



Safety Assessment of Xenobiotics and Biotechnological Products



FEW WORDS ABOUT SAXBI

- Unique opportunity
- Limited offer of masters in toxicology at the international level
- The course is the **only certified course** in toxicology according to the AICQ SICEV Regulation RG 06-1 and the Standard UNI EN 16736.

<https://www.unimi.it/en/education/safety-assessment-xenobiotics-and-biotechnological-products>



Course sheet

A.Y. 2022/2023

Master programme

**LM-9 - Pharmaceutical,
veterinary and medical
biotechnologies**

[Go to the programme website](#)



Master programme



120
ECTS



Access
Open with entry
requirements examination



2
Years



Course location
Milano



Language
English

ACCESS

- Access to SAXBI is open to:
 - graduates with Italian degree (ex. DM 270/04 or equivalent ex. DM 509/99) in the areas L2 or L29;
 - graduates from areas other than the above listed, provided they have earned the following credits:
 - at least 9 credits (ECTS) in disciplines of CHIM/01, CHIM/03 or CHIM/06 (analytical chemistry; general and inorganic chemistry; organic chemistry);
 - at least 5 credits in disciplines BIO/09 (physiology);
 - at least 12 credits in disciplines BIO/10, BIO/11 or BIO/13 (biochemistry; molecular biology; applied biology);
 - at least 6 credits in disciplines BIO/14 (pharmacology/toxicology);
- A committee of teachers appointed by the Board of Faculty will check the presence of these requirements.

Knowledge Assessment

Students meeting the above minimum requirements are invited to an interview for admission (in English) with the Commission for Admittance to the Master, composed by teaching members appointed by the Teaching Board. The interview, done remotely via electronic devices if necessary, is aimed at verifying the above mentioned skills and the knowledge of the English Language equivalent to B2 level.

Students who have not yet graduated but who expect to graduate by October 2022 can also apply for admission to the Master in SAXBi.

ORGANIZATION OF LEARNING ACTIVITY

Total number of compulsory credits/ECTS* = 120

* **1 ECTS** = 8 h frontal
lesson; 16 h practice

ECTS:

80 Courses (with score)

8 ECTS as optional course (with score)

- Chosen among all courses provided by the University of Milan if they are consistent with the educational project.
- As alternative, the ECTS can be added to the stage period, after agreement to the thesis tutor and Coordinator of the program

3 ECTS other training activities (no score)

- participation to seminars, courses, congresses, conferences suggested by the Secretariat or proposed by the student
- Italian language course for foreign students (offered by SLAM)
- Attendance certification is required

29 Thesis

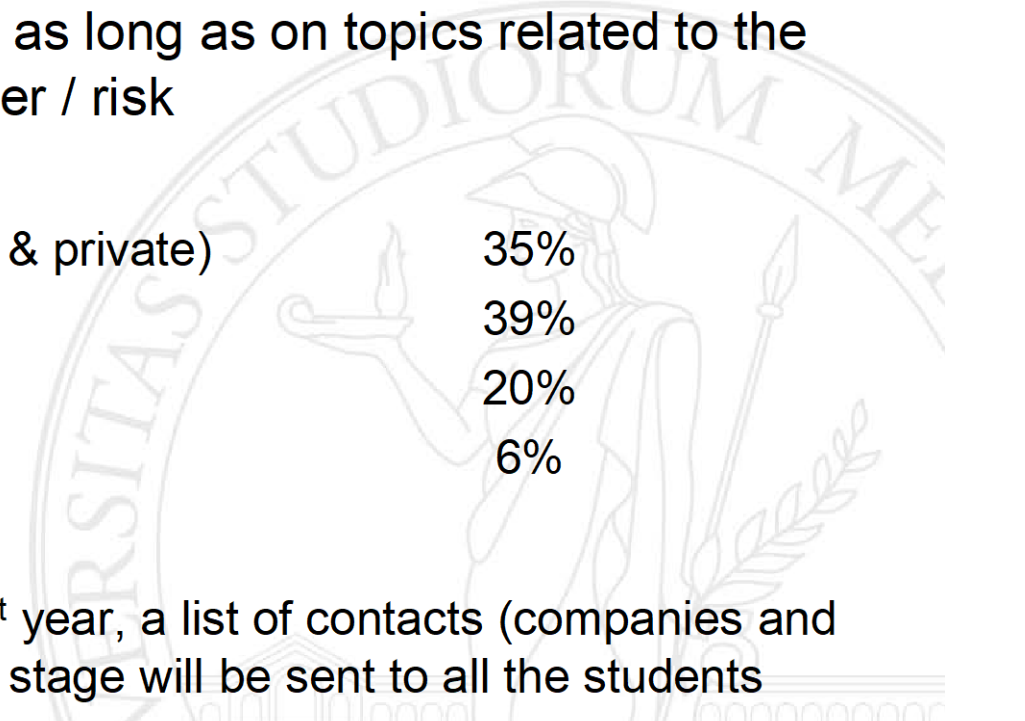
1° ANNO DI CORSO Attività formative obbligatorie					
Erogazione	Attività formativa	Modulo/Unità didattica	Cfu	Settore	Form.Didatt.
<i>annuale</i>	Development Biology and Differentiation		6	BIO/13	40 ore Lectures, 16 ore Laboratory individual activity
<i>1 semestre</i>	Functional, Metabolic and Epigenetic Biochemistry		6	BIO/10	48 ore Lectures
<i>1 semestre</i>	Methods of analysis of chemicals in water, air, biological fluids, tissues, food (tot. cfu:6)	Methods of analysis of chemicals	3	CHIM/01, CHIM/06	24 ore Lectures
		Physical-chemical characterization, identity	3	CHIM/01, CHIM/06	24 ore Lectures
<i>1 semestre</i>	Organ Dysfunctionality and Histopathology (tot. cfu:10)	Organ Physiology and Pathology	7	BIO/00, MED/04	48 ore Lectures, 16 ore Tutorials
		Lab of Comparative Histopathology	3	VET/03	16 ore Lectures, 16 ore Laboratory individual activity
<i>2 semestre</i>	Bioremediation (tot. cfu:7)	Environmental Microbiology and Biotechnological Remediation	3	BIO/13, BIO/19	8 ore Lectures, 32 ore Laboratory individual activity
		Laboratory of Cell Biology	4	BIO/13, BIO/19	16 ore Lectures, 32 ore Laboratory individual activity
<i>2 semestre</i>	Biotechnology and Pharmacotoxicology (tot. cfu:10)	Biotechnology and Pharmacology	5	BIO/14	40 ore Lectures
		Genotoxicology, Cancerogenicity, Immunotoxicology, Reproductive and Developmental Toxicity	5	BIO/14	32 ore Lectures, 16 ore Tutorials
<i>2 semestre</i>	Regulatory Aspects in toxicology (tot. cfu:6)	Regulatory Aspects of Medicaments, Medical Devices and Health products	3	CHIM/09, IUS/14	24 ore Lectures
		Legislation in European Union	3	CHIM/09, IUS/14	24 ore Lectures
Totale CFU obbligatori			51		

2° ANNO DI CORSO Attività formative obbligatorie

Erogazione	Attività formativa	Modulo/Unità didattica	Cfu	Settore	Form.Didatt.
<i>annuale</i>	Quantitative Chemical Structure and activity relationship (tot. cfu:10)	In Silico Methods in Toxicology	5	CHIM/08	40 ore Lectures
		Structural Bioinformatics	5	BIO/10	32 ore Lectures, 16 ore Laboratory individual activity
<i>1 semestre</i>	Databases and Exposure scenarios (tot. cfu:6)	Informatics and Database	3	INF/01, SECS-S/01	24 ore Lectures
		Statistics applied to Epidemiology	3	INF/01, SECS-S/01	24 ore Lectures
<i>1 semestre</i>	System Toxicity and Risk Assessment (tot. cfu:7)	Risk Assessment	4	BIO/14	24 ore Lectures, 16 ore Tutorials
		System Toxicity	3	BIO/14	24 ore Lectures
<i>2 semestre</i>	Pharmacogenetics and Epigenetics in Toxicology		6	BIO/14	48 ore Lectures
		Totale CFU obbligatori	29		

STAGE: thesis period

How long: 4.5-6 months
When: 2nd semester 2nd year
Where: wherever you want, as long as on topics related to the assessment of danger / risk



Research institutions (public & private)	35%
Consulting companies	39%
Chemical companies	20%
Industry Associations	6%

At the end of 2nd semester of 1st year, a list of contacts (companies and institutions) where to spend the stage will be sent to all the students

STAGE ABROAD

Erasmus, Erasmus traineeship, LERU-Stream, etc..

Some examples

- Institute for Risk Assessment Sciences, Utrecht University, Netherlands
- École des Neurosciences Paris Île de France
- Universidad Complutense de Madrid, Spain
- Minnesota University (USA)
- University of Ljubljana (Slovenia)
- University of Wuerzburg (Germany)
- University of Iceland
- University of Oslo (Norway)

A meeting on this topic will be organized late in Spring to give details

PROFESSIONAL OPPORTUNITIES

- Risk assessor in public and private organizations;
- Industry Associations (Food, Cosmetics, Pharma, Chemicals);
- Pharma Companies in the sector of drug development;
- Biotech Companies;
- Contract Research Organization for the drug/chemical toxicity testing;
- Food and Chemical Companies in Quality Control divisions;
- Bioremediation Companies;
- Public and Private Research Institutions;
- Universities and secondary schools;
- Quality certifier.

INFO

General info on SAXBi

<https://www.unimi.it/en/education/safety-assessment-xenobiotics-and-biotechnological-products>

Time-table available at:

https://easystaff.divsi.unimi.it/PortaleStudenti/index.php?view=easy_course&include=corso&_lang=en

Educational material (slides, publication, bibliography, communications) is available on individual ARIEL website for each lecturer.

<https://ariel.unimi.it/>