

Master's Degree Programme in Food Development MSc (Tech)

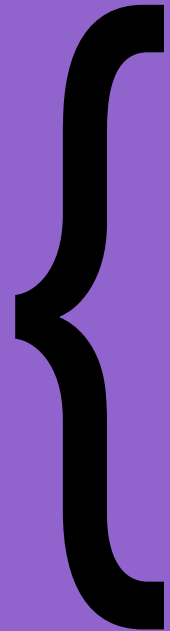
University of Turku Virtual Open Week



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FACULTIES



- Faculty of Education
- Faculty of Humanities
- Faculty of Law
- Faculty of Medicine
- Faculty of Science
- Faculty of Social Sciences
- Faculty of Technology
- Turku School of Economics

Master's Degree Programme in Food Development

Provides you with competence for meeting the increasing global challenges of lifestyle-related diseases, malnutrition, food insecurity, and climate change.



Faculty / Department: Faculty of Technology, Department of Life Technologies

Extent of the study programme: 120 ECTS

Planned duration: 2 academic years

Tuition fee: €12,000 / academic year for non-EU students

Qualifications: Master of Science (Technology)

Location: Turku, Finland

Teaching personnel in Food Sciences unit



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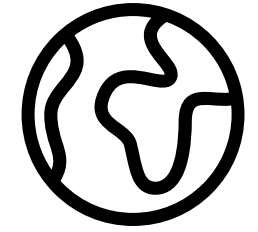
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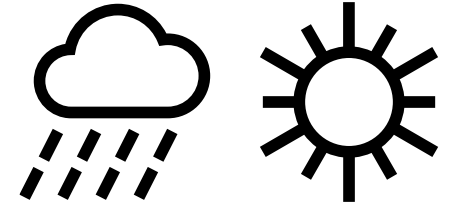
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/ Food and Population

- Demand for more food as a result of growing population.
- Focus on sustainability as a result of limited resources
 - the role of food-related research, food development and new technologies becoming even more important
- Research and development of the constituents of plant-based protein products is essential
 - e.g. improvement of nutritional quality by lactic acid fermentation.
New coming of traditional raw materials (fava bean etc.)
- Importance of food and diet in maintaining health and welfare

/ Food and Climate

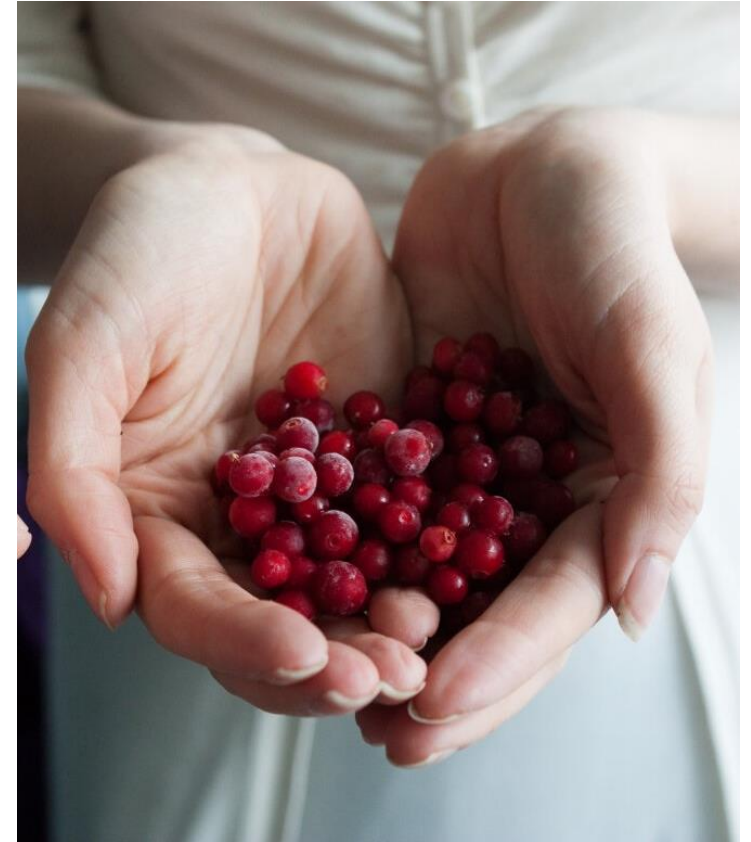


- Climate change as a challenge in food production
 - Decrease in harvest yield estimated to be up to 10-25%
 - Catch of the most important fish species likely to decrease significantly
 - New cultivars in food plant production
- Food production and food waste/residues also a source of greenhouse gas emissions
 - Measures in food production and in decreasing the amount of food waste important → new ways to produce traditional food products
 - Utilization of food raw material residues ("valorization")
- Food scientists have an important role!



Something Unique in Finland?

- Long days during summertime
 - Effect on composition of food
 - Finnish “sun oat” compared to oat from the south?
 - Wild forest berries, Finnish version of super food?
- Finland is sparsely populated, Northern high-tech country with a pure nature and pure food
 - Advantage in food production and export
 - Plenty of potential for research and product development



In the MDP in Food Development you will:



Learn

- to understand the phenomena and concepts related to molecular food sciences
- methods used in all phases of food development
- how to apply the knowledge in product development and research purposes

Gain

- **knowledge** on how to search, apply, and create information
- **ability** to make justifiable decisions based on the information that you have critically achieved
- **experience** in real life work in academic and industrial projects in food research and development
- **skills** to work in a responsible role as part of multi-disciplinary and multicultural teams

Food Development studies



Master's Degree Programme in Food Development 120 ECTS

Food Development (30 ECTS)

- Food Sciences, Food Chemistry (obligatory and optional courses)

Common studies (10 ECTS)

- Project Work, Knowledge and Innovation Management

Master's thesis in technology and supporting studies (40 ECTS)

Other studies (15-20 ECTS)

- Finnish language studies

Thematic module / Minor subject (20-25 ECTS)

Examples:

- Information Technology
- Entrepreneurship
- Sustainable Development
- Industrial Systems Engineering
- Molecular Biosciences

On top of the 120 ECTS entity, a limited number of bachelor level **supplementary studies** may be required depending on student's background. May include e.g.:

- Laboratory coursework
- Programming course



Studies in Food Development

Target duration 2 years

Themes of coursework

- Food Development
- Food and Health
- Food Safety and Legislation
- Sensory Evaluation of Food
- Food Chemistry (I and II)
- Mass Spectrometry in Food Sciences
- Food Metabolomics and Multivariate Analysis

Advanced laboratory exercises (a lab work project)



Courses contain lectures, group project works and activities, and/or demonstrations

Programme Specific Admission Criteria

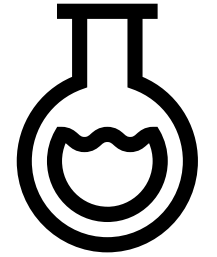
Relevant fields of previous studies, e.g.

- Food Development
- Food Sciences
- Food Technology
- Food Engineering
- Biochemistry
- Biotechnology

Decision of admission is based on

- Relevance on previous degree(s)
- Relevance, amount and grades of the courses
- Language test results
- Relevant laboratory working experience
- Motivation letter

/ Food Development laboratory



- Molecular Food Technology
- Bench-top product development + analytics
- Sensory laboratory according to ISO standards

...

PRODUCT DEVELOPMENT
SUSTAINABLE FOODS AND INGREDIENTS
FUNCTIONAL FOODS
SENSORY QUALITY
FERMENTATION
SHELF-LIFE TESTS
NATURAL FOOD COLOURS
UTILISATION OF FOOD SIDE STREAMS

...



Analytical knowhow

- Gas chromatography (GC)
- Liquid chromatography (LC)
- Mass spectrometry (MS)
- NMR spectroscopy

Top level analytical tools



LC QTOF MS

Lipidomics
Metabolomics



GC-MS/MS

Lipidomics
Aroma profiling



NMR

Metabolomics
Structure analysis

Examples of recent research projects with students works

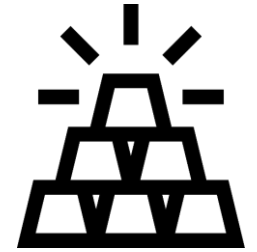


- NEWPLANT – Metabolomics tools in development of novel plant-based foods: impact on health and role for fermentation
- OMICS OF OXIDATION – Novel solutions to improve the quality of omega 3 products
- BLUE PRODUCTS – Solutions to isolate and exploit valuable nutrient fractions from poorly utilised local fish
- PROWASTE – Canola oil press residue, oat hulls and brewer's spent grain as a source of proteins, fibre and other nutrients?
- GRASS – Exploitation of macro algae from Baltic Sea in food production
- OATHOW – The quality of Finnish oats – characterization of key quality factors from field to products
- Multiple smaller projects by doctoral students and post-docs

Projects typically involve:

- food companies
- other companies
- research institutes
- authorities

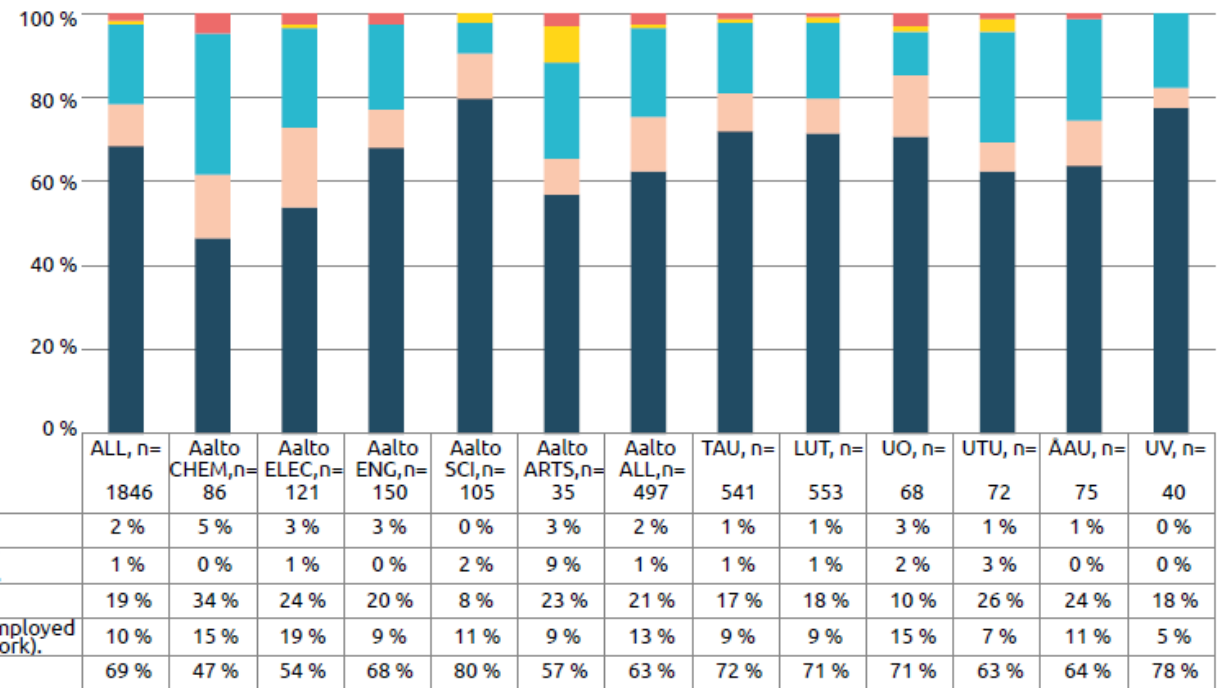
Employment



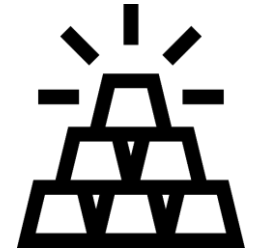
Describe your situation at the time of graduation.

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In 2023:
at the time of their graduation, 70% of MSc (tech.) students have a job already or know where they are going to be employed



/ Food Development Alumni



Heidi
Product Manager
Bühler Group, London,
United Kingdom



Shania
Doctoral Researcher
University of Turku,
Finland



Niko
Project Manager
Measurlabs, Helsinki, Finland

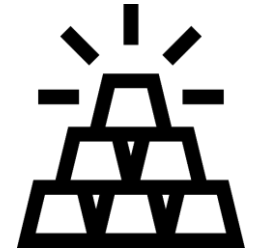


Iida
Junior Product Developer
Valio Oy, Helsinki, Finland



Rosita
Quality Manager
Kieku Oy, Loimaa, Finland

After graduation: Examples of companies located in Finland



- Product development
- Quality control
- Management

Also to other Universities, Research institutes and Authorities



RUOKAVIRASTO
Livsmedelsverket • Finnish Food Authority



Application period in January

How and when to apply

- General and programme specific admission criteria
- The application is done through the Studyinfo.fi application portal.
- All relevant enclosures must be attached to the application form within one week of the application deadline
- Admission results will be published and scholarships offered on April.





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/ Q&A

Present today



University Lecturer
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www.utu.fi/apply

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