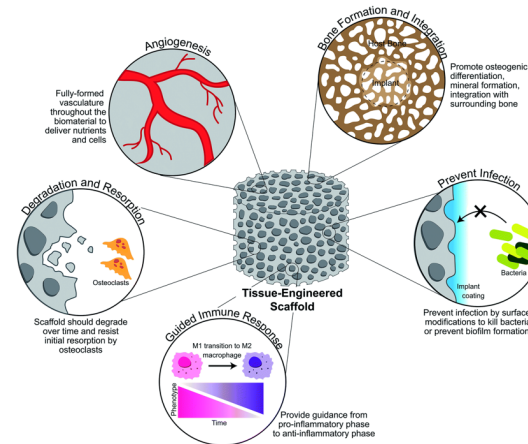


Designing a Master's Course in Biomaterials for Clinical Applications of Functional Tissue Reconstruction



Similar Degrees
outside Norway



Dual MS Degree Program: Biomaterials and Clinical Research



Application for Fall 2024 coming soon!

Overview of Dual MS Program

This dual degree program in Clinical Research and Biomaterials is designed to train professionals for careers in the biomedical device and clinical trials fields. It comprises two major components, each of which consists of a single-year Master's program that can also be taken separately: the Master's Program in Biomaterials Science, and the Master's Program in Clinical Research.

Taken together, the Biomaterials program will provide the student with the training needed to be valuable to companies developing medical devices ranging from dental restorations and total joint replacements to bone grafting materials as well as companies in the tissue engineering field. The Clinical Research program will provide the student with the training needed to clinically test medical devices, medications, diagnostics, and medical treatments, and to be valuable to companies doing this development work.

Apply Online Now
Online Application:
Fall 2023
Biomaterials

Apply Online Now
Online Application:
Fall 2023 Clinical
Research

Program Brochure

Year 1

Fall

| | |
|---------------------------------|-------------|
| Principles of Biomaterials | (3 credits) |
| Fundamentals of Clinical Trials | (3 credits) |
| Federal Regulations/Agencies | (2 credits) |
| Biostatistics | (3 credits) |

January Term

| | |
|-------------------------|-------------|
| Evidence-Based Medicine | (3 credits) |
|-------------------------|-------------|

Spring

| | |
|--------------------------------|-------------|
| Polymers and Biopolymers | (3 credits) |
| Data Management | (2 credits) |
| Scientific Writing | (3 credits) |
| Metal and Ceramic Biomaterials | (3 credits) |

Year 2

Fall

| | |
|-------------------------------------|-------------|
| Introduction to Research | (2 credits) |
| Epidemiology | (3 credits) |
| Biomaterials-Tissue Interface I | (3 credits) |
| Clinical Research Practicum I | (3 credits) |
| Independent Project in Biomaterials | (2 credits) |

Spring

| | |
|----------------------------------|-------------|
| Biomaterials-Tissue Interface II | (3 credits) |
| Clinical Trials II | (3 credits) |
| Bioethics and IRB | (2 credits) |
| Clinical Research Practicum II | (3 credits) |

Electives

In addition to minimum course requirements as listed above, students are able to enroll and complete additional credits from a list of electives. Only the above 49 credits are required to complete the joint MS/MS program:

| | |
|--------------------------------------|-------------|
| Imaging Science | (4 credits) |
| Introduction to Electron Microscopy | (3 credits) |
| Physical & Chemical Methods | (3 credits) |
| Research in Biomaterials | (3 credits) |
| Readings in Biomaterials/Biomimetics | (1 credit) |
| Integrative Seminars in Oral Biology | (3 credits) |

MSc Biomaterials / Course details

Year of entry: 2024

[View tabs](#)[View full page](#)[Overview](#)[Entry requirements](#)[Application and selection](#)[Course details](#)[Careers](#)


Course description

The MSc in Biomaterials provides you with a thorough training in current clinically used biomaterials and state of the art advances in these in research. The clinical application module will cover generations of biomaterials in orthopaedics and cardiovascular. In addition it will aim to give an introduction to foreign body reactions to these materials. You will also be trained on advanced biomaterials including nanomaterials, natural materials and soft matter. Further, we will also introduce techniques associated with translation of research from lab to clinic. Additionally, there will be a 5 months long project component which will give you hands-on training on development and testing of novel biomaterials. This MSc is the ideal preparation for a career either in industry as a biomaterial scientist, or for cutting-edge academic research.

Aims








- To develop students knowledge base in biomaterial structure, manufacture and use.
- To develop students critical analysis of biomaterial development and methods of application.
- To provide students with the tools to communicate advances and deficiencies of biomaterials to clinicians and healthcare professionals.

Biomaterials and Tissue Engineering MSc

 London, Bloomsbury

This programme will help you to develop advanced knowledge of biomaterials, bioengineering, tissue engineering, medical engineering and related management topics. Delivered by experts from across UCL and eminent visiting lecturers from industry and medical charities, this interdisciplinary programme attracts physical sciences, engineering and life sciences graduates, including those with qualifications in medicine.

Compulsory modules

-  [Tissue Engineering](#)
-  [Biomaterials](#)
-  [Biofluids and Medical Devices](#)
-  [Biomechanics and Biostructures](#)
-  [Applications of Biomedical Engineering](#)
-  [Bioengineering](#)
-  [Evaluation and Planning of Business Opportunities in Bioprocessing and Life Sciences](#)
-  [Medical Imaging \(Ionising and Non-ionising\)](#)
-  [MSc Individual Project \(Biomaterials and Tissue Engineering\)](#)



Degree programme

Biomaterials and Tissue Engineering, Biomedical Sciences and Engineering

○ Tampere University

Biomedical Sciences and Engineering combines engineering with life sciences

People's need for more tailored and cost-efficient implants, devices and health informatics solutions is growing.

Type

Master's degree (University)

City

Tampere

Degree earned

Master of Science (Technology)

Campus

Hervanta Campus

Kauppi Campus

Collaboration

We maintain close ties with engineering professionals, life scientists and clinicians, and therefore provide optimal exposure for our students. We enjoy an international reputation for our excellent fundamental and translational (from laboratory to clinic) research. When applying to the **Master's programme in Biomedical Sciences and Engineering (MSc Tech)**, you may choose from the following options:

- [Medical Physics and Biomedical Instrumentation](#)
- [Biomedical Informatics](#)
- [Biomaterials and Tissue Engineering](#)
- [Biomedical Micro- and Nanodevices](#)

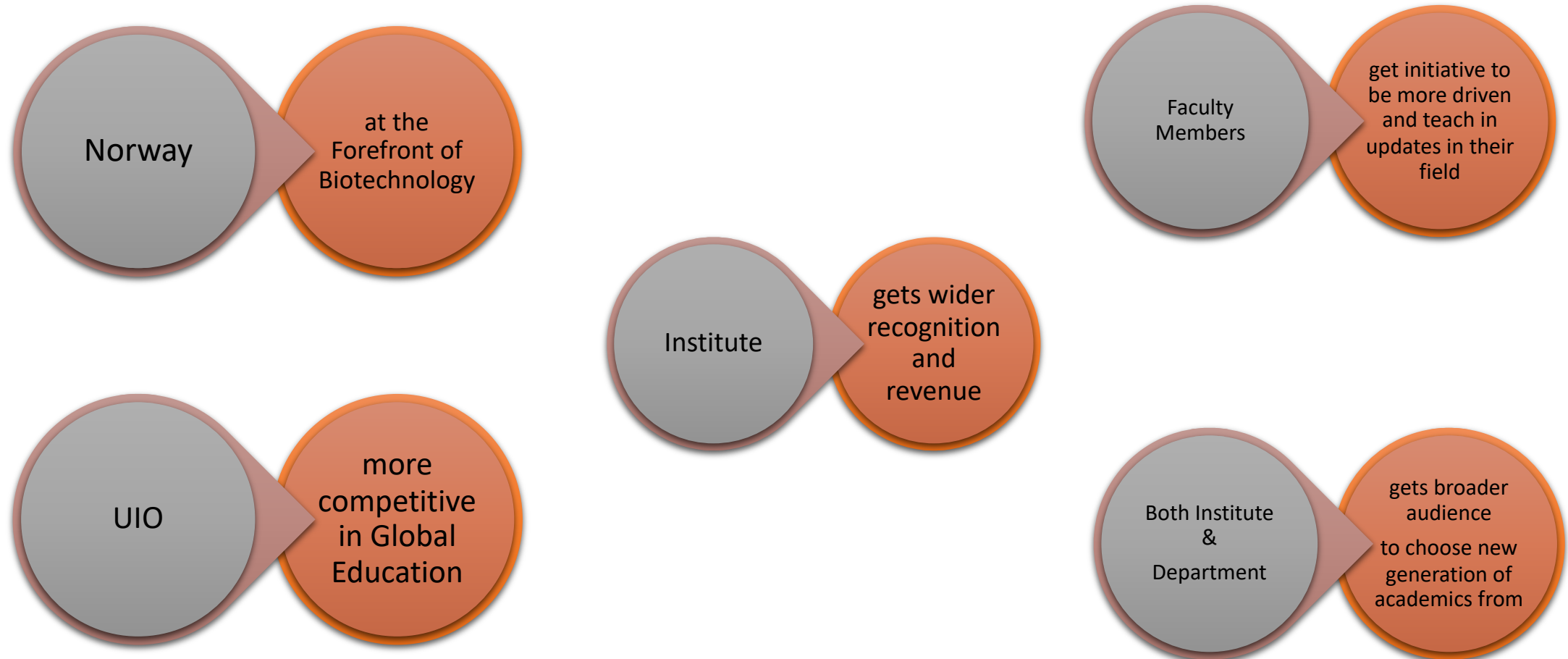
We collaborate closely with the Finnish-taught programme and the international life science programme in the field of biomedical sciences offered by the [Faculty of Medicine and Health Technology](#), the **Master's programme in Biomedical Technology (MSc)**, which has three specialization options:

- [Biomedical Informatics](#) (natural sciences)
- [Cell Technology](#)
- [Molecular Biology](#)

Why do we need THIS new Master's course

- Advances in biomaterials have opened up **new possibilities for tissue engineering**, making it crucial to provide a comprehensive course on their clinical applications.
- Biomaterials play a vital role in regenerative medicine and the **development of tissue-engineered constructs**, offering potential solutions to various medical challenges.
- Growing interest in personalized medicine and regenerative therapies underscores **the need for professionals well-versed in biomaterials for clinical applications**.
- **Understanding the latest biomaterials** and their clinical use is essential for **staying at the forefront of healthcare and biomedical research**.
- A course on biomaterials in clinical applications **will empower future professionals** to contribute to innovative, patient-specific treatments.
- **Emerging fields** like regenerative medicine and tissue engineering **rely on biomaterials**, making this course highly **relevant for modern healthcare**.
- With the rapid pace of biomedical advancements, **staying updated on biomaterials' clinical applications is essential for the next generation of healthcare practitioners and researchers**

Why do WE need this new Master's course



What can we do better than others



We already have the capacity

| | |
|-------------|---|
| Offer | Offer certification programs for clinicians and biotechnologists. |
| Collaborate | Collaborate with clinical institutions for hands-on training and research |
| Organize | Organize clinical workshops, seminars, and guest lectures |
| Facilitate | Facilitate networking opportunities with industry professionals |
| Initiate | Foster partnerships with biotechnology companies |
| Update | Continuously update the curriculum to align with advancements |
| Encourage | Encourage interdisciplinary collaboration |
| Promote | Promote student projects addressing practical challenges |
| Support | Support faculty's continuous professional development |
| Form | Form an industry advisory board for guidance |



Start Big:
with a whole new
course for
advanced tissue
reconstruction
approaches

Start Moderately:
Design the courses
missing for clinical
applications beyond
oral biology