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# Educational Evaluation 2020/2021

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Self-evaluation of the Master's  
programme in Molecular Medicine at  
Uppsala University

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# 1. Introduction

This self-evaluation is based on the 11 quality aspects in Uppsala University's Model for Review of Study Programmes (Appendix 1). The purpose of educational evaluation is to systematically contribute to ensuring and enhancing the quality of Uppsala University's courses and study programmes. One element of this is a self-evaluation in which the programme coordinator, teachers, students and employers contribute to providing perspective on the current situation and potential areas for improvement.

## 1.1 Process for self-evaluation

A working group consisting of the programme coordinator and course administration has prepared documentation on which to base self-evaluation.

Key performance indicators such as number of students, applicants per place, student completion, the percentage of Swedish and international students and teaching resources are retrieved from available University platforms, including the Ladok study documentation system, NyA admissions system and TimeEdit timetabling system.

Course evaluations are conducted after each course instance as part of the University's systematic quality assurance management (an example can be found in Appendix 2). Comments in course evaluations provide a student perspective.

In 2019, an alumni survey was conducted in order to offer former students the opportunity to give us the benefit of their experiences. This survey (Appendix 3) was sent electronically to all graduates from the programme since the beginning of 2013 for whom a current email address was available. The survey was responded to anonymously by 55 alumni, giving a response rate of 45 %.

As several teachers are responsible for the various courses in the programme, we have also collected self-evaluations for individual courses. Course coordinators have responded to a written questionnaire structured according to the 11 quality aspects, in which they were asked to reflect on their current work on the course and any scope for improvement.

The programme's Working Group has authored this self-evaluation based on the above. Documents have been collected during 2020 and spring semester 2021. Self-evaluations for the programmes overseen by the Master's Programmes Committee at the Faculty of Medicine were discussed during a two-day residential conference in April 2021, after which they have later been established.

### **Programme description**

#### **Master's Programme in Molecular Medicine**

The two-year international, research-preparatory Master's Programme in Molecular Medicine at Uppsala University is an interdisciplinary programme, with an emphasis on genomics, epigenomics, and proteomics as well as on prognostic/ diagnostic/therapeutic tools in research and health care, and is linked to research activities at Dept. of Immunology, Genetics and Pathology, and to SciLifeLab, Uppsala.

Each of the programme courses will be described briefly below.

The course **Medical genetics and cancer; molecular mechanisms** (15 credits), describes human molecular genetics as well as the genetic/epigenetic, molecular and cellular mechanisms causing genetic diseases including cancer. The course discusses methods and techniques investigating genetic variations as well as current techniques used in research, diagnostics and treatment of genetic diseases and cancer. During the course, the students perform practical exercises in genotyping of DNA materials as well as a DNA methylation analysis of promoters in cancer cell lines using pyrosequencing.

The course **Advanced Techniques in Molecular Medicine** (15 credits), which includes, apart from lectures and seminars, an independent short research project, which the student performs in a research group under supervision. The results from the research project are concluded by the student into a written scientific article as well as in a public research seminar.

**Genomic and Epigenomic Medicine** 15 c, provide an in-depth knowledge of genomics, epigenomics, comparative genomics and transcriptomics, the current research and methods as well as its importance in human disease. During this course the students perform chromatin immunoprecipitation (ChIP), assessing the epigenetic status at promoters and enhancers in melanoma.

The course; **Molecular tools for Proteome Analysis and Diagnostics** 7.5 credits provide an in-depth knowledge of molecular diagnostic methods and their use in research and medicine. The students perform Proximity ligation assay to detect proteins in solution or protein interactions *in situ*. The course also includes a module where the students undertake a comprehensive review of State-of-the-art diagnostics for different diseases, all presented and discussed during a mini-symposium together with researchers and physicians.

The course **Biomarkers; discovery and validation**, 7.5 c, provide an insight into the current knowledge, future potential use and development of biomarkers as both prognostic and diagnostic tools in health care. Here, the students use the Human Proteome Atlas in a quest for novel biomarkers for different cancers and other diseases.

Furthermore, the Master's students of Molecular Medicine are also during the first semester following a Bioinformatics module in parallel as well as the joint seminar series Professional training providing training and knowledge in Research Ethics, Bioethics, ethical approval, presentation techniques and other soft skills.

Starting the second year, the courses **Bioimaging and Cell analysis** 7.5 c and **Regenerative Medicine** 7.5 c, acquiring knowledge and practical experiences in practical experiences in digital image analysis, different microscopy techniques as well as tissue engineering, stem cell biology and differentiation. During the practical exercises the students isolate and differentiate stem cells to neuronal and analysed stem cell markers by FACS. In addition, the students generate iPSCs from patient cells, culturing these into embryoid bodies.

Thereafter the students can choose to start a **Master's Degree project in Molecular Medicine** 45 credits, which most student do. There are also possibilities to include the Laboratory Animal Science course, required for permission in work with animal experiments during the degree project. Alternatively, a Research project of 15 credits followed by a 30 credits master degree project can be undertaken or other courses during the elective period. (An outline of the programme and course syllabi is provided in Appendix 4).

## 2. The 11 quality aspects

**2.1 That the study programmes shall comply with the provisions of the Swedish Higher Education Act (SFS 1992:1434) and the outcomes described in the Qualifications Ordinance, Annex 2 to the Swedish Higher Education Ordinance (SFS 1993:100), as well as programme-specific objectives, i.e., that actual learning outcomes correspond to expected learning outcomes.**

### *Responsible instance*

The Department of Immunology, Genetics and Pathology is the responsible instance for the programme. The organisation for the programme consists of a programme coordinator, director of studies and departmental course administration in the form of two course coordinators, five course administrators and one research engineer/laboratory coordinator. Together, this organisation has an overall picture of and is responsible for both the day-to-day operations and development of the programme.

The Master's Programmes Committee at the Faculty of Medicine gathers the programme coordinators of the nine master's programmes offered at the faculty plus student representatives. The Master's Programmes Committee discusses systematic quality assurance management and common procedures and guidelines for study programmes.

### *Programme Learning goals and objectives*

The Master's Programme in Molecular Medicine learning outcomes are aimed to meet the general learning goals and the set objectives in Higher Education Act and Higher Education Ordinance. A comprehensive evaluation of the programme's fulfilment of the learning goals was executed in a national quality assessment by the Swedish Higher Education Authority in 2014 (<https://kvalitet.uka.se/resultatsok?flik=Utbildning#> and Appendix 5).

Information about the programme and the courses - an outline and all the syllabi are sent out to admitted students already in a welcome letter shortly after notification of admission, including information on important dates for the semesters.

At the registration and prior to the start of the semester, the students are informed about the learning goals of the master's degree and abilities expected from master graduates.

All course syllabi include the learning outcomes which are also available on the programme teaching platform. As a part of the current self-assessment, an overview of the courses linked to the programme's learning goals and objectives has also been established.

The programme aims to be research-preparatory and is intertwined with the current research and technologies in the fields. The content in the courses are often modified to uphold in the quality and implement novel theoretical topics, modules, assignments or types of experimentations. Hence, the course syllabi are written with more over-arching and general learning outcomes to leave room for changes in the course contents. The aim should be given in more detail in the Study Handbook.

On most courses, the assessment is now done with digital on-campus exams. The exam on the first course module includes both multiple questions, while exams with question requiring synthesis or essay-type answers follow in latter modules. The second course on the programme,

*Advanced Techniques in Molecular Medicine*, initiated as a condensed graduate school course about 22 years ago, do not include any exam, but is evaluated from the quality of the research article written by the students compiling the results from the short research project undertaken during the course as well as the assessment of the students' achievements by the supervisor, the quality of the students' research, participation in literature seminars and activities during the course.

Examinations are designed to proportionally cover the course contents, including experimental laboratory work as well as meet the learning objectives. Exams can be probing student's reflection on ethical issues as well as interpretation of experiments and knowledge of methods relating to the subject.

The master degree projects are undertaken as individual, independent work in research groups in academic or companies and are assessed according to criteria in an evaluation form, both for the written thesis by the examiner, an expert reviewer and in an assessment by the supervisor of students' achievements, response to opposition, peer-review and initial project description. The presentation and response to opposition are assessed on different criteria and by two examiners. Criteria and evaluation forms are provided in Appendix 6.

All courses include practical experiments and a lab report in the form of an article written by the student (extended abstract, a full article, or short communications). Also, in the first course, a written research plan is formulated and defended in a research seminar. The final grades on the courses include the weighed assessment of both the exam and the. Written assignment as well as the oral presentation.

The programme aims to implement a more differentiated multi-step grading system to better synchronise with international systems, but has now for the two first courses, a four-step scale in 3/4/5 or fail, where 5 is excellent, 4 correspond to very good and 3 pass. The remaining courses have a three-step grading scale in pass, pass with distinction and fail, due to previous discrepancies among faculties.

Most written assignments on the courses are individual and independently performed. All master degree projects are independent work in academic research groups or in companies. Similarities in text are checked in all submitted assignments using the software URKUND- now Original. Master degree project and other research projects include unpublished material, confidential information or sometime under patent applications. The plagiarism check is then performed manually if required and in discussion with supervisors. Many companies request a pre-screening of the student's thesis before presentation of results and yet again after any corrections made to the final version, which sometimes cause delays in submissions.

All lecturer are scientist and experts in the field and are also engaged from other universities or companies. They are not familiar with the learning outcomes, and a better effort to convey these in a simple format could be done.

### ***Areas of development***

- Convey better to students the purpose, goal and opportunities with different activities and assignments, relating to the expected abilities from a master's training.
- Further review of course syllabi and learning outcomes allowing flexibility for continuous incorporation of state-of-the-art and novel research into course content.

### ***Proposed action***

- Extending a study handbook with detailed goals and course contents.

## 2.2 That the content and teaching activities are founded on a scientific basis and proven experience.

The programme is closely intertwined with current research in the department and in SciLifeLab. It is research-preparatory and interdisciplinary reflecting the strong research fields in the department. Research scientists take part as supervisors and in lectures and seminars on the courses, while many PhD students are lab teachers on the courses. Since several of previous Molecular medicine graduates have continued their PhD studies in the department, they have taken the same courses and bring a continuity to the programme. They also are promoting an academic career with enthusiasm and guidance for the students.

Several generations of Molecular medicine alumni are now PhD students in the same research groups and have produced joint publications.

The integration of on-going research permeates in principle all activities on the programme.

All lecturers are research scientists with the majority from IGP, Uppsala University, Uppsala Academic Hospital and Karolinska Institute, Swedish Agriculture University, Stockholm and Gothenburg University, Royal Institute of Technology, but also from national Life Science companies as AstraZeneca, Cytiva (f GE Healthcare) Olink proteomics as well as invited guest lecturers from abroad via Collège de France. For example, Prof Edith Heard lectured on epigenetics in X-chromosome inactivation on the course Genomic and Epigenomic medicine.

Throughout the programme, the students can participate in the regular international weekly research seminar series such as the Rudbeck and Svedberg/SciLifeLab seminars. The Rudbeck seminars are included in all the course schedules as well as relevant SciLifeLab seminars. This aims to further allow the students to be part of the research community as well as one of the career-promoting activities in the programme. In fact, several students have directly approached the speaker and been able to arrange their degree projects allocations in international laboratories.

Conferences in topics relevant for the programme are also integrated on the programme if practically and economically feasible. Molecular medicine students have for example participated in international conferences in single-cell technology, stem cell, epigenetics, Swedish Cancer conference, the annual BioScience conference and annual Long-Read sequencing conference.

Research ethics, academic integrity and ethical issues are discussed on the *Professional training* seminars as well as in the beginning of the programme. Several courses include subject-related ethics issues as in *Medical genetics and cancer* and *Regenerative Medicine*. A lecture in Medical ethics and an ethics discussion relating to Medical genetics is part of the first course.

Already during the first two weeks, seminars deal with experimental design, interpretation and critical analysis of experiments. During the same course, groups of students are developing Research plans pertaining to current questions in cancer research.

On the first semester and the course *Advanced Techniques in Molecular Medicine*, students are introduced to the research environment undertaking a short research project under guidance of supervisor from one of the research groups at IGP. The project results are summarised into a scientific article and presented by the student at the end of the course in a public mini-

symposium. For some students, their work lead to co-authorship on later publications. The course content is hence updated annually to currently on-going research and the students are in addition setting part of the theoretical curriculum by in literature seminars or a Journal Club format presenting recently published scientific literature in the field. Novel findings and experiments are critically analysed and as all students read the articles, there is a continuous gain of knowledge in methods and technologies and how these are applied to address research problems. The course is further linking the students to the research environment as they are attending a doctoral dissertation in a relevant subject, which give important insight into Swedish academic career. Additionally, Nobel prize lectures are scheduled to allow participation in many directly related course topics such as cancer immunotherapy, CRISPR, and reprogramming of cells.

Current research is further integrated with the courses since the experimental laboratory work are designed as research studies often relating to the on-going research of the lab teachers. For example, during the course *Genomic and Epigenomic Medicine* the students are investigating the epigenetic dynamics of histone modifications during drug treatment of multiple myeloma cell lines using chromatin immunoprecipitation (ChIP-qPCR). Using research databases, gene regulatory regions are selected and analysed using similar reagents and manuals as applied in regular research laboratories.

On several courses, the students are learning how to use and apply bioinformatic research databases. An expanded bioinformatic module starts already during the first course. Databases of cancer research, genomic and epigenetic data resources as well as the Human Protein Atlas are used in the practical experimental laboratory works on most courses. The students learn digital analysis by using software ImageJ and Cell profiler and several other projects in first semester; furthermore, their degree projects are bioinformatic analyses of genomic, transcriptomic or proteomic data.

All master degree projects are individual, independent work encompassing various fields of research topics reflecting the interdisciplinary education markedly expanding the opportunities for the students to pursue their research interest. All works consist of unpublished research results, both from academic institutions and companies as well as works that are under patent applications. The results or parts thereof are most often contributing to later publications.

The master degree project presentations have always been public and via video conference for more than 8 years- to allow supervisors from abroad to participate.

The importance of the students' work and support of the supervisors and their co-workers are shown in that many, even from Stockholm, are attending the presentations.

Having supervisors like Robert Weinberg MIT, from Harvard and other institutes attending our presentations to listen to their master students' talk, reassure students on the validity of their work. The improvement in technical facilities using Zoom have further increased the possibilities for joining and the students have now been presenting their work for larger audiences.

Examples of publications with contribution from master degree projects and a list of projects and location are provided in Appendix 8.



For students undertaking a degree project including animal experiments, a required Laboratory Animal Science course of 3 credits (provided by Neuroscience UU) is integrated in the Master's Degree project of 45 credits and consists of a theoretical web-based module as well as practical handling of animals and procedures. Usually, four to five students annually complete this course.

In addition, the students have possibilities to (during an elective period in semester 2) undertake research projects of 15 credits or extra-curriculum research project courses or internships during the summer period or in parallel to the programme courses. Sometime up to ten of our highly motivated students annually obtain additional research training and merits taking the project courses Research project in Molecular Medicine 7.5/15 credits, Advanced course in (15 c) or Experimental (7.5 c) Immunology, Genetics and Pathology or similar courses in other departments or universities.

Several students are also participating in IGP's evening course, *Immune-, gene- and cell therapy* 7.5 credits, partly overlapping with the programme course modules including these topics.

Literature project courses (4.5 c/7.5 c) can also be performed to allow in-depth theoretical research studies into a topic of students' interest. Here, the student writes a scientific review after guidance from an expert scientist in the field. This allows the students to gain additional merits for a future career and some are also aiming to publish the review. The course can also be used to obtain degree if credits are missing or if student had to leave the country.

Several students in Molecular Medicine students have during several years taken part in SensUs, an international student-driven competition in development of innovative solutions in medical diagnostics. The course that qualifies student for the competition, Innovation of molecular biosensors 15 credits, runs in parallel with the programme. It provides additional knowledge and entrepreneurial skills, and has proven to be a very valuable merit.

In summary, all examples above show the programme's strong and intimate interconnection to current scientific research in all course modules and assignments, providing a strong foundation for students' further career in academia or industry and a simultaneous fostering of a creative and innovative mind set in an international research community.

### ***Areas of development***

- From students' request, introduce detailed information on PhD studies, proposals and applications.

### ***Proposed action***

- Expand existing lecture.
- Ensure access to facilities and equipment for research projects in course laboratory.

### 2.3 That teaching focuses on the learning of students/doctoral students.

To meet the demands in life and on a dynamic global job market, higher educations need to promote life-long learning. The intertwining of theoretical and practical exercises contributes to ensure a better understanding for the studied subjects, as well as obtain tools and strategies to identify and solve problems.

Life-long learning is also promoted by that the programme intertwines generic skills and the specific subjects, training the students in presenting own as well as others' research results both orally and in writing.

Throughout the programme, scientific experiments are discussed as solution to address problems and approaches, results and methods applied are critically analysed. The programme sharpens the students' abilities to evaluate novel information and identify its relevance for the work at hand and assimilate new knowledge as exemplified in 2.2.

The programme focuses to a large extent on translational approaches to development of prognostics, diagnostics and therapies, and hence, aims to stimulate the students to achieve a creative and innovative mind-set, introducing entrepreneurship on Professional Training seminar and encourage participation in UU Innovation day and SensUs.

The students are responsible for their own studies and to identify their own need for knowledge. Seminars exemplifies the identification of knowledge gaps. Guidance and feed-back on oral and written presentations are provided from start of the programme, both in discussion with the student and in writing. The students are video recorded and given feedback from fellow students and teacher. The students are provided with tools to themselves assess their and others' team-working abilities, self-assessment and peer-assessment form with suggested areas of improvement. On the course *Molecular tools for Proteome Analysis and Diagnostics*, the students are correcting a fellow student's short communication summarising the experimental results from proximity ligation assays.

The students are trained in evaluation of other's works in performing opposition for two other master thesis works during the presentations and writing peer reviews.

Course and programme syllabi with learning goals are available on the teaching platform for each course. Information about the structure, different assignments and deadlines for submissions are posted on the teaching platform as well as conveyed at course introductions together with directives of compulsory attendance on modules. This information is also posted in the schedules posted five weeks ahead of course start.

The absolute majority of students completes the programme (90-100%). About four students chose annually to present their master projects at a second scheduled opportunity in mid-September instead of end of spring semester. This can be due to delays in obtaining results, change of projects or illness. During the pandemic, the restrictions in the access to laboratories, data analysis instruments did delay several projects for nine students in fall 2020. The adherence to the studies has increased compared to initial years. This could in part be that tuition fees were introduced and now we use during admission a CV form filled out by the applicant in which the requirements for eligibility, proficiency as well as motivation for the programme have been made more clearly to students as well as reveal to us who examine the applications, the purpose and intention for studies, which might select the most diligent students.

#### *Areas of development*

- Increase simplified feed-back between students and teachers.

## **2.4 That the intended learning outcomes are examined using appropriate methods and in a legally certain manner, and that progression is ensured.**

On most courses, the assessments are in the format of an anonymous digital exam as well as evaluation of written assignments and oral presentations. The digital exam has provided a secure system for corrections involving many teachers, eliminating misinterpretation of handwriting and improper handling of paper exams. All students registered for the exam receive a code, which is not revealed until all corrections have been done.

Both oral presentations and written assignments are evaluated according to criteria, many of which pertain to the learning outcomes.

Master degree projects are in addition assessed regarding the students' achievements in the research group, evaluated by the supervisor, the students' presentation as well as their ability to constructively provide criticism during opposition and in written peer reviews (Appendix 6). To ensure that the students have gained knowledge in ethics, developed their presentations skills as well as other soft skills as well as a knowledge base in the research fields and methodology expected to undertake master degree project, the first two courses on semester 1 including the *Professional Training* seminar series and at least 60 credits on the programme are required.

The grading on the courses are on a four or three-step scale, either fail, 3,4,5 or fail. pass, pass with distinction. An effort to implement a more differentiated scale is on-going to better adjust to international grading scales. On several occasions, graduates have had difficulties or been denied to be accepted to international PhD positions. Several times, students accepted to PhD positions in other countries have had problems with registrations, and grades have had to be translated to internationally accepted comparisons.

All written assignments by the students are checked for plagiarism and paraphrasing using the software URKUND/Ouriginal or examined manually for similarities in text. In the case of a seemingly wilful attempt to mislead the examiners, the issue is further reported to the Disciplinary Committee at the University.

A joint Teacher's Day is arranged annually to discuss common as well as programme-specific developments, except for the separate course planning meetings. This has been an important tool to avoid overlap between topics on different courses and ensure progression throughout the programme.

A challenge for higher international education is the heterogeneity among the students where the majority come from many different educational systems and have a very large difference in background knowledge. With the aim to bring all students to the same level at the same time taking advantage of the students' existing knowledge as well as to set an environment of open discussion and questioning, the second course on the programme, *Advanced Techniques in Molecular Medicine*, starts with a series of highly interactive seminars (theoretical exercises) which will cover (i) a majority of basic molecular methods for analysis of DNA, RNA and protein; (ii) terminology and definitions; (iii) critical analysis and in detailed discussion of a scientific article, methods, design and interpretation of experiments (iv) critical analysis and interpretation of published findings (review of questionable data) and theoretical problems incorporating basic bioinformatics in experimental design. The methods seminars serve as partly refresher course aiming to allow each student to identify their own knowledge gap, and to by themselves or together with fellow students fill the gap until next seminars. During these seminars, about 70 different methods are covered; additional methods and technologies are discussed during later journal club seminars. The seminar in terminology, which also includes methods, is aimed to quickly bring the students up to the level where they can find it easier to follow and assimilate up-to-date scientific literature as well as participate in the regular research seminar series.

During the course, each student is giving four different individual presentations linked to the performed research project; a training in structuring a talk both scientifically as well as practically. At the first presentation, the students are video recorded while giving a very brief chalk-and-talk of aim, rationale and approach of the short research project, after which group-wise feed-back is given by teacher and fellow students. Individual feed-back is also given after an additional literature seminar. At the final presentation and symposia, all students show an impressive development, which should evoke self-confidence. The presentations are assessed according to criteria and weighed together with quality of the written article and assessment from the supervisor.

The course was originally designed as a short research school and has been given by the department for 24 years, and around which the master's programme was established. The short research project performed in the research groups of the department gives the students insight into current research environment. It has also showed important for students' career when opening possibilities for degree project as later PhD studies abroad as well as contribution to research publication. At times, more than 35% of the students were later recruited as PhD students in the department.

During the master degree projects, students are pursuing their research interest subject and most often in a particular research group or company in which they continue the career.

The degree project allows in-depth studies and opportunities to further develop their abilities trained during the programme as well as possibilities to apply knowledge and practical skills gained from the courses and expand from these. The interdisciplinary programme will also provide an over-arching view in approaches to identification of scientific problems and find solutions. Many students excel during the degree project and mature into young scientists. All students progress and expand their knowledge in the field and gain stronger abilities to discuss research results with confidence, as obvious from their presentations. All have also further developed their presentation skills and trained team working abilities.

A few students, expresses disappointment with their supervision during the master degree project, both the wish for more interaction with the supervisor and wish for more independence. A half-time progress report is submitted signed by both the student and supervisor to ensure that projects are according to plan. At rare occasions, the student had to transfer to a different project and supervisor. A few students during the years have unfortunately had problems with inter-personal communications in the research group, which would have consequences for discussions and development of the project with the supervisors, some of which might relate to the climate in the research group or personal characteristics.

The master degree projects are undertaken as individual, independent work in research groups in academic or companies and are assessed according to the criteria in an evaluation form, both for the written thesis by the examiner, an expert reviewer and in an assessment by the supervisor of students' achievements, response to opposition, peer-review and initial project description. The presentation and response to opposition are assessed on different criteria and by two examiners. Criteria and evaluation forms, example on supervisors's assessments of students' achievements can all be found in Appendix 6.

### ***Areas of development***

- Introduce more diversified and simplified strategies for individual feed-back systems
- Better training in inter-personal communications
- Expand information to master degree project supervisors

***Proposed action***

- Develop methods together with students
- Include professional lecture providing tools in communication in a smaller setting than the joint seminar in team work given at *Professional Training* series

**2.5 That staff involved in the study programme possess relevant and up-to-date expertise in the subject matter, that they have pedagogical and/or subject didactic expertise, and that there is sufficient teaching capacity.**

All lecturers on the programme are scientists and experts in their field. Scientists are also engaged from other universities and companies. All courses are full-time and lectures, seminars and practical experimental or computer exercises are for staff scheduled on average 75% per week on the courses. Research or degree projects are full-time work in research laboratories. A list of all teachers and lecturers is found in Appendix 8.

Research scientists take part in lectures and seminars on the courses and many of the PhD students are lab teachers on the courses. All staff in the department are encouraged to take pedagogic courses, but many of our external lecturing scientists have no/any formal pedagogic training. The ability to assimilate and extract relevant information from research presentations regardless of how it is presented is a part of working life for scientist and could also be good training for the students. Handouts are provided and uploaded before the lectures and students are continually asked to actively participate with questions.

The lecturers are asked to first give an up-to-date overview of the research field and then present the own research and describe how/which methods were applied. The main topics on the programme are covered by a number of researchers in the department, which suffices the need of lecturer, but external scientist in specific fields are invited as lecturers also to provide a better overview of on-going research in Sweden.

The research scientists in the department and others, being supervisors during short research projects and degree projects, are instrumental to the large integration of cutting-edge and ongoing research on the programme, contributing high quality to the education.

***Areas of development***

- Strive for better information to and interaction between teachers.
- Better aid to external lecturers about course content to avoid overlap.
- Resume invitation to guest lecturer.
- Improve information to supervisors.

**2.6 That internationalisation, international perspectives and sustainability are promoted.**

The programme is international with a large proportion of students of different nationalities (about 20). The programme is also research-preparatory and integrated in the international research activities at Uppsala University. Students are trained in skills to independently carry out current research work and participate in regular research activities, providing them greater opportunity for a further academic career in PhD studies or relevant jobs in industry.

The programme is aimed to link academia and industry already at the master's level, by integrating a number of global Life Science companies into the education. We aim to train the students to have the skills and competence to work effectively in various multi- and interdisciplinary settings as well as internationally competitive contexts in academia and the private sector. This also includes preparing the students for an increased international mobility and international job market, where students already are building a broad professional network for working life and research during their education.

### ***International research integration***

- Students are undertaking Master's degree projects and other research projects (internships) abroad. In each student cohort, many students find research projects abroad, which are in their field of interest and important for their future career. For example, in one year, all but one student chose to undertake their master's degree project abroad.

A list of master degree projects and affiliations can be found in Appendix 7.

#### *Activities promoting internationalisation at home:*

- Current international research is integrated in the education and the main part of the curriculum
- Lecturers on the programme courses are international research scientists
- Students are integrated in the ongoing research at the departments during projects as well as courses
- Students participate in the weekly International research seminar series, Rudbeck seminars and SciLifeLab seminars
- Programme students are participating in international conferences
- Programme students are participating in online international events

### ***Internationalisation events***

- MPKs joint master seminar series *Professional training* includes seminars and workshop in *Cross-cultural intelligence*.

The programme also arranges site visits in global Life Science companies, events for exchange of information between student cohorts and alumni on experiences of research projects abroad and international PhD programme interview process

The students often form a professional international network already during their master's.

### ***International collaborations***

#### *EIT Health*

- Molecular medicine students have been taking part in the annual international competition SensUs for innovation of novel diagnostic methods. Currently, 12 different countries are competing in SensUs at UU has also been awarded funding from EIT Health and has twice been winners in the competition.
- Molecular medicine students are taking part in the annual Innovation Day which is scheduled during fall semester. Here, the students have twice been part of the winning teams.

The students have been given opportunities to take part in other EIT competition activities, EIT events, a summer school at University of Groningen, further gaining merits important for their future career.

#### *Internationalisation- administration*

To facilitate the admission, arrival and continued studies for international students on the programme, frequent communications with Swedish Migration Agency, Swedish Tax Agency and different banks are required. Running international educational programmes are very dependent on decisions by authorities outside university control, and multiple problems repetitively have to be dealt with annually regarding students' residence permits, difficulties to obtain civil registration numbers and hence open bank accounts.

#### *Sustainability*

The sustainability of the programme is reflected by its relevance for society in that a large number of graduates are recruited for further academic research studies or in Life Science industry. In two year's review, 90% and 100% of the graduates had found jobs shortly after completing the education.

The programme receives a large number of applications annually, most during the first admission round in mid-January. On average, about 4-6% of the original applicants are admitted and the majority is international students. The number of fee-paying students has increased and is sometimes 30% of the cohort.

In addition to providing the students with important aspects and information of current issues of important for society, the Professional Training seminar series includes a lecture on sustainability.

#### *Areas of development*

- Improve the situation for international students.

## **2.7 That a gender equality perspective is integrated into the study programme.**

The programme strives to follow Uppsala University's [Action Plan for Equal Opportunities](#). In addition to university-wide measures, the Action Plan also lists measures for which each study programme is responsible, such as accessibility activities and equal opportunities information.

The Master's programme in Molecular Medicine is international and encompasses more than 20 different nationalities. The gender distribution on the programme is heavily biased with in average about 75-80% women, similar to many educations in life sciences and biology nationally. Corresponding bias is roughly found among eligible applicants. Admission is strictly based on the applicants' qualifications including grades in required subjects, motivation, research and laboratory experiences, and no quota during admission to address the gender bias is used.

Equal opportunities to advanced level educations and to the programme would internationally be provided foremost by the availability of scholarships, which would increase the quality when all most qualified students have possibilities to be admitted.

The programme's integration with current research leads to most course literature being from publications in scientific journals available to all students via the University Library's online services, thus reducing the expenses of text books in different subjects.

The joint master's programme seminar series *Professional Training*, includes seminars in cultural intelligence, how to recognise and deal with master suppression techniques, equalities, human rights and discrimination.

Information about gender equality and equal opportunities is provided on the teaching platform as well as contact information to the department's equality representative.

All anonymous online course evaluation (example in programme evaluation) includes a question regarding whether the students have felt discriminated or harassed during the course. To have possibilities to promptly and confidentially address the problem, an addition has been made asking the student to contact, if willing, a person among the staff who they trust or the master's programmes joint study counsellor.

Students are also informed at the start of the course about the programme's and the department's intolerance to discrimination. After one course evaluation a case of discrimination was noted, but its total anonymity gave no possibility for any action and the source was never found.

Information on Academic integrity and Scientific misconduct is conveyed during the first week on the programme.

Teachers and scientists lecturing on the programme are from different countries representing an international research community. Unintentionally, most course directors and administrators have been Swedish, however, as positions are becoming more stable and teaching is required for further academic careers, increasing number of international teachers are engaged in educations.

All staff involved in the programme are of different gender and age. In two courses on the programme, it was noticed when inviting scientists to lecture that the major number were male scientists. An effort was then made to contact female scientists who were experts in the field, which generated a better balance.

### *Areas of development*

- Better take advantage of the cultural diversity during the education

## **2.8 That the study programme meets individuals' and society's needs for learning and professional knowledge and prepares students for future careers.**

The programme aims to train the students in current research methods and technologies during experimental exercises as well as through on-going research conveyed by scientists during lectures. The students undertake already during the first semester and the Advanced Techniques course, a short research project in one of the departments' research groups. This directly exposes the student to the research environment giving insight into daily work of planning and executing research experiments in teams. The degree project of most often 45 credits provides in-depth studies into a research field of interest and potential future work irrespective of whether the student chooses to perform the project in academia or industry. Further insights into working life is provided by the site visits arranged on several courses relevant to its topics.



The programme emphasizes on each course training in individual and independent presentations of research results in English, both written and oral. During the programme, the students are giving at least 12 presentations, research/literature seminars and write 9 reports/articles excluding their master thesis. Additional presentations are given in the research groups in which the students work during short course projects, during extra-curricular research projects or master degree projects.

The students are video-recorded during presentation and later reviewed and discussed providing feed-back from teacher and fellow students.

The ability to communicate effectively in writing is one of the major qualities required in job offers and also sought by potential PIs or employers.

Of importance for a future career in academic research as well as in private sector is the ability to independently evaluate research and scientific literature, critically analyse, process and compile data into scientific articles.

These abilities are developed on all courses during journal clubs, presentation of research plan, correcting course mate's short communications, writing peer reviews and acting as opponents during master degree project presentations.

Students are also trained in presenting scientific research to non-specialists through writing summaries of their research projects in popular science, on the course Advanced Techniques in Molecular Medicine as well as a summary of their master degree project. The popular science should preferably be written in the student's own native language, but the examination can only handle popular science text in Swedish, English, German, Spanish and Italian.

Equally important for future careers is the ability to communicate with others and work in teams. This is trained throughout the programme in group assignments as well as during seminars and research projects.

Guidance of working in teams is already introduced on the first course and individual feed-back on literature seminars and the video recording is given on the following course Advanced Techniques..

On yet the following course, the students are provided with tools for self-assessment and peer-assessment of scientific presentations further strengthening the students' ability to give and receive constructive criticism. Examples of self-/peer- and team assessment tools can be found in Appendix 10.

The importance of generic skills and inter-personal communication for future employment is emphasised throughout the programme by also specifically in a seminar relating to information on degree project and further career. Here, the students are informed about the qualifications required and sought after by future employers and how recommendations and references are requested. This with the aim to early on aid the students to build up their network of references and proficiencies in writing, independence as well as team working abilities.

The joint master seminar series *Professional Training* provides also lectures and seminar in several soft skills and knowledge of importance for further academic work and in private sector. Lectures in presentation techniques, academic writing, poster presentation as well as scientific approach and pseudoscience. Research ethics, ethical approvals and discussions around ethical issues are additional important modules for the future career.

To stimulate students in innovative thinking, a seminar by Drivhuset - a business management foundation supporting students in developing an entrepreneurial mindset and to start their own companies, as part of the seminar series together with the Career Day event in addition to

students' participation in the Innovation Day, arranged by EIT Health. Additional Career Days are sometimes organised by the master student council (MMC) or UU.

### ***Career promoting activities during and after the programme***

Already on first semester, the students on Molecular Medicine have a lecture on how to write project descriptions, PhD and grant proposals. On the first course (Medical genetics and Cancer) the students are in groups writing a Research plan, present and defend this in a joint seminar.

Further information, guidance and support for students' application to PhD studies are given throughout the programme, but the main support as reference is provided during or after the last semester and the Master Degree project, when a majority of students are applying for PhD positions and jobs in private sector. The support as a reference remains for long time as often students can be on shorter internship projects before securing a position/job.

Instructions on writing a PhD proposal, similar to advertised position and IMIMs BBB4, will be available on the teaching platform as well as a Molecular Medicine student's experiences from the interview week at DKFZ as a candidate to new PhD recruits.

A large number of Molecular Medicine students are PhD students (now also Researchers and post-docs) at different Research Institutes and universities in different countries and local colonies of alumni have aided later generations of programme graduates when these are coming for interviews, as an example from ETH where five Molecular Medicine alumni are PhD students could be a local support group.

New postings of PhD positions or jobs in areas relevant to the programmes are also sent out to students and posted on the teaching platform. Alumni from Molecular Medicine programme also often notify us about PhD positions, which are posted.

Students are also notified on that previous master project supervisors often enquire and wish to recruit new students to join their research group. Enquiries from Karolinska Institute, universities in Germany, Monash University, Australia, research institutes in USA, indicates that our education and training meets the need of qualifications of recruits to an international research community.

Furthermore, alumni from both Molecular Medicine and Innovative Medicine are often promoting the programmes to fellow students, colleagues and collaborators.

The engagement and commitment of alumni in sharing their experiences and aiding directly the next generations of fellow students is also demonstrated by their willingness to take part in annual information events on the Molecular Medicine programme courses, IMIM's Kick-off and Spring School events as well as in large Career Days events for master students at the medical faculty, .

Taking responsibility for their own learning but also of the followers.

### ***Job market Molecular Medicine graduates- Employability***

Nearly all Molecular Medicine alumni, with careers known to us, have found employment within a short period after graduation and many even before completing their MSc thesis (Appendix 9 and 12). Among graduates from 2018, 18/20 (90%) are employed and with jobs completely in line with and highly relevant to the subjects of the master's programme; (i) 13 (65%) were directly starting on PhD positions (or PhD programmes) within the research topics of the programme, (ii) two students started employment in companies related to healthcare and

clinical research, (iii) while three went on to jobs as Research specialist/technician in clinical or research laboratories, (iv) two with unknown paths.

Surprisingly, but gratifying considering the ongoing pandemic with restrictions at work places, 100% (19/19) of the graduates from 2020 were employed with 50% going on to PhD studies, while almost half of the students (9/19) started working in Life Science or Pharma companies. One student works in an IVF research clinic after performing master's degree project in regenerative medicine on IVF.

Three students, who all performed a Master's degree work relating to cancer immunotherapy, were recruited by Anocca AB, a Life Science company specialising in T-cell based disease therapies. Two students started jobs in diagnostics companies, out of which one job was a direct continuation of the master degree project in a spin-off company from KI. The high demand of Covid19 testing, provided opportunities to employment and some of Molecular Medicine student are working in these testing labs or in projects developing diagnostics.

This shows that Molecular Medicine students are attractive employees also to non-academic sectors and that the state-of-the-art education and practical training we are striving to provide on the programme are of relevance to current job market in national as well as international Life Science industry.

A list of companies in which Molecular Medicine alumni are working or undertook their degree work and other internships can be found in Table 1.

The majority of the students continue with further PhD studies in different countries, many landing these positions before graduation. Several students are then staying on in the laboratory continuing on their master degree project or others, either in offer of a PhD position, to complete the project into a manuscript or publishable data or possibly several stay on working in hope of an opening of a PhD position. Several PIs also wish to have recruited the student if funds had been available. In these cases, the alumni often have a period of working as Research assistants or similar until embarking on PhD studies, or other jobs. Some students receive several offers for PhD positions, but switch or wait to accept offers until openings in their top priority research subject appear.

Most students are at admission targeting a PhD, but many during the programme are unsure whether to embark on a career in academia or in companies, while a few already from the start have decided to work in private sector. The tight link to ongoing research on the programme and that the students already on the 2nd course will work in departments' research groups, expose them to the job requirements in an academic research environment. Furthermore, the different activities during the programme pertaining to integrate companies and information thereof are increasing the knowledge of opportunities in industry, however, this could be increased by for example take advantage of alumni's experiences.

Example of career paths taken by alumni:

Academic:

\*Master Degree project at Netherlands Cancer institute, PhD studies at Ulm University, Germany, now Researcher at the same University.

\* Master Degree project IGP, PhD studies University of Tasmania PhD 2021, now Postdoctoral Researcher, University of California, San Diego, USA

Industry:

\*Master Degree project in *Olink BioSciences*, 5 year at *Thermo Fisher Scientific*, 3 year at *ReckiPharm*, in parallel Consultant at *Zozium AB* (leadership, project management in Life Sciences).

Academic/Governmental:

\*Master Degree project at Karolinska Institute, PhD student at Karolinska Institute (2012-2017), Postdoc at Genome Institute of Singapore (GIS), Regulatory Specialist (Medical Devices Branch) at Health Sciences Authority, Singapore.

The interdisciplinary and international research integration on the programme and the inclusion of Life Science companies in the teaching as well as the early exposure to research environment and the private sector through site visits, conferences, research projects/internships/master degree projects in companies, aid the students in their career choices.

### *Areas of development*

- Provide all career information to new students in a simplified format.
- Expand the network to Life Science companies.

Table.1. *Companies joined by Molecular Medicine alumni*

ABC labs,  
Acosta Laboratorios, Mexico  
Anocca AB (4, 3 alumni from 2020)  
AstraZeneca (2) Gbg &  
Sdje  
Avesthagen, India  
Biovica International AB  
Bit.Bio Discovery  
CareDx Inc  
Centogene AG  
Devyser Genetic Diagnostics  
EMPE Diagnostics  
Eurofins BioPharma  
EUROIMMUN Medical Diagnostics, Toronto  
Fresenius Kabi  
Immunotec, Toronto  
IQVIA  
LifeGenomics AB,  
Gothenburg  
Luminex, Toronto  
Medochemie Ltd

MSD, UK own company

Olink Proteomics. (2 alumni)

Parexel

Phadia

Roche

Scientific/Medical illustrator. own company

Shilpa Biological

Syneos Health

Thermo Fisher Scientific

Zozium AB

TATAA Biocenter

## **2.9 That students/doctoral students have influence on the planning, implementation and follow-up of the study programme.**

### *Student representation*

Each cohort can elect student representatives during the first semester. Student representatives act as a link between the student group and course/programme administration, as well as participating in the Medical Master Council (MMC).

MMC, a division of Uppsala Student Union, brings together student representatives from the nine master's programmes offered at the Faculty of Medicine. The task of the MMC is to promote student influence over the study environment and quality of courses and programmes. MMC meets once a month and is also represented on the Master's Programmes Committee (MPK) and the Bachelor's Programmes Committee (GRUNK) at the Faculty of Medicine.

From the start of the programme and throughout, the students are encouraged to provide feedback on their education and notify the staff about any issues coming up during the courses.

To emphasize the importance and impact of students' input in developing the programme and its courses, the students are informed, at each course introduction, of changes made in the course based on suggestions from previous students' course evaluations as well as reasons why other ideas are not feasible to implement.

It is also emphasized from the start that all the staff is approachable, that we have a flat structure and the importance to inform about problems promptly, while there is time to solve or adjust any issues immediately on on-going courses. Information on who to contact for different questions is conveyed as well as available on the teaching platform.

On our programme students' initiative, we have on each course implemented a scheduled half-time evaluation, in which issues and questions about the course are raised, discussed and promptly addressed if possible. Although, most times there are no urgent issues brought forward from the students, it is also a valuable feed-back to the course director and teachers that the students are on track and the course is running as planned.

Each programme or course can also select student representatives, who can mediate questions to staff from the other students.

Each course is evaluated both at an open discussion between teachers and students at the end of the course as well as in an anonymous online course evaluation in writing. The open discussion is more effective and valuable as it involves all students and importantly, they are made aware that among themselves students are of quite different opinions and have arguments against or agree to others' suggestions. It is also of value as a course director to immediately assess the feasibility of implementing suggestions and explain the practicalities.

Although we open the online course evaluation already the first week of the course until two weeks after the course ends as well as send out reminders to the students to fill out the evaluation, the response rate has sometimes been as low as 15%.

Introducing a scheduled time for filling out course evaluations has been slightly successful, at least it has initiating attempts to complete the evaluation, however, the students want to complete it later.

On one course, the Advanced Techniques in Molecular Medicine, in which a written evaluation always was preceded by a detailed and open discussion about the course, the response rate was most often above 90%.

An example of a course report, including a summary of the course evaluation, can be found in Appendix 11.

At the end of the programme and after the master project presentations, the students provide an evaluation of the entire programme. This gives their view on the interdisciplinary education and its relevance during the masters' degree projects which span a large variety of subjects. The students show here a deepened perspective and provide very valuable information in a response rate of above 80% from previously close to 100% (examples of two programme evaluations in Appendix 11).

Open discussions are also opportunities for the students in training to give and receive constructive criticism as well as to take responsibility for their own studies.

#### ***Areas of development***

- Increase the response frequency of online course evaluations

#### ***Proposed action***

- Develop an effective course evaluation together with students.

## **2.10 That all students and doctoral students are provided with an accessible and fit-for-purpose study environment.**

### ***Physical and psychosocial study environment***

On-campus teaching is largely conducted at the Rudbeck Laboratory and Uppsala Biomedical Centre (BMC), where facilities managers are responsible for issues related to premises. According to facilities managers at each campus area, all teaching premises, including lecture halls, laboratories, group rooms, canteens and reception areas, are accessibility adapted. Students have access to most premises around the clock. At the Rudbeck Laboratory and BMC there are also break rooms available.

In some cases, students may use the department's research laboratories while working on their degree project and other project-based courses. The department is responsible for these premises and accessibility may vary somewhat.

The Master's Programmes Committee at the Faculty of Medicine has established a Communication Plan with information about where students can address questions or complaints about programmes, courses or the study environment (Appendix 13). This document clarifies channels of communication between students and course and programme coordinators, directors of studies, equal opportunities representatives, the head of department and Student Union in order to resolve any issues as easily as possible. The Communication Plan is distributed to all students at the start of the programme and is also available on the programme's page in Studium.

Most of the programme courses are taking place at Rudbeck Laboratory and Biomedical Centre. Some lectures are located on Uppsala Academic Hospital as well as some site visits to clinical laboratories. Research project, short course project and several master degree projects are located in the research laboratories in the department or others. Most master's degree projects are performed in research laboratories at various laboratories and institutes or companies, in Sweden or abroad. Site visits are made to mostly local Life Science companies, while conferences or symposia attended by the students could be both in Uppsala or Stockholm.

A major disadvantage to and limitation on the programme is that the department does not have own localities for practical experimentation course modules, but have to rely on space in other departments localities. This leads to the programme not always having access when most suitable for the structure of the courses, but must instead adjust to others schedules.

Contact information on to whom different type of questions should be directed is provided as a guide for the students to receive faster and correct responses.

In particular, teachers on the first programme course experience problems with students' proficiency in English. Discussions are on-going in MPK and with the Admissions Office in an effort to explore the possibilities to increase the requirements for English proficiency. The students have a valuable support in scientific writing in English though the Language shop (Språkverkstaden) which apart from the Lectures they give on the Professional Training also provide weekly work shop during which the students get help with the English in their own writing assignments.

The master's programme at the medical faculty have one common Study counsellor, who can guide the students regarding studies or aid the student in personal issues.

The Student Health at Uppsala University can give support regarding stress and mental health issues. They are also providing information about tools to handle stress during our seminar series *Professional Training*. Students with disabilities will have support from the university and for example can measures facilitating taking exams using extra time or a separate room.

However, for physical illness and medical treatments the students must turn to the regional Health care system, which for international students without a Swedish civil registration number is a mace.

Some students seeking help appears to be have been denied treatment and the cost of treatment can be very high, which the student only would be reimbursed from the insurance later. In spite of repeated effort during several years, it has not been possible to facilitate the granting of residence permits for sufficient length of period to obtain a Swedish registration number nor to give proper time to for students to complete master's degree thesis under reasonable pressure.

Many international students are therefore studying under enormous stressful conditions.

Although, the students are asked to contact the programme director or other staff in case of problems, often depression of mental health issues only is revealed when studies have delayed.

*Summer internships (schools) for International students*

- Since 2013, MPK has applied for funding to organise Summer internship or Summer schools for fee-paying students, in order to provide these students with equal opportunities to gain practical research experiences. During two summers (2017 and 2019), the master's programme committee obtained funding to offer international fee-paying students research summer projects.

*Areas of development*

- Improve situation for international students.

**2.11 That continuous follow-up and improvement of the study programme is carried out.***Follow-up and development*

A joint Teacher's Day is arranged annually to discuss common as well as programme-specific developments, in addition to the separate course planning meetings. This has been an important tool to avoid overlap between topics on different courses and ensure progression throughout the programme.

A continuous work is done with course evaluations and course reports, which are made available to the students on the teaching platform. As mentioned above, open discussions with the students are very informative and the almost daily contact between course director and students facilitates that problems can be addressed promptly.

Within the master's programme committee (MPK), programmes are collaborating jointly in developing the educations. An annual plan for development of specific goals is decided, and the committee works with improving the admission process by developing CV forms, increasing the quality on the programmes and the jointly seminar series, surveys for alumni, in addition to the work with marketing, student involvement, award scholarships, arrange summer job opportunities and the annual Graduation ceremony.

The most important aspects of improvement of the programme is the continuous probing into current research in the field in that novel findings, topics and technologies are reflected in the curriculum. The relevance of the education and employability of its graduates are depending on maintaining state-of-the-art of the interdisciplinary programme.

*Area of development*

- Continuous planning and course development, integrating novel aspects and methods.
- Implementing more bioinformatic tools and data visualisations.

**Summary**

The self-evaluation of the programme has exposed important aspects and weaknesses that need to be addressed, but did also show that the Master's Programme in Molecular Medicine is highly relevant as it educates young scientists for international academic research as well as industry.



Although the programme was awarded very high quality in the previous national quality assessment carried out by the Swedish Higher Education Authority (UKÄ), the review commented on the non-compulsory lectures and seminars in ethics and the somewhat varied quality in writing. The programme now has made all ethics-related lectures on the courses compulsory and also on the seminar series *Professional training*. No other module or format deals specifically with ethics. To strengthen the students' abilities to write scientific text in proficient English, instructions for writing has been updated and a check-list is provided for the students. Furthermore, efforts have been made and will continue to be made to improve feed-back on writing.

The current self-evaluation of the programme has already revealed areas in need of development and summarised in a list, out of which several have already been started to be addressed:

- continuous planning and course development, integrating novel aspects and methods to maintain at the frontier of international research in the field
- improve information and interactions with teachers
- further review of course syllabi and learning outcomes.
- improve feed-back processes to students
- convey better to students the purpose, goal and opportunities with different activities and assignments - further expanding into a study handbook with detailed goals and course contents
- continue attempts to improve the study situation for international students and others
- take better advantage of the cultural diversity during the education
- with aims to increase the response frequency of online course evaluations, try to establish simplified course evaluations together with students
- make better use of the alumni promoting the programme in career events and help establish additional interactive events
- increase inclusion of Life Sciences companies in the curriculum
- improve information and interactions to supervisors

### 3. Evaluation of freestanding courses

Most of the courses on the Master's Programme in Molecular Medicine (1-8) are offered as freestanding courses, which provides multiple opportunities for other master's programme students to profile their education. The course in Medical Genetics 7.5 credits is also part of the Master Programme in Forensic Science. In addition, students from other universities and exchange students are also applying to these courses. The application is submitted via University Admissions and the admission is done by Uppsala University Admission Office according to the requirements stated in the course syllabi. Only a limited number of students can be admitted due to the experimental laboratory work included in all the courses. IGP do not have access to own course laboratory facilities, which limits the planning and execution of large classes.

IGP also offers projects courses (9,10) in which a student undertakes an individual research project under supervision in the department. This requires an application including a project description and time plan to be submitted and approved by the examiner. Students from different universities, exchange students and IGP's master's programme students are taking these courses to gain additional research training and merits. The project courses 9 and 10 are advanced level courses.

A popular course in *Immune-, gene- and cell therapy* (12), reflecting the strong research area of the department, is offered as evening course. This course is also pursued by many master students and included in their degree.

The course *Innovation of Molecular Biosensors* (13) built around an international student-driven competition in development of innovative solutions for healthcare applications. The course is run in a joint effort between IGP and Dept. of Materials Science and Engineering, Uppsala University. Here, an interdisciplinary group of students develop an assay during a longitudinal project and demonstrate their innovation at a final competition at Eindhoven University.

*Basic medical genetics* (14), is a basic course in medical genetics given in Swedish and as an online course. It is used as an introduction to the subject and also to refresher course.

**1) Medical genetics and cancer; molecular mechanisms (15 credits),**

also split up in the separate courses

**2) Medical genetics 7.5 credits and**

**3) Molecular mechanisms in cancer 7.5 credits**

**4) Genomic and Epigenomic Medicine 15 c**

**5) Molecular tools for Proteome Analysis and Diagnostics 7.5 credits**

**6) Biomarkers; discovery and validation, 7.5 c,**

**7) Bioimaging and Cell analysis 7.5 c**

**8) Regenerative Medicine 7.5 c**

**9) Immune, gene and cell therapy 7.5 credits**

**10) Innovation of Molecular Biosensors - 15 credits**

**11) Basic medical genetics/Grundläggande medicinsk genetik 4.5 hp (online, in Swedish)**

The 11 aspects of evaluation are briefly discussed below for the free-standing courses. All courses 1-8 belong to the Master's Programme in Molecular Medicine and have been evaluated in section 2. The course evaluations on the programme courses cannot separate programme students from free-standing students and we therefore have very little information on issues or opinions of the free-standing students.

**1. That the study programmes achieve the objectives of the Higher Education Act and Higher Education Ordinance (Qualifications Ordinance) and programme-specific objectives, i.e., that actual learning outcomes correspond to expected learning outcomes**

All free-standing courses (9-11) have course syllabi with specific learning outcomes.

The course Innovation of molecular biosensors (10) has separate admission directly handled by the department, while for the rest the applications are done via University admissions.

**2. That the content and teaching activities are founded on a scientific basis and proven experience.** All lecturers on the courses are research scientists with the majority from IGP, Uppsala University, Uppsala Academic Hospital and Karolinska Institute. The basic course in Medical genetics consist of recorded lectures by scientists from mainly IGP. The course Innovation of molecular biosensors (10) consists of a research project undertaken by the students and are tightly linked to on-going research and state-of-the-art technology.

**3. That teaching focuses on the learning of students**

Several students have first taken some of the Molecular Medicine programme courses 1-8, and thereafter been admitted to the later part of the programme. Most students taking the free-standing courses are affiliated to other master's programme and have the opportunities to develop an own professional profile outside their programme subjects. They have applied to the courses of specific interest and provide important interconnection with our programme students.

**4. That the achievement of intended learning outcomes is assessed using appropriate methods and in compliance with the legislation, and that progression is ensured**

Progression within a single course might be difficult to achieve. On the other hand, the Innovation of molecular biosensors course runs during about seven months, where the students together work on their innovative assay and ends up with a product that is demonstrated at the competition final. In the international SensUs competition, the Uppsala team has been awarded the winning price twice.

**5. That staff involved in the study programme possess relevant and up-to-date expertise in the subject matter, that they have pedagogical and/or subject didactic expertise, and that there is sufficient teaching capacity**

All lecturers on the courses are research scientists with the majority from IGP. The course administration and others involved are the same as for the programme courses.

**6. That internationalisation, international perspectives and sustainability are promoted**

All courses have a large number of international students. Even the Swedish basic online course in Medical genetics have had a number of participants from other countries. The SenUs course is participating in an international competition encompasses universities from twelve different countries.

**7. That a gender equality perspective is integrated into the study programme**

It is assumed that the gender bias would be similar to that the programme courses. The number of students on some of the courses is very limited.

**8. That the study programme meets individuals' and society's needs for learning and professional knowledge and prepares students for future careers**

The Innovation of molecular biosensors course has proven to be a very valuable merit for several students in that they have shown proof of their innovative and entrepreneurial mindset and interest.

**9. That students/doctoral students have influence on the planning, implementation and follow-up of the study programme**

The freestanding students have the same opportunities to present their opinions about the courses. All courses are assessed in a course evaluation and suggestions of improvements by the students are valuable. Unfortunately, course evaluations on the programme courses cannot separate programme students from free-standing students and we have therefore very little information on issues or opinions of the free-standing students. On the programme, evaluations are always also done in open discussions where opinions can be raised.

**10. That an appropriate study environment is available to all students**

The freestanding students are taking part in all activities as other students and have equal access to facilities and support. As we, for many of the courses, have long waiting lists for reserves due to high number of applicants, several free-standing students can be called with short notice and have to quickly change their plans.

**11. That continuous follow-up and improvement of the study programme is carried out**

A continuous work is done with course evaluations and course reports, which are made available to the students on the teaching platform. During the Teachers' day, free-standing students are also discussed. For the joint courses, technical limitation of the electronic course evaluation software prevents the specific follow-up of free-standing students.

***Areas of Development***

- Explore the possibility to obtain free-standing students' opinions in course evaluations.
- Oversee courses for longitudinal projects for free-standing students.

## 4. List of appendices

1. Model for review of study programmes
2. Example course evaluation
3. Alumni survey questionnaire
4. Outline and programme syllabus
5. Previous programme evaluation
6. Example assessment template
7. Teachers and lecturers
8. Previous Master's degree projects
9. Alumni's current working places
10. Team work self-assessment form
11. Example of programme evaluations
12. Example of course report with summary of course evaluation
13. Communication plan



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# Uppsala University's Model for Review of Study Programmes

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## Guidelines

Approved by the Vice-Chancellor on 25 October 2016

## Guidelines for Uppsala University's Model for Review of Study Programmes

Uppsala University's education is subject to systematic quality assurance and quality enhancement. According to Uppsala University's rules of procedure, each disciplinary domain/faculty board is responsible for the quality of its educational offerings, since they are best qualified to assess how to ensure and enhance the quality in their respective fields. Consequently, Uppsala University's model for review of study programmes (including freestanding courses), allocates responsibility for the design, implementation and follow-up of reviews of study programmes to the relevant disciplinary domain/faculty board. Uppsala University's model consists of two parts: internal annual systematic follow-up of study programmes, and comprehensive external peer review every six years.

The purpose of Uppsala University's reviews of study programmes is to systematically contribute to ensuring and enhancing the quality of Uppsala University's educational offerings. The aim is to promote education of the highest national and international quality.

- All first-, second- and third-cycle (Bachelor's, Master's and PhD) study programmes<sup>1</sup> will be assessed at least once every six years in a review. The disciplinary domain or faculty board decides how to cluster the study programmes into suitable units for evaluation. As far as possible, the study programmes should be analysed in their entirety.
- The review will proceed from the requirements stipulated in the Higher Education Act (1992:1434) and Higher Education Ordinance (1993:100) (Qualifications Ordinance), taking into account the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG), Uppsala University's Mission and Core Values, and programme-specific policy documents. (See the summary box below.) Every review will:
  - be designed to generate the knowledge required to ensure and enhance the quality of the study programme;
  - include a comprehensive assessment of the quality of the study programme – its strengths, weaknesses and areas for improvement;
  - contain an external review by at least two colleagues from one or several higher education institutions, and by at least one colleague from another faculty/disciplinary domain at Uppsala University, in accordance with recognised principles of peer review;
  - allow relevant teachers and students/doctoral students to participate in the planning, implementation and follow-up of the evaluation;
  - include a self-evaluation and other relevant documents as the basis for the assessment;

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<sup>1</sup> 'All study programmes' refers to all existing study programmes at first-cycle level (courses, degree programmes, main fields, subsidiary fields), second-cycle level (courses, degree programmes, main fields) and third-cycle level (subjects, courses), freestanding courses which are not part of any study programme, access programmes, supplementary teacher training programmes and contract education.

If a specific study programme/degree is subject to the Swedish Higher Education Authority's programme evaluations during the six-year cycle, a review within Uppsala University's model has not to be carried through, *but reporting and follow-up of the results will take place in accordance with these guidelines*. In the event that the Swedish Higher Education Authority's evaluation results in the grading 'questionable quality', Uppsala University's internal procedures should be followed. Joint study programmes with other higher education institutions may be evaluated externally according to the agreement between the higher education institutions and within the framework of national requirements, but reporting and follow-up of the results will take place in accordance with these guidelines.

- result in a concluding reviewer report of the study programme's strengths and weaknesses/areas for improvement, together with recommendations;
- result in a brief evaluation report in which those in charge of the study programme summarise the most important conclusions based on self-evaluation and the reviewer report, and present planned measures/improvement actions; the review method should also be described.

**Disciplinary domain or faculty boards are responsible for:**

- compiling and registering a brief evaluation report in accordance with the above and making it available internally at Uppsala University;
- ensuring the evaluation report also contains the board's conclusion, including whether special follow-up is needed;
- making the planned measures and the concluding reviewer report publically available;
- ensuring that measures and improvement actions are initiated and monitored within the framework of annual follow-up;
- ensuring that necessary measures are followed up within one year, and are subsequently followed up until they are completed or until the programme/course is shut down;
- annually compiling and analysing the results and conclusions of the year's reviews of study programmes, including any need for special follow-ups, and reporting on this to the Vice-Chancellor within the framework of ordinary operational planning and operational follow-ups;
- ensuring the results from the year's completed reviews of study programmes are presented by those in charge of the study programmes in question at the annual conference for reviews of study programmes;
- deciding whether reviews of study programmes in specific subject areas can be replaced by other external accreditation (such as EQUIS) where appropriate. However, reporting and follow-up of results are to take place in accordance with these guidelines.

**Every review will cover the following aspects:**

- that the study programmes achieve the objectives of the Higher Education Act and Higher Education Ordinance (Qualifications Ordinance) and programme-specific objectives, i.e., that actual learning outcomes correspond to expected learning outcomes
- that the content and teaching activities are founded on a scientific basis and proven experience
- that teaching focuses on the learning of students/doctoral students
- that the achievement of intended learning outcomes is assessed using appropriate methods, and complying to rule of law, and that progression is ensured
- that staff involved in the study programme possess relevant and up-to-date expertise in the subject matter, that they have pedagogical and/or subject didactic expertise, and that there is sufficient teaching capacity
- that internationalisation, international perspectives and sustainability are promoted
- that a gender equality perspective is integrated into the study programme
- that the study programme meets individuals' and society's needs for learning and professional knowledge and prepares students for future careers
- that students/doctoral students have influence on the planning, implementation and follow-up of the study programme
- that an appropriate study environment is available to all students/doctoral students
- that continuous follow-up and improvement of the study programme is carried out

For an in-depth description of the objectives of first- and second-cycle education in Uppsala University's Mission and Core Values, see the document *Teaching and Learning at Uppsala University*.

Uppsala University's model for review of study programmes is based on the following principles. The model:

- *is decentralised and based on continuous quality enhancement work;*
- *is based on an exploratory approach to evaluations in which external peer review and collegial work forms are natural components;*
- *promotes quality and includes student/doctoral student participation;*
- *is stringent, i.e. able to identify and remedy deficiencies;*
- *is as simple and cost-efficient as possible.*

External review is a well-established form of academic quality assurance, which in this context ensures that the University's programmes are subject to independent review and can be compared with equivalent programmes at other higher education institutions. Internal review by a colleague from another faculty/discipline helps to call into question matters that may be taken for granted in the subject area and enhances the exchange of knowledge and experiences across the University. The annual conference for reviews of study programmes provides an additional opportunity for constructive criticism from other colleagues and students/doctoral students at the University, and for the dissemination of good practice and lessons learned.

The stringency of the system is achieved via requirements for external and internal reviews of all study programmes, disciplinary domain/faculty boards' conclusions and follow-ups of measures, and transparency regarding the results and planned measures. The conference also contributes to the system's stringency. Results and measures are also reported under the framework of the regular operational planning and follow-up process, in the Vice-Chancellor's annual dialogue with the disciplinary domains, and at the annual conference. A university-wide quality report is compiled annually based on the completed reviews and the conference, and is delivered to the Vice-Chancellor.

The model permits meaningful qualitative comparisons, via external and internal peers and the transparent sharing of results.



## Please see the course syllabus [here](#)

1.

Are you satisfied with the course in general?

No - not  
at allYes -  
completely
☐ ☐ ☐ ☐ ☐ ☐

Comments

2.

What in the course was particularly good?

3.

What in the course can be improved?

4.

What is your opinion about the difficulty level of the course?

☐ ☐ ☐ ☐ ☐

Too easy

Adequate

Too  
challenging

Comments

5.

Do you consider that you achieved the learning objectives in the course syllabus?

No - not  
at allYes -  
completely
☐ ☐ ☐ ☐ ☐ ☐

**Comments**

▲

▶

◀ ▶

6. Did you get opportunities to be active in the teaching process?

☐ ☐ ☐ ☐ ☐ ☐

Please comment on the student-activating sessions, e.g. lectures, seminars, lab exercises and oral presentations

## Lectures

7. How much did the lectures contribute to your learning?

☐ ☐ ☐ ☐ ☐ ☐

Please comment if you want to give extra credit to one or more teachers, or if any lecture needs improvement

### Seminars and oral presentations

8. How much did the literature presentations contribute to your learning?

☐ ☐ ☐ ☐ ☐ ☐



## Structure and communication

12.

Are you satisfied with the communication between teachers and students during the course?

No - not  
at all

Yes -  
completely

○ ○ ○ ○ ○ ○

## Comments

[illegible]

13.

Are you content with the structure of the course? (E.g. the order of lectures and lab exercises, timing of deadlines, time for self-tuition)

No - not  
at all

Yes -  
completely

☐ ☐ ☐ ☐ ☐ ☐

Comments

[illegible]

## Exam

14.

Did the exam correspond to the course content and the learning outcomes in the course syllabus?

No - not  
at all

Yes -  
completely

○ ○ ○ ○ ○ ○

Comments

[illegible]

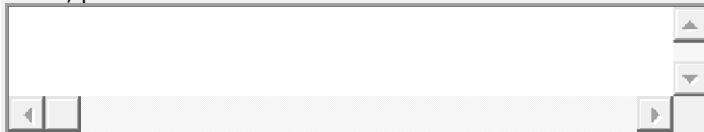
## Study Environment

15.  
During the course, do you feel you have been neglected or treated badly by a teacher, course staff, or fellow student based on your ethnicity, sex, gender identity or expression, sexual orientation, religion or other belief, age or disability (if any)?

☐ Yes

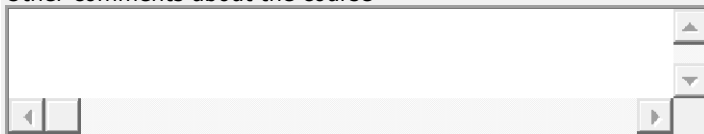
☐ No

If Yes, please describe:



## Other

16.  
Other comments about the course



Thank you for your valuable comments!



# Kurt

## Questionnaire for graduates of the Master's programme in Molecular medicine

Thank you for your valuable comments!

Status	Completed
Created at	2019-10-17
Available	2019-10-18 – 2019-11-10
Client	<u>Sofia Bodare</u> , employed at IGP Course administration
Antal svar	55
Sammanställning	<a href="#">Sammanställning av Questionnaire for graduates of the Master's progra...</a>
Filtrera sammanställn.	<a href="#">Filtrera sammanställning av Questionnaire for graduates of the Master's progra...</a>
Enskilda enkäter	<a href="#">Enskilda enkäter för Questionnaire for graduates of the Master's progra...</a>
Exportera data	<a href="#">Exportera data från Questionnaire for graduates of the Master's progra...</a>
Exportera data	<a href="#">Exportera data för statistisk bearbetning från Questionnaire for graduates of...</a>
Avslutad	2019-11-11
Locked	No
Frågor	<a href="#">Visa alla frågor i Kurt-format</a>

Preview

### Background

1. Which degree did you study at Uppsala University?

☐

One-year  
master's

☐

Two-year  
master's

2. What year did you complete this education?

-- Choose alternative --

3. At what higher-education institution did you mainly study for your bachelor's degree?

☐

At Uppsala University

☐ At another univeristy in Sweden

☐ At a university outside of Sweden, namely in

4. Did you move to Sweden from another country specifically to pursue your master's studies?

☐

Yes

☐

No

Comment

//

5. Did you work between your bachelor's degree and starting your master's studies at UU? (Do not count summer/holiday jobs)

☐ Yes, mainly with work requiring higher education

☐ Yes, mainly with work not requiring higher education

☐ No

If yes, please specify:

//

6. Have you considered applying for a doctoral programme/PhD position?

☐ I have completed my licentiate/doctorate education

☐ I'm studying for a doctoral degree

☐ I plan to apply

☐ I have had plans but never applied

☐ I have been a doctoral student but quit my studies

☐ I applied but was not admitted

☐ No

### Your entry into the job market

7. After how many months did you get your first job (including PhD studies) after completing your master's programme?

☐

I was on leave  
from my job  
during my  
studies and  
returned to the

☐

I found a job  
before I  
completed my  
programme

☐

Less than 6  
months

☐

6-12 months

☐

More than 12  
months

☐

I haven't  
found a job  
yet (go to  
question 12)

same  
employer  
afterwards

8. Do you still have your first job after you finished your master's degree?

- ☐ Yes  
☐ No

9. If no, for how long were you employed at your first job?

- ☐ 6 months or less  
☐ 7-12 months  
☐ 1-3 years  
☐ more than 3 years

10. To what extent does/did your first job relate to the subject area for your master's degree?

- ☐ The work is/was entirely or largely within the subject area  
☐ The work is/was to some extent within the subject area  
☐ The work is/was in another subject area

11. To what extent have the following elements helped you get your first job? If you lack experience in any of the elements, please mark "No exp".

	To a large extent	To some extent	Not at all	No exp.
a. My thesis/degree project	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Internship/traineeship within programme	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Studies abroad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Mentor/alumni contacts during studies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Job market days or similar at the university	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Contact with researchers/teachers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Contact with companies/study visits	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. Contact with career advisors at the university	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Employment during the studies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. Other previous work experience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k. Engagement in committee or student union activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



1. other:

☐☐☐☐

## Current employment

12. What is your current main employment/activity?

- ☐ Permanently employed
- ☐ Limited-term employment
- ☐ Own company
- ☐ Doctoral student
- ☐ Studying at higher-education institution (not doctoral programme) - go to question 23
- ☐ Looking for a job - go to question 23
- ☐ Other, namely:

13. In your current employment, do you have managerial responsibilities for leading and allocating the work of others?

- |                       |                             |                            |  |
|-----------------------|-----------------------------|----------------------------|--|
| <input type="radio"/> | <input type="radio"/>       | <input type="radio"/>      | <input type="radio"/>                  |
| No                    | Yes for 6-10<br>individuals | Yes for 1-5<br>individuals | Yes for more<br>than 10<br>individuals |

14. To what extent does your current work relate to the subject area for your master's degree?

- ☐ The work is entirely or largely within the subject area
- ☐ The work is to some extent within the subject area
- ☐ The work is in another subject area

15. In what sector are you currently working?

- ☐ Academic research
- ☐ Private sector/company
- ☐ Public sector (e.g state, municipal, county)
- ☐ Non-profit organisation
- ☐ International authority/organisation
- ☐ Other, namely:

16. In which country are you working?

- ☐ Sweden

☐ Other country, namely:

17. Name of employer/Research Institute/university (optional). If you would like to provide information, to the University and current students, about where the alumni from your master programme may work, please state here who your employer is today.

18. What is your position/professional title today?

19. Please describe your main work tasks:

//

20. How much is your monthly income before tax in your current job? (count up to full-time salary, count supplement for inconvenient hours, \$=USD)

- ☐ Less than 20000 kr/month (less than 2030\$/month)
- ☐ 20000-30000 kr/month (2031-3050 \$/month)
- ☐ 30000-40000 kr/month (3051-4060 \$/month)
- ☐ 40000-50000 kr/month (4061-5080 \$/month)
- ☐ More than 50000 kr/month (more than 5080\$/month)

21. To what extent does your current job require skills and knowledge in the following areas:

	To a large extent	To some extent	To a small extent	Not at all
a. Independently solve problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Make critical analyses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Argue and persuade	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Explain to non-specialists	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Make written presentations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Make oral presentations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Communicate in English	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. Make ethical judgements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Consider international/global perspectives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. Work in teams/collaborations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k. Keep up with developments in the field of your education	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- |  |                       |                       |                       |                       |
|--|-----------------------|-----------------------|-----------------------|-----------------------|
| l. Apply scientific methods                                | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| m. Read and understand academic texts                      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| n. Carry out advanced assignments within given time frames | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| o. Identify and formulate problems                         | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| p. Identify and remedy your own knowledge gaps             | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| q. Broad knowledge of the subject area of your master's    | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| r. In-depth knowledge of the subject area of your master's | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| s. In-depth insights into current R&D work                 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| t. other: <input type="text"/>                             | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

22. Comments

//

### Your Master's Programme

23. How satisfied are you with the quality of your master's programme?

- |                       |                       |                               |                       |                       |
|-----------------------|-----------------------|-------------------------------|-----------------------|-----------------------|
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/>         | <input type="radio"/> | <input type="radio"/> |
| Very satisfied        | Rather satisfied      | Not satisfied or dissatisfied | Rather dissatisfied   | Very dissatisfied     |

24. Where was the emphasis placed in your master's programme in terms of the theoretical and applied/practical knowledge, respectively?

- |  |                       |                       |                       |                       |
|--|-----------------------|-----------------------|-----------------------|-----------------------|
|  | To a large extent     | To some extent        | To a small extent     | Not at all            |
| a. Emphasis on theoretical knowledge       | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b. Emphasis on practical/applied knowledge | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

25. How satisfied are you with the balance in the programme's theoretical vs. applied/practical focus?

- |                       |                       |                               |                       |                       |
|-----------------------|-----------------------|-------------------------------|-----------------------|-----------------------|
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/>         | <input type="radio"/> | <input type="radio"/> |
| Very satisfied        | Rather satisfied      | Not satisfied or dissatisfied | Rather dissatisfied   | Very dissatisfied     |

26. To what extent did the master's programme contribute to the development of your skills and knowledge in the following areas:

	To a large extent	To some extent	To a small extent	Not at all
a. Independently solve problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Make critical analyses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Argue and persuade	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Explain to non-specialists	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Make written presentations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Make oral presentations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Communicate in English	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. Make ethical judgements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Consider international/global perspectives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. Work in teams/collaborations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k. Keep up with developments in the field of your education	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
l. apply scientific methods	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
m. Read and understand academic texts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
n. Carry out advanced assignments within given time frames	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
o. Identify and formulate problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
p. Identify and remedy your own knowledge gaps	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
q. Broad knowledge of the subject area of your master's	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
r. In-depth knowledge of the subject area of your master's	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
s. In depth insights into current R&D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
t. Contact with private sector/companies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
u. Other:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

27. How did you perceive the demands of your master's programme in comparison with your previous studies at the bachelor's level in terms of:

	Higher demands in master's	Largely the same demands	Lower demands in master's
a. Independence/own responsibility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Deeper insights and understanding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Degree of difficulty of studies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Workload during studies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

28. Your programme had an internationally mixed group of students. Did this experience help you in your career?

☐

yes

☐

no

29. Comments

//

30. Would you recommend others to take your master's programme?

- ☐ Yes
- ☐ No
- ☐ Don't know

Describe the strengths and weaknesses of your master's programme:

31. Strengths

//

32. Weaknesses

//

Thank you for participating!

## Master's programme in Molecular Medicine, Uppsala University

Year 1	Medical Genetics and Cancer; molecular mechanisms 15 c	Advanced Techniques in Molecular Medicine 15 c	Genomic and Epigenomic Medicine 15 c	Molecular Tools for Proteome Analysis and Diagnostics, 7.5 c
	Presentaion skills, Ethics and Bioinformatics etc.			Biomarkers; discovery and validation 7.5 c
Year 2	Bioimaging and cell analysis 7.5 c	Master Degree project 45 credits		
	Regenerative medicine 7.5 c	Master Degree project 45 credits- Laboratory Animal Science course		
		Master Degree project 45 credits - Molecular Epidemiology PhD course		
		<i>Elective period 15 c</i> -Research project work 15 c -Research Training w Laboratory Animal Science 15 c -Advanced Neurobiology -Genes, brains and behaviour -RNA biology	Master Degree project 30 credits	



UPPSALA  
UNIVERSITET

# Syllabus for Master's Programme in Molecular Medicine

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*Masterprogram i molekylär medicin*

**120 credits**

**Programme code:** MBK2M

**Established:** 2009-06-11

**Established by:** The Faculty Board of Medicine and Pharmacy

**Revised:** 2021-06-01

**Revised by:** The Educational Board of Medicine

**Reg. no:** MEDFARM 2021/566

**Syllabus applies from:** Autumn 2022

**Responsible faculty:** Faculty of Medicine

**Responsible department:** Department of Immunology, Genetics and Pathology

## ENTRY REQUIREMENTS

### *Academic requirements*

Bachelor's degree, equivalent to a Swedish Kandidatexamen, from an internationally recognised university. The degree can be in biochemistry/chemistry, biology, biomedicine/medicine, biotechnology, cell- and molecular biology, genetics, life science, medical sciences or similar but must include at least 30 credits covering all the following subjects: biochemistry, cell biology, chemistry, genetics and molecular biology/-genetics. Knowledge and previous experience of related laboratory work.

### *Language requirements*

All applicants need to verify English language proficiency. This is normally attested by an internationally recognised test such as TOEFL or IELTS with the following minimum scores:

- IELTS: an overall mark of 6.5 and no section below 5.5
- TOEFL: Paper-based: Score of 4.5 (scale 1–6) in written test and a total score of 575. Internet-based: Score of 20 (scale 0–30) in written test and a total score of 90
- Cambridge: CAE, CPE

More information about English language requirements

## DECISIONS AND GUIDELINES

The Master's programme in Molecular Medicine has been established by the Faculty of Medicine, following a decision by the Vice-Chancellor at Uppsala University.

The general objectives stated in the Higher Education Ordinance for advanced level education applies.

## *Theme of the programme*

- Molecular mechanisms causing diseases
- Genetic, epigenomic and proteomic technologies, their use and applications in medicine
- Development of diagnostics and therapies in research, health care and industry

## *Overall objectives of the education*

The international Master's programme in Molecular medicine embodies interdisciplinary biomedical research at the molecular level and provides in-depth knowledge in molecular and cellular mechanisms underlying human diseases, including genetic and epigenetic factors, as well as methods and approaches for the development of novel molecular diagnostics and therapies with applications in research, health care and Life Science industry. The research-preparatory programme intends to train the students' academic, analytical and problem-solving skills, with a strong focus on development of practical experience. The teaching is given at the frontiers in research areas in which Uppsala University is internationally recognised.

The programme aims to develop the students' abilities to identify and address scientific problems, formulate questions to effectively design experiments towards a solution. It aims to equip the students with abilities to independently analyse and evaluate data and research results, generated from state-of-the-art techniques as well as to stimulate to innovative and creative thinking.

The education is tightly integrated with cutting-edge international research as the teachers are research scientists and experts in their respective fields and practical skills can further be developed during individual research projects.

The programme is designed to provide the students with opportunities to gain strong interdisciplinary theoretical knowledge and methodological skills in cancer biology, genetics, epigenetics, molecular tools, biomarkers, imaging methods and regenerative medicine, which will prepare the students for professional careers in further international academic research/doctoral studies or the global job market in Life science, or other functions of research and development activities.

## **LEARNING OUTCOMES**

In addition to the general objectives of a Master's Degree stated in the Higher Education Ordinance, the student should have gained a deep and broad theoretical knowledge within the field as well as advanced knowledge and practical experience of a large number of current techniques and methods used at the very forefront of the research field. With this knowledge the student should

- be able to independently formulate and process scientific questions within the field, both theoretically and practically. Through an advanced knowledge of novel techniques and methods the student should be able to apply and execute these on relevant problems.
- be able to follow the development of knowledge and independently and critically analyse as well as evaluate and present research findings relevant to the field, both orally and in writing as reports or scientific articles.
- have acquired skills to individually plan and execute projects, at the same time be able to interact and collaborate in larger groups.
- have achieved an intellectual independence and maturity and to have gained solid knowledge and a significant insight into the current research, new methods and their possible applications as well as an insight into the method development within health care and industry.

## **LAYOUT OF THE PROGRAMME**

All courses are at an advanced level and are given entirely in English. The courses aim to provide both broad and in-depth knowledge into the field of molecular medicine as well as offer the student practical experiences of currently used techniques in research, diagnostics



and therapies, of interest also for health care and industry. The students are trained to independently approach scientific problems both theoretical and experimentally.

The first semester offers advanced knowledge in molecular and cellular mechanisms causing genetic diseases and cancer. A special emphasis is given to epigenetic mechanisms. Practical experience of methods to analyse genetic and epigenetic variation in clinical genetics and cancer. More in-depth knowledge of molecular medicine will be provided, focusing on relevant research problems approached in shorter laboratory projects, after which results are presented in a written article as well as in seminars. The semester includes compulsory modules providing training in bioinformatic tools as well as knowledge in research ethics and ethical issues in animal research.

The second semester offers in-depth knowledge of medical applications for new sequencing technologies, with emphasis on genetic and genome analysis, as well as epigenomics and comparative genomics, including practical experience of epigenetic analysis of chromatin after drug treatment or in diseases. Advanced knowledge in proteomics and current methods for protein analysis with practical application of the Human Proteome Project (HPR). Diagnostics by detection of protein through "Proximity Ligation Assay" as well as methods for the identification of new biomarkers.

Year 2 includes education in bioimaging, discussing analysis and diagnostics using imaging methods, spanning detection of single base pair mutations to whole-body analysis. The course "Regenerative medicine" provides in-depth knowledge about the new technologies in stem cell therapies as well as cell- and immune therapies. Generation of biomaterial to repair injured tissues or organs, i.e. tissue engineering, will be discussed and in vitro differentiation of stem cells as well as generation of induced pluripotent stem cells (iPSC) will be performed experimentally. An elective period offers possibilities to select other relevant courses or to undertake a short independent research project, alternatively start a Master's degree project of 45 credits. Semester 4 comprises an independent Master's degree project of 30 credits, undertaken at an academic research department or in the industry; in Sweden or abroad.

*Semester 1*

Medical Genetics and Cancer: Molecular Mechanisms 15.0 credits  
Advanced Techniques in Molecular Medicine 15.0 credits

*Semester 2*

Genomic and Epigenomic Medicine 15.0 credits  
Molecular Tools for Proteome Analysis and Diagnostics 7.5 credits  
Biomarkers, Discovery and Validation 7.5 credits

*Semester 3*

Bioimaging and Cell Analysis 7.5 credits  
Regenerative Medicine 7.5 credits  
Elective period, 15 credits (or start of 45 credits Master`s Degree Project)

*Semester 4*

Master`s Degree Project in Molecular Medicine 30 credits, alternatively 45 credits  
(including the elective period)

**INSTRUCTION**

The teaching is given in the form of lectures by research scientists and compulsory seminars, experimental and theoretical sessions as well as assignments, project work, site visits and symposia, demonstrations, web-based exercises. The programme is taught entirely in English.

**DEGREE**



# Resultatsök – utbildningarnas kvalitet 2012-2015

APPENDIX 5

Här finns UKÄ:s arkiv med utvärderingar gjorda åren 2012-2015. Du kan söka fram resultaten från de utvärderingar du är intresserad av och jämföra kvaliteten mellan olika utbildningar. [För nyare granskningar, besök Högskolekollen!](#)

## Utvärderingsområde eller Utbildning?

- Ett utvärderingsområde består av flera utbildningar. För att se resultaten av **alla utbildningar inom ett utvärderingsområde**: Klicka på knappen "Utvärderingsområde". Dubbelklicka sedan på det/de utvärderingsområden du vill söka på.
- För att se utvärderingen av **specifik utbildning**: Klicka på knappen "Utbildning" och dubbelklicka på den eller de utbildningar du vill se.
- För att se **alla utvärderingar som är genomförda på ett visst lärosäte**: Klicka på knappen "Universitet/högskola". Dubbelklicka sedan på det/de lärosäten du vill söka på.

## OBS: Dubbelklicka för att göra ditt urval.

Det som finns i den högra rutan är ditt urval som kommer att visas när du klickar på knappen "Sök".

Utvärderingsområde

Utbildning

Universitet/högskola

ABM (arkivvetenskap, biblioteks- & informationsvetenskap och musei-  
ABM: kommunikation av information och kultur i arkiv, bibliotek och m  
Affärsjuridik  
Affärsrätt  
Affärssystem

Molekylär medicin

Rensa

Visar 1 - 1 av 1 varav Bristande: 0, Hög: 0, Mycket hög: 1

Utbildning ▾

Examen ▾ Universitet/Högskola ▾

Beslut ▾

Utvärdering ▾ År ▾

 Molekylär  
medicin

Master

Uppsala universitet

Mycket hög  
kvalitet

Biomedicin

2014

**Beslut**

Mycket hög kvalitet

**Bedömning**

Universitetskanslersämbetet instämmer i bedömargruppens ställningstagande.

Sammantaget visar underlagen på mycket hög måluppfyllelse för målen

- kunskap och förståelse inom huvudområdet för utbildningen, inbegripet såväl brett kunnande inom området som avsevärt fördjupade kunskaper inom vissa delar av området samt fördjupad insikt i aktuellt forsknings- och utvecklingsarbete
  - fördjupad metodkunskap inom huvudområdet för utbildningen
  - förmåga att kritiskt och systematiskt integrera kunskap och att analysera, bedöma och hantera komplexa företeelser, frågeställningar och situationer även med begränsad information
  - förmåga att kritiskt, självständigt och kreativt identifiera och formulera frågeställningar, att planera och med adekvata metoder genomföra kvalificerade uppgifter inom givna tidsramar och därigenom bidra till kunskapsutvecklingen samt att utvärdera detta arbete
- För övriga mål visar underlagen på hög måluppfyllelse.

Den samlade bedömningen är att utbildningen håller mycket hög kvalitet.

---

### **Utvärderade examensmål:**

### **Omdömen efter utvärdering 2014**

- |  |            |
|--|------------|
| <ul style="list-style-type: none"><li>• För masterexamen ska studenten visa kunskap och förståelse inom huvudområdet för utbildningen, inbegripet såväl brett kunnande inom området som avsevärt fördjupade kunskaper inom vissa delar av området samt fördjupad insikt i aktuellt forsknings- och utvecklingsarbete</li></ul>                               | Mycket hög |
| <ul style="list-style-type: none"><li>• För masterexamen ska studenten visa fördjupad metodkunskap inom huvudområdet för utbildningen</li></ul>  | Mycket hög |
| <ul style="list-style-type: none"><li>• För masterexamen ska studenten visa förmåga att kritiskt och systematiskt integrera kunskap och att analysera, bedöma och hantera komplexa företeelser, frågeställningar och situationer även med begränsad information</li></ul>  | Mycket hög |
| <ul style="list-style-type: none"><li>• För masterexamen ska studenten visa förmåga att kritiskt, självständigt och kreativt identifiera och formulera frågeställningar, att planera och med adekvata metoder genomföra kvalificerade uppgifter inom givna tidsramar och därigenom bidra till kunskapsutvecklingen samt att utvärdera detta arbete</li></ul> | Mycket hög |
| <ul style="list-style-type: none"><li>• För masterexamen ska studenten visa förmåga att i såväl nationella som internationella sammanhang muntligt och skriftligt klart redogöra för och diskutera sina slutsatser och den kunskap och de argument som ligger till grund för dessa i dialog med olika grupper</li></ul>                                      | Hög        |
| <ul style="list-style-type: none"><li>• För masterexamen ska studenten visa förmåga att inom huvudområdet för utbildningen göra bedömningar med hänsyn till relevanta vetenskapliga, samhälleliga och etiska aspekter samt visa medvetenhet om etiska aspekter på forsknings- och utvecklingsarbete</li></ul>  | Hög        |

Läs hela yttrandet

Högskolans webbplats 

 Ladda ner utvärderingen från 2014 [pdf]

 DELA    ...



UPPSALA  
UNIVERSITET

Committee for the Master  
Programmes at the Medical  
Faculty

## **Criteria for evaluation of master degree projects in Molecular medicine/Innovative Medicine**

The 30 ECTS master degree project is an independent assignment where the student will apply, broaden and deepen theoretical and methodological knowledge from completed courses of the master program and also develop his/her scientific attitude.

A completed project normally consists of

- a project description and time plan
- a practical/theoretical assignment
- a written thesis
- a popular science summary of the project
- oral presentation(s)
- critical assessment of fellow students' theses work

The separate parts will be evaluated by the supervisor and/or the examiner.

The supervisor will evaluate the assignment and the written thesis. The latter includes a critical review of the report. The supervisor will also evaluate oral presentation(s) given by the students during the practical part of the course.

The examiner will evaluate the thesis (also to ensure that it is written according to the guidelines), the oral presentation at the exam symposium and the student's critical peer assessments. The examiner will compose the separate assessments into a final, weighted grade of the entire course.

It is essential that all assessments are carefully made and follow specific criteria to guarantee justified and comparable grades, but also to ensure that the student has met the learning outcomes.

Please, send your evaluation as soon as possible.

Thank you for your work!

## Supervisor's Evaluation of Master Degree Project

Student:

Project title:

Project time: 30/45 ECTS (mark the appropriate)

### Criteria for assessing the student's master degree project.

Use the scale 1 (very weak), 2 (weak), 3 (sufficient), 4 (good) to 5 (excellent). Your assessment should be based on what the student has achieved towards the end of the course as well as the process of reaching the learning outcomes. A difficult project with complicated facts and alternative hypothesis may take longer to grasp and will thus give less immediate possibilities for independent planning and performance.

Please evaluate the student's abilities and performance to **independently**:

	1	2	3	4	5
Understand the assigned task and the applied approach					
Understand and apply the used methods					
Gather and critically evaluate available and relevant scientific background data					
Participate in the development of the project by active contribution in discussions etc.					
Perform the practical/theoretical tasks in a reliable manner within given time frames					
Analyze, evaluate and critically interpret own results.					
Actively participate in research group meetings.					
Orally present their results in seminars.					

In average, how much supervision did the student require?

More than average

Average

Less than average

In your opinion, does the time and amount of work dedicated by the student to the project correspond to the allotted time?

Yes

No

Please evaluate the student's written report according to the following aspects:

	1	2	3	4	5
Comprehensive background, including relevant theories and references.					
Clear and well-structured abstract					
Clear and concise formulation of the aim of the study.					
Description of materials and methods, including motivation of selection.					
Presentation of relevant results, in text and with figures, tables etc.					
Critical evaluation of the obtained results in relation to current research.					
Critical analysis of own results and experimental setup.					
Discussion of weaknesses and possible reasons for lack of results.					
Statement of own conclusions and relevance for further studies.					
Bringing forward new hypothesis/models based on the results and conclusions, as well as suggestions of how these could be tested.					
Discuss the significance of the performed research and relate to relevant societal aspects.					
Discuss the significance of the performed research and relate to relevant ethical aspects.					
Overall readability, coherence and language according to given instructions.					
Provides information about any necessary ethical approvals.					
How did the student perform in comparison to other master students you have supervised?					

Obviously, grading the final version of the thesis is difficult and as it is the student's own achievements and abilities that should be evaluated, we must know whether you, as a supervisor, have made extensive corrections to the thesis. Try therefore to evaluate the thesis as it appeared to you before your corrections.

To what extent have you aided the student in his/her writing of the report?

\_\_\_\_\_ Only verbally commented on the presentation of the results

\_\_\_\_\_ Only verbally commented on structure, presentation and language

\_\_\_\_\_ Minor written comments on structure, presentation and language

\_\_\_\_\_ Extensive correction of the report



*Comments:*

How many master students have you supervised?

**Additional comments:**

Supervisor:

Department:

Date and signature:

**THANKS FOR YOUR WORK AND  
VALUABLE EVALUATION!**

## Evaluation of Research project presentation

Student:

Project title:

Project time:

In the detailed assessment of the student's presentations the scale 1 (very weak), 2 (weak), 3 (sufficient), 4 (good) to 5 (excellent) is used to describe the student's abilities and performances.

<b>The oral presentation</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Adopt the level of the presentation to the target group.					
Communicate relevant data in a clear, correct and concise manner.					
Discuss the obtained results and defend conclusions and hypotheses.					
Engage in a dialogue with the audience.					
Reflect on implications and future perspectives.					
Use presentation aids.					
Keep the allotted time.					

### Comments:

If possible, remark on the two opponents' achievements

<b>The assessment of a fellow student's work</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Engage in discussion with speaker.					
Ask relevant, critical questions about the research, results and conclusions.					
Identify possible flaws.					

### Comments:

<b>The assessment of a fellow student's work</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Engage in discussion with speaker.					
Ask relevant, critical questions about the research, results and conclusions.					
Identify possible flaws.					

### Comments:



## Writing a Peer Review

An important part of working in science is the critical and objective review of scientific contributions by your peers, whether it would be reviewing applications for grants or positions, papers for publications or as examiners in committees. The peer review should be a clear and constructive criticism that aims to improve you colleagues' work. Giving (and accepting) constructive critique (and appraisal) is, for example, trained during master thesis defences when opponents are raising questions on written thesis as well as oral presentation. As opponent you are also evaluated, but often the relevant questions you have prepared may already be asked by others during the seminar. To ensure the assessment, a written peer review with questions on the thesis should be submitted before the presentations. The review can after the presentations be available for the respondent which will be helpful in correcting the final version.

A brief written Peer review with questions, max 1 A4 page, should contain:

- Title of thesis and author
- A very brief summary that objectively describes the content of the work (max 100 words) followed by
- A short general impression of the work pointing out possible strengths and weaknesses. - followed by
- **Your questions** and
- and if possible, make a few suggestions for improvements (not any detailed correction).
- **Your name**

Write your two reviews on separate documents, each named with author and upload on StudentPortal in designated folder the day before the presentations. The speaker cannot access the questions on SP.

LÄRARKOMPETENS

3MG022 Medicinsk genetik och cancer - molekylära mekanismer

Akademisk examen (t.ex. doktor, licentiat, master, magister, läkarexamen)	Anställningskategori (t.ex. professor, docent, universitetslektor, forskare, universitetsadjunkt, doktorand)	Undervisningsämne	Anställning vid Uppsala universitet	Undervisning vid masterprogrammet (% av heltid)	Namn	Kommentar
PhD	Universitetslektor, ass. professor, sen. lecturer	Med. gen. och cancer - mol. mek.	JA	56	Lena Åslund	Programansvarig och kursledare
Doktor	Forskare, docent	Med. gen. och cancer - mol. mek.	JA		Joakim Klar	Kursledare
Doktor i medicinsk genetik	Professor	Med. gen. och cancer - mol. mek.	JA		Marie Allen	
A.B., PhD, Postdoc	Principal Investigator, Assistant Professor	Med. gen. och cancer - mol. mek.	NEJ		Adam Abate	Univ. Calif. San Franc. (UCSF)
PhD	Adj. professor	Med. gen. och cancer - mol. mek.	JA		Marie-Louise Bondeson	
	Forskare	Med. gen. och cancer - mol. mek.	JA		Laia Caja Puigsubira	IMBIM
PhD	adj. lektor, docent, sjukhusgenetiker, ass. professor med. gen., director, forskare	Med. gen. och cancer - mol. mek.	JA		Lucia Cavelier	
MD, PhD	Professor/Överläkare	Med. gen. och cancer - mol. mek.	JA		Niklas Dahl	
MSc	Doktorand	Med. gen. och cancer - mol. mek.	JA		Marcus Danielsson	
PhD	Universitetslektor	Med. gen. och cancer - mol. mek.	JA		Anna Dimberg	
PhD	Professor	Med. gen. och cancer - mol. mek.	JA		Jan Dumanski	
PhD	Professor	Med. gen. och cancer - mol. mek.	NEJ		Tim Eisen	Cancer research, Cambridge center
PhD	Senior Scientist	Med. gen. och cancer - mol. mek.	JA		Ramy Elgendy	AstraZeneca
PhD	Professor	Med. gen. och cancer - mol. mek.	JA		Magnus Essand	
PhD	Professor	Med. gen. och cancer - mol. mek.	JA		Karin Forsberg Nilsson	
PhD	Förstandare	Med. gen. och cancer - mol. mek.	JA		Christina Garsten	SCAS
MD, PhD	SVP, Chief Science Officer	Med. gen. och cancer - mol. mek.	NEJ		Leroy Hood	Providence St. Joseph Health; Chief Strategy Officer and
PhD, Postdoc	Professor	Med. gen. och cancer - mol. mek.	JA		Helena Jernberg Wiklund	
PhD, Postdoc	Forskare	Med. gen. och cancer - mol. mek.	JA		Fredrik Johansson Swartling	
PhD	Forskare	Med. gen. och cancer - mol. mek.	JA		Antonia Kalushkova Nair	
PhD	Forskare	Med. gen. och cancer - mol. mek.	JA		Cecilia Krona	
Läkarexamen, doktor	Professor, docent	Med. gen. och cancer - mol. mek.	JA		Ulf Landegren	
MSc	Doktorand	Med. gen. och cancer - mol. mek.	JA		Ida Larsson	Labb etc.
	Forskningsläkare	Med. gen. och cancer - mol. mek.	JA		Viktor Ljungström	Seminarier
PhD, Postdoc	Projektledare	Med. gen. och cancer - mol. mek.	JA		Malin Melin	
PhD, Postdoc	Professor bef univle	Med. gen. och cancer - mol. mek.	JA		Sven Nelander	
PhD	Universitetslektor, docent, ass. professor	Med. gen. och cancer - mol. mek.	JA		Jessica Nihlén Fahlquist	IFV
PhD, Postdoc	Forskare	Med. gen. och cancer - mol. mek.	NEJ		Magnus Nordborg	Gregor Mendel-institutet, Österrikiska vetenskapsakademin
BSc	Doktorand	Med. gen. och cancer - mol. mek.	JA		Luis Nunes	Lab intro
MMSc	Doktorand	Med. gen. och cancer - mol. mek.	JA		Patrick Nylund	
PhD, Postdoc	Forskare	Med. gen. och cancer - mol. mek.	JA		Tatjana Pandzic	
	Kurssamordnare	Med. gen. och cancer - mol. mek.	JA	50	Kristin Peisker	
PhD	Professor	Med. gen. och cancer - mol. mek.	JA		Fredrik Pontén	
PhD	Forskare	Med. gen. och cancer - mol. mek.	JA		Mohanraj Ramachandran	
	Forskare	Med. gen. och cancer - mol. mek.	JA		Elin Sjöberg	Lab intro
PhD, Postdoc	Forskare	Med. gen. och cancer - mol. mek.	JA		Ivaylo Stoimenov	
PhD	Forskare	Med. gen. och cancer - mol. mek.	JA		Carina Strell	Lab intro
DMSc	Universitetslektor, docent	Med. gen. och cancer - mol. mek.	JA		Lene Uhrbom	
MMSc	Doktorand	Med. gen. och cancer - mol. mek.	JA		Miriam Wahlhütter	Lab intro
PhD	Adj. professor, docent	Med. gen. och cancer - mol. mek.	JA		Fredrik Öberg	

LÄRARKOMPETENS

3MG012 Molekylärmedicinsk teknik

Akademisk examen (t.ex. doktor, licentiat, master, magister, läkarexamen)	Anställningskategori (t.ex. professor, docent, universitetslektor, forskare, universitetsadjunkt, doktorand)	Undervisningsämne	Anställning vid Uppsala universitet	Undervisning vid masterprogrammet (% av heltid)	Namn	Kommentar
PhD	Universitetslektor, ass. professor, sen. lecturer	Molekylärmedicinsk teknik	JA	56	Lena Åslund	Programansvarig och kursledare
MA	Doktorand		JA		Mirko Ancillotti	IFV CRB
PhD	Forskare	Molekylärmedicinsk teknik	NEJ		Johan Björkesten	Olink Proteomics
MSc	Forskningsingenjör	Molekylärmedicinsk teknik	JA	60	Hanne De Maeyer	
PhD, Postdoc	Forskare	Molekylärmedicinsk teknik	JA		Marcel den Hoed	
PhD	Associate Professor KI	Molekylärmedicinsk teknik	NEJ		Samir El-Andalousi	Co-founder and Head of Protein Engineering at Evox Therapeutics
MD, PhD	Associate Professor	Molekylärmedicinsk teknik	NEJ		Shannon Fisher	Boston University, School of medicine
PhD	Gästforskare	Molekylärmedicinsk teknik	JA		Eric Grönlund	
MD, PhD	Head, Translational researcher	Molekylärmedicinsk teknik	NEJ		Bence György	Ophthalmic Translational Research Group, IOB, Basel Schweiz
MD, PhD	Professor LU	Molekylärmedicinsk teknik	NEJ		Oskar Hansson	Överläkare på Enheten för klinisk minnesforskning, Alzheimerfonden
PhD	Forskare	Molekylärmedicinsk teknik	JA		Linda Holmfeldt	
	Forskare, docent	Molekylärmedicinsk teknik	JA		Anders Isaksson	Medsci
MD	Professor	Molekylärmedicinsk teknik	JA		Stefan James	UCR
	Forskare	Molekylärmedicinsk teknik	JA		Patrik Johansson	
	Professor i med. cellbiologi 00	Molekylärmedicinsk teknik	JA		Staffan Johansson	IMBIM
PhD, Postdoc	Professor	Molekylärmedicinsk teknik	JA		Masood Kamali-Moghaddam	
PhD	Forskare	Molekylärmedicinsk teknik	JA	10	Kaska Koltowska	
	Projektledare	Molekylärmedicinsk teknik	JA		Cecilia Lindskog Bergström	
PhD, Postdoc	Forskare	Molekylärmedicinsk teknik	JA		Magnus Lundgren	EBC
PhD, Postdoc	Professor bef univle	Molekylärmedicinsk teknik	JA		Sven Nelander	
PhD	Forskare	Molekylärmedicinsk teknik	JA		Dag Sehlin	IFV
	universitetslektor	Molekylärmedicinsk teknik	JA		Ida-Maria Sintorn	IT; CTO Vironova

LÄRARKOMPETENS

3MG025 Genomisk och epigenomisk medicin

Akademisk examen (t.ex. doktor, licentiat, master, magister, läkarexamen)	Anställningskategori (t.ex. professor, docent, universitetslektor, forskare, universitetsadjunkt, doktorand)	Undervisningsämne	Anställning vid Uppsala universitet	Undervisning vid masterprogrammet (% av heltid)	Namn	Kommentar
PhD	universitetslektor, ass. professor, sen. lecturer	Genomisk och epigenomisk medicin	JA	56	Lena Åslund	Programansvarig och kursledare
	Professor i medicinsk genetik	Genomisk och epigenomisk medicin	JA		Claes Wadelius	Kursledare?
Doktor i medicinsk genetik	Professor	Genomisk och epigenomisk medicin	JA		Marie Allen	
PhD, Postdoc	Bioinformatiker	Genomisk och epigenomisk medicin	JA		Adam Ameer	
PhD, Postdoc	Professor mol. genetics	Genomisk och epigenomisk medicin	NEJ		Göran Andersson	SLU
PhD	Forskare	Genomisk och epigenomisk medicin	JA		Alba Atienza Párraga	
	Forskare	Genomisk och epigenomisk medicin	JA		Erik Axelsson	IMBIM
PhD, Postdoc	Bitr. universitetslektor	Genomisk och epigenomisk medicin	JA		Lars Behrendt	EBC
PhD Genetics	Adj. professor	Genomisk och epigenomisk medicin	JA		Marie-Louise Bondeson	
MD, PhD	Forskare	Genomisk och epigenomisk medicin	JA		Johan Botling	
PhD	Postdoktor	Genomisk och epigenomisk medicin	JA		Hannah Brooke	IFV
	Forskare	Genomisk och epigenomisk medicin	JA		Marco Cavalli	
PhD	adj. lektor, docent, sjukhusgenetiker, ass. professor med. gen., director, forskare	Genomisk och epigenomisk medicin	JA		Lucia Cavalier	
PhD, Postdoc	Universitetslektor	Genomisk och epigenomisk medicin	JA		Xingqi Chen	
PhD, Postdoc	Bitr. universitetslektor	Genomisk och epigenomisk medicin	JA		Gustaf Christoffersson	MCB
MSc	Doktorand	Genomisk och epigenomisk medicin	JA		Marcus Danielsson	Datalab, lab
PhD, Postdoc	Forskare	Genomisk och epigenomisk medicin	JA		Marcel den Hoed	
PhD, Postdoc	Professor	Genomisk och epigenomisk medicin	NEJ		Denis Duboule	EPFL, UNIGE Schweiz
PhD	Forskare	Genomisk och epigenomisk medicin	JA		Stefan Enroth	
PhD, Postdoc	Professor	Genomisk och epigenomisk medicin	JA		Lars Feuk	
PhD, Postdoc	Forskare	Genomisk och epigenomisk medicin	NEJ		Per-Ola Freskgård	BioArctic
PhD	Professor	Genomisk och epigenomisk medicin	JA		Ulf Gyllensten	
	Forskare	Genomisk och epigenomisk medicin	JA		Jonatan Halvardson	
PhD, MBA	Neuroscientist	Genomisk och epigenomisk medicin	NEJ		Dolores Hambardzumyan	Icahn School of Medicine
	Senior professor	Genomisk och epigenomisk medicin	NEJ		Magnus Ingelman-Sundberg	KI
	Professor	Genomisk och epigenomisk medicin	JA		Mattias Jakobsson	EBC
PhD, Postdoc	Professor	Genomisk och epigenomisk medicin	JA		Helena Jernberg Wiklund	
	Bitr. universitetslektor	Genomisk och epigenomisk medicin	JA		Åsa Johansson	
PhD	Professor	Genomisk och epigenomisk medicin	NEJ		Chandrasekhar Kanduri	GU
Doktor	Forskare, docent	Genomisk och epigenomisk medicin	JA		Joakim Klar	
	Professor	Genomisk och epigenomisk medicin	JA		Lars Lind	Medsci
PhD, Postdoc	Universitetslektor	Genomisk och epigenomisk medicin	JA		Yumeng Mao	
	Bitr. universitetslektor	Genomisk och epigenomisk medicin	JA		Pascal Milesi	Scilifelab
PhD	Forskarassistent	Genomisk och epigenomisk medicin	NEJ		Per Nilsson	KI NVS
PhD	Forskare	Genomisk och epigenomisk medicin	JA		Jessica Nordlund	Medsci
MSc	Doktorand	Genomisk och epigenomisk medicin	JA		Patrick Nylund	Datalab, lab
PhD	Universitetslektor	Genomisk och epigenomisk medicin	JA		Tanel Punga	IMBIM
PhD, Postdoc	Forskare	Genomisk och epigenomisk medicin	JA		Amanda Raine	Medsci
FM, FD, Postdoc	Forskare	Genomisk och epigenomisk medicin	JA		Mathias Rask-Andersen	
PhD	Universitetsadjunkt	Genomisk och epigenomisk medicin	JA		Gerli Rosengren Pielberg	IMBIM
PhD, Postdoc	Associate professor	Genomisk och epigenomisk medicin	NEJ		Pelin Sahlén	Scilifelab
PhD, Postdoc	Junior group leader	Genomisk och epigenomisk medicin	NEJ		Jared Sternecker	CRTD, TU Dresden
PhD, Postdoc	Forskare	Genomisk och epigenomisk medicin	JA		Michael Vanlandewijck	
MD, PhD	Visiting Fellow, Professor of Genetics	Genomisk och epigenomisk medicin	NEJ		Rogier Versteeg	Einstein BIH Berlin; UVA, NBIC NL
MD	Professor	Genomisk och epigenomisk medicin	JA		Mia Wadelius	Medsci
	Professor i tumörbiologi 86	Genomisk och epigenomisk medicin	JA		Bengt Westermark	

LÄRARKOMPETENS

3MG026 Molekylära verktyg för proteomanalys och diagnostik

Akademisk examen (t.ex. doktor, licentiat, master, magister, läkarexamen)	Anställningskategori (t.ex. professor, docent, universitetslektor, forskare, universitetsadjunkt, doktorand)	Undervisningsämne	Anställning vid Uppsala universitet	Undervisning vid masterprogrammet (% av heltid)	Namn	Kommentar
PhD, Postdoc	Professor	Mol. tools	JA	20	Masood Kamali-Moghaddam	Kursledare
PhD, Postdoc	Universitetslektor	Mol. tools	JA		Xingqi Chen	Kursledare
	Professor	Mol. tools	JA		Jonas Bergquist	Kemi
MSc PhD	Forskare	Mol. tools	NEJ		Hanna Björkelund	Akad. Sjh
Civ.ing., PhD	Professor	Mol. tools	JA		Helena Danielson	Kemi
PhD	Universitetsadjunkt	Mol. tools	JA		Mikael Engskog	ILK
PhD	Forskare	Mol. tools	NEJ		Claudia Fredolini	Scilifelab
	Professor	Mol. tools	NEJ		Kjell-Olov Grönvik	SVA
PhD	Vice President and Research Director	Mol. tools	NEJ		Mats Gullberg	Q-linea AB
PhD	Manager Technical Projects	Mol. tools	NEJ		Sara Henriksson	Olink
PhD strukturbologi	Professor i biologi, särskilt strukturbologi	Mol. tools	JA		Stefan Knight	
	Projektledare	Mol. tools	JA		Cecilia Lindskog Bergström	
PhD	Universitetslektor	Mol. tools	NEJ		John Löfblom	KTH
	Professor	Mol. tools	JA		Suparna Sanyal	ICM, programkoordinator masterprogram i till. bioteknik



LÄRARKOMPETENS

3MG028 Biomarkörer, identifiering och validering

Akademisk examen (t.ex. doktor, licentiat, master, magister, läkarexamen)	Anställningskategori (t.ex. professor, docent, universitetslektor, forskare, universitetsadjunkt, doktorand)	Undervisningsämne	Anställning vid Uppsala universitet	Undervisning vid masterprogrammet (% av heltid)	Namn	Kommentar
PhD	universitetslektor	Biomark., identif. och validering	JA		Anna Dimberg	Kursledare
	projektledare	Biomark., identif. och validering	JA		Cecilia Lindskog Bergström	Kursledare
MSc	projektledare	Biomark., identif. och validering	JA		Karolin Bergenstråhle	UCR
DMSc, docent i med. cellbiologi	professor i med. cellbiologi	Biomark., identif. och validering	JA		Peter Bergsten	MCB
PhD	forskningsingenjör	Biomark., identif. och validering	JA		Andreas Digre	Datalab
PhD, Postdoc	projektkoordinator	Biomark., identif. och validering	JA		Per-Henrik Edqvist	
PhD	innovationsrådgivare	Biomark., identif. och validering	JA		Kerstin Ekelöf	UU Innovation
	professor	Biomark., identif. och validering	JA		Gunilla Enblad	
PhD, Postdoc	professor	Biomark., identif. och validering	JA		Lena Friberg	Farmbio
	forskare	Biomark., identif. och validering	JA		Vilmantas Giedraitis	IFV
MD, PhD	forskare	Biomark., identif. och validering	JA		Ingrid Glimelius	
PhD	affärsrådgivare	Biomark., identif. och validering	JA		Elisabet Gullberg	UU Innovation
MSc	forskningsingenjör	Biomark., identif. och validering	JA		Feria Hikmet Noraddin	Datalab
MSc	forskningsingenjör	Biomark., identif. och validering	JA		Borbala Katona	Datalab
PhD, Postdoc	forskare	Biomark., identif. och validering	JA		Kim Kultima	Medsci
PhD, Postdoc	forskare	Biomark., identif. och validering	JA		Theodora Kunovac Kallak	KBH
	professor emeritus	Biomark., identif. och validering	JA		Anders Larsson	Surgsci
PhD, Postdoc	forskare	Biomark., identif. och validering	JA		Roberta Lugano	Litt.presentationer
	professor docent	Biomark., identif. och validering	JA		Patrick Micke	
PhD	forskare, associate professor	Biomark., identif. och validering	NEJ		Ali Moazzami	SLU
MD, PhD	överläkare, associate professor	Biomark., identif. och validering	JA		Daniel Molin	
PhD	forskare	Biomark., identif. och validering	NEJ		Anna Månberg	KTH
	forskare	Biomark., identif. och validering	JA		Peter Nygren	
PhD	professor	Biomark., identif. och validering	JA		Anna Orlova	ILK
PhD, Postdoc	forskare, associate professor, docent	Biomark., identif. och validering	NEJ		Andor Pivarcsi	KI CMM
PhD	forskare docent, assoc. prof.	Biomark., identif. och validering	JA		Ulrika Segersten	Surgsci
MD, PhD	professor	Biomark., identif. och validering	JA		Tobias Sjöblom	
MD	överläkare	Biomark., identif. och validering	JA		Gustav Ullenhag	
MSc	doktorand	Biomark., identif. och validering	JA		Alessandra Vaccaro	Datalab
PhD, Postdoc	forskare	Biomark., identif. och validering	JA		Anzhelika Vorobyeva	

LÄRARKOMPETENS

3MG036 Bioimaging och cellanalys

Akademisk examen (t.ex. doktor, licentiat, master, magister, läkarexamen)	Anställningskategori (t.ex. professor, docent, universitetslektor, forskare, universitetsadjunkt, doktorand)	Undervisningsämne	Anställning vid Uppsala universitet	Undervisning vid masterprogrammet (% av heltid)	Namn	Kommentar
PhD	forskare	Bioimaging och cellanalys	JA		Kaska Koltowska	Kursledare?
PhD, Postdoc	professor	Bioimaging och cellanalys	JA		Taija Mäkinen	Kursledare?
PhD	Biträdande universitetslektor	Bioimaging och cellanalys	JA		Henrik Boije	Neuro
PhD, Postdoc	forskare	Bioimaging och cellanalys	JA		Jens Eriksson	IMBIM
PhD Molecular Biology	forskare	Bioimaging och cellanalys	JA		Ingvar Ferby	IMBIM
MD PhD	professor	Bioimaging och cellanalys	JA		Pär Gerwins	MCB
PhD	forskare	Bioimaging och cellanalys	NEJ		Miranda Gisele	Datalab; KTH
PhD, Postdoc	forskare	Bioimaging och cellanalys	JA		Konstantin Gängel	
Civ.ing., PhD	1:e forskningsing.	Bioimaging och cellanalys	JA		Monika Hodik	BioVis
PhD	forskare	Bioimaging och cellanalys	JA		Olof Idevall	MCB
PhD	1:e forskningsing.	Bioimaging och cellanalys	JA		Matyas Molnar	BioVis
PhD Dr.rer.nat	Projektleddare	Bioimaging och cellanalys	JA		Dirk Pacholsky	BioVis
	doktorand	Bioimaging och cellanalys	JA		Virginia Panara	
	forskare	Bioimaging och cellanalys	NEJ		Francesca Pennacchietti	KTH
MSc	Doktorand	Bioimaging och cellanalys	JA		Di Peng	
MSc	Doktorand	Bioimaging och cellanalys	JA		Milena Petkova	
PhD, Postdoc	Forskare	Bioimaging och cellanalys	JA		Mark Richards	
PhD, Postdoc	Forskare	Bioimaging och cellanalys	JA		Diana Spiegelberg	Surgsci
	Forskningsingenjör	Bioimaging och cellanalys	JA		Karin Staxäng	BioVis
DMSs	Professor, docent	Bioimaging och cellanalys	JA		Anders Tengholm	MCB
PhD, Postdoc	Forskare	Bioimaging och cellanalys	JA		Maria Ulvmar	
Civ.ing., PhD, Postdoc	Professor, docent	Bioimaging och cellanalys	JA		Carolina Wählby	IT

LÄRARKOMPETENS

3MG035 Regenerativ medicin

Akademisk examen (t.ex. doktor, licentiat, master, magister, läkarexamen)	Anställningskategori (t.ex. professor, docent, universitetslektor, forskare, universitetsadjunkt, doktorand)	Undervisningsämne	Anställning vid Uppsala universitet	Undervisning vid masterprogrammet (% av heltid)	Namn	Kommentar
PhD	forskare	Regenerativ medicin	JA		Jens Schuster	Kursledare
PhD	adj. universitetslektor, docent	Regenerativ medicin	JA		Oskar Skog	Kursledare
PhD	gruppchef	Regenerativ medicin	NEJ		Björn Carlsson	Läkemedelsverket
PhD	CEO, Founder CellTherEx Consulting AB	Regenerativ medicin	NEJ		Lindsay Davies	CSO NextCell Pharma AB
MD	doktorand	Regenerativ medicin	JA		Torsten Eich	
FD	professor	Regenerativ medicin	JA		Magnus Essand	
PhD	professor, docent	Regenerativ medicin	JA		Karin Forsberg Nilsson	
FM	forskare	Regenerativ medicin	JA		Karin Fromell	
doktor	postdoc	Regenerativ medicin	NEJ		Christoffer Grigsby	KI
PhD	professor, docent	Regenerativ medicin	JA		Finn Hallböök	Neuro
PhD	professor	Regenerativ medicin	JA		Staffan Johansson	IMBIM
PhD in Law	postdoktor	Regenerativ medicin	JA		Emilia Niemiec	IFV CRB
PhD	forskare	Regenerativ medicin	JA		Ayan Samanta	Kemi
MD	Dr.med.univ.	Regenerativ medicin	NEJ		Christian Smolle	Medical University of Graz
PhD	universitetslektor	Regenerativ medicin	JA		Oomen Varghese	Kemi
PhD	forskare	Regenerativ medicin	JA		Grzegorz Wicher	

## WELCOME TO

### MASTER PROJECT PRESENTATIONS VT 2019

*Masters in Molecular Medicine and Masters in Innovative Medicine*

**June 3 Fåhraeussalen, Rudbeck Laboratory**

**9.00-9.35 Nanocellulose hydrogels as a platform for stem cell therapy in chronic wounds**

*Speaker: NN, Uppsala University*

Opponents: NN and NN

**9.35-10.10 An investigation of the role of CD93 in tumor-endothelial crosstalk and perivascular invasion in glioma**

*Speaker: NN, Uppsala University*

Opponents: NN and NN

Coffee

**10.30- 11.05 Expression and functional characterization of integrin  $\alpha 10\beta 1$  in soft tissue sarcoma subtypes**

*Speaker: NN, Xintela AB, Medicon Village, Lund* SKYPE Opponents: NN and NN

**11.05-11.40 Characterization of Genetic Regulatory Elements of Lipid Metabolism in Liver Cells**

*Speaker: NN, Uppsala University*

Opponents: NN and NN

**11.45- 12.20 Shared Risk of Diabetes Mellitus between Owners and Pets**

*Speaker: NN, Uppsala University*

Opponents: NN and NN

LUNCH

**13.15- 13.50 The Influence of Sirtuin-1 Activation on KGN Cell Features**

*Speaker: NN, Biomedical Center Munich.*

SKYPE

Opponents: NN and NN

**13.50- 14.25 Turner Syndrome Detection with an Expanded Vanadis<sup>®</sup> NIPT Assay**

*Speaker: NN, Vanadis Diagnostics (PerkinElmer), Stockholm*

Opponents: NN and NN

Coffee

14.40- 15.15 **SERPINB9 expression by tumor cells hampers T cell mediated-killing**

*Speaker: NN, University Medical Center Utrecht*

Opponents: NN and NN

15.15- 15.50 **Selection of affibody molecules for targeting of liver cancer cells using phage display techniques**

*Speaker: NN, Royal Institute of Technology, Stockholm*

ev. SKYPE

Opponents: NN and NN

16.00- 16.35 **Mutation in PPM1D prolongs DNA damage response and causes primary microcephaly, short stature and immune defect**

*Speaker: NN, University Medical Center Göttingen*

Opponents: NN and NN

16.35 - 17.40 PROGRAMME EVALUATION/Certificates

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## **June 4 Fåhraeusalen, Rudbeck Laboratory**

9.00-9.35 **Inhibition of Ribosome biogenesis as a new strategy against the Mesenchymal transition in Glioblastoma cells**

*Speaker: NN, Uppsala University SKYPE*

Opponents: NN and NN

9.35-10.10 **Developing CRISPR/Cas9 for high-throughput Synthetic Genetic Analyses in fission yeast**

*Speaker: NN, University of Edinburgh*

SKYPE

Opponents: NN and NN

Coffee

10.30- 11.05. **The role of Dickkopf protein 2 in immune evasion and tumor progression**

*Speaker: NN, Netherlands Cancer Institute, Amsterdam*

Opponents: NN and NN

11.05-11.40 **Experimental Nitrocellulose-based Lateral Flow Immunoassay for Allergic Asthma**

*Speaker: NN, Thermo Fisher Scientific, Uppsala*

Opponents: NN and NN

11.45- 12.20 **Characterization of the binding and evaluation of the affinity of the novel series of compounds (GT A–D) to the GABA<sub>A</sub> receptor in mammalian brain tissue**

*Speaker: NN, Gabather AB, Södertälje*

Opponents: NN and NN

LUNCH

13.15- 13.50 **Regulation of pluripotent stem cell factors during cell division**

*Speaker: NN, Uppsala University*

Opponents: NN and NN

13.50- 14.25 **Role of VPS18 in the Localization of CD18 in Polymorphonuclear Neutrophils**

*Speaker: NN, Ludwig-Maximilians-Universität, München*

Opponents: NN and NN

Coffee

14.40- 15.15 **Early neurodevelopmental changes in mouse models recapitulating mental illnesses**

*Speaker: NN, University of Copenhagen. SKYPE*

Opponents: NN and NN

15.15- 15.50 **Role of Bruton's Tyrosine Kinase on Monocyte & Macrophage Chemotaxis**

*Speaker: NN, Sir William Dunn School of Pathology, Oxford University, UK*

Opponents: NN and NN

16.00- 16.35 **The host immune response of *Caenorhabditis elegans* to infection with *Duddingtonia flagrans***

*Speaker: NN, Karlsruhe Institute of Technology. SKYPE*

Opponents: NN and NN

16.35- 17.10 **Mechanistic Relation between Activin Receptor-Like Kinase 1 and Endoglin in Regulation of Endothelial Cells Dynamics**

*Speaker: NN, Karolinska Institute SKYPE*

Opponents: NN

17.10-17.40 EVALUATION/Certificates

PICNIC 6 pm ish

**June 5 Rudbeckssalen, Rudbeck Laboratory**

9.00-9.35 **The role of Lactobacilli in Helicobacter pylori infection on a monolayer of primary human gastric epithelial cells**

*Speaker: NN, Karolinska Institute*

Opponents: NN and NN

Coffee

9.50- 10.25 **Fbxl12 alleviates Replication Stress through Regulation of Fancd2 in Breast Cancer**

Speaker: *NN, Karolinska Institutet*

Opponents: NN and NN

10.25-11.30 PROJECT/PROGRAMME EVALUATION

Information/Questions – positions – job etc certificates

LUNCH

13.30-45 Seating University Aula

14.00 **Graduation ceremony**- master programmes at Medical faculty  
University Aula

18.00? Gasque

**Molecular medicine****2010-2018**

<b>Adm.y</b>	<b>Current occupation</b>
H10	PhD student IGP Postdoktor <i>IGP</i> ,
H10	<i>job Avesthagen</i> Research assistant <i>IGP</i> , <i>Human Protein Atlas</i> ?
H10	Job Chennai, Indien
H10	PhD student <i>KI</i> Breast cancer (2011-2017) 6 publ Postdoc GIS Genome Institute of Singapore NGS, Regulatory Specialist (Medical Devices Branch) at Health Sciences Authority, Singapore 8 publ
H10	PhD student Japan/ <i>KI</i> own company Scientific/Medical illustrator, Uppsala
H10	PhD student/Postdoc <i>Univ. Bergen</i> , <i>Sars Int. Centre for Marine Molecular Biology</i>
H10	<i>,Technische Universität München (TUM) Medicinkliniken/Poliklinik III – Hematologi/Onkologi</i>
H10	Assistant Manager <i>Shilpa Biological</i> (fd. <i>Shilpa Medicare Ltd</i> ), Hubballi, Indien
H10	Univ. of Alberta, Canada, Dept of Oncology
H10	Medical advisor/Assoc. director <i>MSD</i> , Sweden
H10	PhD student <i>ETH</i> , Zürich PhD 2019 An Integrative Transgenic Strategy for Single-Cell Tracking with Clonal Analysis, Consulting China?
H10	<b>CICP - Credit Controller - Akrihin/Polpharma</b> ?? EuroImmune?
H10	<b>Immunotec Toronto</b> , <b>EUROIMMUN Medical Diagnostics Canada</b>
H10	PhD student DKFZ, Researcher DKFZ
H10	governm job ? Fo ing KTH? (-- nov -19)?
H10	PhD student <i>KI</i> , Biomed. research scientist <i>RED Clinic AB</i> , Sthlm

**Totalt: 16**

<b>Ant.år</b>	<b>Current occupation</b>
H11	PhD student PubCare UU, Research Scientist/Postdoctoral associate <i>Yale University, Neuroscience</i>
H11	MSc
H11	<i>KI</i>



H11	Master Degree project, PhD student Genome Insitute Singapore A star fellowship
H11	Senior Postdoctoral Barncancerfonden Fellow <i>KI</i>
H11	MSc
H11	MSc
H11	PhD student?, UAS, Senior quality assurance associate <i>AstraZeneca</i> , Södertälje
H11	21 hp left programme
H11	Scientist <i>Anocca AB</i> , Södertälje
H11	PhD student, Dept Med Sci UU, Forskare/projektkoordinator <i>UU, Medsci</i>
H11	Processledare <i>Region Västmanland</i>
H11	Postdoktor <i>UU, ILK</i>
<b>Totalt: 13</b>	

<b>Ant.år</b>	<b>Nuvarande sysselsättning</b>
H12	Operativ chef <i>Grupo Acosta Laboratorios</i> , Hidalgo Mexiko
H12	PhD student, Forskare <i>IGP</i>
H12	PhD student IGP, Gästforskare <i>IGP</i>
H12	PhD student <i>UMU, Inst. för kirurgisk och perioperativ vetenskap</i>
H12	PhD student KI, PhD 2019 MTC KI, Immunotherapy, Associate Editor <i>Wiley-VCH Verlag GmbH &amp; Co., Germany, European Journal of Immunology</i>
H12	6 hp changed programme
H12	PhD student IGP, Scientific assoc. Product manager <i>Intelligencia.ai</i> , Aten
H12	PhD student IGP after 1y studies, Scientific assoc. <i>Intelligencia.ai</i> , Aten
H12	Development Engineer <i>Olink Proteomics</i> , Uppsala
H12	Bioinformatics master Master Thesis <i>Lytics Experlytics</i> , Lund
H12	Research Engineer <i>IGP, Human Protein Atlas</i> , now PhD student IGP
H12	Pathologist <i>Shanghai General Hospital</i>
H12	1y Research Engineer IGP, Regulatory Affairs Specialist <i>Medochemie Ltd</i> , Cypern Pharma
H12	Master project Olink BioSciences, Thermo Fisher Scientific 5 y, ReciPharm 3y, in parallel Consultant at <i>Zozium AB (leadership, project management in Life Sciences)</i>
H12	Completed 2014
H12	PhD student <i>German Cancer Research Center (DKFZ)</i> , Heidelberg
H12	1 y Research Engineer Human Protein Atlas IGP, Marie Curie PhD Fellow <i>Novo Nordisk 2015-2018</i> , Postdoc researcher <i>Novo Nordisk</i> , Research Scientist <i>Novo Nordisk</i>

H12	Doctoral researcher <i>Tammerfors univ.</i>
H12	Laboratory Technician at human induced pluripotent stem cell facility (iPS core), Karolinska Institutet
H12	Université de Montréal, Canada, cell therapy
H12	PhD student Neuro UU, 2021 Postdoc SciLifelab
H12	Master Degree proj IGP 3 publ. epigenetics, 2 publ. Dept. of Biosciences and Nutrition, Karolinska Institute,
H12	1 y Medical Technologist <b>Centogene AG</b> , 2 publ. PhD student <i>Universität Greifswald, Institute of Pharmacy/Pharmaceutical &amp; Medicinal Chemistry</i>
H12	PhD student, PhD 2019, Postdoctoral Research Fellow <i>Ludwig-Maximilians Universität</i> , München, pericytes glia

**Totalt:** 24

Ant.år	Nuvarande sysselsättning
V13	Early Stage Researcher (ESR) <i>Ecmed - The Extracellular Matrix in Epileptogenesis Marie Curie Actions/Doktorand Aix-Marseille univ.</i>
H13	1 y Neuroscience, 3 y lab tech KI, Lab tekn <i>CareDx Inc.</i> , Sthlm
H13	Immutrain PhD student, <i>Spanish National Cancer Research Centre (CNIO)</i> PhD 2021 <i>Characterization of mechanisms that compromise dendritic cell function in melanoma, LMU</i>
H13	PhD student, Researcher <i>Univ. Oslo</i>
H13	PhD student <i>KI, Laboratoriemedicin</i>
H13	Res engin IGP 1y Projektledare, <i>Avdelningen för kliniska studier, Region Örebro län</i>
H13	<i>PhD student, Researcher Univ. Ulm, Institute of Orthopaedic Research and Biomechanics</i>
H13	Bioinformatiker <i>NBIS</i> , Sthlm
H13	PhD student <i>UU, Neuro</i>
H13	PhD student <i>SU, Biokemi &amp; biofysik</i>
H13	Lab ing <i>Fresenius Kabi</i> , Uppsala
H13	PhD student <i>Ludwig Boltzmann Institute for rare and undiagnosed diseases</i> , Wien
H13	PhD student <i>Univ. Liège</i>
H13	PhD student <i>KI/Ingenjör KS</i>
H13	PhD student <i>UU, Pubcare PhD</i>
H13	PhD student <i>Institute of Oncology, Ljubljana</i>
H13	Ingenjör <i>KS</i>
H13	PhD student <i>KI, KBH</i>

H13	PhD student <i>KI, IMM</i> Department of GU Medical Oncology, MD Anderson Cancer Center, Houston, Texas. ²Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden.
H13	PhD student <i>KI, Bionut</i>

**Totalt:** 20

<b>Ant.år</b>	<b>Nuvarande sysselsättning</b>
V14	PhD student <i>KI, MBB</i>
H14	PhD student <i>ETH, Zürich</i>
H14	PhD student <i>Max Planck Institute for Biologi of Ageing, Köln</i>
H14	72 hp
H14	PhD student <i>Instituto Gulbenkian de Ciência, Lissabon</i>
H14	PhD student <i>Univ. of Wisconsin-Madison</i>
H14	PhD student, PhD in Pharmaceutical Sciences from ETH Zurich, Associate Consultant Executive Insight, <i>Healthcare Consultants, Zürich</i>
H14	MMSc
H14	PhD student <i>Helmholtz Zentrum, München</i>
H14	PhD 2021 - PhD student <i>KI, MTC</i>
H14	PhD student Forskare/doktorand, <i>Tammerfors univ.</i>
H14	Master Student <i>Netherlands Cancer Institute</i>
H14	PhD student <i>IGP,</i>
H14	Project Manager <i>Eurofins BioPharma Product Testing, München</i>
H14	Lecturer, Researcher & Consultant, <i>Univ. of Zambia</i>
H14	Bioinformatiker <i>KI, MMK, Clinical genetics</i>
H14	Associate specialist <i>UCSF Medical center, San Francisco</i>
H14	Product Testing Analyst <i>MSD, Newcastle upon Tyne, own company</i>
H14	PhD student, Ljubljana <b>University</b> Medical Centre, Medical Researcher <i>Fotona d.o.o., Slovenien</i>
H14	PhD student <i>KI, Laboratoriemedicin</i>
H14	Publication Canada univ Waterloo`Cellular and Molecular Biologist <i>Membio, Kanada</i>
H14	PhD student <i>IGP,</i>
H14	PhD 2021 Doktorand <i>Univ. Tasmania, Postdoctoral Researcher, University of California, San Diego, UCSD</i>
H14	PhD student <i>KI, Klin. vetenskap, intervention och teknik</i>
H14	PhD student Postdoc <i>TU München + Univ. Basel</i>

**Totalt:** 25. 15 PhD students , Bioinformatician, project manager company, own company, specialist UCSF, lecturer, 3 unknown

Ant.år	Nuvarande sysselsättning
H15	Forskn. ass. <i>UU, Farmbio</i>
H15	PhD student <i>Univ. Groningen</i>
H15	Forskn.ass. <i>UU, Farmbio</i>
H15	PhD student/Research Scientist <i>Exosomics</i> , Siena
H15	PhD Student <i>Spanish National Cancer Research Centre (CNIO)</i>
H15	Research technician <i>Kwok Lab Benaroya Research Institute</i> , Seattle
H15	
H15	PHD Student at Medizinische Hochschule Hannover
H15	Research Assistant UU, Researcher Univ Madrid 1 y, Drug Safety Assistant <i>Parexel</i> global Pharma
H15	PhD in Systems Biology 2021 <i>ETH</i> , Zürich
H15	Laboratorieingenjör Klinisk kemi och farmakologi
H15	PhD student University Hospital Zurich
H15	90,5 hp
H15	Research engineer Spatial Proteomics <i>SciLifeLab</i>
H15	PhD student <i>UU, IMBIM</i>
H15	PhD student <i>IGP</i>
H15	PhD student <i>KI, BioNut</i>
<b>Totalt:</b> 17	

Ant.år	Nuvarande sysselsättning. 13/20 PhD
H16	60 hp-started on Clinical Genetics - 2021 to Laboratory Technician R&D <a href="#">Olink Proteomics</a>
H16	PhD student <i>KI, MBB</i>
H16	PhD student <i>IGP</i> ,
H16	72,5 hp
H16	<i>PhD student Netherlands Cancer Institute</i>
H16	<i>Medical Laboratory Scientist, Akademiska sjukhuset</i>
H16	PhD student KI, <a href="#">Linnarsson</a>
H16	PhD student <i>UU, Medsci</i>

H16	PhD student IGP
H16	Master project Roche, (3 y) Site Start Up and Regulatory Specialist II at Syneos Health,
H16	
H16	PhD student <i>KI, MBB</i>
H16	PhD student IGP
H16	PhD student <i>UU, Medsci</i>
H16	PhD student <i>Ludwig-Maximilians Universität, München</i>
H16	Clinical process coordinator <i>IQVIA</i> , Bratislava. publ master project
H16	Marie Curie PhD fellow <i>Radboud University Medical Center, Radboud Institute for Molecular Life Science (RIMLS)</i> , Nijmegen
H16	Research Technician <i>Imperial College</i> , London
H16	PhD student <i>IGP, Dimberg</i>
H16	PhD student <i>Heinrich-Heine-Universität, Düsseldorf</i>

**Totalt:** 20. 13 PhD studies 2 company, 3 in clinical or research technician 2 not known. 65% PhD. 90% has known jobs

Namn	P-nr	E-post	Ant.år	Nuvarande sysselsättning
H17		Coordinador de laboratorio at VYMSA LABS, Monterrey, Nuevo León, Mexico, seq libr seq now Covid Lärare <i>Instituto Bilingüe Stanford</i> , Monterrey, Mexico , must fulfill scholarship- at least 6 months work in home land.		
H17		Master project "Research assistant Netherlands Cancer Institute" , Master Public Health		
H17		Quality Assurance Technologist Senior Technician <i>AstraZeneca</i> , Sverige		
H17		!! PhD student LMU , Research Assistant <i>Royal College of Surgeons in Ireland</i>		
H17		Forskare <i>IGP</i> , Medical lab technician at Akademiska sjukhuset		
H17		PhD student <i>ETH, Zürich</i>		
H17		Student Mol med <i>UU</i>		
H17		applies for job in company or academia		
H17		Doctoral Researcher <i>German Cancer Research Center (DKFZ)</i> , Heidelberg		
H17		PhD student <i>KI, FyFa</i>		
H17		PhD student <i>Köpenhamns univ., BRIC</i>		
H17		PhD student, master project, <i>Ludwig-Maximilians Universität, München</i>		
H17		Bioanalyst <i>North Estonia Medical Center Foundation</i> , Tallinn		
H17		Information Technologist Support Specialist <i>East Tallinn Central Hospital</i>		
H17		Forskn. ass. <i>UU, MCB</i>		
H17		IMIM student not MolMed		
H17		Manager LifeGenomics AB, TATAA, Lead Specialist, Master project, Research and Teaching Assistant, Göteborgs universitet" (juni--okt -19)		

**Totalt: 17**

Ant.år	Current occupation
V18	Research Assistant at Bit.Bio Discovery, Vienna BioCenter, Austria, hIPCs cellular models, CRISPR screens
H18	Technician Assay Development at Devyser Genetic Diagnostics
H18	Trainee Embryologist at Institute of Life IASO, IVF clinic
H18	PhD student UMC Utrecht Centre of Molecular Medicine
H18	PhD student Linnarsson Forskn. ass. <i>KI, MBB</i>
H18	PhD student Ph.D. Student at ETH Zürich Forskn. ass <i>KI, Medicin</i> , Huddinge
H18	Scientist at Biovica International AB
H18	PhD student Beatson Institute Cancer Research CRUC Glasgow, master project Glasgow
H18	Bioengineer at Anocca AB- therapies
H18	PhD student Medicinal University of Graz
H18	Research Scientist at EMPE Diagnostics RNA/DNA TB
H18	Present Master thesis sept 2021
H18	PhD student <i>IGP</i>
H18	<b>Bioengineer at Anocca</b> highly engineered human cellular, genetic and molecular tools T-cells
H18	contin project at KI, Covid Laboratory Technician ABC labs
H18	PhD student Univ Surrey
H18	Bioengineer at Anocca AB    T-cell therapy
H18	PhD student Forskare/doktorand <i>Princes Máxima Center voor kinderoncologie</i> , Utrecht
H18	PhD student Forskare/doktorand <i>Univ. Oxford</i>

**Totalt: 19.** 9 PhD students, 8 companies relevant, 1 clinic IVF reg med , 1 to present master project. 45% companies 50% PhD 100% has jobs

<b>Self-reflection on team-work skills</b>					
<b>Medical genetics and cancer, Fall 2019</b>					
<b>Name:</b>	<b>Group:</b>				
<i>Read through the following statements carefully and mark the column that most represents <b>your</b> view of how well each statement describes your team work</i>		<b>strongly disagree</b>	<b>disagree</b>	<b>agree</b>	<b>strongly agree</b>
<b>Team Work</b>					
I have put forward my points of view					
I have felt that my opinions have been respected					
I think the other group members have experienced that I respected their opinions					
I have taken a reasonable part of responsibility for the planning and completion of the work					
<b>Communication</b>					
I listen carefully to others					
I can present my own ideas effectively to others					
I reflect on the activities and interactions of the group and encourage other group members to do so as well					
<b>Organisation, Planning, Problem solving</b>					
I always stick to the set deadlines					
I can set priorities					
Taking criticism is not a difficult task for me					
<b>Team effectiveness</b>					
Everyone has collaborated and contributed to the planning and implementation of the joint work					
We were able to resolve conflicts within the team collaboratively					
The communication in our group was open and honest					
The group sessions were very productive					
Team members sought and gave each other constructive feedback					
<b><i>How would you describe your role in the group?</i></b>					
<b><i>Something that you would like to do different/improve in a future team work task:</i></b>					





# **Master in Molecular Medicine 2018-2020**

## **Medical Faculty, Uppsala University**

**Dear Student,**

**You are graduating from the Master's programme in Molecular medicine at Uppsala University. Your opinions about the programme are extremely important to us for the further development of the programme and for our aim to provide an research-oriented education of high international standard.**

**The Swedish Higher Education Ordinance has set out objectives for the abilities a graduate of Master's Degree is expected to have acquired. Whether the programme has contributed to you achieving these goals and if you consider yourself to have fulfilled these aims is an important part of the evaluation.**

**Thanks for your input!**

**Lena Åslund, Programme director**

**The theme of the programme in Molecular medicine includes the current knowledge in genomics, epigenomics and proteomics, with an emphasis on molecular mechanisms causing diseases; genomic/epigenomic and proteomic methods and technologies; their use and applications as well as the development of diagnostics and therapies in research, health care and industry.**

### **Programme Outline**

#### **Year 1**

- 1) Medical genetics and cancer; molecular mechanisms 15 c**
- 2) Advanced Techniques in Molecular Medicine 15c**
- 3) Genomic and Epigenomic Medicine 15c**
- 4) Molecular tools for Proteome Analysis and Diagnostics 7.5 c**
- 5) Biomarkers; discovery and validation 7,5 c**

#### **Year 2**

- 6) Bioimaging and cell analysis 7.5 c**
  - 7) Regenerative medicine 7.5 c**
- Elective course period 15 c; or**  
**Research project work 15 c including Laboratory Animal Science course**  
**Research project work 15 c, or**  
**Master degree project in Molecular Medicine 30 or 45 c (alt. including Laboratory Animal Science or Molecular Epidemiology)**

# EVALUATION

## Master in Molecular Medicine 2018-2020

### Medical Faculty, Uppsala University

**Why did you choose to study on the master program in Molecular medicine? And how did you receive information about the programme?**

**Are you satisfied with the programme in general?**

*not at all*

*completely*

1

2

3

4

5

Comments:

## OBJECTIVES OF THE MASTER PROGRAMME

Objectives for a Degree of Master (Two Years) according to the Swedish Higher Education Ordinance, System of Qualifications.

### *Knowledge and understanding*

For a Degree of Master (Two Years) students must:

- demonstrate knowledge and understanding in their main field of study, including both broad knowledge in the field and substantially deeper knowledge of certain parts of the field, together with deeper insight into current research and development work; and
- demonstrate deeper methodological knowledge in their main field of study.

**These aims have been fulfilled**

*not at all*

*completely*

1

2

3

4

5

Comments:

### *Skills and abilities*

For a Degree of Master (Two Years) students must:

- demonstrate an ability to critically and systematically integrate knowledge and to analyse, assess and deal with complex phenomena, issues and situations, even when limited information is available;
- demonstrate an ability to critically, independently and creatively identify and formulate issues and to plan and, using appropriate methods, carry out advanced tasks within specified time limits, so as to contribute to the development of knowledge and to evaluate

this work;

- demonstrate an ability to clearly present and discuss their conclusions and the knowledge and arguments behind them, in dialogue with different groups, orally and in writing, in national and international contexts; and - demonstrate the skill required to participate in research and development work or to work independently in other advanced contexts.

**These aims have been fulfilled**

*not at all*

**1**

**2**

**3**

**4**

*completely*

**5**

*Comments:*

*Judgement and approach*

For a Degree of Master (Two Years) students must:

- demonstrate an ability to make assessments in their main field of study, taking into account relevant scientific, social and ethical aspects, and demonstrate an awareness of ethical aspects of research and development work;
- demonstrate insight into the potential and limitations of science, its role in society and people's responsibility for how it is used; and
- demonstrate an ability to identify their need of further knowledge and to take responsibility for developing their knowledge.

**These aims have been fulfilled**

*not at all*

**1**

**2**

**3**

**4**

*completely*

**5**

*Comments:*

In addition, according to the specific aims for the master programme in Molecular medicine, the student should have gained a deep theoretical knowledge within the field as well as advanced knowledge and practical experience of a large number of current techniques and methods used at the very frontiers of science.

With this knowledge the student should

- be able to independently formulate and process scientific questions within the field, both theoretically and practically. Through an advanced knowledge of novel techniques and methods the student should be able to apply and execute these on relevant problems
- be able to independently and critically analyse as well as evaluate and compile relevant research findings both in writing, as reports or scientific articles, and in oral presentations.
- have acquired skills to individually plan and execute projects at the same time be able to interact and collaborate in larger groups.

- have achieved an intellectual independence and maturity and to have gained solid knowledge and a significant insight to the current research, novel techniques and their possible applications as well as an insight into the method development in health care and industry.

**These aims have been fulfilled**

*not at all*

1

2

3

4

*completely*

5

Comments:

## PROGRAMME CONTENT AND COURSES

**What is your opinion about the course Medical genetics and cancer; molecular mechanisms?**

*bad*

*excellent*

1

2

3

4

5

Comments:

**What is your opinion about the course Advanced Techniques in Molecular Medicine?**

*bad*

*excellent*

1

2

3

4

5

Comments:

**What is your opinion about the course Genomic and Epigenomic Medicine?**

*bad*

*excellent*

1

2

3

4

5

Comments:

**What is your opinion about the course Molecular tools for Proteome Analysis and Diagnostics?**

*bad*

*excellent*

1

2

3

4

5

Comments:

**What is your opinion about the course Biomarkers; discovery and validation?**

*bad*

*excellent*

1

2

3

4

5

Comments:

**What is your opinion about the course Bioimaging and cell analysis?**

*bad*

*excellent*

1

2

3

4

5

Comments:

**What is your opinion about the course Regenerative medicine?**

*bad*

*excellent*

1

2

3

4

5

Comments

**What is your opinion about your elective course? (if applicable)**

**Elective course was \_\_\_\_\_**

*bad*

*excellent*

1

2

3

4

5

Comments

**Did you find the option of including the Laboratory Animal Science course in your education valuable? (For your choice of master degree project, or for your future career)**

*Not at all*

*Very valuable*

1

2

3

4

5

Comments:

To what extent did the master's programme <i>contribute to the development</i> of your skills and knowledge to:					
	Not at all	To a small extent	To some extent	To a large extent	To a very large extent
Independently solve problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Make critical judgements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Argue and persuade	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Explain to non-specialists	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Make written presentations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Make oral presentations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Communicate in English	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Make ethical judgements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Analyse international issues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Work on a team/collaborate with others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Keep up with developments in the field of your education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Apply scientific methods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Read and understand academic texts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Carry out advanced assignments within given timeframes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Identify and formulate problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Identify and remedy your own knowledge gaps	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Not at all	To a small extent	To some extent	To a large extent	To a very large extent
<i>Broad</i> knowledge of the subject area of your master programme	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>In-depth</i> knowledge of aspects of the subject area of your master programme	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>In-depth</i> insights into current research and developmental work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Insights into work in industry and private sector	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Career information	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Several of the aspects above are part of the joint master seminar serie Professional training. Are there additional aspects that should be included or removed?

Comments:

The content of the program in Molecular medicine is closely integrated in current research and often integrates conferences, symposium and regular research seminar into the course schedules. What is your opinion about participation in such activities?

*bad* 1 2 3 4 **5** *excellent*

Comments:

In your opinion, is there any topic that should be included on the programme, or removed?

Comments:

**The programme would greatly benefit from courses on R or python programming, biostatics and data visualization to further strengthen our skills for the master thesis, jobs or future studies.**

What is your opinion about your Master Degree project?

*bad* 1 2 3 **4** 5 *excellent*

Comments:

Did you receive adequate supervision during your Master Degree project?

*Not at all* 1 **2** 3 4 5 *completely*

Comments:

*My post-doctoral supervisor was rather hands-off and only supervised me when convenient or when things awfully wrong.*

Have you been able to implement your knowledge and skills aquired during the programme in your Master Degree project?

*Not at all* *completely*

1 2 3 4 5  
*Comments:*

**What is your opinion about the possibilities to undertake your Master Degree project abroad?**

*bad* *excellent*

1 2 3 4 5

*Comments:*

**Have you during the programme been neglected or badly treated, by a course teacher, course staff or a fellow student, due to your origin, gender, sexual orientation, religion, political views or disablement?**

**Yes**

**No**

**If Yes, please describe:**

## ORGANIZATION OF THE PROGRAMME

**The programme is well organized**

*not at all* *completely*  
1 2 3 4 5

*Comments:*

The programme was well organized for most parts. However, issues with certain deadlines of timelines were sometimes not as well organized. The opponents list for the master thesis was sent out rather later and thus it caused unnecessarily avoidable stress and we ended up having more things to do after the presentation

**I have received sufficient information about the programme and guidance in my selection of courses**

*not at all* *completely*  
1 2 3 4 5

*Comments:*

**Have you been given opportunities to be responsible for your own studies and/or develop your area of interest?**

*not at all* *completely*  
1 2 3 4 5



Comments:

## QUALITY AND LEVEL OF THE TRAINING

**I am overall satisfied with the training within the master programme**

*not at all*

**1**

**2**

**3**

**4**

**5**

*completely*

**Considering my background, the courses were in general at an appropriate level**

*not at all*

**1**

**2**

**3**

**4**

**5**

*completely*

**What was your background (previous education/training)?**

Bachelor of technology in biotechnology

**The teachers have good knowledge within their teaching areas**

*not at all*

**1**

**2**

**3**

**4**

**5**

*completely*

Comments:

**The teachers have good pedagogical abilities**

*not at all*

**1**

**2**

**3**

**4**

**5**

*completely*

Comments:

**The teachers are supportive and prepared to give individual help to students**

*not at all*

**1**

**2**

**3**

**4**

**5**

*completely*

Comments:

**Has the Molecular medicine programme influenced the choice of your future carrier and if so, how?**

**Are you content with your own achievements on the programme?**

*not at all*                      *completely*  
**1**                      **2**                      **3**                      **4**                      **5**  
Comments:

**What was the best with the programme?**

Comments:

The best parts of the master programme were:

- up-to-date syllabus
- lectures by specialists of their respective fields
- The regenerative medicine course labs
- ATMM lab rotation
- International students

**What can be improved?**

Comments:

- Organization of setting deadlines
- Sending out opponents of lists in a timely
- Addition of courses on bioinformatics, biostatistics and data visualization
- Courses on communication skills and analytical skills regarding evaluating and reviewing scientific research may prove to be useful to those who do not have a background in medical research or has less experience evaluating good research.

**What will be your next step in your career?**

---

**Thanks for your valuable comments!**

# **Master in Molecular Medicine 2018-2020**

## **Medical Faculty, Uppsala University**

**Dear Student,**

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**Thanks for your input!**

**Lena Åslund, Programme director**

**The theme of the programme in Molecular medicine includes the current knowledge in genomics, epigenomics and proteomics, with an emphasis on molecular mechanisms causing diseases; genomic/epigenomic and proteomic methods and technologies; their use and applications as well as the development of diagnostics and therapies in research, health care and industry.**

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- 4) Molecular tools for Proteome Analysis and Diagnostics 7.5 c**
- 5) Biomarkers; discovery and validation 7,5 c**

#### **Year 2**

- 6) Bioimaging and cell analysis 7.5 c**
  - 7) Regenerative medicine 7.5 c**
- Elective course period 15 c; or**  
**Research project work 15 c including Laboratory Animal Science course**  
**Research project work 15 c, or**  
**Master degree project in Molecular Medicine 30 or 45 c (alt. including Laboratory Animal Science or Molecular Epidemiology)**

# EVALUATION

## Master in Molecular Medicine 2018-2020

### Medical Faculty, Uppsala University

**Why did you choose to study on the master program in Molecular medicine? And how did you receive information about the programme?**

**Are you satisfied with the programme in general?**

*not at all*

*completely*

1

2

3

4

5

Comments:

## OBJECTIVES OF THE MASTER PROGRAMME

Objectives for a Degree of Master (Two Years) according to the Swedish Higher Education Ordinance, System of Qualifications.

### *Knowledge and understanding*

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- demonstrate knowledge and understanding in their main field of study, including both broad knowledge in the field and substantially deeper knowledge of certain parts of the field, together with deeper insight into current research and development work; and
- demonstrate deeper methodological knowledge in their main field of study.

**These aims have been fulfilled**

*not at all*

*completely*

1

2

3

4

5

Comments:

### *Skills and abilities*

For a Degree of Master (Two Years) students must:

- demonstrate an ability to critically and systematically integrate knowledge and to analyse, assess and deal with complex phenomena, issues and situations, even when limited information is available;
- demonstrate an ability to critically, independently and creatively identify and formulate issues and to plan and, using appropriate methods, carry out advanced tasks within specified time limits, so as to contribute to the development of knowledge and to evaluate

this work;

- demonstrate an ability to clearly present and discuss their conclusions and the knowledge and arguments behind them, in dialogue with different groups, orally and in writing, in national and international contexts; and - demonstrate the skill required to participate in research and development work or to work independently in other advanced contexts.

**These aims have been fulfilled**

*not at all*

**1**

**2**

**3**

**4**

*completely*

**5**

*Comments:*

*Judgement and approach*

For a Degree of Master (Two Years) students must:

- demonstrate an ability to make assessments in their main field of study, taking into account relevant scientific, social and ethical aspects, and demonstrate an awareness of ethical aspects of research and development work;
- demonstrate insight into the potential and limitations of science, its role in society and people's responsibility for how it is used; and
- demonstrate an ability to identify their need of further knowledge and to take responsibility for developing their knowledge.

**These aims have been fulfilled**

*not at all*

**1**

**2**

**3**

**4**

*completely*

**5**

*Comments:*

In addition, according to the specific aims for the master programme in Molecular medicine, the student should have gained a deep theoretical knowledge within the field as well as advanced knowledge and practical experience of a large number of current techniques and methods used at the very frontiers of science.

With this knowledge the student should

- be able to independently formulate and process scientific questions within the field, both theoretically and practically. Through an advanced knowledge of novel techniques and methods the student should be able to apply and execute these on relevant problems
- be able to independently and critically analyse as well as evaluate and compile relevant research findings both in writing, as reports or scientific articles, and in oral presentations.
- have acquired skills to individually plan and execute projects at the same time be able to interact and collaborate in larger groups.

- have achieved an intellectual independence and maturity and to have gained solid knowledge and a significant insight to the current research, novel techniques and their possible applications as well as an insight into the method development in health care and industry.

**These aims have been fulfilled**

*not at all*

1

2

3

4

*completely*

5

Comments:

## PROGRAMME CONTENT AND COURSES

**What is your opinion about the course Medical genetics and cancer; molecular mechanisms?**

*bad*

*excellent*

1

2

3

4

5

Comments:

**What is your opinion about the course Advanced Techniques in Molecular Medicine?**

*bad*

*excellent*

1

2

3

4

5

Comments:

**What is your opinion about the course Genomic and Epigenomic Medicine?**

*bad*

*excellent*

1

2

3

4

5

Comments:

**What is your opinion about the course Molecular tools for Proteome Analysis and Diagnostics?**

*bad*

*excellent*

1

2

3

4

5

Comments:

**What is your opinion about the course Biomarkers; discovery and validation?**

*bad*

*excellent*

1                      2                      **3**                      4                      5

Comments:

**What is your opinion about the course Bioimaging and cell analysis?**

*bad*

*excellent*

1                      2                      3                      **4**                      5

Comments:

**What is your opinion about the course Regenerative medicine?**

*bad*

*excellent*

1                      2                      3                      **4**                      5

Comments

**What is your opinion about your elective course? (if applicable)**

**Elective course was** \_\_\_\_\_

*bad*

*excellent*

1                      2                      3                      4                      **5**

Comments

**Did you find the option of including the Laboratory Animal Science course in your education valuable? (For your choice of master degree project, or for your future career)**

*Not at all*

*Very valuable*

1                      2                      3                      4                      **5**

Comments:

To what extent did the master's programme <i>contribute to the development</i> of your skills and knowledge to:					
	Not at all	To a small extent	To some extent	To a large extent	To a very large extent
Independently solve problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Make critical judgements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Argue and persuade	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Explain to non-specialists	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Make written presentations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Make oral presentations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Communicate in English	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Make ethical judgements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Analyse international issues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Work on a team/collaborate with others	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Keep up with developments in the field of your education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Apply scientific methods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Read and understand academic texts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Carry out advanced assignments within given timeframes	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Identify and formulate problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Identify and remedy your own knowledge gaps	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Not at all	To a small extent	To some extent	To a large extent	To a very large extent
<i>Broad</i> knowledge of the subject area of your master programme	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>In-depth</i> knowledge of aspects of the subject area of your master programme	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>In-depth</i> insights into current research and developmental work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Insights into work in industry and private sector	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Career information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Several of the aspects above are part of the joint master seminar serie Professional training. Are there additional aspects that should be included or removed?

Comments: I believe in PT was including all the nessecery seminars.



**The content of the program in Molecular medicine is closely integrated in current research and often integrates conferences, symposium and regular research seminar into the course schedules. What is your opinion about participation in such activities?**

*bad* 1 2 3 4 **5** *excellent*

Comments:

**In your opinion, is there any topic that should be included on the programme, or removed?**

Comments:

**What is your opinion about your Master Degree project?**

*bad* 1 2 3 **4** 5 *excellent*

Comments:

**Did you receive adequate supervision during your Master Degree project?**

*Not at all* 1 2 **3** 4 5 *completely*

Comments:

**Have you been able to implement your knowledge and skills acquired during the programme in your Master Degree project?**

*Not at all* 1 2 3 **4** 5 *completely*

Comments:

**What is your opinion about the possibilities to undertake your Master Degree project abroad?**

*bad*

*excellent*

1

2

3

4

**5**

*Comments:*

**Have you during the programme been neglected or badly treated, by a course teacher, course staff or a fellow student, due to your origin, gender, sexual orientation, religion, political views or disablement?**

**Yes**

**No**

**If Yes, please describe:**

## **ORGANIZATION OF THE PROGRAMME**

**The programme is well organized**

*not at all*

*completely*

1

2

**3**

4

5

*Comments:*

**I have received sufficient information about the programme and guidance in my selection of courses**

*not at all*

*completely*

1

2

3

**4**

5

*Comments:*

**Have you been given opportunities to be responsible for your own studies and/or develop your area of interest?**

*not at all*

*completely*

1

2

3

**4**

5

*Comments:*

## QUALITY AND LEVEL OF THE TRAINING

**I am overall satisfied with the training within the master programme**

*not at all*

**1**

**2**

**3**

**4**

*completely*

**5**

**Considering my background, the courses were in general at an appropriate level**

*not at all*

**1**

**2**

**3**

**4**

*completely*

**5**

**What was your background (previous education/training)?**

Bachelor in Biology.

**The teachers have good knowledge within their teaching areas**

*not at all*

**1**

**2**

**3**

**4**

*completely*

**5**

*Comments:*

**The teachers have good pedagogical abilities**

*not at all*

**1**

**2**

**3**

**4**

*completely*

**5**

*Comments:*

**The teachers are supportive and prepared to give individual help to students**

*not at all*

**1**

**2**

**3**

**4**

*completely*

**5**

*Comments:*

**Has the Molecular medicine programme influenced the choice of your future carrier and if so, how?**

**To be honest I knew from the beginning exactly what I wanted to do and the master's degree helped me confirm the choice.**

**Are you content with your own achievements on the programme?**

*not at all*

**1**

**2**

**3**

**4**

*completely*

**5**

*Comments:*

**What was the best with the programme?**

Comments:

The correct flow of courses in order to obtain a complete opinion on each area.

**What can be improved?**

Comments:

The time intervals between presentations and exams so as to reduce the extra stress of students and to be able to perform better.

**What will be your next step in your career?**

\_\_\_\_\_PhD probably\_\_\_\_\_

**Thanks for your valuable comments!**

## COURSE REPORT FOR GENOMIC AND EPIGENOMIC MEDICINE 2021

1. **Course title:** Genomic and epigenomic medicine 15 c
2. **Course code:** 3MG025
3. **Year and term:** Spring 2021
4. **Course leader(s):** Marcel den Hoed, Claes Wadelius
5. **Number of students in total:** 18
6. **Answering frequency of course evaluation:** 5 out of 18 (28%)
7. **Result of written examination**
  - Number of students writing the exam: 16 in the 1<sup>st</sup> round
  - Number of students who passed the exam: 15 in the 1<sup>st</sup> round
  - Number of students who failed the exam: 1 in the 1<sup>st</sup> round

**8. Course leaders' summary of the feedback from the students in the course evaluation (based on quantitative results as well as main points raised by students in the commentary field)**

The students were in general very satisfied with the course. The overall score was 5.4 out of 6 (4.8 and 4.0 out of 6 in the previous two years, respectively).

Among the strengths of the course, the students mentioned interesting and up-to-date lectures, the computer exercise and the wet lab exercise.

Similar to previous years, students commented that the difficulty level of the course was adequate but that the number of lectures in the course made it difficult to know what was expected of them in terms of the depth of learning.

It was suggested that the seminars could benefit from clearer instructions since it would be more beneficial if all students participated actively.

**9. Course leaders' summary of the issues raised by students in the course evaluation and suggestions on how to improve (based on quantitative results as well as main points raised by students in the commentary field)**

<i>Issues raised by students</i>	<i>How to improve</i>
The large number of lectures made it difficult to know what to focus your studies on. More guidance on what concepts are most important would be helpful.	Students indicated the need to study from day 1 to keep up. This is something we actively stimulate through the course design, as this is a 15 ECTS course. Students were provided with learning objectives at the onset of the course, as well as with an old exam during the course, to illustrate the depth of knowledge and understanding we seek for. Hence, no action is required.
Clearer instructions could help more students participate actively during discussion seminars. For example, there could be	This comment was specifically for the genetics vs. epigenetics in medicine seminar and echoes feedback from last year(s), saying

## COURSE REPORT FOR GENOMIC AND EPIGENOMIC MEDICINE 2021

questions or presentations to prepare in advance.	that knowing in more detail what is expected in advance of the seminar would help the students prepare and make the most of the seminar. In line with last year's comment, the students were now informed several times that the purpose of the seminar was to discuss the basic concept of epigenetics and how that relates to genetics. This is more challenging than just learning and repeating some facts. Of course, there are different ways in which a seminar can be organised, and we think there is value in having a seminar in which the students are consciously <u>not</u> informed in detail on what is expected in advance. This way, they are challenged to think and formulate arguments, which mimics situations in which they will find themselves in later stages of their career (i.e. in the near future). We will communicate this rationale for organising the seminar in this way to them next year. The teacher of the seminar concluded that the students discussed at a high academic standard, so in several ways the objectives of the seminar were fulfilled.
The back-up data and the instructions for the short communication could be revised so that <u>everything</u> is correct.	We will make sure to address this comment accordingly before next year's course.
More context would be beneficial to the understanding of the computer exercises.	This is a good suggestion, and we will strive to 'zoom out' and highlight why we are doing what we are doing at various key moments of the computer exercises next year. The computer exercises were otherwise described as a highlight of the course.

### 10. Comments by the course leader(s) on the changes made based on last year's course report.

Last year, students flagged overlap between early lectures during the mid-course evaluation. This has since been addressed and was not flagged anymore during this year's course. A similar comment was raised this year for two other lectures (not commented on last year), which will be addressed for next year's course.

Last year, students communicated at the end of the course that handouts for some lectures had not been uploaded. The students' own responsibility was stressed at the onset of the course this year. This year there were no issues regarding uploading of handouts (or at least: no issues were flagged).

### 11. Comments by the course leader(s) on the implementation of the course and the results

Due to COVID, all teaching had to be performed remotely via Zoom this year, which makes it more challenging for students to remain concentrated throughout, and for teachers to appreciate if the students keep following. This is especially true when almost all cameras are turned off all the time, in spite of repeated requests from the course leaders and administrator to turn them on. In spite of these challenging circumstances, the students rated the course

## **COURSE REPORT FOR GENOMIC AND EPIGENOMIC MEDICINE 2021**

higher than before, on average. A clear caveat is that only five students completed the course evaluation, in spite of repeated requests from the course leaders. The number of items was larger during this year's evaluation since the rating of individual lectures was reimplemented, which may go some way to explaining the low response rate. Still, feedback on how individual lectures were perceived gives valuable feedback that can be used to improve next year's course, even if the response rate is lower.

An exemption from remote teaching was successfully requested for the lab education, which was highly appreciated by the students. Thanks to hard work in both planning and implementing by Hanne de Mayer and the lab teachers, the lab was a success with minimal risks involved for students, teachers and other colleagues present at the work place.

In spite of striving to have at least one experienced lab teacher, both lab teachers were simultaneously replaced for this year's course. Fortunately, one of last year's teachers was so kind as to heavily assist during this year's lab preparation and implementation, which was instrumental for its success. A request from course leaders to the course coordinators is to please strive for at least one experienced lab teacher to carry forward to each next year, to prevent a knowledge drain and unnecessary stress for new lab teachers and - by extension – course leaders and students.

In addition to the comments raised above, the students flagged that two lectures overlapped to such a high degree that one lecture would suffice; and one lecture was flagged as containing too much material with too many and overfull slides. These comments will be used to further improve the course for next year's course.

### **12. Suggestions on changes/actions**

Copied from 11: In spite of striving to have at least one experienced lab teacher, both lab teachers were simultaneously replaced for this year's course. Fortunately, one of last year's teachers was so kind as to heavily assist during this year's lab preparation and implementation, which was instrumental for its success. A request from course leaders to the course coordinators is to please strive for at least one experienced lab teacher to carry forward to each next year, to prevent a knowledge drain and unnecessary stress for new lab teachers and - by extension –course leaders and students.

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### **13. Other comments**

-

## Who to contact?

Welcome to your Master program at the Medical faculty at Uppsala University. We hope that you as a Master student will feel happy with your courses and the teaching.

If you do have questions or complaints regarding your studies we would like you to follow this communication plan in order to get a quick resolution to your problem. Most issues can be solved easily by speaking informally to a relevant member of the teaching staff.

**First**, talk to your course leader or course administrator and discuss the problem and possible solution. Hopefully this can lead to an immediate improvement and resolution.

Examples of questions that should be discussed with the course administrator: course registrations, exam registrations, registrations of results in Uppdok.

Examples of questions that should be discussed with the course leader: problems that are related to the course content, for example seminars, lab practicals, lectures. Questions about the examination or schedule. How to compensate for absence in case of illness.

If you have personal problems, for example regarding stress or questions about how to plan your studies, you should contact the study advisor. You can book an appointment with her through <https://www.timecenter.se/medfarmuu/>. If you have more serious problems, you can always turn to the Student Health Center: <http://uu.se/en/students/support-and-services/health-care/counselling/>

**Second**, and if this does not lead to a solution, speak to your programme director/coordinator and discuss the issue and possible strategies to resolve the problem. You should also turn to the programme director/coordinator if you have questions about the course choices within the programme.

**Third**, and if you have not been able to solve the problem to satisfaction, speak to others responsible at the department giving the course. For example the head of studies/head of department/equal opportunities representative and discuss the problem and possible solutions.

**Fourth**, and if you remain dissatisfied, you can seek help from independent advisors provided by the student union, as the student liaison officer (has an office at the student service office in BMC A4:1) or the student ombudsman ([studentombud@us.uu.se](mailto:studentombud@us.uu.se)). You can also take up the problem with your MMC (Medical Master Council) representative, for example if you have questions/complaints regarding the PT-seminars or other issues that concern all master students at the Medical faculty.

### Give your course feed-back in the course evaluation!

It may not be possible to solve your problem quickly, but a very good strategy to get a positive change for future students is to fill in and submit the course evaluations. A high response rate is a very important instrument for course leaders and program directors when planning for changes to improve the courses and the overall quality of the programs.

The evaluation is read by all the responsible teachers in the course and major issues will also be commented in a course report. The report with comments and suggestions for improvements will be available on the student portal to new students admitted the following year.