



LUNDS UNIVERSITET
Medicinska fakulteten

Board of the Faculty of Medicine

PROGRAMME SYLLABUS Reg. No M2010/1604
cf MG 221 1404/06

Approved by the Board of the Faculty of
Medicine on 20 October 2010
Valid from 1 January 2011

Bachelor's Programme in Biomedicine

180 credits

First cycle

LADOK VGBIM

Programme description

The Bachelor's programme in Biomedicine is a cross-faculty combination of scientific and medical training. It prepares students for a future professional role in biomedical research (whether in the private sector or at universities) and as caretakers, communicators and developers of biomedical knowledge. The profile and professional focus of the programme clearly delimit it from the programmes in laboratory science, biology, chemistry and medicine by combining a theoretical and practical scientific grounding in human cell biology, physiology, immunology and nosology. The objective of the programme is that students will come to understand the link between molecular mechanisms and biological function, and apply this awareness to questions of relevance to the origin of disease in humans. There is a clear progression in the programme, exhibited in the structure, expanding from molecular processes to increasingly complex human systems, and in the components of professional development which are integrated in the programme throughout and lead to the independent project in semester 6.

The advance of knowledge and technology over past decades has brought about a need for a special programme in biomedicine, since the subject has become much too complex to allow it to be covered simply as part of other degree programmes, such as those in medicine, chemistry or molecular biology. Furthermore, biomedicine is becoming an increasingly important part of the everyday lives of many people, in everything from personal health decisions to politics and culture. The goal is thus that students graduating from the programme will be able to work in biomedical research and development in private-sector companies as well as universities and other public sector organisations, and also that they will be able to act as caretakers, communicators and developers of biomedical knowledge in other roles, such as that of journalist, teacher or politician.

The Bachelor's programme in Biomedicine is a three-year programme that leads to a degree of Bachelor and eligibility for further study at Master's level.

Learning outcomes

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In accordance with the Higher Education Ordinance 2006:1053, appendix 2,
System of Qualifications:

"Knowledge and understanding

For a Degree of Bachelor students must

- demonstrate knowledge and understanding in their main field of study, including knowledge of the scientific basis of the field, knowledge of applicable methods in the field, in-depth knowledge of some part of the field and a general sense of current research issues.

Skills and abilities

For a Degree of Bachelor students must

- demonstrate an ability to seek, gather and critically interpret information that is relevant to a problem and to critically discuss phenomena, issues and situations;
- demonstrate an ability to independently identify, formulate and solve problems and to perform tasks within specified time limits;
- demonstrate an ability to present and discuss information, problems and solutions in dialogue with different groups, orally and in writing; and
- demonstrate the skills required to work independently in the field that the education concerns.

Judgement and approach

For a Degree of Bachelor students must

- demonstrate an ability to make assessments in their main field of study, taking into account relevant scientific, social and ethical aspects;
- demonstrate insight into the role of knowledge in society and into people's responsibility for how knowledge is used; and
- demonstrate an ability to identify their need of further knowledge and to upgrade their capabilities.

Independent project (degree project)

For a Degree of Bachelor students must have completed an independent project (degree project) worth at least 15 higher education credits in their main field of study, within the framework of the course requirements."

Specific learning outcomes for the Lund University programme in Biomedicine

On completion of the programme, students shall be able to

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- describe the basic processes of life at various levels, such as chemical, biochemical and cellular levels and those of the organism (physiological) and population
- explain how descriptions of various medical problems, with respect to their cause, mechanism, diagnosis and treatment, are related to the current status of knowledge in biomedicine
- apply their knowledge in the planning and implementation of small-scale development/research projects in a biomedical research laboratory, a clinical laboratory department or similar
- assess original scientific papers and review articles in the field of biomedicine, and choose between methodology descriptions for biomedical laboratory work
- work as part of a team alongside other professional categories in the field of biomedicine, such as doctors, nurses, chemists and biomedical laboratory scientists, respectfully attend to and assess their views and present own views in a constructive fashion
- communicate and apply biomedical knowledge in public cultural and political debate

Course information

The Bachelor's programme in Biomedicine comprises six semesters of first-cycle studies. The two first years consist of foundation courses in chemistry, biochemistry and cell biology as well as in-depth courses in cell and molecular biology, gradually moving the focus to the level of the organism through studies in physiology, pathobiology and pharmacology. The third and final year is intended to further reinforce the medical perspective and is dominated by a course in molecular medicine, in which students are trained in applying their fundamental knowledge in biomedicine to descriptions of diseases and issues in current medical research.

Laboratory exercises are included to some extent in all semesters, during the first year mainly in the form of conventional course exercises in order to train students in basic laboratory techniques and to demonstrate the theoretical course content in practice. Year 2 and especially year 3 gradually increase the element of independent study and modern methodology in cell and molecular biology, including individual laboratory training in a research laboratory.

Courses in professional development are offered throughout the programme from the first semester. They usually comprise 1-2 weeks of study per semester and deal with various subjects, such as library studies, theory of science and research methodology, research ethics and scientific writing.

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Degree

For the degree of Bachelor of Medical Science in Biomedicine, students must complete 180 higher education credits, of which at least 90 in the main field of biomedicine. The main field of biomedicine is comprised of the courses taught during years 2 and 3 of the programme. At least 15 of the credits are to be from an independent degree project.

The name of the degree is Bachelor of Medical Science with a Major in Biomedicine.

Admission requirements and selection procedure

Apart from general eligibility for higher education, students must have Biology B, Chemistry B, Mathematics D and Physics B from upper secondary school, which corresponds to field-specific requirements 13 in the Higher Education Ordinance. Selection criteria are grades and results from the Swedish University Aptitude Test.

Further information

The following transitional rules apply to the degree of Bachelor in Biomedicine relative to previous programmes:

- Students who were admitted to the Bachelor's programme in Biomedicine at Lund University prior to the autumn semester of 2007 will be offered courses enabling them to take the degree of Bachelor in Biomedicine within the time frame that applied when the student was accepted onto the programme.

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Schematic structure of the Bachelor's programme in Biomedicine (180 credits) Appendix 1

| Year 1 | Period 1 | Period 2 | Period 3 | Period 4 | | |
|----------------------|--|---------------------------|-------------------------------|---------------------------------|--|----------------------------------|
| Course | Cell biology 13.5 credits | Biostatistics 7.5 credits | Organic chemistry 7.5 credits | Inorganic chemistry 7.5 credits | General and analytical chemistry 7.5 credits | Chemistry of the cell 15 credits |
| Stream course | Professional development 1 1.5 credits | | | | | |

| Year 2 | Period 1 | Period 2 | Period 3 | Period 4 |
|----------------------|--|--|-----------------------|--|
| Course | Molecular cell biology and genetics 13.5 credits | Microbiology and immunology 13.5 credits | Physiology 15 credits | Pathobiology and pharmacology |
| Stream course | Professional development 2 1.5 credits | Professional development 3 1.5 credits | | Professional development 4 1.5 credits |

| Year 3 | Period 1 | Period 2 | Period 3 | Period 4 | |
|---------------|------------------------------------|-------------------------------|------------------|------------------|---------------------------|
| Course | Developmental biology 13.5 credits | Molecular medicine 27 credits | | | Degree project 15 credits |
| Stream | PD 5 1.5 credits | | PD 6 1.5 credits | PD 7 1.5 credits | |