Curriculum

for the University Course
(Cat. III with 5 ECTS)

Mycotoxin Summer Academy

Classification number ###

Effective Date:

§ 1 Preamble

The increasing concern about the safety of food and feed is a result of the global marketplace, climate change and the rise in public awareness about health and quality. Mycotoxins are toxic secondary metabolites produced by fungi on agricultural commodities in the field and during storage, but also in damp indoor environments. National and international institutions responded to the threat posed by these metabolites by adopting regulatory limits for the most important mycotoxins. The necessity to obey to these regulatory limits has led to the development of sampling plans and various analytical methods for the determination of mycotoxins in a wide range of commodities. These measures are essential to improve exposure estimates and risk assessment strategies regarding mycotoxins.

The Mycotoxin Summer Academy offers two subsequent one-week training courses. The first week provides an overview on the significance and properties of mycotoxins and toxigenic fungi including their determination and characterization. The second week is dedicated to various aspects of liquid chromatography coupled to mass spectrometry (LC-MS) especially for multi-analyte approaches to determine mycotoxins.

§ 2 Qualification Profile

2.1) Mycotoxins, their formation, occurrence and toxicity, their determination in food and feed, as well as the economic damage caused by them are the core content of the "Mycotoxin Summer Academy" university course. Moreover, the genetics and taxonomy of toxigenic fungi as well as their determination (e.g. in food or indoor environments, including molecular biology methods) plays a central role in the course. A competent answer to the issues of food safety regarding these pollutants, state-of-the analysis and possibilities for their prevention is offered with this course.

2.2) Knowledge, personal and professional skills
MSA graduates are equipped with highly specialized theoretical and practical knowledge to analyse and evaluate various problems in relation to food safety regarding mycotoxins. They are ready to communicate this knowledge nationally as well as internationally and to tie in with latest findings in the field of food safety. Furthermore, graduates have the ability to use their knowledge gained in order to develop, realize and implement their independent ideas and they have developed a critical awareness to adequately response to problems.
Graduates have the ability to develop a solid, research-based diagnosis of mycotoxin caused problems by means of integration of knowledge gained in various interdisciplinary fields. Furthermore, they are in a position to develop, apply and communicate new skills across the disciplines as a reaction to newly arising insights and techniques. They have the ability to evaluate and analyse the risk of mycotoxin production and distribution. MSA graduates are trained to work independently as well as in small research or analytical teams. Graduates find themselves in the position to communicate state-of-the-arts results, methods and underlying principles in the fields of mycotoxins to a professional audience as well as non-specialists. They can respond to questions on a scientific but also social level of food safety and are ready to develop new approaches for complex work contexts.

2.3) Professional qualifications
Graduates of the course should be able to represent the topic of food and feed safety in their professional environment competently and effectively. Graduates shall acquire additional skills in their core area. In particular, the participants are taught a deeper

understanding about the meaning, impact and the detection of mycotoxins. An essential aspect in this context is the acquisition of knowledge about the analysis of mycotoxins by various analytical methods. Students earn expertise on preventive measures to reduce mycotoxins, they expand their skills profile and improve their access to various professional fields. Sustainable learning experience is mediated by practical teaching methods and hands-on lab work. In addition, subject-specific exchange enables the creation of networks.

§ 3 Study Form

The "Mycotoxin Summer Academy" is designed as a modular university course of category 3 in form of a „Summer University“. Each module lasts one week and results in a student workload of 2.5 ECTS. The course is held solely in English language.

§ 4 Course Administration

Scientifically and academically qualified persons are appointed to administer the course.
The course administration decides on all matters of the course, if they are not assigned to other organs.

§ 5 Duration and Structure

The "Mycotoxin Summer Academy" offers two subsequent one-week training courses.
Module 1 provides an overview on the significance and properties of mycotoxins and toxigenic fungi including their determination and characterization. Module 2 is dedicated to numerous aspects of liquid chromatography - mass spectrometry (LC-MS) to determine mycotoxins in various matrices. Each module last one week and results in a student workload of 2.5 ECTS.

§ 6 Admission Requirements and Admission

6.1) Required for admission to the university course "Mycotoxin Summer Academy" is a completed degree (e.g. B.Sc., M.Sc., PhD) in natural scientific and/or equivalent studies at a domestic or foreign university.

6.2) In exceptional cases, appropriate professional experience and proven existing expertise in the field also allow to participate in the university course.

6.3) The admission of students is based on the following criteria: field of study according to the contents of the academic course; existing skills; motivation; subject-specific experience) after consultation with the course administration.

6.4) Command of English: Evidence of a sufficient command of English which is required for the successful completion of the course must be provided at admission if requested by the course administration (in the form of one of the following certificates):

- BOKU language course (at least level English III)
- Cambridge certificate of Advanced English
- IELTS – test (results 6.0 or better)
- Completion of a study programme that was entirely taught in English
- TOEFL – test (560 paper based; 82 internet based)

§ 7 University Places

7.1) The maximum number of students is set to 15 students for each individual module of the university course. This number ensures a high-quality working environment for the students.

7.2) Course participants are enrolled as extraordinary (non-degree programme) students at BOKU University.

§ 8 Curriculum

8.1) The university course consists of 2 modules of 5 consecutive days each. The student workload for each module is 2.5 ECTS. Each or both modules can be inscribed independently.

- Overall course type: VU
- Credits/module: 2.5 ECTS
- Pillars: technology and engineering: 25%
  natural sciences: 70%
  economic and social sciences, law: 5%

8.2) Module 1: General Training on Mycotoxins
Internationally renowned experts will provide lectures (VO), workshops (SE) and hands on training courses (UE) with emphasis on:

- Chemistry, formation, occurrence and toxicity of mycotoxins
- Genetics and taxonomy of toxigenic fungi
- Determination of mycotoxins in food and feed
- Chromatographic techniques (HPLC, LC-MS)
- Immunoanalytical techniques (ELISA, LFD)
- Determination of fungal DNA (RT-qPCR)
- Economic impact of mycotoxins to the food and feed industry

8.3) Module 2: Multi-toxin Analysis by LC-MS
Internationally renowned experts will provide lectures (VO), workshops (SE) and hands on training courses (UE) with emphasis on:

- Introduction to liquid chromatography and mass spectrometry
- Tailored LC-MS/MS methods
- LC-MS/MS multi-toxin methods
- High resolution mass spectrometry
- Quantification strategies, including stable isotope dilution assays
- Appropriate quality assurance
- Official methods, intercomparison studies, laboratory accreditation

Lectures (VO) are courses in which certain areas of a subject and the methods used in this area are imparted through didactic presentation.
Lab courses (UE) are courses in which students are instructed in specific practical skills, based on theoretical knowledge.
Seminars (SE) are courses in which students are required to work independently on the respective subject, deepen their knowledge of the topic and discuss relevant issues.
Lectures with courses (VU) combine both VO and UE and allow to students to receive both theoretical knowledge and practical experience.

§ 9 Type of Courses

The types and dates of the individual lessons of each module are to be announced by the course administration before each pass on the department webpage and in flyers.

§ 10 Examination Regulations

10.1) At least 80% participation of all lessons of the corresponding module is mandatory to successfully complete a module. Each module is considered individually.

10.2) On the final day of each module a discussion about the course topics is to be held.

10.3) The following aspects are taken into consideration of the overall mark: percentage of participation in the course lessons; level of commitment in the lectures and lab courses; level of contribution to the final discussion.

§ 11 Evaluation and Quality Improvement

Quality assurance provides an evaluation of the academic course based on a survey, including complaints and suggestions which will be carefully considered by the course administration before the next pass. Furthermore, the university teachers of the course as well as the course administration are the contact point to report all obstacles, complaints or suggestions.

§ 12 Course Completion

After successful completion of each module of the course the students will receive a completion certificate.

§ 13 Course Fee

13.1) The course fee is determined before the start of a passage and shown in relevant flyers and the department website.

13.2) Any recognition of study parts, individual courses, etc. do not reduce the course fee.

13.3) The course administration might offer scholarships or reduce/waive course fees for outstanding individuals especially for participants from developing countries.

§ 14 Place

14.1) The courses will be conducted in the premises of the BOKU campus Tulln.

14.2) For the purposes of a practical and lasting learning experience excursions (e.g. to relevant industry) are included in the program. At the respective places the contents can be explained clearly by the teaching staff.

§ 15 Entry into force

This Regulation shall take effect on the first day of the month, following the announcement in the bulletin of the university.