



## ***Curriculum of the Master degree programme***

**“Safety in the Food Chain” (SIFC)**

**Code: 066 451**

**University of Natural Resources  
and Life Sciences, Vienna**

**Center for International Relations**

For legal purposes, only the version of the curriculum that has been published in the official journal (Mitteilungsblatt) is binding and valid - this English translation is for information purposes only.

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Published and printed with support of ERASMUS–OM-funds

Issued in February0., 2009

<p style="text-align: center;"><b>Curriculum of the Master degree programme</b> <b>“Safety in the Food Chain” (SIFC)</b> At the University of Natural Resources and Life Sciences, Vienna</p>
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*As at October 1<sup>st</sup>, 2009*

**§ 1    General preliminary remark**

This international Master degree programme is accomplished by five ELLS (Euroleague of Life Science Universities) universities (these are the University for Natural Resources and Life Sciences, Vienna, The Royal Veterinary and Agricultural University Copenhagen, Wageningen University and Research Centre, University of Hohenheim, Swedish University of Agricultural Sciences) in cooperation with the University of Laibach.

(see: ELLS policy document: <http://www.euroleague-study.org/ELLS-POLICY.pdf>)

**§ 2    Description of qualification**

**Introduction**

Safety in the food chain has developed as one of the most important and leading questions for public health. Structural, but also organisational changes led to an urgent necessity of a new and interdisciplinary programme – apart from the already existing and established food and agricultural sciences, veterinary and human medicine – in which issues relevant to food and food chain safety management on national and international level can be researched and taught.

Reasons for this development mainly were: a) an increased globalisation in food trade, b) the changes in eating habits and consumer behaviour, c) new legislations, d) the discovery of new pathogen germs and toxic risks, e) the existence of new and increasingly sensitive proof methods, f) a development of increased possibilities in the field of information technology, g) an increased consumer interest in food safety and quality.

Food inspection authorities working on a national and global scale as well as the food industry needs experts who do have an in-depth knowledge of the complete field of food safety. These skills and the knowledge necessary can only be achieved with the help of an internationally oriented university study programme.

**Plans and Areas of Competence**

The ELLS Universities serve the recent challenge and demand and intent to establish the two-year Master degree programme Safety in the Food Chain (Msc SIFC) on a common foundation. Students of this Master degree programme should get a diploma from their respective Alma Mater as well as a special, European “SIFC”-Diploma of the ELLS Universities (This will happen in the future after legal aspects have been determined and transferred).

SIFC graduates inherit the competence to analyse, evaluate and communicate various problems in connection with food safety on a technical as well as social level. They have gained competence in how food is produced and how the area of food safety is organised, realised and can be guaranteed. Graduates are trained in order to work independently in their respective fields of food safety. They can evaluate the risks of already existing as well as new products and product lines as well as distribution. The knowledge in these fields is based on a sound, scientific and academically orientated, technical education and has a special emphasis on basic natural and social sciences such as the various aspects of management and consumer expectations.

Graduates of the Master degree programme Safety in the Food Chain (SIFC) are qualified to work in a multi-disciplined team consisting of food engineers, nutrition specialists, product developers, traders and lawyers. Graduates have learned to design systems of warrantee of food safety and are able to participate in the enlargement of general knowledge on safe foods and their production.

Since the Master degree program Safety in the Food Chain is an international study programme, which is mainly held in English, graduates are also enabled to communicate on an international level and to negotiate in a foreign language.

SIFC students are trained to work in the fields of food safety management, food development, food research, politicians or food legislation after their graduation. They are able to compete for positions in the international food industry and research institutions.

### **§ 3 Format of the Master degree programme**

The Master degree programme Safety in the Food Chain comprises a total of four semesters and is made up of 120 ECTS credit points. It is divided into three modules and one Master Degree thesis of each 30 ECTS credit points. Of the total number of 120 credit points, 26 ECTS are compulsory courses, 4 ECTS are elective courses and 60 ECTS have to be chosen from elective units. The 30 remaining ECTS credit points are accredited for the Master degree thesis.

#### **§ 3.1 Detailed Description of the Master Degree Programme Safety in the Food Chain**

##### **Module A (30 ECTS):**

The first of the three compulsory modules that has to be completed for the Master Degree Programme Safety in the Food Chain is Module A. It comprises compulsory courses to an extent of 26 ECTS as well as elective courses to an extent of 4 ECTS. This Module A (with its total of 30 ECTS) is mainly taught in the national language of the respective universities. The courses of Module A mainly deal with basic knowledge fields and serves to prepare students for the following Module B in which specialised knowledge of the individual participating universities is taught. The Module B is taught in English at almost all participating universities.

##### **Module B (60 ECTS):**

The two following modules are Module B1/B5 and either Module B2, B3 or B4. This means that students of the Master Degree Programme Safety in the Food Chain have to participate in at least one semester at a partner university.

##### ***Module B1/B5 (30 ECTS):***

Module B1 (with a minimum of 15 ECTS) is held at the University for Natural Resources and Life Sciences, Vienna every summer semester and mainly focuses on the topics of food authenticity, safety in animal feed and foodstuffs, danger potentials in the food chain and analytic aspects of food safety.

Module B5 (with a minimum of 3 ECTS) is designed by the University Laibach in summer semesters. Courses on retraceability, the proof of pathogens in food and functional food are held and (at least at the beginning of this programme) are supposed to be held in cooperation with Module B1 of the University of Natural Resources and Life Sciences in Vienna. Therefore, it is referred to as Module B1/B5.

##### ***Module B2 (30 ECTS):***

Module B2 (with a minimum of 30 ECTS) is held at the Royal Veterinary and Agricultural University in Copenhagen (KVL) in winter semesters and specialises on topics such as sanitary facilities and hygiene design, food production in the context of micro organism in food, international food laws and safety management, risk analysis in national and international contexts.

**Module B3 (30 ECTS):**

At the Wageningen University (WUR) Module B3 (with a minimum of 30 ECTS) is held in winter semesters. It focuses on risk communication, epidemiology and health, genetic engineering and predictive modelling.

**Module B4 (30 ECTS):**

The University of Hohenheim (HOH) will offer courses for Module B4 (with a minimum of 30 ECTS) from the summer semester 2008 onwards. These courses will mainly focus on the following topics: nutrigenomics, animal hygiene, consumer habits and micro economy in the food chain.

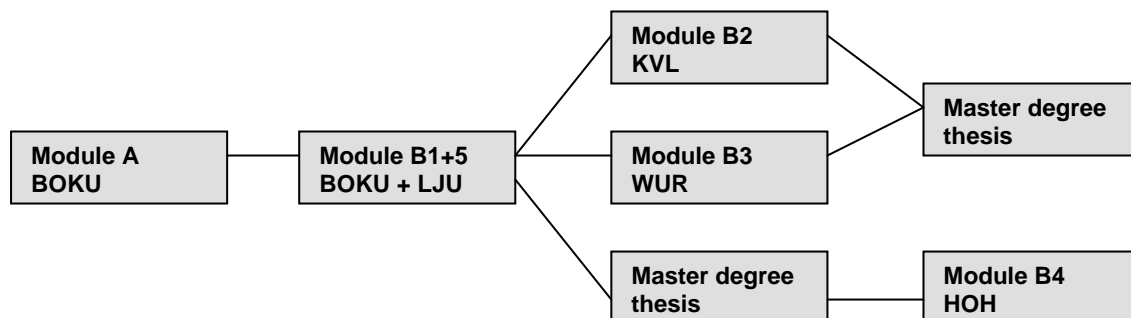
**Module B6 (30 ECTS):**

An additional Module B is planned at the University of Uppsala (SLU). This will be referred to as Module B6 and is planned to commence in the study year 2008/09.

**Master thesis:**

The thesis for the Master degree is an integral part of the Master degree programme Safety in the Food Chain. 30 ECTS are granted for the thesis for the Master degree. The Master thesis serves to prove that the student can work independently on one specific aspect related to the Master degree programme Safety in the Food Chain in a scientific and academic way. This thesis underlies the same conditions as all other Master degree programmes at the University of Natural Resources and Life Sciences, Vienna. The thesis can be completed both in the summer and winter terms.

**Diagram of the Study Programme**



The first year of this Master degree programme has to be attended at the University of Natural Resources and Life Sciences in Vienna. Here, Module A (with 30 ECTS) and in the subsequent semester Module B1/B5 (with 30 ECTS) have to be completed successfully.

In the second year SIFC students may choose to either change to Copenhagen or Wageningen where they can either complete Module B2 (with 30 ECTS) or B3 (also with 30 ECTS) in the winter semester. The following summer semester serves to conduct the Master degree thesis which may be done at the University for Natural Resources and Life Sciences in Vienna or at any other partner university.

Students who conduct their Master degree thesis in the winter semester of their second study year will change to the University of Hohenheim in the following summer semester to complete Module B4 there.

#### **§ 4 Admission to the Master degree programme**

Graduates of the Bachelor degree programme “Food and Biotechnology” at the University for Natural Resources and Life Sciences, Vienna are admitted to the Master degree programme Safety in the Food Chain. Furthermore, according to § 35 (4) graduates of other relevant Bachelor degree programmes of national or international universities are admitted to this Master degree programme.

Graduates of other Bachelor degree programmes have to prove basic knowledge in the fields of chemistry, physics, (micro-)biology as well as in the field of technology. It might be necessary to individually test applicants before they can get admission to the Master degree programme if it cannot be guaranteed that the applicant for the Master degree programme Safety in the Food Chain fulfils the required basic knowledge.

Competence in English, which is necessary for the successful completion of the Master degree programme in Safety in the Food Chain, has to be proven (by means of the TOEFL-test or similar evidence).

#### **§ 5 Academic qualification**

The Master degree programme Safety in the Food Chain is an engineering degree. In accordance with this classification of engineering degrees, graduates of the Master degree programme will be awarded the academic qualification “Diplom-Ingenieur” / “Diplom-Ingenieruin”, shortened to “Dipl.-Ing.” or “DI”.

#### **§ 6 Types of courses**

Courses within the Master degree programme Safety in the Food Chain held at the University of Natural Resources and Life Sciences, Vienna, are defined as follows:

##### **(1) Lectures (VO or LE):**

Courses in which portions of an academic discipline and the methods involved are didactically presented.

##### **(2) Lectures with Practical Exercises (VU or LX):**

Courses in which portions of an academic discipline and the methods involved are didactically presented and intertwined with practical exercises actively engaging students.

##### **(3) Lectures with Seminars (VS or LS):**

Courses in which portions of an academic discipline and the methods involved are didactically presented and intertwined with independent research of students.

##### **(4) Practical Courses (UE or PC):**

Practical exercises are courses, which are in professional connection to a lecture. They serve to apply specific practical abilities and skills presented theoretically during the lectures. Furthermore, these practical exercises also serve the acquisition of specific practical knowledge and may take place outside the university campus.

##### **(5) Seminars (SE):**

Seminars are courses, which assist in the development of academic abilities. They serve to acquire knowledge autonomously and deepen learned course content and scientific discussion. Students have to hand in a written paper and / or do presentations.

**§ 7 Timetable of courses<sup>1</sup> at the University of Natural Resources and Life Sciences, Vienna**

**Used abbreviations:**

SST = weekly semester hours

ECTS = European Credit Transfer System points

WS = Winter Semester

SS = Summer Semester

**Module A in the winter semester**

In Module A courses to an extent of at least 30 ECTS have to be completed.

**Compulsory courses (26 ECTS)**

<i>Number</i>	<i>Type</i>	<i>Name</i>	<i>Semester</i>	<i>SST</i>	<i>ECTS</i>
<b>Fundamental Food Sciences</b>					
751.300	VO	Human Nutrition	WS	2.0	3.0
754.303	VO	Food microbiology	WS	3.0	4.5
755.300	VO	Food Chemistry	WS	4.0	6.0
					13.5

<b>Advanced Food Sciences</b>					
752.303	UE	Practical Course in Food technology	WS or SS	3.0	4.5
754.314	VS	Food safety and risk management	WS	2.0	3.0
756.306	UE	Practical course in Applied Quality Management for SIFC	WS	3.0	5.0
					12.5

**Elective courses (min 4 ECTS)**

754.305	UE	Practical training in food microbiology for SIFC	WS	2.5	4.0
755.303	UE	Food Chemistry Practical Course for SIFC	WS	2.5	4.0
					8.0

<sup>1</sup> A more detailed description of all courses, including objective of the course, course contents, name of lecturer, prerequisites, recommended reading, teaching methods, assessment methods and language of instruction, is found in BOKUonline: <https://online.boku.ac.at/>

### Module B1/B5 in the summer semester

In the course of Module B1 courses of at least 15 ECTS have to be completed at the University of Natural Resources and Life Sciences, Vienna during the summer semester. At least 3 ECTS have to be taken from Module B5. As a total 30 ECTS have to be completed from the Module B1/B5.

### Module B1

<i>Number</i>	<i>Type</i>	<i>Name</i>	<i>Semester</i>	<i>SST</i>	<i>ECTS</i>
<b>Food Chemistry/Hygiene (min 6 ECTS)</b>					
755.309	VO	Authenticity of foods	SS	2.0	3.0
755.313	UE	Food authenticity practical course	WS or SS	2.0	3.0
756.320	VU	Reference Materials and Methods Validation in Food Safety Assurance	SS	2.0	3.0
756.321	VO	Hazard Potential of Chemical Residuals in Food	SS	2.0	3.0
756.323	VO	Validation of Cleaning Processes and Hygienic Design	SS	2.0	3.0
756.324	VU	Isotope-based methods for tracking and tracing food origin	SS	2.0	3.0
811.357	VU	Biology, Chemistry and Microbiology for Civil Engineering	SS	2.0	3.0
954.103	VU	Molecular Biological Methods in Food Analysis	WS or SS	2.0	3.0
970.301	VU	Analysis of Bio-Hazards in Foods	SS	2.0	3.0
					27.0
<b>Food Processing (min 3 ECTS)</b>					
752.306	VU	Packaging of foodstuffs	SS	2.0	3.0
752.308	VU	Detection and Elimination of Risks in Food Production	SS	2.0	3.0
951.300	VO	Plant Production	SS	2.0	3.0
					9.0
<b>Special Food Safety Issues (min 3 ECTS)</b>					
751.312	VO	Food Safety in Livestock Feeding	SS	2.0	3.0
756.325	VO	Safety Aspects of Gene Food	SS	2.0	3.0
756.335	VO	Automatic Identification Technology in Food Industry	SS	2.0	3.0
791.312	VO	Safety Aspects of Plant Biotechnology	SS	2.0	3.0
933.303	VO	Safety and Quality of Organic Foods	SS	2.0	3.0
					15.0

<i>Number</i>	<i>Type</i>	<i>Name</i>	<i>Semester</i>	<i>SST</i>	<i>ECTS</i>
<b>Seminars (min 3 ECTS)</b>					
753.317	SE	Human Safety in Food Processing	SS	2.0	3.0
754.307	SE	Specific and Emerging Topics in Food Microbiology	SS	2.0	3.0
756.326	SE	National and International Food Safety Authorities	SS	2.0	3.0
					9.0

#### **Module B5**

<i>Number</i>	<i>Type</i>	<i>Name</i>	<i>Semester</i>	<i>SST</i>	<i>ECTS</i>
<b>Food Traceability – Pathogens in Food (min 3 ECTS)</b>					
756.330	VS	Rapid Methods in Food Microbiology	SS	2.0	3.0
756.331	VS	Development of Starters for Traditionally Fermented Food	SS	2.0	3.0
756.332	VS	Development of Starters for Dairy Products	SS	2.0	3.0
756.333	VS	Molecular Epidemiology of Food-Borne Pathogens	SS	2.0	3.0
756.334	VS	Biomarkers in Food Characterisation	SS	2.0	3.0
					15.0

### **§ 8 Timetable for courses of the partner universities<sup>2</sup>**

#### **Module B2 in the winter semester (KVL, 30 ECTS)**

<i>Name</i>	<i>ECTS</i>
Hygienic Design, Cleaning and Disinfection	7.5
International Food Legislation and Quality Management	7.5
Risk Analysis in Food Safety	7.5
Chemical Food Safety	7.5
Control of Food Borne Microorganisms	7.5
37.5	

<sup>2</sup> For a more detailed description see: [http://www.safetyinthefoodchain.com/module\\_description/index.php](http://www.safetyinthefoodchain.com/module_description/index.php)

### **Module B3 in the winter semester (WUR, 30 ECTS)**

<i>Name</i>	<i>ECTS</i>
Food Quality and Public Administration	6.0
Introduction to Communication and Innovation Studies	6.0
Food Law	6.0
Epidemiology and Public Health	6.0
Advanced Management and Marketing	6.0
Food Toxicology	6.0
	36.0

#### **§ 9 Thesis for the Master degree**

The thesis for the Master degree is an integral part of the Master degree programme Safety in the Food Chain and due to its international focus this thesis has to be written in English.

The scientific subject of the graduation paper has to be chosen from a subject relevant and related to the Master degree programme Safety in the Food Chain.

The supervision and grading of the candidate's work are incumbent upon the university professor who has assigned the chosen subject for the graduation paper.

At the end of the Master degree programme the thesis has to be handed in at the dean's office.

30 ECTS are granted for the thesis for the Master degree. The thesis for the Master degree programme Safety in the Food Chain has to be completed within six months.

#### **§ 10 Graduation requirements**

Parts of the study programme completed at different universities underlie the (graduation) requirements of the respective university.

At the University of Natural Resources and Life Sciences, Vienna, the following criteria have to be fulfilled:

The Master degree graduation consists of two parts.

(1) The first part of the Master degree graduation comprises those compulsory courses belonging to Module A (according to § 7) to an extent of 26 ECTS (see § 7) as well as the elective courses taken from Module A (4 ECTS). Furthermore, 30 ECTS taken from Module B1/B5, as well as 30 ECTS (according to § 8) from Module B2, B3 or B4 have to be completed successfully.

In Module B1/B5 at least 6 ECTS have to be taken from the elective unit "Food Chemistry / Hygiene", 3 ECTS from "Food Processing", 3 ECTS from "Special Food Safety Issues", 3 ECTS from the seminar course offers and 3 ECTS from "Food Traceability – Pathogens in Food".

The first part of the Master degree graduation is completed with the positive grading of all these university courses.

(2) The second part of the Master degree graduation is an oral and commissioned exam which has to include an oral presentation of the Master thesis as well as the "defence" of the thesis and its

outcomings in front of a commission. This commission consists of three people; the Master thesis supervisor, a competent representative from the field of the Master thesis as well as a Head of Commission.

The registration to the second part of the Master degree graduation requires:

- Positive completion of the exams according to the courses stated under (1)
- Positive evaluation of the Master degree thesis

The grading of the study success is realised in the form of course exams. These can either be completed in written or oral form. Courses of the "Seminar"-type are completed with an independently developed and written seminar paper. The course lecturer determines the amount of this paper. In courses of the "Practical Course"-type successful work in the training company leads to a successful completion of the course.