

## **Molecular Biosciences (M. Sc.- 2 years)**

If you are not a Norwegian citizen the application date is Dec. 1. Please send your questions about admission to [international@admin.uio.no](mailto:international@admin.uio.no)  
<http://www.uio.no/english/studies/admission/master/index.html>

### **Overview of the program:**

**This course of study will give you a theoretical and practical understanding to approaching problems in the biochemical and biological research. The program consists of macromolecular analysis and functional studies of cells and organisms.**

The Masters program is a continuance of the Molecular Biology and Biochemistry majors that are parts of the [Molecular Biology and Biological Chemistry](http://www.uio.no/studier/program/mbk/index.xml) Bachelors program. <http://www.uio.no/studier/program/mbk/index.xml> This program also allows for more in-depth study in the field of Physiology. The program introduces you to conducting research in your field of interest, teaching you advanced research methods and how to work with scientific literature.

This course of study especially emphasizes work on a thesis which will give you experience in laboratory work, writing reports and presentation of scientific results.

### **What do you learn?**

The Masters program will provide in depth research based study in the following study directions; Molecular Biology, Biochemistry or Physiology. This degree will not only qualify you to work independently in the laboratory, but also to have a critical view and understanding of scientific literature, and will teach you how to present scientific topics and research results, both orally and in writing.

Laboratory work and related tasks are central parts of the three above-mentioned study-directions this program offers. The Masters thesis-project shall consist of an independent scientific examination and research of a narrowly focused project. The laboratory work will give you the skills and the practical experience needed to evaluate your results and others'. The laboratory work will also prepare you to make decisions for further scientific work and direction.

### **How to apply?**

The Masters program builds on a 3 year-long Bachelors degree.

There are two admissions to the program per calendar year. The deadline for fall admission is April 15<sup>th</sup>, and the deadline for spring admission is October 15<sup>th</sup> of the previous year.

The application deadline for main admission to the Masters degree in Molecular sciences is April 15<sup>th</sup>. The course of study in the Masters program is adjusted to the main admission, with two mandatory subjects in the first fall semester.

If you are not a Norwegian citizen please contact [international@admin.uio.no](mailto:international@admin.uio.no)

Deadline once a year at Dec 1.

<http://www.uio.no/english/studies/admission/master/index.html>

## The Application Procedure

Before you apply for admission to the Masters program at the Faculty of Mathematics and Natural Sciences, make sure that you have read and familiarized yourself with the Admissions process, and fulfilled those conditions that apply to you.

You may apply to the Masters program in Molecular Bioscience either electronically via [SøknadsWeb](#),

<https://studweb.uio.no/as/WebObjects/studentweb.woa/wa/soknadsweb?inst=UiO>

or by contacting the student-advisor at the Department for Molecular Biosciences if you prefer a paper-based application.

## Admission Requirements

You are qualified to apply to the Masters program in MBP when you fulfill the following requirements:

- 1) Have a Bachelors degree from University of Oslo, or an equivalent Bachelors degree from another institution in Norway or abroad.
- 2) 100 Study-Points (credits) from one of the following combinations of topics:
  - For Molecular Biology: [FYS1000 - Fysikk-basisfag for naturvitenskap og medisin](#), [MBV1010 - Cellebiologi og genetikk](#), [MBV1020 - Fysiologi](#), [MBV1030 - Generell biokjemi](#), [MBV2010 - Molekylærbiologi](#), [MBV2020 - Laboratoriekurs i biokjemi og molekylærbiologi](#), [MBV3010 - Videregående cellebiologi](#), [MBV3020 - Molekylær genetikk og utviklingsbiologi](#), + 20 sp among the subjects [MBV3030 - Proteinenes biokjemi](#), [MBV3040 - Nukleinsyrenes biokjemi](#), [MBV3050 - Humanfysiologi](#), [MBV3060 - Generell mikrobiologi](#), [MBV3070 - Bioinformatikk](#).
  - For Biochemistry: [FYS1000 - Fysikk-basisfag for naturvitenskap og medisin](#), [MBV1010 - Cellebiologi og genetikk](#), [MBV1020 - Fysiologi](#), [MBV1030 - Generell biokjemi](#), [MBV2010 - Molekylærbiologi](#), [MBV2020 - Laboratoriekurs i biokjemi og molekylærbiologi](#), [MBV3030 - Proteinenes biokjemi](#), [MBV3040 - Nukleinsyrenes biokjemi](#), [KJM1040 - Fysikalsk og analytisk kjemi I](#), + 10 sp among the subjects [KJM1050 - Fysikalsk og analytisk kjemi II](#), [MBV3010 - Videregående cellebiologi](#), [MBV3060 - Generell mikrobiologi](#), [MBV3070 - Bioinformatikk](#).

- For Physiology: [FYS1000 - Fysikk-basisfag for naturvitenskap og medisin](#), [MBV1010 - Cellebiologi og genetikk](#), [MBV1020 - Fysiologi](#), [MBV1030 - Generell biokjemi](#), [MBV2010 - Molekylærbiologi](#), [MBV2020 - Laboratoriekurs i biokjemi og molekylærbiologi](#), [MBV3010 - Videregående cellebiologi](#), [MBV3050 - Humanfysiologi](#), + 20 sp among the subjects [MBV3020 - Molekylær genetikk og utviklingsbiologi](#), [MBV3060 - Generell mikrobiologi](#), [STK1000 - Innføring i anvendt statistikk](#).

*All-together 9 topics will be used when calculating the GPA of C or better. FYS1000 is part of the requirement for admission, but are not included in your GPA.*

The topics that are used to fulfill your requirements to enter the Masters program can not be used for the Masters degree itself.

**The following Bachelors degrees can give you basis for admission:**

- [Molecular Biology and Biological Chemistry](#)
- <http://www.uio.no/studier/program/mbk/index.xml>
- [Biology](#)
- <http://www.uio.no/studier/program/bio/index.xml>
- [Chemistry](#)
- <http://www.uio.no/studier/program/kjm/index.xml>

The scientific requirements above still apply.

- Bachelors degree from another university or college. The scientific requirements for admission to the Masters program applies, and each application is processed on a case by case basis. In many cases will the additional scientific requirement be at least 30 SP (credits) of MBV-Bachelors degree topics and [FYS1000-Fysikk-basisfag for naturvitenskap og medisin](#), in case physics is not part of the Bachelors program. The GPA of C or better is calculated based on the scientific requirements and a selection of relevant topics in the Bachelors degree.

**Important deadlines:**

- April 15<sup>th</sup> / October 15<sup>th</sup> : Application deadline for the Masters program.
- April 15<sup>th</sup> / October 15<sup>th</sup> : Deadline to apply for evaluation of foreign education if it is being counted as a basis towards your admission.
- July 1<sup>st</sup> / January 1<sup>st</sup>: Deadline for sending your transcript of grades if you are having your exams during the current semester (note that if you are sending documents confirming that you have finished your current degree, it is important that you not only send the transcript of grades, but also the diploma).

You can find more important dates and deadlines here.

<http://www.matnat.uio.no/studier/studieinformasjon/frister.html> (in Norwegian)

### **Do you have an education from another institution than UiO?**

If you have a Bachelors degree from another institution than UiO as a basis for your application to the Masters program, you will have to apply to get your earlier education evaluated.

The application form for the evaluation can be found at homepages of the mat.nat department: <http://www.matnat.uio.no/studier/>

## **Program outline and Completion**

### **1) Outline of the Masters program**

The program duration is 4 semesters. It entails subjects (60 credits or study-points (SP)) and the Masters thesis (60 credits or SP). Some of the subjects are mandatory and required in all three study directions, while others are electives. (see information about the three study directions).

4 <sup>th</sup> semester	Master Thesis		Master courses
3 <sup>rd</sup> semester	Master Thesis		Master courses
2 <sup>nd</sup> semester	Master Thesis		Master courses
1 <sup>st</sup> semester	<a href="#">MBV4010- Methods in Molecular Biology and Biochemistry I</a>	Two Master courses depending on your study direction	
	10 study-points (credits)	10 study-points	10 study-points

The courses are either 5 or 10 study-points (credits). These are given in the form of either lectures, practical exercises, group work and seminars. The credits vary for different courses.

### **Mandatory courses**

[MBV4010 – Methods in Molecular Biology and Biochemistry I](#) and [MBV4020 - Methods in Molecular Biology and Biochemistry II](#) for the Molecular Biology and Biochemistry study directions.

[MBV4010 – Work methods in Molecular Biology and Biochemistry I](#) and [MBV4030 – Work methods in Cell Biology](#) for the Physiology study direction.

## Electives

You can freely choose between the following courses. However, when you do get your Master Thesis project, you should confer with your advisor in order to get recommendation on which electives will be more beneficial to you.

- [All the other MBV4000 courses.](#)

You may also choose between these courses:

- [BIO4200 – Molecular Evolution](#)
- [BIO4100 – Human Behavioral Ecology](#)
- [BIO4081 – Animal Behavior 1](#)
- [BIO4500 – General Toxicology](#)
- [KJM3000 – Applied Spectroscopy](#)
- [KJM3350 – Protein Crystallography](#)
- [KJM3600 – Molecular Modeling](#)
- [KJM5230 – Bioactive Molecules](#)
- [KJM5240 – Mass spectrometry](#)
- [KJM5250 – Organic NMR Spectroscopy](#)
- [KJM5310 – Structure of Biological Macromolecules](#)
- [KJM4350 – Protein Crystallography](#)

## The process of the Masters program

First you apply for admission to the study direction of your interest. After admission you will take the required and elective courses. During your first semester, you will find the advisor for your Masters Thesis. During the month of October, there will be an information-meeting, where advisors will present available Thesis Projects. An abstract of each of the projects will also be available online. Based on this, you may choose your thesis projects and make a priority list of wanted thesis projects. This list will be returned by a certain deadline which will be announced. We will as far as possible try to give you the thesis project that is in your wanted list. If several students are competing for the same project, the student with best GPA from them relevant courses during the Bachelors degree will be prioritized.

One month after you have been given an advisor and the project is described, you will have to return a study-plan that is filled out in cooperation with your advisor. In this plan the curriculum and the timeframe of the Masters program is also described. This plan is binding by all parties and has to be approved by the Masters committee. If you still have not completed your Bachelors degree, you will have to include the remaining topics on your Masters plan. If the study plan is not returned by the end of the first semester, the study will be seen as terminated and your right to study at UiO will be withdrawn.

External projects are normally not given if internal projects are available at the department. There are different regulations for “engineers/bioengineers” with permanent jobs for at least 5 years at a university with supervision by a professor or professor II from UiO. Contact the department for more details.

If you start your Masters program during the spring semester, you will normally take electives during your first semester and take the mandatory courses in the following fall semester. If you wish to start your Masters thesis during the spring semester, you may choose a thesis project that is available on the departmental homepage. This is done in the same manner as described above such that you apply by giving your list of priorities by a certain deadline.

Details about a specific project can be discussed with the specific advisor. As your final examination you will present your results obtained from the practical part of your Masters thesis. This is done in the form of a scientific thesis and a thesis defense, which will be evaluated by an external evaluation. You will receive guidance throughout your studies on how to conduct scientific writing. [Click here](#) to read more about the routines concerning completion of the degree and other information.

### **Evaluation of the program**

In order to provide our future students with best possible courses and study-programs feedback from our students is crucial. Therefore, as a student at UiO you will be involved in various types of evaluations. These are less detailed evaluations that are done more often, and fewer more in depth evaluations to get insight into your view about a specific topic or program. Our next evaluation for current study-year will be during the school year 2010/2011. More information will be given to students who are actually in the program. These evaluations are part of the [Quality Control and the UiO Educational system](#).

## **The Road Ahead – Work and Studies**

### **Job possibilities**

With a Masters degree from MBP you are qualified to work both in private and public sectors, as a consultant for various departments in different municipalities and communities, or in biochemical, pharmaceutical, biomedical and biotechnological industries. If you take an additional year of practical teachers training, you will also be qualified to teach at high school level.

### **Opportunities within Research**

If you are interested to continue within the field of research, a Masters degree will open the doors to a PhD degree at the University of Oslo, or a Norwegian or foreign University. The research conducted in the majority of the universities and other publicly financed institutions around the world is closely related to what you have learned at the MBP program. There are also research positions in biotechnological companies and research industries.