UNIVERSITY COURSE IN TOXICOLOGY
Medical University Vienna

The following text is a translation of the curriculum in German language as published in "Mitteilungsblatt der Medizinischen Universität Wien, 33. Stück, Nr. 46, ausgegeben am 18. Juli 2007". In case of discrepancies the German text (as published in "Mitteilungsblatt") shall prevail.

CURRICULUM

§ 1 Institution

The Medical University of Vienna offers the postgraduate university course in toxicology in accordance with § 56 of UG 2002**.**

§ 2 Objectives and Profile of Qualifications

Toxicology is the science of harmful effects that chemical substances can have on man and his environment (animals, plants and ecosystems). Many adverse effects, sometimes of catastrophic dimension, have been and still are caused by chemical substances of synthetic or natural origin. Aim and mission of toxicology is to identify, by appropriate experimentation, potential harmful effects well in advance, in order to protect man and his environment from their occurrence. Toxicology is the science of chemical safety. Experience has shown that contemporary toxicology can afford protection of man and the environment to a great extent. To ensure efficient prevention of harmful effects in the future comprehensive education and training on the up-to-date state of toxicological science is mandatory.

Toxicological knowledge is required in the following areas: toxicology of drugs, food, and occupation, forensic toxicology, clinical toxicology, eco- and environmental toxicology, toxicology of commodity and industrial chemicals, toxicology of pesticides, toxicology of cosmetic products, of natural substances, toxicology of air pollution, and regulatory toxicology. The diversity of chemical substances and their myriad possible effects that often emerge only after long latent periods obscuring causal connections, require broad conceptual and methodological procedures and cooperation of various scientific disciplines. The necessary knowledge and skills are internationally (as well as globally) transmitted through comprehensive university training courses.

Aim of this university course is the postgraduate and continued education in toxicology (chemical safety). The course provides theoretical and practical knowledge and skills. Successful attendants will be able to uncover and characterize potential harmful effects of chemical substances on man and the environment, to explain their mechanism of action at the cellular, biochemical and molecular level, to determine the likelihood of their emergence (risk assessment) and to develop measures for prevention and therapy **(**risk management). Postgraduates will be qualified to:

- Participate in health related decision-making of public authorities (substance evaluation, authorisation procedure for substances, derivation of limit values for protection of man and the environment, risk-benefit-analysis, risk management, risk communication),
- Carry out toxicological research and evaluations in industry laboratories and other institutions,
- Cooperate in treatment of intoxicated patients (diagnosis and therapy).

After at least 5 years of toxicological occupation successful attendants may apply for recognition as "registered toxicologist" at the national level through ASTOX, and at the international level through EUROTOX as "European Registered Toxicologist (ERT)".

§ 3 Duration and Structure of the Course

(1) The university course lasts for 6 semesters.

(2) The university course consists of 15 modules lasting from 3 up to 13 days. Lectures may also be held outside the semester. Furthermore, all training course participants have to complete a 3-year practice in toxicology.

§ 4 Enrolment Requirements

(1) Admission to the course requires:

a) Graduation in: human medicine, dental medicine, veterinary medicine, chemistry, biochemistry, pharmacy, biology or food sciences.

b) Graduation from other natural sciences, equivalent with the study fields referred to under *item a*. The course management decides on the appropriateness and equivalence of these study fields. Graduates from other study fields may also be admitted provided that they possess comprehensive professional experiences in toxicology, or in other sciences that are crucial to toxicology. The course management, in agreement with the course committee, decides on whether professional experiences in toxicology are sufficient for admission. The course management may, if necessary, require from prospective participants to attend lectures on histology, physiology, chemistry or biochemistry.

§ 5 Enrolment and Payment

Provided that more candidates register for the course than there are available places, candidates will be selected on the basis of their achievements and experiences (mostly study achievements, any publications, any professional experience) and on the basis of an interview with the course management. Admission is performed by the rector based on nomination by the course management.

The tuition fee for each semester has to be paid in advance. If a participant wishes to conclude or interrupt participation in the course, she/he can do so in writing to the course management at the end of each semester.

§ 6 Curriculum

The curriculum follows EUROTOX guidelines of registration for the "EUROTOX Registered Toxicologist".

The curriculum encompasses:

(1) Activities in toxicology for at least 3 years after graduation (§ 4). These activities are to be carried out as full-time activity at a university institution or other appropriate institutions.

Toxicological activities shall be supervised by a scientist holding "Habilitation" in toxicology or equivalent qualification. The course committee has to confirm the suitability of the institution and the selection of the supervisor. Participants may perform their 3-year toxicological activity during the university course.

(2) A Master Thesis documenting the success of the toxicological activities. The master thesis consists of at least 3 independent publications or scientific expertises in the field of toxicology. Publications should be published or accepted for print in peer-review journals. In justified instances the master thesis may contain 2 manuscripts ready for publication instead of 2 of the 3 publications. The quality of scientific expertises should be equivalent to that of publications. In the case of co-authorship, the course committee can demand that the share of scientific work contributed by the course participant be explained in writing by the supervisor of the toxicological activity or by the head of the department/institution, and that this be confirmed by the senior author of the publication.

(3) Successful attendance of lectures in the following modules (mandatory subjects) consisting of altogether 39 teaching units* (semester hours):

Modules (mandatory subjects)**	teaching units*	ECTS credits
1. Laboratory Animal Science, Animal Welfare	2	2
2. Experimental Design, Statistics, Biometry	2	2
3. Cell and Molecular Biology and Toxicology	2	3
4. General Toxicology, Organ Toxicology, Laboratory Diagnostics	7	9
5. Toxicologic Pathology	2	2
6. Toxicologic Epidemiology	2	2
7. Basics of Chemical and Physical Analysis	2	2
8. Toxikokinetics and Metabolism	3	4
9. Chemical Mutagenesis	2	2
10. Chemical Carcinogenesis	3	4
11. Reproduction Toxicology	2	2
12. Immunotoxicology, Allergy	2	2
13. Clinical and Forensic Toxicology	2	2
14. Ecotoxicology	4	5
15. Regulatory Toxicology	2	2
Sum	39	45

**Each consisting of 15 academic hours (45 minutes)*

*** Specific aspects relating to drug, nutritional, occupational, and general toxicology, risk assessment and substance classification are covered in several modules.*

(4) Summary:

	Scope	ECTS points
Toxicological activity	3 years	120
Master Thesis		15
Lectures	39 teaching units	45
Sum		180

§ 7 Examinations

(1)Each module has to be concluded by a written exam. The course management determines the examiner.

(2) The course management, on behalf of the curriculum director, shall decide on recognition of studies and lectures attended, and exams passed at other universities and scientific institutions.

(3) After successful conclusion of the 15 modules or equivalent exams (see § 7, 4a), a final oral exam (professional interview) has to be taken in front of a panel. Participants have to demonstrate comprehensive knowledge of one of the areas in toxicology as referred to under § 6 (number 3-6, 8-14), which shall be the area of the master thesis, and to demonstrate basic knowledge of all other curriculum modules. The focus is placed on skills to appropriately address toxicological issues.

(4) For admission to the final examination (professional interview), participants are liable to submit the following:

a) Certificates on successful conclusion of mandatory subjects as referred to under § 6, or recognition of equivalent other exams that participants have passed (§ 7, 2).

b) Documentation on the 3-year toxicological activity performed.

(5) Examiners at the final examination are 3 persons with venia legendi or equivalent qualification in toxicology or a related field. They are appointed by the course management. The course director or the deputy course director presides over the final examination regardless of Article 16, 3 of the 2nd part of the Statutes of the Medical University of Vienna.

(6) Participants are liable to submit their master thesis in order to conclude the course.

(7) The course committee decides on the approval of the master thesis and its mark on the basis of at least one expert opinion by a competent scientist.

§ 8 Conclusion

The conclusion of this university course is documented by a certificate which contains the marks of written examinations, the mark of the final oral examination, and title and mark of the master thesis.

The participants who have successfully completed the toxicology course are granted the title "Master of Science (Toxicology)", abbreviated as "*MScTox*".

§ 9 Management

The course director is responsible for the management. He is appointed by the rectorship of the Medical University of Vienna from its professional personnel with “Habilitation” in toxicology. The deputy course director is appointed by the rector of the Medical University of Vienna on proposal by the course director.

The task of the course management is to provide scientific and organisational leadership of this university course. The course management appoints lecturers and examiners. The course management is liable to take into consideration the opinion of the course committee when it comes to important issues (enrolment of participants, recognition of examinations, curriculum contents).

§ 10 Course Committee

(1) The course committee consists of the course director, the deputy director and 5 members with “Habilitation” in toxicology, or pharmacology and toxicology, or an equivalent qualification. The members of the course committee are appointed by the rectorship on proposal of the course management. The course committee is chaired by the course director or his/her deputy.

(2) The course committee provides advice on important organisational and scientific issues. It decides on the appropriateness of institutions where the toxicological activities take place; on the selection of the supervisor of the toxicological activities; on approval and grading of the master thesis, and on admission to the final examination. The committee takes its decisions by consensus. If consensus is not possible then a two-third majority vote is adopted.

§ 11 Financing of the Course

(1) The course is financed by fees contributed by the participants, and by donations of sponsors. Fees are fixed by the Curriculum Commission on the course director’s proposal while taking into consideration actual course costs and Article 6, Part 2 of the Statutes of the Medical University of Vienna.

(2) Participants of the course, on the basis of a justified request and in relation to available financial resources, may be granted a reduced fee. The decision is taken by the course director after consultation of the course committee.