Hochschule
Albstadt-Sigmaringen
Albstadt Sigmaringen University

Study Abroad - Certificate in Food, Nutrition, Hygiene

30 ECTS credit program

Program Modules:

Module	ECTS
Food Technology	5
Applied Sensory and Consumer Science	5
Physical Food Analysis	2,5
Human Nutrition	5
Food Product Development	2,5
Sustainable Packaging Technology	2,5
Hygiene and Environmental Health	2,5
Research project	5

Further Information / Contact:

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International relations
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Study Abroad Certificate in Food, Nutrition, Hygiene
Module: Food Technology

Key facts

Workload		**ECTS**
150 h		5
Parts of the module	**Contact time**	**Self-study time**
	60 h	90 h
Module leader	**Assessment**	
Prof. Dr. C. Gerhards	Poster presentation, Oral exam	

Curriculum Outline
Students know how food is composed. They learn how molecular properties influence the physical and chemical properties of foodstuffs. They are informed, how food is being processed, involving their knowledge about molecular properties of food.

Key content
- Water in food, water activity
- Properties of sugars and carbohydrates
- Sugar beet processing
- Baking, frying
- Properties of proteins
- Meat, meat products, milk, cheese
- Properties of fats and oils
- Oil seeds processing
- Gums and Stabilizers

Study Abroad Certificate in Food, Nutrition, Hygiene
Module: Applied Sensory and Consumer Science

Key facts

Workload		**ECTS**
150 h		5
Parts of the module	**Contact time**	**Self-study time**
2 contact hours lecture 1 contact hour tutorial 1 contact hour practical training	60 h	90 h
Module leader	**Assessment**	
Prof. Dr. C. Hempel	Presentation & term paper	

Curriculum Outline

Understanding food choices is of fundamental importance for product development/improvement. Sensory & consumer science can help to understand some of the key factors influencing food choices. This course focuses on real-world expertise and explores new techniques, as well as the foundational theory behind current methods of sensory evaluation & consumer science for both edible and non-edible products.

Key content

- Physiological and psychological bases for sensory evaluation and consumer testing;
- Applied methods and statistical tools that can be used for collecting and extracting useful information from sensory and consumer data, current business applications;
- Theories and approaches used in the execution of sensory evaluation and consumer testing research;
- Recent advances in cognitive psychology applied to sensory and consumer studies on food, beverage, cosmetic, personal care and hygiene products;
- Applied research techniques in sensory and consumer testing along the whole product life cycle (trend research, early prototyping, validated concept proof, final sensory and consumer validation, storage testing);
- A consumer view to food packaging & sustainability.

Study Abroad Certificate in Food, Nutrition, Hygiene
Module: Physical Food Analysis

Key facts

Workload		**ECTS**
75 h		2,5
Parts of the module	**Contact time**	**Self-study time**
0,5 contact hour lecture 1 contact hour practical training	15 h	52,5 h
Module leader	**Assessment**	
Prof. Dr. A. Klingshirn	Term paper	

Curriculum Outline

The module covers the theory of as well as practical training in various analytical techniques used in modern physical analysis of food ingredients and processed foods.

Key content

- Physical food properties in focus include water activity, moisture, colour, viscosity, weight, thickness and texture. The analysis parameters act as crucial indicators of food quality and safety.
- In an introductory practical session different physical analysis methods are presented and trained.
- Based on a specific task form food processing, food quality evaluation or benchmarking, relevant physical food analysis parameters are to be defined and a measurement program, specifying the different physical analysis methods, is to be set- up. The physical analysis results will additionally be correlated with sensory analysis methods. As physical properties of a product drive consumer perception and desirability for the product, establishing ideal physical properties is essential in the decision-making process for product developers, marketers and quality controllers.

Study Abroad Certificate in Food, Nutrition, Hygiene
Module: Human Nutrition - Basics

Key facts

Workload	**Semester**	**Frequency**	**ECTS**
150 h	4	Every semester	5
Parts of the module		**Contact time**	**Self-study time**
Self-directed learning course consists of • self-study material • personal guidance and support		1,5 h introduction 3,0 h support 1,5 h feedback	144 h
Module leader		**Assessment**	
Prof. Dr. A. Klingshirn		Research paper	

Curriculum Outline
Self-directed learning course on Human Nutrition. The emphasis of this course is on selected public health nutrition aspects, such as food policy, regulatory issues, challenges to the global food supply …, with relevance for students majoring in food related subjects.

Key content
- Introduction to Human Nutrition: A Global Perspective on Food and Nutrition
- Food Composition
- Physical Activity: Concepts, Assessment Methods and Public Health Considerations
- Nutrition Research Methodology
- Food and Nutrition: Policy and Regulatory Issues
- Food and Nutrition-Related Diseases

Study Abroad Certificate in Food, Nutrition, Hygiene
Module: Food Product Development

Key facts

Workload		**ECTS**
75 h		2,5
Parts of the module	**Contact time**	**Self-study time**
1 contact hour tutorial 1 contact hour practical training	15 h	52,5 h
Module leader	**Assessment**	
Prof. Dr. A. Klingshirn	Poster presentation	

Curriculum Outline

Continuous product development is a crucial success factor in food industry, from refining of an established product range to developing completely new products.

Key content

- The tutorial provides an introduction and insight to the core elements of product development, namely the business strategy directing product development, the various steps in the product development process based on the 'Stage- Gate- Process', the knowledge required to fuel the process and the need for keeping the product development focused on the consumers needs.
- A focus is placed on the product development process, from ideation to product launch, focusing on the small scale bench development phase. Critical aspects in managing the product development process in practice are covered, including process evaluation and improvement techniques to allow for successful product innovation.
- In the practical training, performed as a collaborative work, a new food product will be developed from concept to prototype or pilot-scale production, with inclusion of a critical analysis of product quality, safety, shelf-life, packaging, labelling (nutrient content calculation, legal aspects) and cost.
- A presentation of the development process outcome (from ideation to the final product) and the product specification, including aspects of, market accessibility and consumer acceptability is given.

Study Abroad Certificate in Food, Nutrition, Hygiene
Module: Sustainable Packaging Technology

Key facts

Workload		**ECTS**
75 h		2,5
Parts of the module	**Contact time**	**Self-study time**
1 contact hours lectures 0,5 contact hour seminars 0,5 contact hour workshops	30 h	45 h
Module leader	**Assessment**	
Prof. Dr. Markus Schmid	Oral exam (English or German)	

Curriculum Outline
This seminar presents a basic overview of food packaging technology with emphasis on packaging sustainability.

Key Content
- Food packaging as a scientific discipline that applies the principles of materials science, food technology, information science, and socioeconomics to develop useful and packaging concepts for the food industry will be introduced.
- In addition to that, a holistic approach for considering sustainability aspects in food packaging technology will be introduced.
- The students will learn to apply the theoretical basics of packaging production and functionality in several workshops.

Study Abroad Certificate in Food, Nutrition, Hygiene
Module: Hygiene and Environmental Health

Key facts

Workload		**ECTS**
75 h		2,5
Parts of the module	**Contact time**	**Self-study time**
1 contact hours lectures 0,5 contact hour seminars 0,5 contact hour workshops	30 h	45 h
Module leader	**Assessment**	
Prof. Dr. Benjamin Eilts	Presentation & term paper	

Curriculum outline

Since hygiene as a science considers all factors that influence human health, the interrelationships between humans and their environment are also in focus. Microorganisms (bacteria, viruses, fungi and parasites) exist naturally in the environment and on or within the bodies of animals and people. There are other sources of microorganisms that may cause infection and these include a person's own normal microbial flora and environmental sources such as air, water, or equipment that may have become contaminated.

Key Content

- Based on selected areas, the influence of microorganisms and suitable countermeasures are discussed with the help of current specialist literature. The aim is to gain comprehensive knowledge of the literature on the selected topic and to interpret the literature data in terms of their application and to discuss interfaces to other, subject-related aspects (e.g. regulatory framework conditions, market requirements, occupational safety).
- The requirements and measures in the areas of monitoring, hygienic design and decontamination are deepened through additional lab exercises.

Study Abroad Certificate in Food, Nutrition, Hygiene
Module: Research Project

Key facts

Workload		**ECTS**
150 h		5
Parts of the module	**Contact time**	**Self-study time**
Research project	7,5 h	142,5 h
Module leader	**Assessment**	
Prof. Dr. G. Winkler	Term paper or poster and presentation	

Curriculum Outline
The research project is an in-depth study of an issue or topic from all fields related to food (food technology, food processing, packaging, process control, quality management,…), nutrition, appliance technology and hygiene. It may be in the form of a small-scale research study, a case study, a program evaluation or a report on a field placement.

Key content
may cover…
- an analysis of an existing data set in order to test a hypothesis or answer a research question;
- a critical systematic review of a question such as the effectiveness of a policy or intervention;
- an evaluation of the implementation of a new technology in food/ nutrition / hygiene-related industry;
- a small research study, in which data is collected and analyzed.
  The report and presentation shows the abilities of…
- systematically collecting relevant, up-to-date information about the research task;
- analyzing, interpretation and discussion of the information;
- drawing conclusions and making recommendations;
- writing a report in accordance with academic standards.