Programme-specific Section of the 
Curriculum for the MSc Programme in 
Biology-Biotechnology 
at the Faculty of Science, University of Copenhagen 
2012 (Rev. 2017)

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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 Biology-Biotechnology with a specialisation in Applied Enzymology leads to a Master of Science (MSc) in Biology-Biotechnology with a specialisation in Applied Enzymology with the Danish title: Cand.scient. (candidatus/candidata scientiarum) i biologi-bioteknologi med en specialisering i anvendt enzymology.

The MSc Programme in Biology-Biotechnology with a specialisation in Bio Products leads to a Master of Science (MSc) in Biology-Biotechnology with a specialisation in Bio Products with the Danish title: Cand.scient. (candidatus/candidata scientiarum) i biologi-bioteknologi med en specialisering i bioprodukter.

The MSc Programme in Biology-Biotechnology with a specialisation in Cell Physiology leads to a Master of Science (MSc) in Biology-Biotechnology with a specialisation in Cell Physiology with the Danish title: Cand.scient. (candidatus/candidata scientiarum) i biologi-bioteknologi med en specialisering i cellefysiologi.

The MSc Programme in Biology-Biotechnology with a specialisation in Immunology leads to a Master of Science (MSc) in Biology-Biotechnology with a specialisation in Immunology with the Danish title: Cand.scient. (candidatus/candidata scientiarum) i biologi-bioteknologi med en specialisering i immunologi.

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 Agricultural Science (jordbrugsvidenskab).

1.4 Language
The language of this MSc Programme is English.

2 Academic profile
2.1 Purpose
The objective of the program is to offer students a coherent profession-oriented education within the field of biotechnology. On completion of the program, students will be able to perform research at all levels and analyse and solve questions and problems within the broad field of biotechnology.

The MSc programme is primarily within the field of natural sciences, supplied with aspects of innovation and business. The biotechnology programme is an international degree and will be conducted in English.
2.2 General programme profile
The aim of the programme is to give students:
- Both theoretical knowledge and method-oriented practical skills in applied biotechnology and biochemistry within the fields of domestic animals and livestock, plants, human and/or microorganisms.
- The knowledge required to analyse complex biotechnology problems of importance for the biotechnological industry, governmental agencies or educational programmes.
- The ability to communicate knowledge at all levels, and a general understanding of the interactions between biotechnology, industry, society and the environment.

Biology-Biotechnology is the key subject area of the programme.

2.3 General structure of the programme
The MSc Programme is set at 120 ECTS.

The MSc Programme in Biology-Biotechnology consists of the following elements:
- Specialisation, 120 ECTS, including the thesis.

The student must choose one of the following specialisations:
- Bio Products.
- Cell Physiology.
- Immunology.

2.4 Career opportunities
The MSc Programme in Biology-Biotechnology qualifies students to become professionals within business functions and/or areas such as:
- A PhD programme
- Biotechnological industry
- Research institutions.
- Governmental agencies.
- Educational establishments.

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 Generic competence profile
On completion of the programme, an MSc in Biology-Biotechnology has acquired the following regardless of the chosen specialisation:

Knowledge about:
- The biological complexities with the field of cell and organism biology and molecular biology at an advanced level including the principles of cell functions and genetic control of these processes.
- The theory behind methods.
- Model systems to obtain and integrate fundamental knowledge about organisms and to understand complex biological processes.
- The usefulness of different organisms as expression hosts in research and as production units.
- Integrated approaches to address biological questions using genetics, physiology, biochemistry and bioinformatics in order to relate phenotypes to genotype and as platforms for modelling organism metabolism at the molecular level.

Skills in/to:
- Use advanced methods in molecular biology in the context of a research project.
- Use basic knowledge from other disciplines in an integrated manner when analysing current problems in biology-biotechnology.
- Set up preparations for a research plan, including critical discussion of literature and identification of problems, develop hypotheses and concrete research questions, determine data requirements and select appropriate methods.
- Discuss and choose techniques in molecular biology, design of laboratory protocols and safety procedures in relation to handling and use of organisms in biotechnology.
- Transfer theories and principles to new hypotheses based on biochemical, and/or mathematical/statistical descriptions, which can be statistically and experimentally tested.
- Read, discuss and present original scientific articles within the field.
- Communicate effectively to specialist and non-specialist audience at a variety of levels, using modern and appropriate information and communication tools.

Competences in/to:
- Transfer theories and principles from advanced state-of-the-art molecular biology to solve new questions posed by the research community, the industry and the society.
- Work independently and effectively on an individual basis, as well as in teams in cross-disciplinary environments.
- Discuss ethical problems related to the latest developments in science.
- Use lifelong learning as a principle to independently evaluate and structure learning processes and assume responsibility for continuous professional development.
- Critically reflect on the theory behind methods.

3.2 Applied Enzymology
On completion of the programme, an MSc in Biology-Biotechnology with a specialisation in Applied Enzymology has acquired the following in addition to the generic competence profile:

Knowledge about:
- Physico-chemical-biochemical properties of biomolecules, bioactive proteins, peptides, and especially enzymes occurring in complex biological matrices, plant, animal and microbial based feed and food.
- The biology and utilization of plant carbohydrates and how they are being analysed, produced and utilized in the industry.
- Cutting-edge techniques for carbohydrate analysis.

Skills in/to:
- Design experimental strategies in analytical biochemistry and enzymology based on structure and properties of analytes in complex matrix systems.
- Apply theoretical principles of analytical biochemistry to carry out experimental isolation and purification of enzymes.
- Construct and use carbohydrate microarrays for high throughput screening.
Competences in/to:
- Utilise the obtained knowledge in more comprehensive projects within research, development or industry.
- Use plant carbohydrates as functional food ingredients, nutraceuticals, therapeutics and as novel bio materials.

3.3 Bio Products
On completion of the programme, an MSc in Biology-Biotechnology with a specialisation in Bio Products has acquired the following in addition to the generic competence profile:

Knowledge about:
- Important research topics within modern plant biology and how novel technologies within plant genomics, genetics, biochemistry and physiology are used to produce coherent knowledge of complex biological systems which previously were difficult to understand.

Competences in/to:
- Use the new knowledge in designing crop plants for the future using classical breeding in combination with genetic engineering.
- Apply knowledge on how plants can be used as production host or bio products.

3.4 Cell Physiology
On completion of the programme, an MSc in Biology-Biotechnology with a specialisation in Cell Physiology has acquired the following in addition to the generic competence profile:

Knowledge about:
- The genetic and structural elements, genetic mechanisms and cellular communication of living cells.

Competences in/to:
- Analyse and evaluate scientific papers which describe cellular processes of any kind.
- Apply knowledge on the structure of molecular mechanisms of cells to further analyse problems within genome and cell biology.

3.5 Immunology
On completion of the programme, an MSc in Biology-Biotechnology with a specialisation in Immunology has acquired the following in addition to the generic competence profile:

Knowledge about:
- Immunology and the immune system, including key elements in the development, activation and regulation of the innate and adaptive immune system.
- Diseases caused by lack of immune regulation, including Allergy, Autoimmunity and Cancer and the current/future treatment strategies.

Skills in/to:
- Employ relevant advanced immunological techniques within medical and life sciences.

Competences in/to:
- Critically read and discuss recent original research articles within the field.
4 Admission requirements
With a Bachelor’s degree in Biology-Biotechnology from the University of Copenhagen the student is granted reserved access and guaranteed a place on the MSc Programme in Biology-Biotechnology 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 Bachelor’s degree in Biology-Biotechnology
Applicants with a Bachelor’s degree in Biology-Biotechnology from the University of Copenhagen are directly academically qualified for admission to the MSc Programme.

4.2 Applicants with a related Bachelor’s degree
Applicants with a Bachelor’s degree in Biology, Biochemistry, Biotechnology, Natural Resources, Molecular Biomedicine or Molecular Biology from the University of Copenhagen or other Danish or international universities may also be admitted if their programme includes the following:

- 15 ECTS within a biological system (plants, animals or microbiology)
- 15 ECTS within biochemistry/organic chemistry
- 15 ECTS within biotechnology methods
- In total, the applicant must have a minimum of 30 ECTS that stem from courses with experimental laboratory exercises.

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.

4.5 Language requirements

4.5.1 Applicants from Nordic universities
Applicants with a Bachelor’s degree from Nordic universities must as a minimum document English language qualifications comparable to a Danish upper secondary school English B level.

4.5.2 Non-Nordic applicants
Applicants with a non-Nordic Bachelor’s degree must be able to document English proficiency corresponding to an IELTS test score of minimum 6.5 or a TOEFL test score of minimum 83 (Internet-based).

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 Biology-Biotechnology 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 (listed below in prioritised order):

- Grades achieved in the areas concerned in 4.2. If different grading systems make comparison impossible, the Admission Committee will prioritise applicants on the basis of an individual evaluation.
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 will choose a specialisation.

6.1 Applied Enzymology
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):

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Subject Name</th>
<th>Block</th>
<th>ECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPLK14032U</td>
<td>Advanced Carbohydrate Technologies</td>
<td>Block 1</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>LKEK10081U</td>
<td>Enzymology and Experimental Biochemistry</td>
<td>Block 2</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>SBIK10194U</td>
<td>Advanced Biotechnology and Intellectual Property Rights</td>
<td>Block 4</td>
<td>15 ECTS</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Subject Name</th>
<th>Block</th>
<th>ECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NNEK14004U</td>
<td>Fundamentals of Beer Brewing and Wine Making</td>
<td>Block 1</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>LBIK10214U</td>
<td>Frontiers in Plant Science</td>
<td>Block 1</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>LBIK10135U</td>
<td>Genome and Cell Biology</td>
<td>Block 1</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NPLK13003U</td>
<td>Advanced Analytical Chemistry - Sampling and Sample Preparation</td>
<td>Block 1</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NFOK14025U</td>
<td>Quantitative Bio-spectroscopy</td>
<td>Block 2</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>LBIK10180U</td>
<td>Applied Microbiology</td>
<td>Block 2</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>LPLK10360U</td>
<td>From Plants to Bioenergy</td>
<td>Block 2</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NNEK16003U</td>
<td>Bioactive Food Components and Health</td>
<td>Block 2</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NBHK15013U</td>
<td>Genome Sequence Analysis</td>
<td>Block 2</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>SBJA10210U</td>
<td>Applied Programming for Biosciences</td>
<td>Block 2</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>LLEK10246U</td>
<td>Advanced Chemometrics</td>
<td>Block 3</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>LBIK10136U</td>
<td>Heterologous Expression</td>
<td>Block 3</td>
<td>15 ECTS</td>
</tr>
<tr>
<td>LBIK10207U</td>
<td>Synthetic Biology</td>
<td>Block 3</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NFYK14039U</td>
<td>Radioactive Isotopes and Ionizing Radiation</td>
<td>Block 3</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NPLK15003U</td>
<td>Plant Genome Editing and Selection</td>
<td>Block 3</td>
<td>7.5 ECTS</td>
</tr>
</tbody>
</table>

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 Biology-Biotechnology with a specialisation in Applied Enzymology 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.

The main supervisor must be employed at either The Faculty of Science or The Faculty of Health and Medical Science at The University of Copenhagen

### 6.1.5 Academic mobility
The curriculum makes it possible to follow subject elements outside the Faculty of Science and the Faculty of Health and Medical Science at The University of Copenhagen.

For students admitted in September the academic mobility in the MSc Programme in Biology-Biotechnology with a specialisation in Applied Enzymology 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 Bio Products
The specialisation is set at 120 ECTS and consists of the following:
- Compulsory subject elements, 22.5 ECTS
- Restricted elective subject elements, 22.5 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 (22.5 ECTS):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Block</th>
<th>ECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>LBIK10214U</td>
<td>Frontiers in Plant Science</td>
<td>Block 1</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>SBIK10194U</td>
<td>Advanced Biotechnology and Intellectual Property Rights</td>
<td>Block 4</td>
<td>15 ECTS</td>
</tr>
</tbody>
</table>

#### 6.2.2 Restricted elective subject elements
22.5 ECTS are to be covered as subject elements from the following list:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Block</th>
<th>ECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NNEK14004U</td>
<td>Fundamentals of Beer Brewing and Wine Making</td>
<td>Block 1</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NPLK14032U</td>
<td>Advanced Carbohydrate Technologies</td>
<td>Block 1</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>LBIK10135U</td>
<td>Genome and Cell Biology</td>
<td>Block 1</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>SBIK10167U</td>
<td>Immunology – Theoretical</td>
<td>Block 1</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NPLK13003U</td>
<td>Advanced Analytical Chemistry - Sampling and Sample Preparation</td>
<td>Block 1</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>LPLK10360U</td>
<td>From Plants to Bioenergy</td>
<td>Block 2</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>LBIK10180U</td>
<td>Applied Microbiology</td>
<td>Block 2</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NNEK16003U</td>
<td>Bioactive Food Components and Health</td>
<td>Block 2</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NFOK14025U</td>
<td>Quantitative Bio-spectroscopy</td>
<td>Block 2</td>
<td>7.5 ECTS</td>
</tr>
</tbody>
</table>
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 Biology-Biotechnology with a specialisation in Bio Products 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.

The main supervisor must be employed at either The Faculty of Science or The Faculty of Health and Medical Science at The University of Copenhagen.

6.2.5 Academic mobility

The curriculum makes it possible to follow subject elements outside the Faculty of Science and the Faculty of Health and Medical Science at The University of Copenhagen.

For students admitted in September the academic mobility in the MSc Programme in Biology-Biotechnology with a specialisation in Bio Products 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 Cell Physiology

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

- Compulsory subject elements, 22.5 ECTS
- Restricted elective subject elements, 22.5 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 (22.5 ECTS):

<table>
<thead>
<tr>
<th>Subject Element</th>
<th>Block</th>
<th>ECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>LBIK10135U Genome and Cell Biology</td>
<td>Block 1</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>SBIK10194U Advanced Biotechnology and Intellectual Property Rights</td>
<td>Block 4</td>
<td>15 ECTS</td>
</tr>
</tbody>
</table>

6.3.2 Restricted elective subject elements
22.5 ECTS are to be covered as subject elements from the following list:

<table>
<thead>
<tr>
<th>Subject Element</th>
<th>Block</th>
<th>ECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPLK15000U Basic Parasitology</td>
<td>Block 1</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NPLK14032U Advanced Carbohydrate Technology</td>
<td>Block 1</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>LBIK10124U Frontiers in Plant Science</td>
<td>Block 1</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>SBIK10167U Immunology – Theoretical</td>
<td>Block 1</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NBIK15009U Cellular Signalling in Health and Disease</td>
<td>Block 2</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NNEK16003U Bioactive Food Components and Health</td>
<td>Block 2</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>LBIK10202U Molecular Plant-Microbe Interactions</td>
<td>Block 2</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>LBIK10180U Applied Microbiology</td>
<td>Block 2</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>LKEK10081U Enzymology and Experimental Biochemistry</td>
<td>Block 2</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>LPLK10360U From Plants to Bioenergy</td>
<td>Block 2</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NBIK15013U Genome Sequence Analysis</td>
<td>Block 2</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>SBIK10182U From Gene to Function in Pathogenic Bacteria</td>
<td>Block 2</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>LBIK10136U Heterologous Expression</td>
<td>Block 3</td>
<td>15 ECTS</td>
</tr>
<tr>
<td>LBIK10207U Synthetic Biology</td>
<td>Block 3</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NBIK14035U Medical Bacteriology</td>
<td>Block 3</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NFYK14039U Radioactive Isotopes and Ionizing Radiation</td>
<td>Block 3</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NPLK15003U Plant Genome Editing and Selection</td>
<td>Block 3</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>SMOK14002U Gene Therapy</td>
<td>Block 3</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>SVEK17001U Laboratory Animal Science Funktion ABD</td>
<td>Block 1-4</td>
<td>7.5 ECTS</td>
</tr>
</tbody>
</table>

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 Biology-Biotechnology with a specialisation in Cell Physiology 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.

The main supervisor must be employed at either The Faculty of Science or The Faculty of Health and Medical Science at The University of Copenhagen.
6.3.5 Academic mobility
The curriculum makes it possible to follow subject elements outside the Faculty of Science and the Faculty of Health and Medical Science at The University of Copenhagen.

For students admitted in September the academic mobility in the MSc Programme in Biology-Biotechnology with a specialisation in Cell Physiology 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 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

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Block</th>
<th>ECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBIK10168U</td>
<td>Immunology</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>SBIK10194U</td>
<td>Advanced Biotechnology and Intellectual Property Rights</td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Block</th>
<th>ECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NBIK15009U</td>
<td>Cellular Signalling in Health and Disease</td>
<td></td>
<td>7.5</td>
</tr>
<tr>
<td>NNEK16003U</td>
<td>Bioactive Food Components and Health</td>
<td></td>
<td>7.5</td>
</tr>
<tr>
<td>NBIK15013U</td>
<td>Genome Sequence Analysis</td>
<td></td>
<td>7.5</td>
</tr>
<tr>
<td>LBIIK10180U</td>
<td>Applied Microbiology</td>
<td></td>
<td>7.5</td>
</tr>
<tr>
<td>NFOK14025U</td>
<td>Quantitative Bio-spectroscopy</td>
<td></td>
<td>7.5</td>
</tr>
<tr>
<td>LLEK10246U</td>
<td>Advanced Chemometrics</td>
<td></td>
<td>7.5</td>
</tr>
<tr>
<td>SBIK10182U</td>
<td>From Gene to Function in Pathogenic Bacteria</td>
<td></td>
<td>7.5</td>
</tr>
<tr>
<td>SBIA10210U</td>
<td>Applied Programming for Biosciences</td>
<td></td>
<td>7.5</td>
</tr>
<tr>
<td>LBIIK10136U</td>
<td>Heterologous Expression</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>LBIIK10207U</td>
<td>Synthetic Biology</td>
<td></td>
<td>7.5</td>
</tr>
<tr>
<td>NBIK14035U</td>
<td>Medical Bacteriology</td>
<td></td>
<td>7.5</td>
</tr>
<tr>
<td>NFKY14039U</td>
<td>Radioactive Isotopes and Ionizing Radiation</td>
<td></td>
<td>7.5</td>
</tr>
<tr>
<td>SMOK14002U</td>
<td>Gene Therapy</td>
<td></td>
<td>7.5</td>
</tr>
<tr>
<td>SVEK17001U</td>
<td>Laboratory Animal Science Funktion ABD</td>
<td>Block 1-4</td>
<td>7.5</td>
</tr>
</tbody>
</table>

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 Biology-Biotechnology with a specialisation in 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.

The main supervisor must be employed at either The Faculty of Science or The Faculty of Health and Medical Science at The University of Copenhagen

6.4.5 Academic mobility
The curriculum makes it possible to follow subject elements outside the Faculty of Science and the Faculty of Health and Medical Science at The University of Copenhagen.

For students admitted in September the academic mobility in the MSc Programme in Biology-Biotechnology with a specialisation in 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.

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 – Applied Enzymology

<table>
<thead>
<tr>
<th>1st year</th>
<th>Block 1</th>
<th>Block 2</th>
<th>Block 3</th>
<th>Block 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st year</td>
<td>Advanced Carbohydrate Technology</td>
<td>Enzymology and Experimental Biochemistry</td>
<td>Restricted elective</td>
<td>Advanced Biotechnology and Intellectual Property Rights</td>
</tr>
<tr>
<td>2nd year</td>
<td>Restricted elective</td>
<td>Elective</td>
<td>Elective</td>
<td>Thesis</td>
</tr>
</tbody>
</table>

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 – Bio Products

<table>
<thead>
<tr>
<th>1st year</th>
<th>Block 1</th>
<th>Block 2</th>
<th>Block 3</th>
<th>Block 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st year</td>
<td>Frontiers in Plant Science</td>
<td>Elective</td>
<td>Restricted elective</td>
<td>Advanced Biotechnology and Intellectual Property Rights</td>
</tr>
<tr>
<td>2nd year</td>
<td>Restricted elective</td>
<td>Elective</td>
<td>Restricted elective</td>
<td>Thesis</td>
</tr>
</tbody>
</table>

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 – Cell Physiology

<table>
<thead>
<tr>
<th>1st year</th>
<th>Block 1</th>
<th>Block 2</th>
<th>Block 3</th>
<th>Block 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st year</td>
<td>Genome and Cell Biology</td>
<td>Elective</td>
<td>Restricted elective</td>
<td>Advanced Biotechnology and Intellectual Property Rights</td>
</tr>
<tr>
<td>2nd year</td>
<td>Restricted elective</td>
<td>Elective</td>
<td>Restricted elective</td>
<td>Thesis</td>
</tr>
</tbody>
</table>

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 – Immunology

<table>
<thead>
<tr>
<th>1st year</th>
<th>Block 1</th>
<th>Block 2</th>
<th>Block 3</th>
<th>Block 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Immunology</td>
<td>Elective</td>
<td>Restricted elective</td>
<td>Advanced Biotechnology and Intellectual Property Rights</td>
</tr>
<tr>
<td></td>
<td>Elective</td>
<td></td>
<td>Restricted elective</td>
<td></td>
</tr>
</tbody>
</table>

| 2nd year | 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 – Applied Enzymology*

<table>
<thead>
<tr>
<th>1st year</th>
<th>Block 3</th>
<th>Block 4</th>
<th>Block 1</th>
<th>Block 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Restricted elective</td>
<td>Advanced Biotechnology and Intellectual Property Rights</td>
<td>Elective</td>
<td>Elective</td>
</tr>
<tr>
<td></td>
<td>Restricted elective</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| 2nd year | 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 – Bio Products*

<table>
<thead>
<tr>
<th>1st year</th>
<th>Block 3</th>
<th>Block 4</th>
<th>Block 1</th>
<th>Block 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Restricted elective</td>
<td>Advanced Biotechnology and Intellectual Property Rights</td>
<td>Frontiers in Plant Science</td>
<td>Elective</td>
</tr>
<tr>
<td></td>
<td>Restricted elective</td>
<td></td>
<td>Restricted Elective</td>
<td>Elective</td>
</tr>
</tbody>
</table>

| 2nd year | 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 – Cell Physiology*

<table>
<thead>
<tr>
<th></th>
<th>Block 3</th>
<th>Block 4</th>
<th>Block 1</th>
<th>Block 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st year</td>
<td>Restricted elective</td>
<td>Advanced Biotechnology and Intellectual Property Rights</td>
<td>Genome and Cell Biology</td>
<td>Elective</td>
</tr>
<tr>
<td></td>
<td>Restricted elective</td>
<td></td>
<td>Restricted elective</td>
<td>Elective</td>
</tr>
</tbody>
</table>

2nd year

Thesis

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

---

### Table – Immunology*

<table>
<thead>
<tr>
<th></th>
<th>Block 3</th>
<th>Block 4</th>
<th>Block 1</th>
<th>Block 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st year</td>
<td>Restricted elective</td>
<td>Advanced Biotechnology and Intellectual Property Rights</td>
<td>Immunology</td>
<td>Elective</td>
</tr>
<tr>
<td></td>
<td>Restricted elective</td>
<td></td>
<td></td>
<td>Elective</td>
</tr>
</tbody>
</table>

2nd year

Thesis

*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.

1 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.

1.1 Applied Enzymology

Restricted elective subject elements

- Restricted elective subject elements offered as part of the specialisation in Applied Enzymology in this curriculum (see above)
  - NKEK14015U The Chemistry of Metal Ions in Biological Systems Block 1 7.5 ECTS
  - NIFK16002U Ethics, Environment and Society Block 1 7.5 ECTS
  - LBIK10202U Molecular Plant-Microbe Interactions Block 2 7.5 ECTS

1.2 Bio Products

Restricted elective subject elements

- Restricted elective subject elements offered as part of the specialisation in Bio Products in this curriculum (see above)
  - NIFK16002U Ethics, Environment and Society Block 1 7.5 ECTS
  - SBIK10154U Basic Pharmacology and Toxicology Discontinued* 7.5 ECTS

* See course specific changes below.

1.3 Cell Physiology

Restricted elective subject elements

- Restricted elective subject elements offered as part of the specialisation in Cell Physiology in this curriculum (see above)
  - NKEK14015U The Chemistry of Metal Ions in Biological Systems Block 1 7.5 ECTS
  - NIFK16002U Ethics, Environment and Society Block 1 7.5 ECTS
  - SBIK10154U Basic Pharmacology and Toxicology Discontinued* 7.5 ECTS
  - SVEK14001U Laboratory Animal Science category C Discontinued* 7.5 ECTS
  - SVEK13099U Laboratory Animal Science category C for the Biomedical Sciences Discontinued* 7.5 ECTS

* See course specific changes below.

1.4 Immunology

Restricted elective subject elements

- Restricted elective subject elements offered as part of the specialisation in Immunology in this curriculum (see above)
  - LBIK10202U Molecular Plant-Microbe Interactions Block 2 7.5 ECTS
  - NPLK15003U Plant Genome Editing and Selection Block 3 7.5 ECTS
  - SBIK10154U Basic Pharmacology and Toxicology Discontinued* 7.5 ECTS
  - SVEK14001U Laboratory Animal Science category C Discontinued* 7.5 ECTS
  - SVEK13099U Laboratory Animal Science category C for the Biomedical Sciences Discontinued* 7.5 ECTS

* See course specific changes below.
2 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.

2.1 Specialisations
Students admitted to the MSc Programme in the academic year 2015/16 are allowed to finish their programme with one of the specialisations that were outlined in the curriculum.

2.1.1 Applied Enzymology
The specialisation in Applied Enzymology is continued in the current curriculum but has been changed in its composition of the compulsory and restricted elective subject elements.

Structure of the programme
The specialisation is set at 120 ECTS and consists of the following:
- Compulsory subject elements, 22.5 ECTS
- Restricted elective subject elements, 22.5 ECTS
- Elective subject elements, 15 ECTS
- Thesis, 60 ECTS

Table – Applied Enzymology - admitted 2015/16 - September

<table>
<thead>
<tr>
<th>Block 1</th>
<th>Block 2</th>
<th>Block 3</th>
<th>Block 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st year</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advanced Carbohydrate Technology</td>
<td>Elective</td>
<td>Restricted elective</td>
<td>Advanced Biotechnology and Intellectual Property Rights</td>
</tr>
<tr>
<td>Restricted elective</td>
<td>Elective</td>
<td>Restricted elective</td>
<td></td>
</tr>
</tbody>
</table>

2nd year
Thesis

Table – Applied Enzymology - admitted 2015/16 - February

<table>
<thead>
<tr>
<th>Block 3</th>
<th>Block 4</th>
<th>Block 1</th>
<th>Block 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st year</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restricted elective</td>
<td>Advanced Biotechnology and Intellectual Property Rights</td>
<td>Advanced Carbohydrate Technology</td>
<td>Elective</td>
</tr>
<tr>
<td>Restricted elective</td>
<td></td>
<td>Restricted elective</td>
<td>Elective</td>
</tr>
</tbody>
</table>

2nd year
Thesis

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

Restricted elective subject elements
22.5 ECTS may be covered by subject elements from the following list:
- Restricted elective subject elements offered as part of the specialisation in Applied Enzymology in this curriculum (see above)
- SBIK10167U Immunology - Theoretical Block 1 7.5 ECTS
- NKEK14015U The Chemistry of Metal Ions in Biological Systems Block 1 7.5 ECTS
2.1.2 Bio Products

Restricted elective subject elements
22.5 ECTS are to be covered as subject elements from the following list:

- Restricted elective subject elements offered as part of the specialisation in Bio Products in this curriculum (see above)
- NNEK14015U The Chemistry of Metal Ions in Biological Systems Block 1 7.5 ECTS
- NIFK16002U Ethics, Environment and Society Block 1 7.5 ECTS
- SBIK10182U From Gene to Function in Pathogenic Bacteria Block 2 7.5 ECTS
- NNEK14005U Bioactive Components and Health Discontinued* 7.5 ECTS
- SBIK10154U Basic Pharmacology and Toxicology Discontinued* 7.5 ECTS
- SVEK14001U Laboratory Animal Science category C Discontinued* 7.5 ECTS
- SVEK13099U Laboratory Animal Science category C for the Biomedical Sciences Discontinued* 7.5 ECTS

* See course specific changes below.

2.1.3 Cell Physiology

Restricted elective subject elements
22.5 ECTS are to be covered as subject elements from the following list:

- Restricted elective subject elements offered as part of the specialisation in Cell Physiology in this curriculum (see above)
- NNEK14004U Fundamentals of Beer Brewing and Wine Making Block 1 7.5 ECTS
- NNEK14015U The Chemistry of Metal Ions in Biological Systems Block 1 7.5 ECTS
- NIFK16002U Ethics, Environment and Society Block 1 7.5 ECTS
- NFOK14025U Quantitative Bio-spectroscopy Block 2 7.5 ECTS
- SBIA10210U Applied Programming for Biosciences Block 2 7.5 ECTS
- NNEK14005U Bioactive Components and Health Discontinued* 7.5 ECTS
- SBIK10154U Basic Pharmacology and Toxicology Discontinued* 7.5 ECTS
- SVEK14001U Laboratory Animal Science category C Discontinued* 7.5 ECTS
- SVEK13099U Laboratory Animal Science category C for the Biomedical Sciences Discontinued* 7.5 ECTS

* See course specific changes below.

2.1.4 Immunology

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

- Restricted elective subject elements offered as part of the specialisation in Immunology in this curriculum (see above)
- LKEK10081U Enzymology and Experimental Biochemistry Block 2 7.5 ECTS
3 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.

Structure of the programme

For students admitted to the MSc Programme in the academic year 2014/15 or earlier the programme consists of the following:

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

Table - MSc Programme in Biology-Biotechnology - admitted 2014/15 or earlier

<table>
<thead>
<tr>
<th>1st year</th>
<th>Block 1</th>
<th>Block 2</th>
<th>Block 3</th>
<th>Block 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elective</td>
<td>Elective</td>
<td>Elective</td>
<td></td>
<td>Advanced Biotechnology and Intellectual Property Rights</td>
</tr>
<tr>
<td>Elective</td>
<td>Restricted elective</td>
<td>Restricted elective</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2nd year</td>
<td>Thesis</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Restricted elective subject elements

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

- Restricted elective subject elements offered as part of all of the specialisations in this curriculum (see above)
- NFOK14020U Exploratory Data Analysis Block 1 7.5 ECTS
- SBII10167U Immunology - Theoretical Block 1 7.5 ECTS
- NBIIK14032U Linux and Python Programming Block 1 7.5 ECTS
- NIFK16002U Ethics, Environment and Society Block 1 7.5 ECTS
- NKEK14015U The Chemistry of Metal Ions in Biological Systems Block 1 7.5 ECTS
- NNEK14004U Fundamentals of Beer Brewing and Wine Making Block 1 7.5 ECTS
- NBIA05014U Structural Bioinformatics Block 2 7.5 ECTS
- NKEB14008U Bioorganisk kemi og lægemiddelkemi Block 2 7.5 ECTS
- LBII10202U Molecular Plant-Microbe Interactions Block 2 7.5 ECTS
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Block</th>
<th>ECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>LKEK10081U</td>
<td>Enzymology and Experimental Biochemistry</td>
<td>Block 2</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>LPLK10360U</td>
<td>From Plants to Bioenergy</td>
<td>Block 2</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>LBIK10202U</td>
<td>Molecular Plant-Microbe Interactions</td>
<td>Block 2</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NFOK14025U</td>
<td>Quantitative Bio-spectroscopy</td>
<td>Block 2</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>SBIA10210U</td>
<td>Applied Programming for Biosciences</td>
<td>Block 2</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>SBIK10182U</td>
<td>From Gene to Function in Pathogenic Bacteria</td>
<td>Block 2</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NPLK15003U</td>
<td>Plant Genome Editing and Selection</td>
<td>Block 3</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>LFKK10278U</td>
<td>Project Management</td>
<td>Block 3</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NBIA09043U</td>
<td>Population Genetics</td>
<td>Block 3</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NMAB14002U</td>
<td>Statistisk dataanalyse 2</td>
<td>Block 3</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NPLB14027U</td>
<td>Analytical Chemistry</td>
<td>Block 3</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>Offered at CBS</td>
<td>BBIP Entrepreneurship Project</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NNEK14005U</td>
<td>Bioactive Components and Health</td>
<td>Discontinued*</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>SBIA10154U</td>
<td>Basic Pharmacology and Toxicology</td>
<td>Discontinued*</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>SVEK14001U</td>
<td>Laboratory Animal Science category C</td>
<td>Discontinued*</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>SVEK13099U</td>
<td>Laboratory Animal Science category C for the Biomedical Sciences</td>
<td>Discontinued*</td>
<td>7.5 ECTS</td>
</tr>
</tbody>
</table>

* See course specific changes below.

### 4 Course specific changes

<table>
<thead>
<tr>
<th>Discontinued course</th>
<th>Interim arrangement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Pharmacology and Toxicology, 7.5 ECTS</td>
<td>The course was a restricted elective course on Bio Products, Cell Physiology and Immunology specialisations in the academic year 2016/17 or earlier.</td>
</tr>
<tr>
<td></td>
<td>The course was offered for the last time in the academic year 2016/17 and a third exam is offered in the academic year 2017/18.</td>
</tr>
<tr>
<td>Bioactive Components and Health (NNEK14005U), 7.5 ECTS</td>
<td>The course was a restricted elective course on all of the specialisations in the academic year 2015/16 or earlier.</td>
</tr>
<tr>
<td></td>
<td>The course was offered for the last time in the academic year 2015/16.</td>
</tr>
<tr>
<td></td>
<td>The course has changed title and is identical to Bioactive Components and Health (NNEK16003U), 7.5 ECTS.</td>
</tr>
<tr>
<td>Laboratory Animal Science category C (SVEK14001), 7.5 ECTS</td>
<td>The course was a restricted elective course in the academic year 2016/17.</td>
</tr>
<tr>
<td></td>
<td>The course was offered for the last time in 2016/17.</td>
</tr>
<tr>
<td></td>
<td>The course is identical to Laboratory Animal Science Function ABD (SVEK17001U), 7.5 ECTS.</td>
</tr>
<tr>
<td>Laboratory Animal Science category C for the Biomedical Sciences (SVEK13099), 7.5 ECTS</td>
<td>The course was a restricted elective course in the academic year 2016/17.</td>
</tr>
<tr>
<td></td>
<td>The course was offered for the last time in 2016/17.</td>
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<td>The course is identical to Laboratory Animal Science Function ABD (SVEK17001U), 7.5 ECTS.</td>
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| Plant Polysaccharides: Biology, Structure and Applications (LBK10201U), 7.5 ECTS. | The course was a restricted elective course in the academic year 2013/14 or earlier.  
The course was offered for the last time in the academic year 2013/14 and a third exam is offered in the academic year 2014/15.  
The course has changed title and is equivalent to Advanced Carbohydrate Technologies (NPLK14032U), 7.5 ECTS. |
| Radioaktive isotoper og ioniserende stråling (NBIA04117), 7.5 ECTS.        | The course was a restricted elective course in the academic year 2013/14 or earlier.  
The course was offered for the last time in the academic year 2013/14 and a third exam is offered in the academic year 2014/15.  
The course has changed title and is equivalent to Radioactive Isotopes and ionizing Radiation (NFYK14039U), 7.5 ECTS. |
Appendix 3 Description of objectives for the thesis

After completing the thesis, the student should have:

Knowledge about:
- Identifying scientific problems within the study programme’s subject areas.
- Summarising a suitable combination of methodologies/theories based on international research for use in his/her work with the problem formulation.
- Discussing theories/models on the basis of an organised value system and with a high degree of independence.

Skills in/to:
- Apply and critically evaluate theories/methodologies, including their applicability and limitations.
- Assess the extent to which the production and interpretation of findings/material depend on the theory/methodology chosen and the delimitation chosen.
- Discuss academic issues arising from the thesis.
- Draw conclusions in a clear and academic manner in relation to the problem formulation and, more generally, considering the topic and the subject area.
- Discuss and communicate the academic and social significance, if any, of the thesis based on ethical principles.
- Substantiate the idea of conducting experimental work/producing own data in order to shed light on the topic as formulated in the problem formulation.
- Process data through a choice of academic analysis methods and present findings objectively and in a concise manner.
- Assess the credibility of own findings based on relevant data processing.

Competences in/to:
- Initiate and perform academic work in a research context.
- Solve complex problems and carry out development assignments in a work context.