



Module Title	Nutrition Meets Technology
Module Code	MCLs325
Module	FNH-3
Degree Program	Master of Science in Life Sciences (MSLS)
ECTS Credits	5
Workload	150 h: Contact 75 h; Self-study 75 h
Module Coordinator	<p>Name: Stephanie Jeske</p> <p>Phone: +41 31 848 52 41</p> <p>Email: stephanie.jeske@bfh.ch</p> <p>Address: Bern University of Applied Sciences, School of Agricultural, Forest, and Food Sciences, Laenggasse 85, 3052 Zollikofen, Switzerland</p>
Lecturers	<ul style="list-style-type: none"> • Dr. Mario Arcari (BFH-HAFL) • Dr. Michael Beyrer (HES-SO Sion) • Dr. Christoph Denkel (BFH-HAFL) • Dr. Elisabeth Eugster (BFH-HAFL) • Raffaele Guelpa (BFH-HAFL) • Dr. Stephanie Jeske (BFH-HAFL) • External experts
Entry Requirements	<p>General understanding of the following aspects is helpful:</p> <ul style="list-style-type: none"> • Processing of food • Composition of food products • Food chemistry • Nutritional aspects of food • Basics in physiology
Learning Outcomes and Competencies	<p>After completing the module, students should be able to:</p> <ul style="list-style-type: none"> • explain how food processing can affect physiology, using examples; • analyse how different processing technologies affect the nutritional value of a product – and how to improve processes regarding nutritional quality; • suggest processing techniques for bioactive nutrients; • identify processing technologies in line with consumer needs and trends.
Module Content	<p>The module focuses on the influence of food processing on nutritional aspects of food and includes the following main aspects:</p> <ol style="list-style-type: none"> a. Introduction: Consumer science as a driving force, healthy food-trends, nutritional value b. Processing technologies and their influence on nutritional value (e.g. thermal processing, freezing/chilling, high hydrostatic pressure treatment, pulsed electrical fields technology, fermentation) => preserving healthy ingredients c. => decreasing harmful substances (e.g. acrylamide, nitrosamine) d. Processing of bioactive nutrients => extraction, adsorption, separation e. Processing for targeted physiological effects on the bioavailability of nutrients, and consumer-tailored food f. => increased tolerance (lactose-free, low allergic, gluten-free) => processes and ingredients for low-fat products

	<ul style="list-style-type: none">=> influencing food structures for nutrition for the elderly – 3D printing=> personalised food=> microparticles and nanoparticles in food=> technologies of restructuring food fibres for imitation meat productsg. Practical demonstrations (pilot plant and laboratory)=> processing of oat milk, application of enzymes and effects on nutrition
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Teaching and Learning Methods	<ul style="list-style-type: none"> • Blend of lectures, teamwork and practical exercises • Contact hours: <ul style="list-style-type: none"> ○ Lectures: 60% ○ Exercises and supervised group work: 35% ○ Written exam and presentation: 5% • Self-study: <ul style="list-style-type: none"> ○ Pre-reading: 5% (depending on pre-knowledge) ○ Assignment for self-study in between course days: 45% ○ Presentation: 50%
Assessment of Learning Outcomes	<p>Assessment consists of:</p> <ul style="list-style-type: none"> • Presentation (45%) • Written exam, open book (55%)
Comments	<p>It is compulsory for students to attend the lectures by external lecturers, the practical demonstration and the excursion. You can find more information about compulsory sessions in the module schedule, which will be available on Moodle four weeks before the module starts.</p>
Bibliography	<ul style="list-style-type: none"> • Simpson BK, 2012. Food biochemistry and food processing (2nd edition). Wiley- Blackwell, Ames, Iowa, USA • Clark S, 2014. Food processing. Principles and applications (2nd edition). Wiley Blackwell, Chichester, UK • Recommendations will be given before the module starts.
Language	English
Last Update	16.01.2024/Stephanie Jeske