



Module	Nutrition Meets Technology
Code	Blend of lectures, teamwork, practical exercises
Degree Program	Master of Science in Life Sciences (MSLS)
ECTS Credits	Simpson BK, 2012. Food biochemistry and food processing (2nd ed.). Wiley-Blackwell, Ames, Iowa
Workload	150 h: 75 h contact, 75 h self-study
Module Coordinator	<p>Name Stephanie Jeske</p> <p>Phone +41 31 848 5241</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. Christoph Denkel (BFH-HAFL) • Dr. Mario Arcari (BFH-HAFL) • Raffaele Guelpa (BFH-HAFL) • Dr. Elisabeth Eugster (BFH-HAFL) • Dr. Michael Beyrer (HES-SO Sion) • 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 Competences	<p>After completing the module students should be able to:</p> <ul style="list-style-type: none"> • Explain how food processing can affect physiology und bring examples. • Analyze 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 that go in line with consumer needs and trends
Module Content	<p>The module focuses on the influence of food processing on nutritional aspects of food including following main aspects:</p> <ol style="list-style-type: none"> a. Introduction: Consumer Science as driving force - Summary of needs concerning 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, spray drying) => preserving of healthy ingredients => decrease of harmful substances c. Processing of bioactive nutrients ⇒ extraction, adsorption, separation d. Processing for targeted physiological effects Bioavailability of nutrients Consumer-tailored food

	<p>=> increased tolerance (lactose-free, low allergic, gluten-free) => low-fat => influencing food structure in regard to nutrition for the elderly – food printing => trend to personalized food => micro- and nanoparticles in food e. practical demonstration (pilot plant): processing of protein powder (concentration, membrane filtration, spray drying) – effects on nutrition</p>
Teaching / Learning Methods	<ul style="list-style-type: none"> • Blend of lectures, teamwork, practical exercises • Contact hours: <ul style="list-style-type: none"> ○ Lectures about: 50% ○ Exercises and supervised group work: 35% ○ Written exam and presentation: 15% • 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 Outcome	<p>Assessment consists of:</p> <ul style="list-style-type: none"> • Presentation (45%) • Written exam (55%)
Bibliography	<ul style="list-style-type: none"> • Simpson BK, 2012. Food biochemistry and food processing (2nd ed.). Wiley-Blackwell, Ames, Iowa • Clark S, 2014. Food processing. Principles and applications (2 ed.). Wiley Blackwell, Chichester • Recommendations will be given prior start of module
Language	English
Last Update	29.03.2022 / Stephanie Jeske