

Teaching and Examination Regulations 2019-2020 Master´s degree programmes Biomedical Sciences and Medical Pharmaceutical Sciences

Appendix I Learning outcomes of the degree programme (art. 3.1)

Graduates Biomedical Sciences (BMS) are able to:

1. Explain in detail the major underlying principles of biomedical sciences (knowledge).
2. Manage and interpret (big) data and demonstrate proficiency in computing technology for biomedical sciences (application).
3. Formulate solutions to biomedical issues both theoretical, technical and in a practical laboratory setting (knowledge and application).
4. Critically evaluate scientific biomedical data and offer sound arguments to justify a position (judgement and communication).
5. Effectively communicate scientific concepts to specialists as well as to a lay audience through oral and written presentations (communication).
6. Critically appraise the role of 'biomedical sciences' and/or in the dedicated specialisms 'Biology of Ageing' or 'Biology of Cancer and Immune System', 'Biology of Food and Nutrition' and 'Neuroscience' research aiming on supporting healthy ageing (knowledge and judgement).
7. Work independently as well as in a team to solve scientific and societal challenges related to biomedical sciences (communication and application).
8. Independently draw conclusion on ethical issues in biomedicine and apply this to scientific or public discussions about the impact of such science on society (judgement).
9. Evaluate and reflect on personal capabilities and motivation for a (international) scientific, policy or business career (lifelong learning skills).
10. Develop an international perspective on up-to-date scientific advances and on-going biological science-related issues (knowledge and lifelong learning skills).

A graduate Medical Pharmaceutical Sciences (MPS) is able to:

1. Explain in detail the major underlying principles within the field of Medical and Pharmaceutical Sciences and integrate knowledge of etiology and pathophysiology of disease to design and develop more effective and safer drugs (knowledge).
2. Identify new developments within the field of Medical Pharmaceutical Sciences and can become familiar with these developments (Lifelong learning skills)
3. Critically appraise the results of research in 'medical pharmaceutical sciences' and/or in the dedicated specialisms 'toxicology and drug disposition', 'pharmaceutical design and engineering' or 'pharmacoepidemiology' (knowledge and judgement).
4. Formulate hypotheses, design and conduct scientific research, manage and interpret data and demonstrate proficiency in statistical analyses for Medical Pharmaceutical Sciences (application).
5. Systematically organize his/her work in scientific research and formulate realistic and original solutions to complex problems (application).

- 6 Critically evaluate scientific data from experiments or literature, and offer sound arguments to justify a position (judgment and communication).
- 7 Work independently as well as in a team to solve scientific and societal challenges related to medical pharmaceutical sciences (application).
- 8 Effectively communicate scientific concepts to specialists as well as to a lay audience through oral and written presentations (communication).
- 9 Identify societal and ethical implications of Medical Pharmaceutical Research and acts according to the scientific code of conduct (judgement).
- 10 Evaluate and reflect on personal capabilities and motivation for a (international) scientific, policy or business career, and has knowledge and skills to develop their own career. (lifelong learning skills).

Appendix II Tracks of the degree programme (art. 3.5)

1. Within the degree programmes, the student chooses one of the Research-tracks written below (R-track), or one chooses the Science, Business and Policy-track ("**SBP**-track"), which prepares for professions in a societal, political and/or commercial context.
2. Within the degree programme Biomedical Sciences, the general R-track **Biomedical Sciences Research** track, provides students training as a researcher in various fields of biomedical sciences.
3. Within the degree programme Biomedical Sciences, the R-track **Biology of Ageing**, provides students training as a researcher mainly in the field of ageing and age-related pathologies.
4. Within the degree programme Biomedical Sciences, the R-track **Biology of Cancer and Immune System**, provides students training as a researcher mainly in the field of fundamentals and mechanisms of immunology, oncology, cell biology and related pathologies. This track is not only focussed on disease but also on how immunity and mammalian cells behave in health.
5. Within the degree programme Biomedical Sciences, the R-track **Biology of Food and Nutrition**, provides students training as a researcher mainly in the importance of food for a healthy microbiota in relation to brain function, metabolism and immunity.
6. Within the degree programme Biomedical Sciences, the R-track **Neuroscience**, provides students training as a researcher mainly in the field of Neuroscience. The track focuses on the role of higher brain functions both in health and in disease.
7. Within the degree programme Medical Pharmaceutical Sciences, the general R-track **Medical Pharmaceutical Sciences Research** track, provides students training as a researcher in various fields of medical pharmaceutical sciences.
8. Within the degree programme Medical Pharmaceutical Sciences, the R-track **Toxicology and Drug Disposition**, provides students training as a researcher mainly in the field of adverse drug reactions.
9. Within the degree programme Medical Pharmaceutical Sciences, the R-track **Pharmacoepidemiology**, provides students training as a researcher in the area of pharmacovigilance, database research, observational and trial intervention methodology and utilization studies with specific attention to the role of pharmaceuticals in healthy ageing.
10. Within the degree programme Medical Pharmaceutical Sciences, the R-track **Pharmaceutical Design and Engineering**, provides students training as a researcher in the areas of target identification, drug design, biologics, biotechnology, and innovative drug and dosage forms.

Appendix III. Content of the degree programme (art. 3.6)

The degree programme Biomedical Sciences offers the following Research tracks (R-track): Biomedical Sciences Research, Biology of Ageing, Biology of Cancer and Immune System, Biology of Food and Nutrition and Neuroscience.

The degree programme Medical Pharmaceutical Sciences offers the following Research tracks (R-track): Medical Pharmaceutical Sciences Research, Toxicology and Drug Disposition, Pharmacoepidemiology and Pharmaceutical Design and Engineering.

Both programmes offer a Science, Business and Policy track (SBP-track).

General requirements for all BMS R-Track:

| Course unit | ECTS | Assessment | Practical | Entry requirements |
|-----------------------|------|---|-------------|---|
| research project (RP) | ≥ 40 | technical and/or laboratory skills, written report, oral presentation | x | Safe Microbiological Technique certificate [#] |
| research project (RP) | ≥ 30 | technical and/or laboratory skills, written report, oral presentation | x | Safe Microbiological Technique certificate [#] |
| colloquium | 5 | oral presentation | x | RP |
| essay | 5 | written report | x | - |
| master courses | ≥ 30 | see appendix IV | see app. IV | see appendix IV |
| electives | ≤ 10 | see appendix IV | see app. IV | see appendix IV |

[#] Students who have not obtained a Safe Microbiological Technique certificate (VMT in Dutch) have to include the MBS course in the first year of their study programme.

General requirements for all MPS R-Tracks:

| Course unit | ECTS | Assessment | Practical | Entry requirements |
|-----------------------|----------|---|-------------|---|
| research project (RP) | ≥ 40 | technical and/or laboratory skills, written report, oral presentation | x | Safe Microbiological Technique certificate [#] |
| research project (RP) | ≥ 30 | technical and/or laboratory skills, written report, oral presentation | x | Safe Microbiological Technique certificate [#] |
| colloquium | 5 | oral presentation | x | RP |
| essay | 5 | written report | x | - |
| master courses | ≥ 25-26* | see appendix IV | see app. IV | see appendix IV |
| electives | ≤ 10-15* | see appendix IV | see app. IV | see appendix IV |

[#] Students who have not obtained a Safe Microbiological Technique certificate (VMT in Dutch) have to include the MBS course in the first year of their study programme.

* Depending on the chosen track.

General requirements for the SBP-track:

| Course unit | ECTS | Assessment | Practical | Entry requirements |
|---|-----------|---|-------------|---|
| research project (RP) | ≥ 40 | technical and/or laboratory skills, written report, oral presentation | x | Safe Microbiological Technique certificate [#] |
| colloquium | 5 | oral presentation | x | RP |
| master courses | 5 | see appendix IV | see app. IV | see appendix IV |
| course units: Science & Business and Science & Policy | 2x10 = 20 | assignment, exam | x | - |
| internship SBP | 40 | performance, written report, reflection report | x | RP, course units S&B and S&P |
| electives | ≤ 10 | see appendix IV | see app. IV | see appendix IV |

[#] Students who have not obtained a Safe Microbiological Technique certificate (VMT in Dutch) have to include the MBS course in the first year of their study programme, unless the student will conduct a research project that does not involve any laboratory work.

The following rules apply to all programmes:

- the first research project must be performed at the Faculty of Science and Engineering (FSE) or the University Medical Center Groningen, under supervision of one of the appointed examiners for the respective master programme. The grade of the first research project must be registered before a second research project or the SBP-internship can be started.
- the student chooses a study mentor from the list of each master programme to advise and discuss the contents of the individual degree programme, before sending a signed programme proposal for approval to the Board of Examiners. The tracks Biology of Ageing, Biology of Cancer and Immune system, Biology of Food and Nutrition, Neuroscience, Toxicology and Drug Disposition, Pharmacoepidemiology and Pharmaceutical Design and Engineering have designated mentors, as mentioned on the student portal.
- all elements of the individual programme must be approved by the Board of Examiners before their start. the research projects, colloquium and essay must deal with different research subjects, and must be supervised by different examiners. The subject of the SBP-track internship must be clearly related to the scientific domain of the chosen master programme (see Appendix I). To conduct an SBP-internship, you will need 1. an SBP-examiner, and 2. a 'non-SBP examiner'. The colloquium cannot be done in the Science & Society group (or under supervision of an SBP-examiner) in case you follow the SBP-variant.
- electives can be:
 - o an extension of a research project with 5 – 10 (BMS) or 15 (MPS) ECTS. In case a student has obtained an odd number of ECTS (due to a non-5 or 10 ECTS course), a research project may also be extended with less than 5 ECTS. Propositions for extensions of 10-15 ECTS must be requested before the start of the research project. Arrangements for extensions of 5-10 EC may also be made during the midterm evaluation.
 - o extra master course units, including course units that are especially assigned as possible elective course units (see appendix IV).
 - o bachelor course units to repair specific deficiencies (maximum 10 ECTS).
 - o a research assignment of 5 – 10 (BMS) or 15 (MPS) ECTS.

Additional requirements for Biomedical Sciences

Additional requirements for the general research track Biomedical Sciences Research

- 30 ECTS master courses are filled with the following courses:
 - a. Courses (10 ECTS)

| Course unit | ECTS |
|-------------------------------------|------|
| Introduction to Biomedical Sciences | 10 |

- b. 20 ECTS of other master courses chosen from the BMS master courses as listed in appendix IV.

Additional requirements for the research track Biology of Ageing:

- topics of both research projects, essay, and colloquium are chosen within the biology of ageing research area.
- 30 ECTS master courses are filled with the following courses:
 - a. Courses (20 ECTS)

| Course unit | ECTS |
|--|------|
| Introduction to Biomedical Sciences | 10 |
| Current Themes in Healthy Ageing | 5 |
| Molecular Biology of Ageing and Age-related Diseases | 5 |

- b. 5 ECTS from the following list of courses:

| Course unit | ECTS |
|--|------|
| Advanced Metabolism & Nutrition | 5 |
| Immunology: from Bedside to Bench and Back | 5 |
| Neurodegenerative Diseases | 5 |
| Stem Cells & Regenerative Medicine | 5 |
| Microbiome, Diet & Health and Disease | 5 |

- c. 5 ECTS from the following list of courses:

| Course unit | ECTS |
|--|------|
| Advanced Light Microscopy | 5 |
| Advanced Imaging Techniques | 5 |
| Practical Bioinformatics for Biologists | 5 |
| Scientific Writing | 5 |
| From Big Data to Personalised Medicine | 5 |
| Editing, Regulating and Targeting Genomes with CRISPR-Cas9 | 5 |

Additional requirements for the research track Biology of Cancer and Immune System:

- the subject of one research project (≥ 40 ECTS) and the subject of either the essay or the colloquium is chosen in the field of cancer and immune system research area.
- 30 ECTS master courses are filled with the following courses:
 - a. Courses (15 ECTS)

| Course unit | ECTS |
|--|------|
| Introduction to Biomedical Sciences | 10 |
| Immunology: from Bedside to Bench and Back | 5 |

b. 15 ECTS from the following list of courses:

| Course unit | ECTS |
|--|------|
| Current Themes in Oncology [#] | 5 |
| Cancer Research [#] | 5 |
| Stem Cells & Regenerative Medicine | 5 |
| Microbiome, Diet & Health and Disease | 5 |
| Editing, Regulating and Targeting Genomes with CRISPR-Cas9 | 5 |
| From Big Data to Personalised Medicine | 5 |
| Translational Research in Respiratory Disease | 5 |

[#] choose at least one of these 2 course units

Additional requirements for the research track Biology of Food and Nutrition:

- topics of both research projects, essay, and colloquium are chosen within the food and nutritional life sciences research area.
- 30 ECTS master courses are filled with the following courses:

a. Courses (15 ECTS)

| Course unit | ECTS |
|-------------------------------------|------|
| Introduction to Biomedical Sciences | 10 |
| Advanced Metabolism & Nutrition | 5 |

b. 15 ECTS from the following list of courses:

| Course unit | ECTS |
|--|------|
| Nutrition in Medicine | 5 |
| Neurobiology of Nutrition | 5 |
| Microbiome, Diet & Health and Disease | 5 |
| Nutrition, Brain Development and Cognition | 5 |
| From Big Data to Personalised Medicine | 5 |

Additional requirements for the research track Neuroscience:

- topics of both research projects, essay, and colloquium are chosen within the neuroscience research area.
- 30 ECTS master courses are filled with the following courses:

a. Courses (25 ECTS)

| Course unit | ECTS |
|---------------------------------------|------|
| Introduction to Biomedical Sciences | 10 |
| Neurodegenerative Diseases | 5 |
| Behavioral Pharmacology | 5 |
| Neurobiology of Psychiatric Disorders | 5 |

b. 5 ECTS from the following list of courses:

| Course unit | ECTS |
|--|------|
| Advanced Imaging Techniques | 5 |
| Nutrition, Brain Development and Cognition | 5 |
| Molecular Biology of Ageing and Age-related Diseases | 5 |

Additional requirements for Medical Pharmaceutical Sciences:

The course unit Drug Development: from Design to Evaluation is compulsory for all MPS students.

Additional requirements for the general research track Medical Pharmaceutical Sciences Research:

- 25 ECTS master courses are filled with the following courses:

a. Courses (5 ECTS)

| Course unit | ECTS |
|---|------|
| Drug Development: from Design to Evaluation | 5 |

- b. 20 ECTS of other master courses chosen from the MPS master courses as listed in appendix IV.

Additional requirements for the research track Toxicology and Drug Disposition:

- the subject of one research project (≥ 40 ECTS) and the subject of either the essay or the colloquium is chosen in the field of toxicology and/or drug disposition.
- 25 ECTS master courses are filled with the following courses:

a. Courses (15 ECTS):

| Course unit | ECTS |
|---|------|
| Drug Development: from Design to Evaluation | 5 |
| Molecular Toxicology | 5 |
| Advanced Pharmacokinetics | 5 |

- b. A minimum of 5 ECTS from the following list:

| Course unit | ECTS |
|--|------|
| Pharmacovigilance | 5 |
| Animal and Human Experimentation* | 5 |
| Reproductive Toxicology and Epidemiology | 5 |
| Nanomedicine and Nanosafety | 5 |
| Clinical Toxicology | 5 |

* In consultation with the study mentor students can either follow this course or the 4 ECTS course handling laboratory animals (ex. Art.9 Experiments on Animals Act).

- c. 5 ECTS of other master courses chosen from the MPS master courses as listed in appendix IV.

Additional requirements for the research track Pharmacoepidemiology:

- the subject of one research project (≥ 40 ECTS) and the subject of either the essay or the colloquium is chosen in the field of Pharmacoepidemiology.
- 26 ECTS master courses are filled with the following courses:

a. Courses (26 ECTS):

| Course unit | ECTS |
|---|------|
| Drug Development: from Design to Evaluation | 5 |
| Medical Statistics | 3 |
| Basics in Medicine | 8 |
| Pharmacoepidemiology UK* | 5 |
| Pharmacoepidemiology in Practice | 5 |

* students who accomplished the equivalent course far-epi (= pharmacoepidemiologie) in their bachelor programme will be exempted from this requirement. The remaining 5 ECTS should be considered as 5 ECTS extra electives in their master programme.

- b. Suggested courses for ≤ 14 ECTS electives:

| Course unit | ECTS |
|--|------|
| Advanced Pharmacoepidemiology | 5 |
| Advanced Topics in Pharmacoepidemiology | 5 |
| Pharmaco-economics | 5 |
| Pharmacovigilance | 5 |
| Reproductive Toxicology and Epidemiology | 5 |

Additional requirements for the research track Pharmaceutical Design and Engineering:

- the subject of one research project (≥ 40 ECTS) and the subject of either the essay or the colloquium is chosen in the field of target identification, drug design, biologics, biotechnology, or innovative drug and dosage forms.
- 25 ECTS master courses are filled with the following courses:
 - a. Courses (15 ECTS):

| Course unit | ECTS |
|---|------|
| Drug Development: from Design to Evaluation | 5 |
| Pharmaceutical Biotechnology | 5 |
| Pharmaceutical Design and Engineering | 5 |

- b. A minimum of 5 ECTS from the following list:

| Course unit | ECTS |
|---|------|
| Molecular Toxicology | 5 |
| Translational Research in Respiratory Disease | 5 |

- c. 5 ECTS of other master courses chosen from the MPS master courses as listed in appendix IV. Suggested master courses and electives are given in table below:

| Course unit | ECTS |
|--|------|
| Advanced Imaging Techniques | 5 |
| Nanomedicine and Nanosafety | 5 |
| Pharmaceutical Biology Practical | 5 |
| Medicinal Natural Products | 10 |
| Non-Sterile Dosage Forms* | 6 |
| Solving Problems in Product Technology * | 6 |
| Biotechnology* | 10 |
| Introduction to the Pharmaceutical Industry* | 6-12 |
| Pharmacology of Chronic Diseases and Ageing* | 5 |
| Quantitative Bioanalysis* | 5 |

* Courses with an asterisks can only be chosen as electives.

Appendix IV Electives (art. 3.7)

Table 1-3 below list study elements that can be chosen as ‘master courses’ or ‘electives’ in BMS, MPS or both. Additional knowledge may be required in specific course units. These requirements will be published on Ocasys. For up to date information regarding the courses, such as assessment, entry requirements and learning objectives, Ocasys is leading.

Table 4 and 5 list courses that can only be chosen as ‘electives’ in BMS, MPS or both (see column right). After consultation with the study mentor and approval of the Board of Examiners, students may also choose from options available from other departments, other universities in the Netherlands or even abroad.

Table 1: Master courses available for BMS

| Course | ECTS | Programme |
|--|------|-----------|
| Advanced Metabolism & Nutrition | 5 | BMS |
| Current Themes in Healthy Ageing | 5 | BMS |
| Current Themes in Oncology | 5 | BMS |
| Immunology: from Bedside to Bench and Back | 5 | BMS |
| Molecular Biology of Ageing and Age-related Diseases | 5 | BMS |
| Neurodegenerative Diseases | 5 | BMS |
| Scientific Writing | 5 | BMS, MPS |
| Stem Cells & Regenerative Medicine | 5 | BMS |
| Cancer Research | 5 | BMS |
| Nutrition in Medicine | 5 | BMS |
| Neurobiology of Nutrition | 5 | BMS |
| Microbiome, Diet & Health and Disease | 5 | BMS |
| Nutrition, Brain Development and Cognition | 5 | BMS |
| Editing, Regulating and Targeting Genomes with CRISPR-Cas9 | 5 | BMS |
| Introduction to Biomedical Sciences | 10 | BMS |
| From Big Data to Personalised Medicine | 5 | BMS, MPS |
| Translational Research in Respiratory Disease | 5 | BMS, MPS |
| Neurobiology of Psychiatric Disorders | 5 | BMS, MPS |

Table 2: Master courses available for MPS

| Course | ECTS | Programme |
|---|------|-----------|
| Academic Skills | 5 | MPS |
| Advanced Pharmacoepidemiology | 5 | MPS |
| Advanced Pharmacokinetics | 5 | MPS |
| Drug Development: from Design to Evaluation | 5 | MPS, BMS |
| Advanced Topics in Pharmacoepidemiology | 5 | MPS |
| Medicinal Natural Products | 10 | MPS |
| Molecular Toxicology | 5 | MPS |
| Pharmaceutical Biology Practical | 5 | MPS |
| Pharmaceutical Biotechnology | 5 | MPS |
| Pharmaco-economics | 5 | MPS |
| Pharmacoepidemiology in Practice | 5 | MPS |
| Pharmacoepidemiology UK* | 5 | MPS |
| Pharmacovigilance | 5 | MPS |
| Reproductive Toxicology and Epidemiology | 5 | MPS |
| Selected topics in Molecular Pharmacology | 3 | MPS |
| Clinical Toxicology | 5 | MPS |
| Nanomedicine and Nanosafety | 5 | MPS |
| Microbiological Safety | 1 | MPS, BMS |
| Pharmaceutical Design and Engineering | 5 | MPS |

Table 3: General Life Sciences master courses

| Course | ECTS | Programme |
|--|------|-----------|
| Advanced Light Microscopy | 5 | BMS |
| Advanced Imaging Techniques | 5 | BMS, MPS |
| Advanced Statistics | 6 | BMS, MPS |
| Animal and Human Experiment.: Design, Practice and Ethics [^] | 5 | BMS, MPS |
| Behavioural Pharmacology | 5 | BMS, MPS |
| Introduction to the Behavioural and Cognitive Neurosciences | 4 | BMS |
| Science & Business [#] | 10 | BMS, MPS |
| Science & Policy [#] | 10 | BMS, MPS |
| Orientation on International Scientific Careers | 5 | BMS, MPS |
| Programming in C++ for Biologists | 5 | BMS |
| Radioisotopes in Experimental Biology | 5 | BMS, MPS |
| Practical Bioinformatics for Biologists | 5 | BMS |

[^] In consultation with the study mentor students can either follow this course or the 4 ECTS course handling laboratory animals, (ex. Art.9 Experiments on Animals Act). However, only one of these courses may be chosen as 'master course'.

[#] Students who follow a R-track/track may only choose one of these courses as part of the 'electives' not as part of the 'master courses'.

Table 4: Elective master courses organized by other Master Programmes

| Course | ECTS | Programme |
|--|------|-----------|
| DNA Micro-array Analysis | 5 | BMS, MPS |
| Skills in Science Communication | 5 | BMS, MPS |
| Research Methods in SEC | 5 | BMS, MPS |
| Science Communication and Journalism | 5 | BMS, MPS |
| Design in Science Communication and Education | 10 | BMS, MPS |
| iGEM (International Genetically Engineered Machine competition)* | 20 | BMS, MPS |
| Science and the Public | 5 | BMS, MPS |
| Non-Sterile Dosage Forms | 6 | MPS |
| Solving Problems in Product Technology | 6 | MPS |
| Biotechnology | 10 | MPS |
| Introduction to the Pharmaceutical Industry | 6-12 | MPS |
| Pharmacology of Chronic Diseases and Ageing | 5 | MPS |
| Quantitative Bioanalysis | 5 | MPS |

* Selection for this competition takes place in winter time, an advertisement about application details will be announced via the student portal during the academic year.

Table 5: Elective master courses organised by The Donald Smits Center for Information Technology:

| Course (max 2 ects per individual programme [^]) | Half day unit [^] | Programme |
|--|----------------------------|-----------|
| Access basic | 5 | BMS, MPS |
| Excel basic | 5 | BMS, MPS |
| Excel module draaitabellen | 1 | BMS, MPS |

[^] A minimum of 5 half day units is required for a study load of 1 ECTS, for 2 ECTS 11 units are needed. These courses have additional costs (low student tariff), which are at the student's own expenses. These courses are not available in Ocasys. Please consult the Center for Information Technology for further information, time schedules, language of instruction and enrolment details.

Appendix V Entry requirements and compulsory order of examinations (art. 4.4)

| Course unit | Entry requirement |
|--------------------------------------|--|
| Research project | Safe Microbiological Technique certificate |
| Colloquium | Research project |
| Research project 2 | Research project |
| Internship Science Business & Policy | Research project + courses Science & Business and Science & Policy |

Appendix VI Admission to the degree programme and the different tracks (art. 2.1.1 + art. 2.2)

1. Requirements for admission to the master degree in Biomedical Sciences

Holders of the following Bachelor's degrees from the University of Groningen are considered to have sufficient knowledge and skills and can be admitted to the Master's degree programme in Biomedical Sciences on that basis:

- a Bachelor's degree in Biology with one of the following majors:
 - > Biomedical Sciences.
 - > Behavior & Neurosciences.
 - > Molecular Life Sciences plus the minor Biomedical Sciences/Behavior & Neurosciences (including the courses receptor pharmacology, immunology I Molecular Biology & Medical Biology).
- a Bachelor's degree in Life Science & Technology with one of the following majors:
 - > Biomedical Sciences.
 - > Behavior & Neurosciences.
 - > Molecular Life Sciences plus the minor Biomedical Sciences/Behavior & Neurosciences (including the courses receptor pharmacology, immunology I Molecular Biology & Medical Biology).
 - > Medical Pharmaceutical Sciences plus the courses (pharmaceutical/medical) microbiology and neurobiology.

Students lacking one or two of the above mentioned courses, may sometimes be admitted on the condition of including these courses within the electives of the master programme.

Students with a comparable Bachelor's degree from another Dutch or foreign university, focusing on knowledge and skills at the interface of molecular and cellular biology, organic chemistry and biochemistry, integrative physiology and behaviour, and medical sciences, may also qualify for admission. However, admission is then granted on an individual basis by the Admission Board.

2. Requirements for admission to the master degree in Medical Pharmaceutical Sciences

Holders of the following Bachelor's degrees from the University of Groningen are considered to have sufficient knowledge and skills and will be admitted to the Master's degree programme in Medical Pharmaceutical Sciences on that basis:

- a Bachelor's degree in (Bio)Pharmacy or Pharmaceutical Sciences.
- a Bachelor's degree in Life Science & Technology with one of the following majors:
 - > Medical Pharmaceutical Sciences.
 - > Biomedical Sciences including/plus the courses receptor pharmacology and Drugs: from target to use, or the minor Pharmacy.
 - > Molecular Life Sciences plus the minor Biomedical Sciences/Behaviour & Neurosciences (including courses receptor pharmacology and immunology I), or the minor Pharmacy.
- a Bachelor's degree in Biology with one of the following majors
 - > Biomedical Sciences including/plus the courses receptor pharmacology and Drugs: from target to use, or the minor Pharmacy.
 - > Molecular Life Sciences plus the minor Biomedical Sciences/Behavior & Neurosciences (including courses receptor pharmacology and immunology I or the minor Pharmacy.

Students lacking one or two of the above mentioned courses, may sometimes be admitted on the condition of including these courses within the electives of the master programme.

Students with a comparable Bachelor's degree from another Dutch or foreign university, focusing on knowledge and skills at the interface of molecular and cellular biology, human physiology, organic chemistry and biochemistry, statistics and pharmaceutical sciences, may also qualify for admission. However, admission is then granted on an individual basis by the Admission Board.

Appendix VIII

Application and decision deadlines for admission

(art. 2.6.1 and 2.6.3)

Programmes starting on 1 September 2020

| Programme | Deadline of Application | Deadline of decision |
|---------------------------------|--------------------------------|-----------------------------|
| Biomedical Sciences | 1 May 2020 | 1 June 2020 |
| Medical Pharmaceutical Sciences | 1 May 2020 | 1 June 2020 |