UiT The Arctic University of Norway

Program description
Master of Science in Biomedicine

120 ECTS Tromsø
The program description has been approved by the board of the Faculty of Health sciences 25th of September 2025.

Study programme name	English: Master's Degree Programme in Biomedicine Bokmål: Masterprogram i biomedisin Nynorsk: Masterprogram i biomedisin
Degree obtained	Master of science in biomedicine
Target group	This program is designed for students who wish to acquire advanced knowledge and primary research skills in human biology and biomedical issues, including specialized technical laboratory skills related to modern cell and molecular biology research activities. The program is a continuation of the education for students with a completed bachelor's degree in biomedicine, or who have a comparable educational background from a university or other institutions of higher education, aiming for careers in research and development, management or teaching.
Admission requirements, required prerequisite, recommended prerequisite knowledge	Admission to the program requires a 3-year bachelor's degree (180 ECTS) or equivalent qualification in biomedicine. An additional requirement is specialization in biomedical topics (e.g., biochemistry, bioinformatics, cell-and molecular biology, genetics, human physiology, immunology, microbiology, or pharmacology and toxicology) worth a minimum of 80 ECTS. Applicants are expected to have practical laboratory experience in their bachelor's degree. Applicants with a degree in Biomedical laboratory sciences ("Bioingeniør") must have their degree recognized as equivalent to a Norwegian degree in laboratory sciences by NOKUT. Applicants also need authorization with the Norwegian authorization board as a qualified "Bioingeniør". Bachelor of Pharmacy, Medicine or Dentistry does not fulfil the admission requirements. Applicants must have a minimum grade average comparable to a Norwegian C (2,5) in the ECTS scale. The average grade is calculated from the entire bachelor´s degree. Applicants with education from non-Nordic countries must document English language proficiency.
The study programme's learning outcome	When you have completed the Master program in biomedicine, you are expected to have advanced and comprehensive knowledge of biomedical methodology, theories, concepts, and scientific approaches specified by the following learning outcomes: **Knowledge** The candidate • is able to possess advanced knowledge within the field of biomedicine and specialized insight into a chosen area of research within the same field • can demonstrate comprehensive understanding of and discuss the theoretical background, strength, and weaknesses/ shortcomings of advanced laboratory methods used within biomedicine • can apply acquired knowledge to novel areas within biomedicine

	• can analyze academic challenges based on the history, traditions, and societal role of biomedicine **Skills** The candidate • can critically evaluate and analyze various sources of information and utilize them to structure and articulate professional, academic reasoning • can analyze existing theories, methods, and interpretations in biomedicine and work independently on both theoretical and practical problem solving • can employ relevant methods to solve specific problems in biomedical research in an independent manner • can design and execute controlled experiments to address specific research questions within the field • can plan and conduct a defined, independent research project in biomedicine in accordance with established research ethics and safety protocols **General proficiency** The candidate • can analyze relevant issues connected with professional ethics and research ethics in biomedicine • can apply their knowledge and skills to new contexts in order to execute advanced tasks and projects • can communicate extensive independent scientific work both orally and in writing, using relevant scientific language • can discuss future professional challenges, analyses, and conclusions within biomedicine, both with specialists and the general public • can contribute to innovation processes in biomedicine

Academic content and description of the study programme	The program will focus on contemporary problems and methods in biomedicine. A recurring theme for the master's program is "molecular mechanisms in diseases". This will serve as a unifying thread that connects various courses and subjects. Students will obtain theoretical and practical biomedical knowledge. The program has an interdisciplinary approach integrating fields such as biology, medicine, pharmacolcogy, and biotechnology. The students will be trained in written and oral presentations. Taken together, the students will develop comprehensive knowledge on biomedical research, forming a foundation for developing treatments and strategies to enhance public health. The first semester the students will attend the mandatory course MBI-3017 Advanced methods in biomedicine (10 ECTS), where they will be trained in methods important in biomedicine. Students will also learn health and safety procedures in laboratories. This course must be passed before starting the master project. The students will also take the course MBI-3018 Advanced molecular cell biology in disease (10 ECTS), going into detail about cellular mechanisms in human diseases. In addition, the students will take the course TVR-3000 Sustainable innovation (10 ECTS), a common, interdisciplinary course for all the master students at UiT the Arctic University of Norway. In the second semester, students will attend MBI-3019 Human physiology, pharmacolcogy, and toxicology (10 ECTS), MBI-3014 Infection, inflammation, and immunity (10 ECTS), and MBI-3020 Biomedicine - from lab to impact (10 ECTS). Here they will learn and dive into important areas of biomedicine. In the second year (3rd and 4th semester), students will become a member of a research group working with their master project under supervision alongside our researchers (30 or 60 ECTS). We offer an international research-environment with researchers from all corners of the world. Choosing to do the 30 ECTS master project, a 30 ECTS internship must also be approved. The master's thesis is expected to be an independent body of scientific work performed and presented by each student.

Table: programme structure

Semester	**Courses**	**Course name**	ECTS
1-Autumn	MBI-3017	Advanced methods in biomedicine	10
	MBI-3018	Advanced molecular cell biology in disease	10
	TVR-3000	Sustainable innovation	10
2- Spring	MBI-3014	Infection, inflammation and immunity	10
	MBI-3019	Human physiology, pharmacology and toxicology	10
	MBI-3020	Biomedicine – from lab to impact	10
3-Autumn	MBI-3911/ MBI-3021	Master thesis in biomedicine (60 ECTS)/Internship (30 ECTS)	30
4-Spring	MBI-3911/ MBI-3912	Master thesis in biomedicine (60/30 ECTS)	30

Learning activities, examination and assessment	Course activities consist of different teaching methods. Lectures will give the students an overview of the scientific field and deeper knowledge of selected areas of biomedicine. At seminars students will analyze, discuss, and put their knowledge into relevant contexts. The laboratory exercises will train practical skills, understanding and applications of methods and technology for use in experimental design. During group work students are allowed to discuss subjects for deeper understanding. Students will use scientific literature to present scientific work orally and in writing. Students will obtain supervision and individual guidance in laboratory practice and scientific writing. Students are also expected to perform independent studies, including curriculum not specified in the scheduled teaching. Courses include coursework requirements that must be passed in order to attend exams. Coursework requirements are set up to prepare students for exams and give them practice in oral presentations, academic writing and problem solving relevant to exams and to meet the professional working life after obtained degree. Information about coursework requirements and exams are explained for each course in the course descriptions in UiTs' course catalogue online. Exams are given as oral-, written-, and thesis defense. Exams are graded A-F or pass/fail. Re-sit exams are provided for students who fail their exam.
The study programme's relevance	After completing the program, the candidate will be prepared for exciting assignments in business, management and research-oriented institutions where the demands for qualified professionals are increasing. Career options may include molecular diagnostics, medical research, fisheries, food processing, public administration, educational institutions, pharmaceutical industry, research and innovation enterprises, and technical and scientific positions at universities, hospitals, and other laboratories.

Work scope	The scope of work expected for one full year of studies is considered to be between 1500-1800 work hours. Students must expect to work approx. 40 hours a week to achieve the objectives for the program. This includes lectures, labwork, groupwork etc. as well as well as self-study.

For master's theses/independent work in master's degrees	To start work on the master thesis (MBI-3911/MBI-3912) students must have passed the mandatory course MBI-3017 Advanced methods in biomedicine. Students will be working in one of our research groups with an individual project. The master thesis has a scope of 30 or 60 ECTS, and a timeframe of 6 or 12 months, respectively. Students will have individual supervision during their project. The assessment for the course is given after evaluation of the written thesis, the oral presentation, and examination. For more information, we encourage students to read the Supplementary regulations for master's degrees at the Department of Medical Biology.
Language of instruction and examination	English
Internationalization	The study program is taught in English and admits both Norwegian and international students. All courses are taught in English and use international literature. Students will conduct their thesis work in one of our research groups consisting of researcher from different countries, and the students will be well prepared for an international professional career. The structure of the program allows the Norwegian students to take courses and internship at other universities. For more information, see the section for Student exchange.
Student exchange	UiT and the Department of Medical Biology have exchange agreements open for master students in biomedicine. Exchange is not optional for international students enrolled in the master program. Students have the opportunity to participate in an exchange program. Relevant universities with which UiT has agreements can be found here: "Utvekslingsavtaler – hvor kan du reise?" (https://en.uit.no/utveksling/utvekslingsavtaler). Various scholarship schemes are available for different universities. For more information on scholarships, please refer to "Student mobility at UiT: Loans, grants and trust funds" (https://uit.no/education/art?p_document_id=620905). For further guidance, please contact the study administration at Department of Medical Biology.

Administrative responsibility and academic responsibility	The Department of Medical Biology at the Faculty of Health Sciences has the administrative responsibility for the programme. The program board has the academic responsibility. The academic responsibility lies on the academic program director and the program board. The program board is composed of, among others, the Head of Department and course coordinators at the Department of Medical Biology.
Quality assurance	The program board, which includes student representatives, academic staff, and an external representative, plays a crucial role in evaluating the overall structure of the program. Additionally, we have a program council consisting of all course coordinators from the department, together with the acadmic program director, to ensure the quality and development of the study program.The evaluation is based on: Mid-Semester Evaluation: Each semester, all class representatives meet with the program leader and the study consultant. The meeting is held mid-semester, providing students with the opportunity to implement changes to courses running during the current semester. The Study Barometer: Second-year students participate in NOKUT's survey, *The Study Barometer*. Through this evaluation, the program receives feedback that is used to further improve the study program. Course Evaluations: All courses are regularly evaluated by both students and course management. These evaluations are also utilized to ensure the quality of the study program. External Evaluation: At regular intervals, the study program will also be evaluated by an external committee.
Other regulations	For a more descriptive regulations for the master's program, we refer to "Supplementary regulations for master's degrees (120 credits) at the Department of Medical Biology, Faculty of Health Sciences," which was approved by the Teaching Committee of the department 11th of January 2011.