of Examiners to request an English exam (see Art. 9.7.5).

Discontinued course unit			Replacement course unit		
Course unit name	**Course code**	**ECTS**	**Course unit name**	**Course code**	**ECTS**
Global Health and Pharmacotherapy and Patient Communication	WBFA034-05	5	Farmacotherapie en Patiëntenzorg (Pharmacotherapy and Pharmaceutical Care)	WBFA066-05	5

Further course changes:
Instrumental Analysis (WBFA005-06) changes from 6 to 5 ECTS (WBFA005-05). Professionalism in Pharmacy 2 (WBFA062-04) changes from 4 to 5 ECTS (WBFA062-05). For higher-year students who have not passed Instrumental Analysis and/or Professionalism in Pharmacy 2 in the previous year, necessary transitional measures will be taken.

Professionalism in Pharmacy 3 (WBFA063-01) is no longer offered as a separate course. The content will be integrated in the Bachelor Research Project, which changes from 14 to 15 ECTS (WBFA902-15). For higher-year students who have not passed Professionalism in Pharmacy 3 in the previous year, necessary transitional measures will be taken.

Changes per 2024-2025

Discontinued course unit			Replacement course unit		
Course unit name	**Course code**	**ECTS**	**Course unit name**	**Course code**	**ECTS**
Thermodynamics	WBFA021-05	5	Thermodynamics	WBBE059-05	5

Course changes:
- Collected Medicine Groups in 2a.2 will be discontinued; students who have taken the course, but not passed the exam may be able to complete the exam in 24/25.
- Advanced Bioanalysis (WBFA043-05) will be discontinued.
- Proteins for Biopharmaceuticals & Drug Discovery (WBFA044-10) will be discontinued.