



Appendices for the Bachelor's degree programme Pharmacy in 2023-2024

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Appendix 1. 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 pharmacokinetics 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 of the Bachelor's degree programme (art. 3.7.4)

The degree programme has the following Major(s):

- a major Pharmacy (135 ECTS) combined with a compulsory minor Pharmacy (30 ECTS, see below) and a set of electives in Pharmacy (15 ECTS)
- a major Medical Pharmaceutical Sciences (135 ECTS) combined with a minor of choice (30 ECTS) and a set of electives in Pharmacy (15 ECTS)

The degree programme has the following Minor(s):

Minor Pharmacy, consisting of:

- MG: Endocrine System and Digestive and Respiratory Tract
- Medicinal Chemistry and Biophysics*
- MG: Circulatory Tract
- MG: Infectious Diseases and Oncology
- Pharmacology practical*
- Organic Chemistry practical*

*only when the course capacity is not met yet and/ or the course unit does not overlap with courses of the student's major. The academic advisors can propose adjustments to this minor.



Appendix III. Course units in the propaedeutic phase

- List of course units (art. 4.1.1)
- Compulsory order of examinations (art. 9.3)

Course unit name	Course code	ECTS	Practical	Entry requirements
Professionalism in Pharmacy 1	WBFA061-03	3	see Ocasys	n/a
Molecular Biology of the Cell 1	WBFA006-04	4	see Ocasys	n/a
Molecular Biology of the Cell 2	WBFA007-04	4	see Ocasys	n/a
Genetics	WBFA004-03	3	see Ocasys	n/a
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
Physiology and Pharmacology	WBFA020-05	5	see Ocasys	n/a
Molecules and Reactivity	WBFA055-05	5	see Ocasys	n/a
Human Physiology	WBFA022-05	3	see Ocasys	n/a
Pathology	WBFA024-05	5	see Ocasys	n/a
Pharmaceutical Analysis	WBFA035-05	5	see Ocasys	n/a
Receptor Pharmacology	WBFA036-05	5	see Ocasys	n/a
Global Health, Pharmacotherapy and Patient Communication	WBFA034-05	5	see Ocasys	n/a



Appendix IV. Course units in the post-propaedeutic phase

- List of course units (art. 7.1.1)
- Compulsory order of examinations (art. 9.3)

Course unit name	Course code	ECTS	Practical	Entry requirements
Bachelor Research Project	WBFA902-14	14	see Ocasys	130 ECTS including ARCS 2 or Professionalism in Pharmacy 2
Bioanalysis	WBFA032-05	5	see Ocasys	Pharmaceutical Analysis
Biostatistics	WBFA011-05	5	see Ocasys	n/a
Immunopharmacology	WBFA015-05	5	see Ocasys	n/a
Instrumental Analysis	WBFA005-06	6	see Ocasys	Pharmaceutical Analysis
Medicinal Chemistry and Biophysics	WBFA038-05	5	see Ocasys	n/a
Medicines Group: Drugs for the Central Nervous System*	WBFA033-05	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
Metabolism and Toxicology	WBFA016-05	5	see Ocasys	The Cell, a practical approach, Physiology and Pharmacology
Organic Chemistry practical	WBFA056-05	5	see Ocasys	Molecules and Reactivity
Organic Synthesis and Biosynthesis	WBFA008-05	5	see Ocasys	n/a
Pharmaceutical Microbiology	WBFA025-05	4	see Ocasys	The Cell, a practical approach
Pharmaceutical Technology and Biopharmacy 2	WBFA026-05	5	see Ocasys	The Cell, a practical approach, Pharm. Techn. and Biopharmacy 1
Pharmacoepidemiology	WBFA028-05	5	see Ocasys	n/a
Pharmacokinetics	WBFA018-05	5	see Ocasys	The Cell, a practical approach, Physiology and Pharmacology
Pharmacology practical	WBFA019-05	5	see Ocasys	n/a
Professionalism in Pharmacy 2	WBFA062-04	4	see Ocasys	n/a



Professionalism in Pharmacy 3	WBFA063-01	1	see Ocasys	n/a
Electives in Pharmacy				
Advanced Bioanalysis	WBFA043-05	5	see Ocasys	Instrumental Analysis, Bioanalysis
Proteins for Biopharmaceuticals and Drug Discovery	WBFA044-10	10	see Ocasys	n/a
From Clinical trials to Big Data Research	WBFA050-05	5	see Ocasys	n/a
Patient Perspectives in Pharmacy	WBFA046-05	5	see Ocasys	n/a
Introduction into Pharmacoeconomics	WBFA047-05	5	see Ocasys	n/a
Drug Toxicology and Translational Technology	WBFA049-05	5	see Ocasys	n/a
Pharmaceutical Technology and Biopharmacy 3	WBFA059-05	5	see Ocasys	n/a
Introduction to Nanomedicine and Drug Targeting	WBFA060-05	5	see Ocasys	n/a
Pharmacology of Chronic Diseases and Ageing	WBFA048-05	5	see Ocasys	n/a
Advanced Human Disease Model Technologies	WBFA051-05	5	see Ocasys	n/a
Herbal Medicine	WBFA058-05	5	see Ocasys	n/a
Electives for the major MPS				
Thermodynamics	WBFA021-05	5	see Ocasys	n/a
Organic Chemistry practical	WBFA056-05	5	see Ocasys	Molecules and Reactivity
Pharmaceutical Technology and Biopharmacy 2	WBFA026-05	5	see Ocasys	The Cell, a practical approach, Pharm. Techn. and Biopharmacy 1

The students who follow the major MPS can choose either a MG-course or Collected Medicine Groups, but need to follow at least one of the courses to meet the learning outcomes of the Bachelor Pharmacy.



Appendix V. Admission to post-propaedeutic phase (art. 6.1.1)

The following candidates will be admitted to the post-propaedeutic phase:

1. Students who have been issued a positive study advice from the degree programme in question
2. The owner of a propaedeutic certificate of the Bachelor programme Farmacie of the Utrecht University

In other cases, the Admissions Board (in consultation with the Board of Examiners of the BSc programme in question) will decide whether and on which conditions it is possible for a student to be admitted to the postpropaedeutic phase of the programme.



Appendix VI. Contact hours propaedeutic and post-propaedeutic phase (art. 3.6)

Degree programme year 1	
Structure contact hours	Contact hours per year
Lectures	278
Tutorial	93
Tutoring (study support / mentor groups)	10
Practical (including computer practical)	220
Supervision during an internship	-
Examinations	36

Degree programme year 2 and 3	
Structure contact hours	Contact hours per year
Lectures	100
Tutorial	40
Tutoring (study support / mentor groups)	4
Practical (including computer practical)	300
Supervision during an internship	-
Examinations	24



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Appendix VII. Additional Requirements Open degree Programmes (art. 7.3)

This is not applicable for the bachelor Pharmacy.



Appendix VIII. Transitional provisions (art. 12.1)

Course unit	May be replaced with	Reason
ARCS 1 plus Global Health and Pharmacotherapy	Professionalism in Pharmacy 1 plus Global Health and Pharmacotherapy	Sum of ECTS points must equal 8 or 10 ECTS. One writing assessment is replaced by communication with patients and shifted towards Global Health and Pharmacotherapy
ARCS 2	Professionalism in Pharmacy 2	
ARCS 3	Professionalism in Pharmacy 3	