MSc Sustainable Food

Speaker:
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Technical University of Munich
School of Life Sciences
Chair of Analytical Food Chemistry

More about
https://tum-asia.edu.sg/admissions/graduate/msc-sustainable-food/

*Disclaimer: The Master of Science in Sustainable Food is subject to the proviso that the Bavarian State Ministry of Science and the Arts has no objections.*
Concept: M.Sc. Sustainable Food

- Addressing Circular Bioeconomy, Zero Waste, Climate Change, SDG 2030,
- In line with Singapore’s 30-by-30 Strategy:
  in 2030 30 % food production for Singapore in Singapore
- Focuses on fundamental knowledge, research and applications of Food
  Science/Sustainability/Technology/Safety
- Target applicants:
  Bachelor’s Degree in:
  Food Science/Technology/Engineering/Nutrition/Safety/Sustainability or its equivalent in
  Science/Technology/Engineering
2 year (4 semesters): Total = 120 ECTS Total of 12 modules during 1st to 3rd semester, including 8 core and 4 elective modules (out of a list of technical and non-technical electives)

- 10 ECTS Laboratory Course

Core Modules
- TUM Core Modules (5 ECTS per module)
- Electives: Total of 4 modules (5 ECTS per module)

- Internship (4 months)
- Master’s Thesis (6 months)
Focusing on food safety, food science and food technology, the MSc in Sustainable Food is designed with a holistic approach to equip individuals with specialised scientific knowledge and skill sets in food science and food safety to institute systemic change across the major pillars of today’s global food system to achieve food sustainability.

**Pioneering the next generation of food champions**

### Course Curriculum

<table>
<thead>
<tr>
<th>Food Technology (5 credits each)</th>
<th>Food Safety (5 credits each)</th>
<th>Laboratory Module (10 credits)</th>
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<tbody>
<tr>
<td>Technofunctionality of Food Components</td>
<td>Energy Metabolism and Regulation</td>
<td>Mandatory Laboratory Refresher Module</td>
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<tr>
<td>Food Structure Design and Texture Engineering (Food Design)</td>
<td>Nutrition and Microbiome in Health and Disease</td>
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<tr>
<td>Molecular Sensory Science (Food Quality)</td>
<td>Food Toxins and Toxicants (Food Toxicology)</td>
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<tr>
<td>Sustainability in Food Systems</td>
<td>Microbial Food Safety from Farm to Fork</td>
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### Technical Electives
Choose 2 out of 3 (5 credits each)
- Economic and Environmental Life Cycle Assessment
- Cellular Agriculture
- Molecular biological methods to assess authenticity, GMO and veterinary drugs in food

### Non-Technical Electives
Choose 2 out of 4 (5 credits each)
- Business Administration
- Innovation and Technology Management
- Project Management Principles
- Production Planning in Industry

### Others
- Internship (20 credits)
- Master's Thesis (30 credits)
Programme Schedule

**Semester 1 (July – Jan)**
- Technofunctionality of Food Components
- Energy Metabolism and Regulation
- Nutrition and Microbiome in Health and Disease
- Laboratory Module
- Economic and Environmental Life Cycle Assessment (elective)

**Semester 2 (Jan – July)**
- Food Structure and Texture Engineering (Food Design)
- Molecular Sensory Science
- Sustainability in Food Systems
- Food Toxins and Toxicants (Food Toxicology)
- Advanced Food Microbiological Analysis and Food Safety
- Molecularbiological Methods to Assess Authenticity, GMO and Veterinary Drugs in Food (elective)

**Semester 3 (July – Jan)**
- Research Internship
- Food Tissue Engineering / Cellular Agriculture (elective)

**Semester 4 (Jan – July)**
- Master’s Thesis

*This outline is a general reference to the duration of study and is subject to change.*
Master’s Thesis & Internship

Required:
- Submission of master’s thesis
- Submission of internship report
- University supervisor

Other Information:
- Internship/thesis can be undertaken in Singapore or overseas
- Possibility of combining internship and master’s thesis (10 months)
- Students are in charge of searching for internship and thesis position
To Graduate

Required:
- A minimum CAP score of 4.0 or below:
  - Core Modules
  - Elective Modules
  - Master’s Thesis
- Completion of Internship with submission of report

Risk of candidature termination:
- Failure of any modules
- Cheating in examinations
- Copying of others’ work
Meet the Faculty

Teaching Professors

Modules of our Master of Science in Sustainable Food programme will be delivered in person by TUM professors from Germany.

Univ.-Prof. Dr. Michael Rychlik
Head of Analytical Food Chemistry
TUM

Prof. Dr. Martin Klingenspor
Chair of Molecular Nutritional Medicine
TUM

Prof. Dr. Corinna Dawid
Chair of Food Chemistry and Molecular Sensory Science
TUM

Prof. Dr. rer. nat. Ute Weisz
Head of Plant Proteins and Nutrition
TUM

Prof. Dr. rer. nat. Dirk Haller
Chair of Nutrition and Immunology
TUM
Meet the Faculty

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PD. Dr. Klaus Neuhaus
ZIEL – Institute for Food & Health
TUM

Prof. Dr. Mario Jekle
Head of the Department Plant-based Foods
University of Hohenheim

Prof. Dr. h.c. Vera Bitsch
Chair of Economics of Horticulture and Landscaping
TUM

Apl. Prof. Dr. Michael Pfaffl
Division of Animal Physiology and Immunology
TUM

Prof. Dr. Johannes Sauer
Chair of Agricultural Production and Resource Economics
TUM
of the 27 occupations listed in Singapore’s Shortage of Occupation List (SOLs)

Projected food spending in Asia by 2030

$10.8 TRILLION

Global food technology market share dominated by Asia Pacific

31%

Projected number of highly skilled workforce required in the alternative proteins and novel food sector in Singapore

180

Industry Outlook

Alternative Protein Food Application Scientist

Novel Food Biotechnologist
Taking a judicious approach in supporting our students’ long-term growth, our master of science programmes are continually refreshed to ensure our robust curriculum is competitively aligned with industry needs.

Engaging in a multifaceted role

Career Prospects

- Data Scientist
- Food Technologist
- Novel Food Biotechnologist
- Research Scientist (Life Sciences)
- Alternative Protein Food Application Scientist
- Food Safety Analyst
- Product of Process Development Scientist
Tuition Fees:

🏠 S$35,000
(S$38,150 incl. GST)

Admission Period:

📅 1 October – 31 March

To Apply:

🔗 https://tum-asia.edu.sg/adm

Programme Information
Thank you.