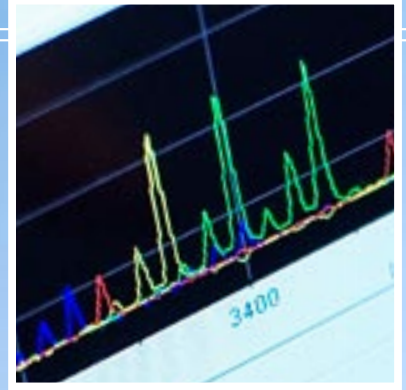




**MBI MASTER'S DEGREE
PROGRAMME IN BIOINFORMATICS**



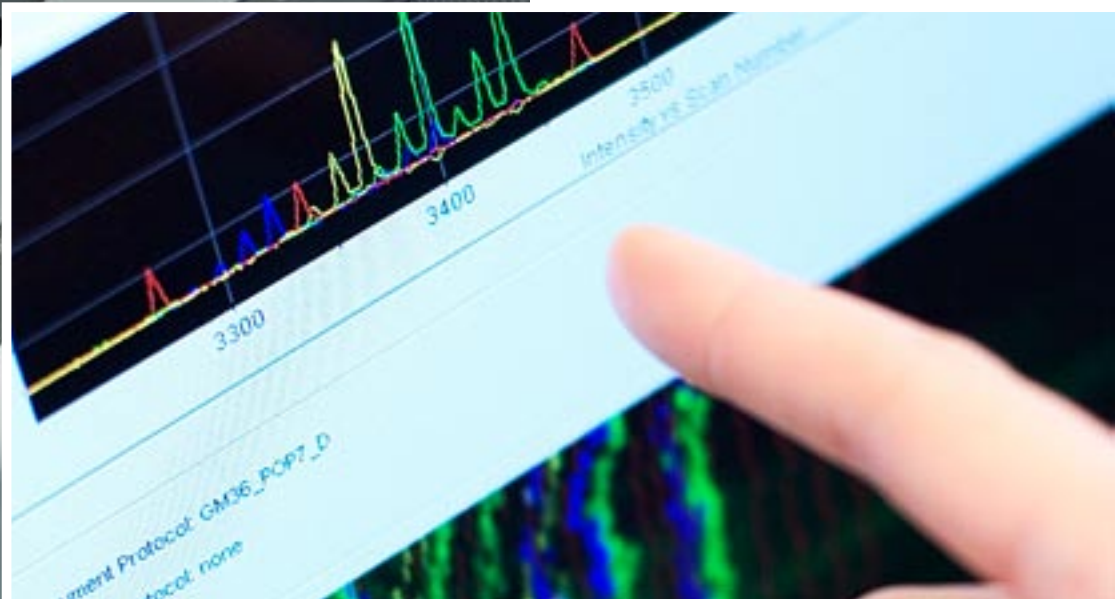
www.cs.helsinki.fi/mbi



MBI MASTER'S DEGREE PROGRAMME IN BIOINFORMATICS

The Master's Degree Programme in Bioinformatics (MBI) is a two-year MSc programme offered jointly by the University of Helsinki and Helsinki University of Technology. The MBI programme educates bioinformatics professionals to research work and developmental tasks in biology and medicine.

MBI offers a unique combination of bioinformatics, methodological sciences, biosciences and medicine. As an MBI student, you will learn the full spectrum of bioinformatics process from planning experiments to the data analysis and verification of hypotheses.



What is bioinformatics?

Bioinformatics is a new field of science which seeks answers to the questions raised by biology and medicine with computational means. The analysis of measurement data is of vital importance in the modern research in biology and medicine. Understanding such data requires both robust statistical modelling and computationally feasible methods.

What will you learn in MBI?

Master's Degree in Bioinformatics consists of an extensive portion of general methodological studies with a strong emphasis on central bioinformatics research problems. Examples of specialisation areas are

- Biological sequence analysis
- Biomathematics
- Biometry
- Computational systems biology
- Data mining in genetics
- Machine learning in bioinformatics



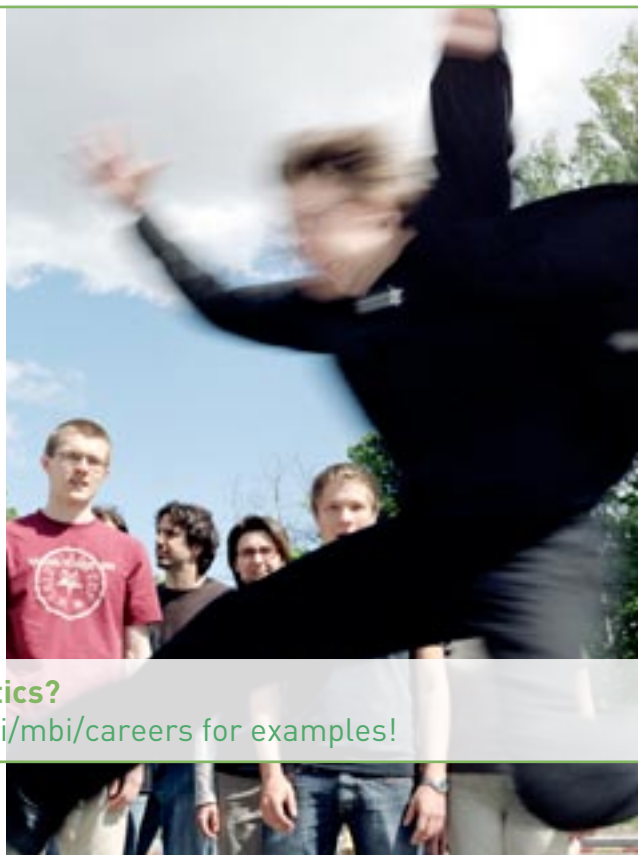
Real-life bioinformatics

As a student of the MBI programme, you become familiar with real-life bioinformatics as you intern in a bioinformatics company or in a research group. Besides giving useful work experience and connections, the internship period often leads to finding a MSc thesis topic. The MBI programme actively arranges internship positions for the students and organizes financial support for the internship.



Graduating from MBI

MBI graduates will be able to obtain positions in industrial and academic facilities such as biomedical companies, universities and research institutions. A bioinformatician often operates in a multidisciplinary environment with graduates from methodological sciences, biosciences as well as medical sciences. Drawing from the broad expertise of its world-class teachers, MBI provides the necessary skills that are vital to bioinformaticians - regardless whether they are working in the industry or the academia.



Interested in a career in bioinformatics?

Please see www.cs.helsinki.fi/mbi/careers for examples!

Leading edge research in Finland and in Helsinki

The educational system in Finland is well-known for its high quality. This is exemplified by the fact that Finland continues at the top of OECD PISA reviews in mathematical literacy, outperforming USA, Japan and the rest of Europe. In research, Finland belongs to the top 20 countries in the world, judged by numbers of citations to Finnish research articles. The organizing universities occupy high positions in university rankings such as in Academic Ranking of World Universities (www.arwu.org).

MBI teachers include leading researchers in bioinformatics: Prof. Liisa Holm, Prof. Heikki Mannila and Prof. Esko Ukkonen have made key contributions to the fields of protein function analysis, data mining and biological sequence analysis, respectively.

MBI programme is based on a joint European credit transfer system (ECTS), which facilitates international transparency and recognition of Finnish degrees at a global level.



You can find more information on studying in Finland at finland.cimo.fi.

“Here, we have much more freedom to choose courses that we find appropriate to our personal interests and future plans”

Hard work in a relaxed atmosphere



Ping Chen, who has completed a Bachelor of Science degree in bioinformatics in her native China, had for some time planned to study abroad, but was unsure as to where she wanted to go. She met a Finnish professor who told her that the University of Helsinki had an excellent English-language degree programme in bioinformatics. “I decided to apply immediately, and I am happy that I did, because I have learnt so much here,” says Chen.

Studying in Finland is very different compared with the Chinese system. In China, the contents of each course are strictly prescribed and students have very little say in the structure of their degree. “Here, we have much more freedom to choose courses that we find appropriate to our personal interests and future plans. I wish, however, that international students were eligible for more grants,” she says.

Bioinformaticians require wide-ranging expertise in a variety of fields as well as the

capacity to incorporate the latest information in methodology, bioscience and medicine. “The university has state-of-the-art equipment, and also the libraries are really well stocked,” Chen says. “Studying is hard work, but I have managed to reserve some time for other activities as well. I have been to all sorts of events and since I’m really into sports, I’ve made good use of the gyms and the like available to students.”

Chen hopes that she will be able to continue her studies at the University of Helsinki and embark on a doctorate after completing her Master’s degree. She admits to feeling homesick from time to time. “I particularly miss my parents, but I am still very happy with my life here. The most important thing for me has been the friendliness of the people. And helpfulness, I have always received help whenever I’ve needed it.”

“The education is free and of high quality. The academic standard is uniformly high. It is more student driven than faculty imposed, and hence more value-adding for students who want to plan their studies than those looking for a fly-by Masters”



Pavan Ramkumar, a second year MBI student at TKK, has just started writing his master's thesis. Pavan's Bachelor's degree from the Indian Institute of Technology (IIT) Guwahati was in Electronics and Communication Engineering. He chose Finland for pursuing his further studies mainly because of its high-quality science. "The scientific community of Finland seemed to be well connected to leading communities in the EU and elsewhere," he says. "Having decided to stay and work in Finland towards my Ph.D., I wanted to do a challenging Masters. I could choose between a Masters in Electrical Engineering, or something in a complementary field. I decided to learn something complementary and the MBI programme seemed to be a good choice."

Pavan lists several good features about the Finnish system, in comparison to his undergraduate experience: "The education is free and of high quality. The academic standard is uniformly high. It is more stu-

dent driven than faculty imposed, and hence more value-adding for students who want to plan their studies than those looking for a fly-by Masters. There is more choice in coursework, especially due to the mobility across universities. As a small critique, however, student population is more diverse, but quite cliquish."

Regarding the Department of Information and Computer Science, Pavan likes the research topics it explores, and how the topics fit in with each other. "In that sense, it has a somewhat unique and identifiable academic fingerprint."

All in all, Pavan sees Finland as a great window to Northern European life. "I like the emphasis on good health and a broad social consciousness," he says. "Having to clarify Indian stereotypes and unlearn Finnish stereotypes on a day to day basis, thus critiquing and learning from both cultures, has been fun."

Master's Degree Programme in Bioinformatics (MBI) is organized by the University of Helsinki and Helsinki University of Technology. MBI offers a two-year MSc in bioinformatics.

Example degree content:

MSc in Bioinformatics (120 ECTS credits, two years)

Bioinformatics, 70 credits

Biology and medicine, 25 credits

Computer science, mathematics and statistics, 25 credits

Advanced internship period in a bioinformatics research group or company

Teaching language

Teaching is given in English.

Tuition fees

There are currently no tuition fees in Finnish universities.

Admission requirements

You are eligible to apply to the programme, if you fulfill the following requirements:

- You have a Bachelor's degree in a suitable field, such as computer science, mathematics or statistics
- You have at least a total of 60 ECTS compatible credits in computer science, mathematics, statistics or bioinformatics
- You are proficient in English (demonstrated with a language certificate such as TOEFL)

Call for applications

For details on how to apply, please see www.cs.helsinki.fi/mbi/admission

Contact us!

Email: bioinfo@cs.helsinki.fi ■ WWW: www.cs.helsinki.fi/mbi