

Module	Regenerative Food Production
Code	MSLS_V1_6
Degree Programme	Master of Science in Life Sciences (MSLS)
ECTS Credits	5
Workload	150 h: Contact 60 h; Self-study 90 h
Module Coordinator	<p>Name Mathias Kinner</p> <p>Phone +41 (0)58 934 56 99</p> <p>Email mathias.kinner@zhaw.ch</p> <p>Address ZHAW Zürcher Hochschule für Angewandte Wissenschaften Life Sciences and Facility Management Campus Reidbach Postfach CH-8820 Wädenswil</p>
Lecturers	<p>Mathias Kinner</p> <p>Nadina Müller</p> <p>Annette Bongartz</p> <p>Martin Häfele</p>
Entry Requirements	<p>Knowledge and competences in following subject areas are required and basic or bachelor level, respectively:</p> <ul style="list-style-type: none"> • Food technology • Food sensory and consumer science
Learning Outcomes and Competences	<p>Professional competences</p> <p>Students will be able to...</p> <ul style="list-style-type: none"> • Name raw materials of the future and explain their differences regarding sustainability, nutritional values, potential challenging components, techno-functional properties, sensory characteristics and possible applications in food products to meet consumer needs and expectations. • Describe various processing technologies and know how to interlink them to treat above mentioned raw materials to better meet consumer expectations. • Apply selected promising food processing technologies in hands on trials in the pilot plants. • Describe, apply and understand selected techno-functional food analyses, interpret their results and transfer the results to create new process setups and products or optimize product quality towards consumer expectations. • Transfer consumer insights into food properties by understanding and supporting the utilization of various sensory and consumer science methods.

	<ul style="list-style-type: none"> • Evaluate on basic level existing and new food processing technologies or processes regarding their ability to support regenerative food production (environmental impact). • Transfer the acquired know-how on food processing, analytics, sensory properties, consumer insights and environmental impact theoretically and practically on concrete own examples / raw materials by generating meta or own data, evaluate it and draw own conclusions with recommending courses of action. <p>Additional competences</p> <p>The students will be able to...</p> <ul style="list-style-type: none"> • ... communicate in multi-, inter- and transdisciplinary teams and use the respective experts' vocabulary. • ... to perform theoretically and practically main steps of a feasibility study including rapid prototyping. • ... define tasks and roles within their group to reach self-defined goals in proper quality and time. • ... report in written and spoken way on group results, being able to set up the right context and drawing the right conclusion.
<p>Module Content</p>	<p>Raw materials of the future – path of origin, properties, (dis-)advantages</p> <ul style="list-style-type: none"> • Alternative crops • Side streams • raw materials from plant- and animal-based cell production <p>Food processing – technologies, processes, concepts, (dis-)advantages</p> <ul style="list-style-type: none"> • valorization of side streams • expand and deepen in electro technical processes (e.g. Ohmic Heating, Pulsed Electric Fields, ...) and separation technologies • holistic food processing <p>Techno-functional food properties – measuring principles, practical applications, chances and limitations of the methods e.g.:</p> <ul style="list-style-type: none"> • water- and oil holding and binding capacity • foaming ability and stability • particle size distribution • texture profile analyses • microscopy • etc. <p>Food perception and sensory marketing</p> <ul style="list-style-type: none"> • sensory characterization of food properties • consumer based product development and co-creation – “translating” consumers’ needs and expectations into food properties • social listening – from content analysis to content creation • evaluation of nutritional and sensory values for labelling purposes <p>Evaluation of complex food value chains and their respective alternatives</p> <ul style="list-style-type: none"> • understanding multidimensional contexts of sustainability and applying relative and absolute methods to assess and compare the effects

Teaching / Learning Methods	<ul style="list-style-type: none">• Lectures• Practical exercises• Group work in theory and practice• Coaching sessions
Assessment of Learning Outcome	<ul style="list-style-type: none">• Final presentation 30%• Written short report 70%
Bibliography	-
Language	English
Comments	-
Last Update	06.03.2026