



Programme-specific Section of the Curriculum for the MSc Programme in Biochemistry at the Faculty of Science, University of Copenhagen 2009 (Rev. 2019)

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1 Title, affiliation and language

A shared section that applies to all BSc and MSc Programmes at the Faculty of Science is linked to this programme-specific curriculum.

1.1 Title

The MSc Programme in Biochemistry with a specialisation in Molecular Cell Biology and Immunology leads to a Master of Science (MSc) in Biochemistry with a specialisation in Molecular Cell Biology and Immunology with the Danish title: *Cand.scient. (candidatus/candidata scientiarum) i biokemi med en specialisering i molekylær cellebiologi og immunologi.*

The MSc Programme in Biochemistry with a specialisation in Molecular Genetics leads to a Master of Science (MSc) in Biochemistry with a specialisation in Molecular Genetics with the Danish title: *Cand.scient. (candidatus/candidata scientiarum) i biokemi med en specialisering i molekylær genetik*

The MSc Programme in Biochemistry with a specialisation in Molecular Microbiology leads to a Master of Science (MSc) in Biochemistry with a specialisation in Molecular Microbiology with the Danish title: *Cand.scient. (candidatus/candidata scientiarum) i biokemi med en specialisering i molekylær mikrobiologi.*

The MSc Programme in Biochemistry with a specialisation in Protein Chemistry leads to a Master of Science (MSc) in Biochemistry with a specialisation in Protein Chemistry with the Danish title: *Cand.scient. (candidatus/candidata scientiarum) i biokemi med en specialisering i proteinkemi.*

1.2 Affiliation

The programme is affiliated with the Study Board for the Biological Area and the students can both elect, and be elected, to this study board.

1.3 Corps of external examiners

The following corps of external examiners is used for the central parts of the MSc Programme:

- Corps of External Examiners for Biology (*biologi*).

1.4 Language

The language of this MSc Programme is English.

2 Academic profile

2.1 Purpose

The MSc Programme in Biochemistry is a research-based programme that aims to provide students with competences, skills and knowledge within one of the biochemistry subject areas, with an individually chosen specialisation centred on an independent, experimental research project.

2.2 General programme profile

The student chooses one of the four different specialisations (Molecular Cell Biology and Immunology, Molecular Genetics, Molecular Microbiology, and Protein Chemistry). In addition, the student follow supplementary courses where restricted optional courses are within their specialisation and optional courses can be in other disciplines. Thus, it is possible to create an individual academic profile within one of the five broad specialisations.

Biochemistry is the key subject area of the programme. The student will be trained to critically understand, analyse and evaluate theoretical and experimental methods in biochemistry and evaluate scientific conclusions within their specialization. Both from original scientific literature and in relation to their own experiments carried out during the thesis.

2.3 General structure of the programme

The MSc Programme is set at 120 ECTS.

The MSc Programme in Biochemistry consists of the following elements:

- Specialisation, 120 ECTS, including the thesis.

The student must choose one of the following specialisations:

- Molecular Cell Biology and Immunology.
- Molecular Genetics.
- Molecular Microbiology.
- Protein Chemistry.

2.4 Career opportunities

The MSc Programme in Biochemistry qualifies students to become professionals within business functions and/or areas such as:

- A PhD programme
- Within their area of specialisation, graduates will attain a high level of theoretical and experimental expertise that will qualify them to work independently, be part of a research team and manage projects at universities, biotech and pharmaceutical industry and hospitals.

3 Description of competence profiles

Students following the MSc Programme acquire the knowledge, skills and competences listed below. Students will also acquire other qualifications through elective subject elements and other study activities.

3.1 Molecular Cell Biology and Immunology

On completion of the programme, an MSc in Biochemistry with a specialisation in Molecular Cell Biology and Immunology has acquired the following:

Knowledge about:

- Research at a high international level, including an overview of the latest research in in Molecular Cell Biology and Immunology and relevant adjacent main subject areas.
- Industrial and medical applications of their subject.
- The latest research and relevant theoretical and experimental methods in Molecular Cell Biology and Immunology

Skills in/to:

- Master relevant theoretical and experimental scientific methods in Molecular Cell Biology and Immunology.
- Read and understand original biochemistry literature.
- Document the results of experiments.
- Use the subject's main databases and relevant IT Technology.

Competences in/to:

- Formulate, structure and manage a research project.
- Develop and apply biochemical methodology to generate new knowledge.
- Generate, evaluate and analyse data, including its degree of uncertainty, potential sources of error, the relevance of the methodology used and the validity of the data.
- Organise their own work, both individually and as part of a research group.
- Manage projects in public- and private-sector institutions and companies.
- Critically read and evaluate original biochemical literature within Molecular Cell Biology and Immunology, identify scientific issues, reflect on the model solutions used and develop alternative solutions.
- Discuss the application of biochemistry research results in social, environmental and ethical contexts on the basis of academic arguments.
- Disseminate the results of their own and other people's experiments and complex problems using correct academic terminology, both orally and in writing.
- Take independent responsibility for their own academic development and specialisation.

3.2 Molecular Genetics

On completion of the programme, an MSc in Biochemistry with a specialisation in Molecular Genetics has acquired the following:

Knowledge about:

- Research at a high international level, including an overview of the latest research in in Molecular Genetics and relevant adjacent main subject areas.
- Industrial and medical applications of their subject.
- The latest research and relevant theoretical and experimental methods in Molecular Genetics.

Skills in/to:

- Master relevant theoretical and experimental scientific methods in Molecular Genetics.
- Read and understand original biochemistry literature.
- Document the results of experiments.
- Use the subject's main databases and relevant IT Technology.

Competences in/to:

- Formulate, structure and manage a research project.
- Develop and apply biochemical methodology to generate new knowledge.
- Generate, evaluate and analyse data, including its degree of uncertainty, potential sources of error, the relevance of the methodology used and the validity of the data.
- Organise their own work, both individually and as part of a research group.
- Manage projects in public- and private-sector institutions and companies.
- Critically read and evaluate original biochemical literature within Molecular Genetics, identify scientific issues, reflect on the model solutions used and develop alternative solutions.
- Discuss the application of biochemistry research results in social, environmental and ethical contexts on the basis of academic arguments.
- Disseminate the results of their own and other people's experiments and complex problems using correct academic terminology, both orally and in writing.
- Take independent responsibility for their own academic development and specialisation.

3.3 Molecular Microbiology

On completion of the programme, an MSc in Biochemistry with a specialisation in Molecular Microbiology has acquired the following:

Knowledge about:

- Research at a high international level, including an overview of the latest research in in Molecular Microbiology and relevant adjacent main subject areas.
- Industrial and medical applications of their subject.
- The latest research and relevant theoretical and experimental methods in Molecular Microbiology

Skills in/to:

- Master relevant theoretical and experimental scientific methods in Molecular Microbiology.
- Read and understand original biochemistry literature.
- Document the results of experiments.
- Use the subject's main databases and relevant IT Technology.

Competences in/to:

- Formulate, structure and manage a research project.
- Develop and apply biochemical methodology to generate new knowledge.
- Generate, evaluate and analyse data, including its degree of uncertainty, potential sources of error, the relevance of the methodology used and the validity of the data.
- Organise their own work, both individually and as part of a research group.
- Manage projects in public- and private-sector institutions and companies.
- Critically read and evaluate original biochemical literature within Molecular Microbiology, identify scientific issues, reflect on the model solutions used and develop alternative solutions.
- Discuss the application of biochemistry research results in social, environmental and ethical contexts on the basis of academic arguments.
- Disseminate the results of their own and other people's experiments and complex problems using correct academic terminology, both orally and in writing.
- Take independent responsibility for their own academic development and specialisation.

3.4 Protein Chemistry

On completion of the programme, an MSc in Biochemistry with a specialisation in Protein Chemistry has acquired the following:

Knowledge about:

- Research at a high international level, including an overview of the latest research in in Protein Chemistry and relevant adjacent main subject areas.
- Industrial and medical applications of their subject.
- The latest research and relevant theoretical and experimental methods in Protein Chemistry.

Skills in/to:

- Master relevant theoretical and experimental scientific methods in Protein Chemistry.
- Read and understand original biochemistry literature.
- Document the results of experiments.
- Use the subject's main databases and relevant IT Technology.

Competences in/to:

- Formulate, structure and manage a research project.
- Develop and apply biochemical methodology to generate new knowledge.
- Generate, evaluate and analyse data, including its degree of uncertainty, potential sources of error, the relevance of the methodology used and the validity of the data.
- Organise their own work, both individually and as part of a research group.
- Manage projects in public- and private-sector institutions and companies.
- Critically read and evaluate original biochemical literature within Protein Chemistry, identify scientific issues, reflect on the model solutions used and develop alternative solutions.
- Discuss the application of biochemistry research results in social, environmental and ethical contexts on the basis of academic arguments.
- Disseminate the results of their own and other people's experiments and complex problems using correct academic terminology, both orally and in writing.
- Take independent responsibility for their own academic development and specialisation.

4 Admission requirements

With a Bachelor's degree in Biochemistry from the University of Copenhagen the student is granted reserved access and guaranteed a place on the MSc Programme in Biochemistry if the student applies before the application deadline during the first application period after the completion of the Bachelor's degree.

4.1 Applicants with a closely related Bachelor's degree

Applicants with a Bachelor's degree in the following are directly academically qualified for admission to the MSc programme in Biochemistry:

- Applicants with a Bachelor's degree in Biochemistry, Molecular Biomedicine or Nanoscience from the University of Copenhagen.
- Applicants with a Bachelor's degree in Biotechnology or Molecular Biology from Aarhus University.

4.2 Applicants with a Bachelor's degree within the field of Science

Applicants with one of the following:

- Bachelor's degree in Biochemistry and Molecular Biology from the University of Southern Denmark
- Bachelor's degree in Molecular Biology from Roskilde University
- Bachelor's degree from the Faculty of Science, University of Copenhagen

may also be admitted if their programme includes the following:

- A minimum of 60 ECTS within chemistry and biochemistry/molecular biology of which a minimum of 30 ECTS must be in chemistry and 22.5 ECTS in biochemistry/molecular biology.
- In total, the applicant must have a minimum of 30 ECTS that stem from courses with experimental laboratory exercises.

Subject elements in protein chemistry or biophysical chemistry may be counted either as chemistry or biochemistry/molecular biology.

4.3 Other applicants

The Faculty may also admit applicants who, after an individual academic assessment, are deemed to possess educational qualifications equivalent to those required in Subclauses 4.1-2.

4.4 Language requirements

Applicants must as a minimum document English language qualifications comparable to a Danish upper secondary school English B level or English proficiency corresponding to the tests and scores required. Accepted tests and required minimum scores are published online at www.science.ku.dk.

4.5 Supplementary subject elements

The qualifications of an applicant to the MSc program are assessed exclusively on the basis of the qualifying bachelor's degree. Supplementary subject elements passed between the completion of the bachelor's program and the admission to the MSc program cannot be included in the overall assessment.

However, subject elements passed before the completion of the bachelor's program may be included in the overall assessment. This includes subject elements completed as continuing education as well as subject elements completed as part of a former higher education program. A maximum of 30 ECTS supplementary subject elements can be included in the overall assessment.

Subject elements passed before completing the BSc programme which are to form part of the MSc programme to which the student has a legal right of admission (§9-courses) cannot be included in the overall assessment.

5 Prioritisation of applicants

If the number of qualified applicants to the programme exceeds the number of places available, applicants will be prioritised as follows:

- 1) Applicants with a Bachelor's degree in Biochemistry from the University of Copenhagen seeking admission by way of direct extension of their completed BSc programme.
- 2) Other applicants.

If the number of qualified applicants within a category exceeds the number of places available, applicants will be prioritised according to the following criteria (all criteria apply):

- Applicant's total number of ECTS in the areas metabolism, enzymology, protein science, cell biology, organic chemistry and physical chemistry and documented laboratory experience.
- Applicants ranked according to grades achieved in the areas concerned. If different grading systems make comparison impossible, applicants will be prioritised on the basis of an individual evaluation by the Admission Committee.
- Applicants with a Bachelor's degree age of more than 5 years have low priority.

6 Structure of the programme

The compulsory subject elements, restricted elective subject elements and the thesis constitute the central parts of the programme (Section 21 of the Ministerial Order on Bachelor and Master's Programmes (Candidatus) at Universities).

Before the beginning of the MSc Programme the student must choose a specialisation.

6.1 Molecular Cell Biology and Immunology

The specialisation is set at 120 ECTS and consists of the following:

- Compulsory subject elements, 30 ECTS
- Restricted elective subject elements, 15 ECTS
- Elective subject elements, 15 ECTS
- Thesis, 60 ECTS

6.1.1 Compulsory subject elements

All of the following subject elements are to be covered (30 ECTS):

• NBIK18002U	Principal Subject in Molecular Cell Biology and Immunology 1	Block 1	7.5 ECTS
• NBIK18003U	Principal Subject in Molecular Cell Biology and Immunology 2	Block 3	7.5 ECTS
• NBIK13014U	Major Subject Project	Block 2	7.5 ECTS
• NBIK18004U	Principal Subject in Molecular Cell Biology and Immunology 3	Block 1	7.5 ECTS

6.1.2 Restricted elective subject elements

15 ECTS are to be covered as subject elements from the following list:

• NBIK15006U	Advanced Cell Biology	Block 1	7,5 ECTS
• NBIK10015U	Cell Cycle Control and Cancer	Block 1	7.5 ECTS
• NBIK10017U	RNA Biology	Block 1	7.5 ECTS
• NBIK15009U	Cellular Signalling in Health and Disease	Block 2	7.5 ECTS
• NBIK10020U	Developmental Biology	Block 2	7.5 ECTS
• NBIK14034U	Molecular Neurobiology	Block 2	7.5 ECTS
• NBIK15010U	Epigenetics and Cell Differentiation	Block 2	7.5 ECTS
• NBIA08004U	Evolutionary Medicine	Block 3	7.5 ECTS
• SMOK14003U	Chronic Inflammation. From Basic Research to Therapy	Block 3	7.5 ECTS
• NBIK13017U	Molecular Biotechnology	Block 4	7.5 ECTS

6.1.3 Elective subject elements

15 ECTS are to be covered as elective subject elements.

All subject elements at MSc level may be included as elective subject elements in the MSc Programme.

BSc subject elements corresponding to 7.5 ECTS may be included in the MSc Programme.

Projects outside the course scope may be included in the elective section of the programme with up to 15 ECTS. The regulations are described in Appendix 5 to the shared section of the curriculum.

Projects in practice may be included in the elective section of the programme with up to 15 ECTS. The regulations are described in Appendix 4 to the shared section of the curriculum.

6.1.4 Thesis

The MSc Programme in Biochemistry with a specialisation in Molecular Cell Biology and Immunology includes a thesis corresponding to 60 ECTS, as described in Appendix 2 to the shared curriculum. The thesis must be written within the academic scope of the programme.

6.1.5 Academic mobility

The curriculum makes it possible to follow subject elements outside the Faculty of Science.

For students admitted in September the academic mobility in the MSc Programme in Biochemistry with a specialisation in Molecular Cell Biology and Immunology is placed in block 1+2 of the 1st year.

Academic mobility requires that the student follows the rules and regulations regarding pre-approval and credit transfer.

In addition the student has the possibility to arrange similar academic mobility in other parts of the programme.

6.2 Molecular Genetics

The specialisation is set at 120 ECTS and consists of the following:

- Compulsory subject elements, 30 ECTS
- Restricted elective subject elements, 15 ECTS
- Elective subject elements, 15 ECTS
- Thesis, 60 ECTS

6.2.1 Compulsory subject elements

All of the following subject elements are to be covered (30 ECTS):

• NBIA09014U	Principal Subject in Molecular Genetics 1	Block 1	7.5 ECTS
• NBIK13014U	Major Subject Project	Block 2	7.5 ECTS
• NBIA09015U	Principal Subject in Molecular Genetics 2	Block 3	7.5 ECTS
• NBIA09016U	Principal Subject in Molecular Genetics 3	Block 1	7.5 ECTS

6.2.2 Restricted elective subject elements

15 ECTS are to be covered as subject elements from the following list:

• NBIK15017U	Theoretical Molecular Genetics	Block 1	7.5 ECTS
• NBIK15011U	Experimental Molecular Genetics	Block 1	7.5 ECTS
• NBIK10017U	RNA Biology	Block 1	7.5 ECTS
• NBIK10015U	Cell Cycle Control and Cancer	Block 1	7.5 ECTS
• NBIK10020U	Developmental Biology	Block 2	7.5 ECTS
• NBIK15013U	Genome Sequence Analysis	Block 2	7.5 ECTS
• NBIK13005U	Experimental Higher Model Organisms	Block 2	7.5 ECTS
• NBIK15010U	Epigenetics and Cell Differentiation	Block 2	7.5 ECTS
• NBIK15014U	Human Genetics	Block 3	7.5 ECTS
• NBIA09043U	Population Genetics	Block 3	7.5 ECTS
• LBIK10207U	Synthetic Biology	Block 3	7.5 ECTS
• NBIK14020U	Archaea Biology	Block 4	7.5 ECTS
• NBIK13017U	Molecular Biotechnology	Block 4	7.5 ECTS

6.2.3 Elective subject elements

15 ECTS are to be covered as elective subject elements.

All subject elements at MSc level may be included as elective subject elements in the MSc Programme.

BSc subject elements corresponding to 7.5 ECTS may be included in the MSc Programme.

Projects outside the course scope may be included in the elective section of the programme with up to 15 ECTS. The regulations are described in Appendix 5 to the shared section of the curriculum.

Projects in practice may be included in the elective section of the programme with up to 15 ECTS. The regulations are described in Appendix 4 to the shared section of the curriculum.

6.2.4 Thesis

The MSc Programme in Biochemistry with a specialisation in Molecular Genetics includes a thesis corresponding to 60 ECTS, as described in Appendix 2 to the shared curriculum. The thesis must be written within the academic scope of the programme.

6.2.5 Academic mobility

The curriculum makes it possible to follow subject elements outside the Faculty of Science.

For students admitted in September the academic mobility in the MSc Programme in Biochemistry with a specialisation in Molecular Genetics is placed in block 1+2 of the 1st year.

Academic mobility requires that the student follows the rules and regulations regarding pre-approval and credit transfer.

In addition the student has the possibility to arrange similar academic mobility in other parts of the programme.

6.3 Molecular Microbiology

The specialisation is set at 120 ECTS and consists of the following:

- Compulsory subject elements, 30 ECTS
- Restricted elective subject elements, 15 ECTS
- Elective subject elements, 15 ECTS
- Thesis, 60 ECTS

6.3.1 Compulsory subject elements

All of the following subject elements are to be covered (30 ECTS):

• NBIA09011U	Principal Subject in Molecular Microbiology 1	Block 1	7.5 ECTS
• NBIA09018U	Principal Subject in Molecular Microbiology 2	Block 2	7.5 ECTS
• NBIK13014U	Major Subject Project	Block 3	7.5 ECTS
• NBIA09013U	Principal Subject in Molecular Microbiology 3	Block 1	7.5 ECTS

6.3.2 Restricted elective subject elements

15 ECTS are to be covered as subject elements from the following list:

• NBIK15003U	Advanced Bacteriology 1	Block 1	7.5 ECTS
• NBIA05008U	Biological Sequence Analysis	Block 1	7.5 ECTS
• NBIK15016U	The Human Microbiome	Block 1	7.5 ECTS
• NBIK15005U	Advanced Bacteriology 2	Block 2	7.5 ECTS
• LLEK10219U	Control of Foodborne Microorganism	Block 2	7.5 ECTS
• NBIK15013U	Genome Sequence Analysis	Block 2	7.5 ECTS
• NBIK14035U	Medical Bacteriology	Block 3	7.5 ECTS
• LBIK10136U	Heterologous Expression	Block 3	15 ECTS
• NBIK16003U	Marine Microbiology and Virology	Block 3	7.5 ECTS
• NBIK14020U	Archaea Biology	Block 4	7.5 ECTS

• NBIK13017U	Molecular Biotechnology	Block 4	7.5 ECTS
• NBIK16000U	The Human Microbiome - Experiments	Block 4	7.5 ECTS

6.3.3 Elective subject elements

15 ECTS are to be covered as elective subject elements.

All subject elements at MSc level may be included as elective subject elements in the MSc Programme.

BSc subject elements corresponding to 7.5 ECTS may be included in the MSc Programme.

Projects outside the course scope may be included in the elective section of the programme with up to 15 ECTS. The regulations are described in Appendix 5 to the shared section of the curriculum.

Projects in practice may be included in the elective section of the programme with up to 15 ECTS. The regulations are described in Appendix 4 to the shared section of the curriculum.

6.3.4 Thesis

The MSc Programme in Biochemistry with a specialisation in Molecular Microbiology includes a thesis corresponding to 60 ECTS, as described in Appendix 2 to the shared curriculum. The thesis must be written within the academic scope of the programme.

6.3.5 Academic mobility

The curriculum makes it possible to follow subject elements outside the Faculty of Science.

For students admitted in September the academic mobility in the MSc Programme in Biochemistry with a specialisation in Molecular Microbiology is placed in block 1+2 of the 1st year.

Academic mobility requires that the student follows the rules and regulations regarding pre-approval and credit transfer.

In addition the student has the possibility to arrange similar academic mobility in other parts of the programme.

6.4 Protein Chemistry

The specialisation is set at 120 ECTS and consists of the following:

- Compulsory subject elements, 30 ECTS
- Restricted elective subject elements, 15 ECTS
- Elective subject elements, 15 ECTS
- Thesis, 60 ECTS

6.4.1 Compulsory subject elements

All of the following subject elements are to be covered (30 ECTS):

• NBIK09021U	Principal Subject in Protein Chemistry 1	Block 1	7.5 ECTS
• NBIK13014U	Major Subject Project	Block 2	7.5 ECTS
• NBIA09021U	Principal Subject in Protein Chemistry 2	Block 3	7.5 ECTS
• NBIA09022U	Principal Subject in Protein Chemistry 3	Block 1	7.5 ECTS

6.4.2 Restricted elective subject elements

15 ECTS are to be covered as subject elements from the following list:

• NKEK14015U	The Chemistry of Metal Ions in Biological Systems	Block 1	7.5 ECTS
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• NKEA06015U	Crystallography - MSc	Block 2	7.5 ECTS
• NBIA05014U	Structural Bioinformatics	Block 2	7.5 ECTS
• NBIK16001U	NMR Spectroscopy	Block 2	7.5 ECTS
• NBIK10023U	Advanced Protein Science 1 – Protein Interactions and Sequences	Block 3	7.5 ECTS
• NFYK14039U	Radioactive Isotopes and Ionizing Radiation	Block 3	7.5 ECTS
• NBIK10024U	Advanced Protein Science 2 – Protein Structure Determination	Block 4	7.5 ECTS
• NBIK13017U	Molecular Biotechnology	Block 4	7.5 ECTS

6.4.3 Elective subject elements

15 ECTS are to be covered as elective subject elements.

All subject elements at MSc level may be included as elective subject elements in the MSc Programme.

BSc subject elements corresponding to 7.5 ECTS may be included in the MSc Programme.

Projects outside the course scope may be included in the elective section of the programme with up to 15 ECTS. The regulations are described in Appendix 5 to the shared section of the curriculum.

Projects in practice may be included in the elective section of the programme with up to 15 ECTS. The regulations are described in Appendix 4 to the shared section of the curriculum.

6.4.4 Thesis

The MSc Programme in Biochemistry with a specialisation in Protein Chemistry includes a thesis corresponding to 60 ECTS, as described in Appendix 2 to the shared curriculum. The thesis must be written within the academic scope of the programme.

6.4.5 Academic mobility

The curriculum makes it possible to follow subject elements outside the Faculty of Science.

For students admitted in September the academic mobility in the MSc Programme in Biochemistry with a specialisation in Protein Chemistry is placed in block 1+2 of the 1st year.

Academic mobility requires that the student follows the rules and regulations regarding pre-approval and credit transfer.

In addition the student has the possibility to arrange similar academic mobility in other parts of the programme.

7 Exemptions

In exceptional circumstances, the study board may grant exemptions from the rules in the curriculum specified solely by the Faculty of Science.

8 Commencement etc.

8.1 Validity

This subject specific section of the curriculum applies to all students enrolled in the programme – see however Appendix 2.

8.2 Transfer

Students enrolled on previous curricula may be transferred to the new one as per the applicable transfer regulations or according to an individual credit transfer by the study board.

8.3 Amendment

The curriculum may be amended once a year so that any changes come into effect at the beginning of the academic year. Amendments must be proposed by the study board and approved by the Dean.

Notification about amendments that tighten the admission requirements for the programme will be published online at www.science.ku.dk one year before they come into effect.

If amendments are made to this curriculum, an interim arrangement may be added if necessary to allow students to complete their MSc Programme according to the amended curriculum.

Appendix 1 Tables

Tables for students admitted to the programme in September (summer):

Table – Molecular Cell Biology and Immunology (thesis work starts in block 3)

	Block 1	Block 2	Block 3	Block 4
1st year	Principal Subject in Molecular Cell Biology and Immunology 1	Major Subject Project	Principal Subject in Molecular Cell Biology and Immunology 2	Restricted elective
	Elective	Elective	Thesis	
2nd year	Principal Subject in Molecular Cell Biology and Immunology 3	Restricted elective	Thesis	



Compulsory



Restricted elective

Elective

The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

Table– Molecular Cell Biology and Immunology (thesis work starts in block 4)

	Block 1	Block 2	Block 3	Block 4
1st year	Principal Subject in Molecular Cell Biology and Immunology 1	Major Subject Project	Principal Subject in Molecular Cell Biology and Immunology 2	Restricted elective
	Elective	Elective	Restricted elective	Thesis
2nd year	Principal Subject in Molecular Cell Biology and Immunology 3	Thesis		



Compulsory



Restricted elective

Elective

The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

Table – Molecular Genetics (thesis work starts in block 4)

	Block 1	Block 2	Block 3	Block 4
1st year	Principal Subject in Molecular Genetics 1	Major Subject Project	Principal Subject in Molecular Genetics 2	Elective
	Restricted elective	Restricted elective	Elective	Thesis
2nd year	Principal Subject in Molecular Genetics 3	Thesis		



Compulsory



Restricted elective

Elective

The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

Table – Molecular Genetics (thesis work starts in block 3)

	Block 1	Block 2	Block 3	Block 4
1st year	Principal Subject in Molecular Genetics 1	Major Subject Project	Principal Subject in Molecular Genetics 2	Elective
	Restricted elective	Restricted elective	Thesis	
2nd year	Principal Subject in Molecular Genetics 3	Elective	Thesis	



Compulsory



Restricted elective



Elective

The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

Table – Molecular Microbiology (thesis work starts in block 4)

	Block 1	Block 2	Block 3	Block 4
1st year	Principal Subject in Molecular Microbiology 1	Principal Subject in Molecular Microbiology 2	Major Subject Project	Elective
	Restricted elective	Restricted elective	Elective	Thesis
2nd year	Principal Subject in Molecular Microbiology 3	Thesis		



Compulsory



Restricted elective



Elective

The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

Table – Molecular Microbiology (thesis work starts in block 3)

	Block 1	Block 2	Block 3	Block 4
1st year	Principal Subject in Molecular Microbiology 1	Principal Subject in Molecular Microbiology 2	Restricted elective	Elective
	Restricted elective	Major Subject Project	Thesis	
2nd year	Principal Subject in Molecular Genetics 3	Elective	Thesis	



Compulsory



Restricted elective



Elective

The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

Table – Protein Chemistry (thesis work starts in block 4)

	Block 1	Block 2	Block 3	Block 4
1st year	Principal Subject in Protein Chemistry 1	Major Subject Project	Principal Subject in Protein Chemistry 2	Restricted elective
	Elective	Elective	Restricted elective	Thesis
2nd year	Principal Subject in Protein Chemistry 3	Thesis		



Compulsory



Restricted elective



Elective

The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

Table – Protein Chemistry (thesis work starts in block 3)

	Block 1	Block 2	Block 3	Block 4
1st year	Principal Subject in Protein Chemistry 1	Major Subject Project	Principal Subject in Protein Chemistry 2	Restricted elective
	Elective	Elective	Thesis	
2nd year	Principal Subject in Protein Chemistry 3	Restricted elective	Thesis	



Compulsory



Restricted elective



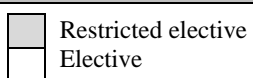
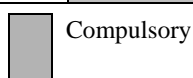
Elective

The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

Tables for students admitted to the programme in February (winter):

Table – Molecular Cell Biology and Immunology* (thesis work starts in block 1)

	Block 3	Block 4	Block 1	Block 2
1st year	Principal Subject in Molecular Cell Biology and Immunology 1	Major Subject Project	Principal Subject in Molecular Cell Biology and Immunology 2	Restricted elective
	Elective	Elective	Thesis	
2nd year	Principal Subject in Molecular Cell Biology and Immunology 3	Restricted elective	Thesis	

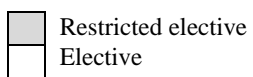
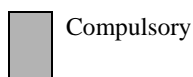


The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

*This table is only relevant for students who begin the MSc Programme in February (block 3).

Table– Molecular Cell Biology and Immunology*(thesis work starts in block 2)

	Block 3	Block 4	Block 1	Block 2
1st year	Principal Subject in Molecular Cell Biology and Immunology 1	Restricted elective	Principal Subject in Molecular Cell Biology and Immunology 2	Restricted elective
	Elective	Elective	Major Subject Project	Thesis
2nd year	Principal Subject in Molecular Cell Biology and Immunology 3	Thesis		

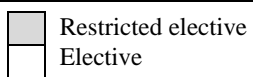
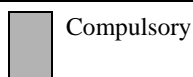


The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

*This table is only relevant for students who begin the MSc Programme in February (block 3).

Table – Molecular Genetics* (thesis work starts in block 1)

	Block 3	Block 4	Block 1	Block 2
1st year	Principal Subject in Molecular Genetics 1	Major Subject Project	Principal Subject in Molecular Genetics 2	Principal Subject in Molecular Genetics 3
	Elective	Elective	Thesis	
2nd year	Restricted elective	Restricted elective	Thesis	



The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

*This table is only relevant for students who begin the MSc Programme in February (block 3).

Table– Molecular Genetics* (thesis work starts in block 2)

	Block 3	Block 4	Block 1	Block 2
1st year	Principal Subject in Molecular Genetics 1	Restricted elective	Principal Subject in Molecular Genetics 2	Principal Subject in Molecular Genetics 3
	Elective	Elective	Major Subject Project	Thesis
2nd year	Restricted elective	Thesis		



Compulsory



Restricted elective



Elective

The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

*This table is only relevant for students who begin the MSc Programme in February (block 3).

Table – Molecular Microbiology* (thesis work starts in block 2)

	Block 3	Block 4	Block 1	Block 2
1st year	Restricted elective	Restricted elective	Principal Subject in Molecular Microbiology 1	Principal Subject in Molecular Microbiology 2
	Elective	Elective	Major Subject Project	Thesis
2nd year	Principal Subject in Molecular Microbiology 3	Thesis		



Compulsory



Restricted elective



Elective

The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

*This table is only relevant for students who begin the MSc Programme in February (block 3).

Table– Molecular Microbiology* (thesis work starts in block 1)

	Block 3	Block 4	Block 1	Block 2
1st year	Restricted elective	Major Subject Project	Principal Subject in Molecular Microbiology 1	Principal Subject in Molecular Microbiology 2
	Elective	Elective	Thesis	
2nd year	Principal Subject in Molecular Microbiology 3	Restricted elective	Thesis	



Compulsory



Restricted elective



Elective

The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

*This table is only relevant for students who begin the MSc Programme in February (block 3).

Table – Protein Chemistry* (thesis work starts in block 2)

	Block 3	Block 4	Block 1	Block 2
1st year	Principal Subject in Protein Chemistry 1	Restricted elective	Principal Subject in Protein Chemistry 2	Principal Subject in Protein Chemistry 3
	Elective	Elective	Major Subject Project	Thesis
2nd year	Restricted elective	Thesis		



Compulsory



Restricted elective



Elective

The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

*This table is only relevant for students who begin the MSc Programme in February (block 3).

Table– Protein Chemistry* (thesis work starts in block 1)

	Block 3	Block 4	Block 1	Block 2
1st year	Principal Subject in Protein Chemistry 1	Major Subject Project	Principal Subject in Protein Chemistry 2	Principal Subject in Protein Chemistry 3
	Elective	Elective	Thesis	
2nd year	Restricted elective	Restricted elective	Thesis	



Compulsory



Restricted elective



Elective

The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

*This table is only relevant for students who begin the MSc Programme in February (block 3).

Appendix 2 Interim arrangements

The Shared Section of the BSc and MSc Curricula for Study Programmes applies to all students.

The interim arrangements below only consist of parts where the current curriculum differs from the rules and regulations that were previously valid. Therefore, if information about relevant rules and regulations are missing, it can be found in the curriculum above.

Different competence profiles may apply to students admitted to the programme in different academic years. Competence profiles applicable to previous admissions can be found in Revision History for Competence Profiles at SCIENCE.

1 General changes for students admitted in the academic year 2018/19

1.1 Protein Chemistry

Restricted elective subject elements

15 ECTS are to be covered by subject elements from the following list:

<ul style="list-style-type: none"> Restricted elective subject elements offered as part of the specialisation in Protein Chemistry in this curriculum (see above) 			
<ul style="list-style-type: none"> NKEK12006U 	Surface Physical Chemistry	Discontinued*	7.5 ECTS

* See course specific changes below.

2 General changes for students admitted in the academic year 2017/18

Students admitted to the MSc Programme in the academic year 2017/18 must finish the programme as listed in the curriculum above with the following exceptions

2.1 Specialisations

From the academic year 2018/19 the specialisations Immunology and Metabolism and Molecular Cell Biology are discontinued and a new specialisation Molecular Cell Biology and Immunology is established.

2.1 Immunology and Metabolism

Title

The MSc Programme in Biochemistry with a specialisation in Immunology and Metabolism leads to a Master of Science (MSc) in Biochemistry with a specialisation in Immunology and Metabolism with the Danish title: *Cand.scient. (candidatus/candidata scientiarum) i biokemi med en specialisering i immunologi og metabolisme.*

Table – Immunology and Metabolism (Table for students admitted to the programme in September (summer))

	Block 1	Block 2	Block 3	Block 4
1st year	<i>Principle Subject in Immunology and Metabolism 1</i>	<i>Principle Subject in Immunology and Metabolism 2</i>	Elective	Elective
	Restricted elective	Major Subject Project	Thesis	
2nd year	<i>Principle Subject in Immunology and Metabolism 3</i>	Restricted elective	Thesis	



Compulsory



Restricted elective



Elective

The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

Subject elements in italics have been discontinued. See course specific changes below.

Table – Immunology and Metabolism (Table for students admitted to the programme in February (winter))

	Block 3	Block 4	Block 1	Block 2
1st year	Elective	Elective	<i>Principle Subject in Immunology and Metabolism 1</i>	<i>Principle Subject in Immunology and Metabolism 2</i>
	Restricted elective	Restricted elective	Major Subject Project	Thesis
2nd year	<i>Principle Subject in Immunology and Metabolism 3</i>	Thesis		

Compulsory
 Restricted elective
 Elective

The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules. *Subject elements in italics have been discontinued. See course specific changes below.*

2.2 Molecular Cell Biology

Title

The MSc Programme in Biochemistry with a specialisation in Molecular Cell Biology leads to a Master of Science (MSc) in Biochemistry with a specialisation in Molecular Cell Biology with the Danish title: *Cand.scient. (candidatus/candidata scientiarum) i biokemi med en specialisering i molekylær cellebiologi.*

Table – Molecular Cell Biology (Table for students admitted to the programme in September (summer))

	Block 1	Block 2	Block 3	Block 4
1st year	<i>Principle Subject in Molecular Cell Biology 1</i>	Major Subject Project	<i>Principle Subject in Molecular Cell Biology 2</i>	Restricted elective
	Elective	Elective	Thesis	
2nd year	<i>Principle Subject in Molecular Cell Biology 3</i>	Restricted elective	Thesis	

Compulsory
 Restricted elective
 Elective

The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules. *Subject elements in italics have been discontinued. See course specific changes below.*

Table – Molecular Cell Biology (Table for students admitted to the programme in February (winter))

	Block 3	Block 4	Block 1	Block 2
1st year	<i>Principle Subject in Molecular Cell Biology 1</i>	Major Subject Project	<i>Principle Subject in Molecular Cell Biology 2</i>	Restricted elective
	Elective	Elective	Thesis	
2nd year	<i>Principle Subject in Molecular Cell Biology 3</i>	Restricted elective	Thesis	

Compulsory
 Restricted elective
 Elective

The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules. *Subject elements in italics have been discontinued. See course specific changes below.*

3 General changes for students admitted in the academic year 2016/17

Students admitted to the MSc Programme in the academic year 2016/17 must finish the programme as listed in the curriculum above with the following exceptions.

3.1 Specialisations

From the academic year 2018/19 the specialisations Immunology and Metabolism and Molecular Cell Biology are discontinued and a new specialisation Molecular Cell Biology and Immunology is established.

3.1.1 Immunology and Metabolism

Title

The MSc Programme in Biochemistry with a specialisation in Immunology and Metabolism leads to a Master of Science (MSc) in Biochemistry with a specialisation in Immunology and Metabolism with the Danish title: *Cand.scient. (candidatus/candidata scientiarum) i biokemi med en specialisering i immunologi og metabolisme.*

Table – Immunology and Metabolism (Table for students admitted to the programme in September (summer))

	Block 1	Block 2	Block 3	Block 4
1st year	<i>Principle Subject in Immunology and Metabolism 1</i>	<i>Principle Subject in Immunology and Metabolism 2</i>	Elective	Elective
	Restricted elective	Major Subject Project	Thesis	
2nd year	<i>Principle Subject in Immunology and Metabolism 3</i>	Restricted elective	Thesis	



Compulsory



Restricted elective
Elective

The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

Subject elements in italics have been discontinued. See course specific changes below.

Table – Immunology and Metabolism (Table for students admitted to the programme in February (winter))

	Block 3	Block 4	Block 1	Block 2
1st year	Elective	Elective	<i>Principle Subject in Immunology and Metabolism 1</i>	<i>Principle Subject in Immunology and Metabolism 2</i>
	Restricted elective	Restricted elective	Major Subject Project	Thesis
2nd year	<i>Principle Subject in Immunology and Metabolism 3</i>	Thesis		



Compulsory



Restricted elective
Elective

The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

Subject elements in italics have been discontinued. See course specific changes below.

3.1.2 Molecular Cell Biology

Title

The MSc Programme in Biochemistry with a specialisation in Molecular Cell Biology leads to a Master of Science (MSc) in Biochemistry with a specialisation in Molecular Cell Biology with the Danish title: *Cand.scient. (candidatus/candidata scientiarum) i biokemi med en specialisering i molekylær cellebiologi.*

Table – Molecular Cell Biology (Table for students admitted to the programme in September (summer))

	Block 1	Block 2	Block 3	Block 4
1st year	<i>Principle Subject in Molecular Cell Biology 1</i>	Major Subject Project	<i>Principle Subject in Molecular Cell Biology 2</i>	Restricted elective
	Elective	Elective	Thesis	
2nd year	<i>Principle Subject in Molecular Cell Biology 3</i>	Restricted elective	Thesis	



Compulsory



Restricted elective
Elective

The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

Subject elements in italics have been discontinued. See course specific changes below.

Table – Molecular Cell Biology (Table for students admitted to the programme in February (winter))

	Block 3	Block 4	Block 1	Block 2
1st year	<i>Principle Subject in Molecular Cell Biology 1</i>	Major Subject Project	<i>Principle Subject in Molecular Cell Biology 2</i>	Restricted elective
	Elective	Elective	Thesis	
2nd year	<i>Principle Subject in Molecular Cell Biology 3</i>	Restricted elective	Thesis	



Compulsory



Restricted elective
Elective

The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

Subject elements in italics have been discontinued. See course specific changes below.

3.1.3 Molecular Cell Biology and Immunology

Restricted elective subject elements

15 ECTS are to be covered by subject elements from the following list:

<ul style="list-style-type: none"> Restricted elective subject elements offered as part of the specialisation in Molecular Cell Biology and Immunology in this curriculum (see above) 			
• NBIK15022U	Advanced Topics in Bioinformatics	Block 1	7.5 ECTS
• NBIK12011U	Ion Transport in Cancer	Discontinued*	7.5 ECTS

* See course specific changes below.

3.1.4 Protein Chemistry

Restricted elective subject elements

15 ECTS are to be covered by subject elements from the following list:

<ul style="list-style-type: none"> Restricted elective subject elements offered as part of the specialisation in Protein Chemistry in this curriculum (see above) 			
• NKEK14009U	Advanced Crystallography	Discontinued*	7.5 ECTS
• NKEK12006U	Surface Physical Chemistry	Discontinued*	7.5 ECTS

* See course specific changes below.

4 General changes for students admitted in the academic year 2015/16

Students admitted to the MSc Programme in the academic year 2015/16 must finish the programme as listed in the curriculum above with the following exceptions.

4.1 Specialisations

From the academic year 2018/19 the specialisations Immunology and Metabolism and Molecular Cell Biology are discontinued and a new specialisation Molecular Cell Biology and Immunology is established.

4.1.1 Immunology and Metabolism

Title

The MSc Programme in Biochemistry with a specialisation in Immunology and Metabolism leads to a Master of Science (MSc) in Biochemistry with a specialisation in Immunology and Metabolism with the Danish title: *Cand.scient. (candidatus/candidata scientiarum) i biokemi med en specialisering i immunologi og metabolisme.*

Table – Immunology and Metabolism (Table for students admitted to the programme in September (summer))

	Block 1	Block 2	Block 3	Block 4
1st year	<i>Principle Subject in Immunology and Metabolism 1</i>	<i>Principle Subject in Immunology and Metabolism 2</i>	Elective	Elective
	Restricted elective	Major Subject Project	Thesis	
2nd year	<i>Principle Subject in Immunology and Metabolism 3</i>	Restricted elective	Thesis	



Compulsory



Restricted elective
Elective

The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

Subject elements in italics have been discontinued. See course specific changes below.

Table – Immunology and Metabolism (Table for students admitted to the programme in February (winter))

	Block 3	Block 4	Block 1	Block 2
1st year	Elective	Elective	<i>Principle Subject in Immunology and Metabolism 1</i>	<i>Principle Subject in Immunology and Metabolism 2</i>

	Restricted elective	Restricted elective	Major Subject Project	Thesis
2nd year	<i>Principle Subject in Immunology and Metabolism 3</i>	Thesis		

Compulsory
 Restricted elective
 Elective

The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

Subject elements in italics have been discontinued. See course specific changes below.

4.1.2 Molecular Cell Biology

Title

The MSc Programme in Biochemistry with a specialisation in Molecular Cell Biology leads to a Master of Science (MSc) in Biochemistry with a specialisation in Molecular Cell Biology with the Danish title: *Cand.scient. (candidatus/candidata scientiarum) i biokemi med en specialisering i molekylær cellebiologi.*

Table – Molecular Cell Biology (Table for students admitted to the programme in September (summer))

	Block 1	Block 2	Block 3	Block 4
1st year	<i>Principle Subject in Molecular Cell Biology 1</i>	Major Subject Project	<i>Principle Subject in Molecular Cell Biology 2</i>	Restricted elective
	Elective	Elective	Thesis	
2nd year	<i>Principle Subject in Molecular Cell Biology 3</i>	Restricted elective	Thesis	

Compulsory
 Restricted elective
 Elective

The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

Subject elements in italics have been discontinued. See course specific changes below.

Table – Molecular Cell Biology (Table for students admitted to the programme in February (winter))

	Block 3	Block 4	Block 1	Block 2
1st year	<i>Principle Subject in Molecular Cell Biology 1</i>	Major Subject Project	<i>Principle Subject in Molecular Cell Biology 2</i>	Restricted elective
	Elective	Elective	Thesis	
2nd year	<i>Principle Subject in Molecular Cell Biology 3</i>	Restricted elective	Thesis	

Compulsory
 Restricted elective
 Elective

The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

Subject elements in italics have been discontinued. See course specific changes below.

4.1.3 Molecular Cell Biology and Immunology

Restricted elective subject elements

15 ECTS are to be covered by subject elements from the following list:

• Restricted elective subject elements offered as part of the specialisation in Molecular Cell Biology and Immunology in this curriculum (see above)			
• NBIK15022U	Advanced Topics in Bioinformatics	Block 1	7.5 ECTS
• NBIK12011U	Ion Transport in Cancer	Discontinued*	7.5 ECTS

* See course specific changes below.

4.1.4 Molecular Microbiology

Restricted elective subject elements

15 ECTS are to be covered by subject elements from the following list:

• Restricted elective subject elements offered as part of the specialisation in Molecular Microbiology in this curriculum (see above)			
• NFOK14019U	Microbiology of Fermented Foods and Beverages	Block 1	7.5 ECTS
• LBIK10180U	Applied Microbiology	Block 2	7.5 ECTS
• SBIK10200U	Human Parasitology	Block 2	7.5 ECTS
• NBIA09041U	Emerging Molecular Techniques in Microbiology	Discontinued*	7.5 ECTS
• NBIK12009U	Marine Microbiology and Virology	Discontinued*	15 ECTS

* See course specific changes below.

4.1.5 Protein Chemistry

Restricted elective subject elements

15 ECTS are to be covered by subject elements from the following list:

• Restricted elective subject elements offered as part of the specialisation in Protein Chemistry in this curriculum (see above)			
• NKEA07029U	Biophysical Techniques	Discontinued*	7.5 ECTS
• NKEK12006U	Surface Physical Chemistry	Discontinued*	7.5 ECTS

* See course specific changes below.

5 General changes for students admitted in the academic year 2014/15 or earlier

Students admitted to the MSc Programme in the academic year 2014/15 or earlier must finish the programme as listed in the curriculum above with the following exceptions.

5.1 Specialisations

From the academic year 2018/19 the specialisations Immunology and Metabolism and Molecular Cell Biology are discontinued and a new specialisation Molecular Cell Biology and Immunology is established.

5.1.1 Immunology and Metabolism

Title

The MSc Programme in Biochemistry with a specialisation in Immunology and Metabolism leads to a Master of Science (MSc) in Biochemistry with a specialisation in Immunology and Metabolism with the Danish title: *Cand.scient. (candidatus/candidata scientiarum) i biokemi med en specialisering i immunologi og metabolisme.*

Table – Immunology and Metabolism (Table for students admitted to the programme in September (summer))

	Block 1	Block 2	Block 3	Block 4
1st year	<i>Principle Subject in Immunology and Metabolism 1</i>	<i>Principle Subject in Immunology and Metabolism 2</i>	Elective	Elective
	Restricted elective	Major Subject Project	Thesis	
2nd year	<i>Principle Subject in Immunology and Metabolism 3</i>	Restricted elective	Thesis	

Compulsory
 Restricted elective
 Elective

The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

Subject elements in italics have been discontinued. See course specific changes below.

Table – Immunology and Metabolism (Table for students admitted to the programme in February (winter))

	Block 3	Block 4	Block 1	Block 2
1st year	Elective	Elective	<i>Principle Subject in Immunology and Metabolism 1</i>	<i>Principle Subject in Immunology and Metabolism 2</i>
	Restricted elective	Restricted elective	Major Subject Project	Thesis
2nd year	<i>Principle Subject in Immunology and Metabolism 3</i>	Thesis		

Compulsory
 Restricted elective
 Elective

The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

Subject elements in italics have been discontinued. See course specific changes below.

5.1.2 Molecular Cell Biology

Title

The MSc Programme in Biochemistry with a specialisation in Molecular Cell Biology leads to a Master of Science (MSc) in Biochemistry with a specialisation in Molecular Cell Biology with the Danish title: *Cand.scient. (candidatus/candidata scientiarum) i biokemi med en specialisering i molekylær cellebiologi.*

Table – Molecular Cell Biology (Table for students admitted to the programme in September (summer))

	Block 1	Block 2	Block 3	Block 4
1st year	<i>Principle Subject in Molecular Cell Biology 1</i>	Major Subject Project	<i>Principle Subject in Molecular Cell Biology 2</i>	Restricted elective
	Elective	Elective	Thesis	

2nd year	<i>Principle Subject in Molecular Cell Biology 3</i>	Restricted elective	Thesis

Compulsory
 Restricted elective
 Elective

The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

Subject elements in italics have been discontinued. See course specific changes below.

Table – Molecular Cell Biology (Table for students admitted to the programme in February (winter))

	Block 3	Block 4	Block 1	Block 2
1st year	<i>Principle Subject in Molecular Cell Biology 1</i>	Major Subject Project	<i>Principle Subject in Molecular Cell Biology 2</i>	Restricted elective
	Elective	Elective	Thesis	
2nd year	<i>Principle Subject in Molecular Cell Biology 3</i>	Restricted elective	Thesis	

Compulsory
 Restricted elective
 Elective

The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

Subject elements in italics have been discontinued. See course specific changes below.

Restricted elective subject elements

15 ECTS are to be covered by subject elements from the following list:

- All courses offered by the Department of Biology and the Department of Chemistry

This applies to all of the four specialisations.

6 Course specific changes

Discontinued course	Interim arrangement
Advanced Crystallography (NKEK14009U), 7,5 ECTS	<p>The course was a restricted elective course on the specialisation in Protein Chemistry in the academic year 2016/17.</p> <p>The course was offered for the last time in 2016/17 and a third exam is offered in the academic year 2017/18.</p>
Biophysical Techniques (NKEA07029U), 7.5 ECTS	<p>The course was a restricted elective course on the specialisation in Protein Chemistry in the academic year 2015/16.</p> <p>The course was offered for the last time in 2015/16 and a third exam is offered in the academic year 2016/17.</p>
Emerging Molecular Techniques in Microbiology (NBIA09041U), 7.5 ECTS	<p>The course was a restricted elective course on the specialisation in Molecular Microbiology in the academic year 2015/16.</p> <p>The course was offered for the last time in 2015/16 and a third exam is offered in the academic year 2016/17.</p>

Ion Transport in Cancer (NBIK12011U)	<p>The course was a restricted elective course on the former specialisation in Immunology and Metabolism and Molecular Cell Biology in the academic year 2016/17.</p> <p>The course was offered for the last time in 2015/16 and a third exam is offered in the academic year 2017/18.</p>
Marine Microbiology and Virology (NBIK12009U), 15 ECTS	<p>The course was a restricted elective course on the specialisation in Molecular Microbiology in the academic year 2015/16.</p> <p>The course was offered for the last time in 2015/16 and a third exam is offered in the academic year 2016/17.</p>
Principal Subject in Immunology and Metabolism 1 (NBIK13019U), 7.5 ECTS	<p>The course was a compulsory courses on the former specialisation in Immunology and Metabolism in the academic year 2017/18 and earlier.</p> <p>In this curriculum, Principal Subject in Molecular Cell Biology and Immunology 1 (NBIK18002U), 7.5 ECTS replaces Principal Subject in Immunology and Metabolism 1 (NBIK13019U), 7.5 ECTS.</p>
Principal Subject in Immunology and Metabolism 2 (NBIK13020U), 7.5 ECTS	<p>The course was a compulsory courses on the former specialisation in Immunology and Metabolism in the academic year 2017/18 and earlier.</p> <p>In this curriculum, Principal Subject in Molecular Cell Biology and Immunology 2 (NBIK18003U), 7.5 ECTS replaces Principal Subject in Immunology and Metabolism 2 (NBIK13020U), 7.5 ECTS.</p>
Principal Subject in Immunology and Metabolism 3 (NBIK13021U), 7.5 ECTS	<p>The course was a compulsory courses on the former specialisation in Immunology and Metabolism in the academic year 2017/18 and earlier.</p> <p>In this curriculum, Principal Subject in Molecular Cell Biology and Immunology 3 (NBIK18004U), 7.5 ECTS replaces Principal Subject in Immunology and Metabolism 3 (NBIK13021U), 7.5 ECTS.</p>
Principal Subject in Molecular Cell Biology 1 (NBIK10011U), 7.5 ECTS	<p>The courses were compulsory courses on the former specialisation in Molecular Cell Biology in the academic year 2017/18 and earlier.</p> <p>In this curriculum, Principal Subject in Molecular Cell Biology and Immunology 1 (NBIK18002U), 7.5 ECTS replaces Principal Subject in Molecular Cell Biology 1 (NBIK10011U), 7.5 ECTS.</p>
Principal Subject in Molecular Cell Biology 2 (NBIA09012U), 7.5 ECTS	<p>The courses were compulsory courses on the former specialisation in Molecular Cell Biology in the academic year 2017/18 and earlier.</p> <p>In this curriculum, Principal Subject in Molecular Cell Biology and Immunology 2 (NBIK18003U), 7.5 ECTS replaces Principal Subject in Molecular Cell Biology 2 (NBIA09012U), 7.5 ECTS.</p>

<p>Principal Subject in Molecular Cell Biology 3 (NBIA09007U), 7.5 ECTS</p>	<p>The courses were compulsory courses on the former specialisation in Molecular Cell Biology in the academic year 2017/18 and earlier.</p> <p>In this curriculum, Principal Subject in Molecular Cell Biology and Immunology 3 (NBIK18004U), 7.5 ECTS replaces Principal Subject in Molecular Cell Biology 3 (NBIA09007U), 7.5 ECTS.</p>
<p>Surface Physical Chemistry (NKEK12006U), 7.5 ECTS</p>	<p>The course was a restricted elective course on the specialisation in Protein Chemistry in the academic year 2015/16, 2016/17, 2017/18 and 2018/19.</p> <p>The course was offered for the last time in 2018/19 and a third exam is offered in the academic year 2019/20.</p>

Appendix 3 Description of objectives for the thesis

After completing the thesis, the student should have:

Knowledge about:

- Theory and methods (experimentally and theoretically) within biochemistry and the selected specialisation (Molecular Cell Biology and Immunology, Molecular Genetics, Molecular Microbiology or Protein Chemistry).
- The strength and limitations of a broad range of experimental methods in biochemistry and chemistry.
- Formulation and analysis of problems.

Skills in/to:

- Define a professionally defined issue of biochemical relevance.
- Handle model organisms scientifically and safely.
- Select appropriate theories and methods to address one or more issues in a given academic frame within one or more selected fields (Molecular Cell Biology and Immunology, Molecular Genetics, Molecular Microbiology or Protein Chemistry).
- Communicate an issue clearly and manageable in a biochemical scientific context - both in writing and orally - to the appropriate audience using sound professional biochemical terminology.
- Organize and carrying out a major experimental work.
- Select and use a wide range of different methods and in silico analyses and equipment relevant to the experimental biochemical, chemical and biological analysis from their practical laboratory experience and within a given academic frame of one or more selected fields (Molecular Cell Biology and Immunology, Molecular Genetics, Molecular Microbiology or Protein Chemistry).
- Work on personal experimental data of biochemical, biological, or chemical in nature, exhaustively.
- Comply with applicable standards and regulations for laboratory work.
- Use standard and specialized software as well as modern information technology for biochemical work.
- Journalize own laboratory work in a level of detail so that others have the opportunity to recreate results.

Competences in/to:

- Implement a research-oriented project independently.
- Analyse, interpret and compare their own and others' experimental data from the underlying biochemical, biological and chemical Principals.
- Put their own results in scientific biochemical, biological and chemical relevant context.
- Discuss their own data generation and relate their own data to other people's data within the given academic frame of one or more selected fields (Molecular Cell Biology and Immunology, Molecular Genetics, Molecular Microbiology or Protein Chemistry).
- Critically assess the quality, relevance and probability of their own and others' data.
- Independently develop their knowledge and skills related to biochemistry, chemistry and biology.
- Assess the safety and environmental aspects of the biochemical, biological and chemical work.