



HUMANITAS UNIVERSITY

Academic Regulations

**Degree Programme in Biomedical Laboratory
Techniques**

(qualifying licence to practise for the healthcare profession
of Biomedical Laboratory Technician)

Foreword – Scope

The degree programme in Biomedical Laboratory Techniques (qualifying licence to practise for the healthcare profession of Biomedical Laboratory Technician) is part of the class of degrees in technical health professions (L/SNT3), lasts three years and requires the acquisition of 180 university credits for the degree to be awarded. These regulations govern its academic specifications and, with due respect for the freedom of teaching and the rights and duties of teaching staff and students, specify its organisational aspects, in analogy with the relevant academic specifications. These Regulations are drawn up according to the provisions of Article 11 of Ministerial Decree 270/04, the Ministerial Decree of 19 February 2009 and the University Academic Regulations of Humanitas University.

Article 1 – Training objectives

The aim of the degree programme in Biomedical Laboratory Techniques is to train technical professionals capable of independently carrying out biomedical and biotechnological analyses for diagnostic and research purposes through the acquisition of functional technical, teaching and management competencies, in order to support the development of state-of-the-art laboratory pathways. Graduates in Biomedical Laboratory Techniques are responsible for the duties laid down in Ministerial Decree No. 745 of 26 September 1994, as amended and supplemented. Ministerial Decree 745/1994 defines Biomedical Laboratory Technicians as health professionals who carry out, independently or in collaboration with other health professionals, analytical and research laboratory activities relating to biomedical and biotechnological analyses particularly in the fields of biochemistry, microbiology and virology, pharmacotoxicology, immunology, clinical pathology, haematology, cytology and histopathology.

At the end of their training pathway, graduates in Biomedical Laboratory Techniques must have acquired knowledge (knowing), competencies (knowing how to do) and interpersonal skills (knowing how to be) that enable them to:

work in an environment centred on a culture of quality assurance, integrating operations, services and infrastructure into a system that meets applicable regulatory standards, professional guidelines and clinical requirements to ensure and maintain quality and continuously improve laboratory services

describe, prepare and implement the main laboratory procedures, in both diagnostic and research fields, adhering to regulated quality and safety standards and contributing to the continuous improvement and optimisation of techniques and protocols, including homemade ones

use, calibrate, and maintain laboratory equipment, including testing its functionality, and basic repair and maintenance procedures

manage the entire laboratory workflow, from warehouse management to the pre-analytical, analytical and post-analytical phases, including computer parameterisation and retrieval of data for analytical purposes

analyse and interpret data derived from their activities, framing them in a context of both quality control and scientific research and clinical investigation

interact competently, ethically and constructively with colleagues and other health

contribute to the training of new colleagues, in a system that encourages professional and personal growth and emphasises direct, practical learning in the field

Article 2 – Employment opportunities

The qualification allows access to first-level master's programmes, advanced-level courses and second-cycle degree programmes in the LM/SNT3 class (class of Technical Health Profession Sciences), without academic debits, and in other classes in accordance with the procedures laid down in the respective University regulations. Graduates in Biomedical Laboratory Techniques have the possibility of registering with the TSRM PSTRP (the order of medical radiographers and technical, rehabilitation and prevention health professions) in the biomedical laboratory health technician register.

Working environments of interest for graduates include: hospital and non-hospital laboratories belonging to the Italian National Health Service, private facilities or scientific institutes for research, hospitalisation and healthcare (IRCCS); companies operating in the field of laboratory diagnostics; university and non-university biomedical and biotechnological research laboratories; and quality control laboratories in the biomedical field and the pharmaceutical industry.

Article 3 – Access to the degree programme

To be admitted to the degree programme in Biomedical Laboratory Techniques, students need to hold a secondary school diploma, or another qualification obtained abroad and recognised as suitable pursuant to Article 6 of Ministerial Decree no. 270 of 22 October 2004.

Access to the degree programme is planned nationally in accordance with Law No. 264 of 2 August 1999. The intake of students to the first year of the programme is defined annually by decree of the MIUR (the Italian Ministry of Education, University and Research), based on the university's assessment of its educational capacity and on the requirements expressed by the Lombardy Region and the relevant ministry with regard to the need for medical staff with the professional profile of the class.

Article 8 – University credits

Exercises: practical workshops on the development of technical competencies, including advanced skills, through virtual reality simulations.

Journal club: seminars presenting articles from the scientific literature.

Clinical internship: a practical teaching and learning activity, corresponding to the standards defined at European level, carried out under the supervision and guidance of specially assigned professional tutors, coordinated by a teacher with the appropriate professional profile.

Article 10 – Curricular courses

The curricular courses or teaching may be extended over one or more semesters and may include non-formal teaching and learning modes, in addition to lectures and/or seminars.

Even when extended over several semesters and/or taught by several teaching staff members, including ones from different scientific disciplinary sectors, curricular courses culminate in a single examination with a single grade expressed in thirtieths.

Article 11 – Internship activities

Internship activities are an integral and qualifying part of professional training, aimed at enabling students to acquire specific skills. Clinical internships are an indispensable way of learning professional competencies, through practical experimentation and the integration of theoretical and scientific knowledge with professional and acniston a opraltonal cticar, wi pa4()-249(wview4()-249(v

exam date must be such that all students who have planned to do so may take the examination on that date.

Without prejudice to the provisions on compulsory attendance and prerequisites, an examination may be taken in any examination period starting from the one immediately following the end of the relevant course.

The professionalising internship examinations take place in the period from 1 to 30 September.

Article 16 – Progression and status of students repeating/outside the prescribed course timeframe

Students who have an academic debit of 10 or more credits and have not passed the clinical internship, which is considered a compulsory examination, are enrolled as repeat students in the year it relates to. The clinical internship evaluation committee's judgment of insufficiency imposes compulsory attendance of the entire annual schedule of clinical internship experiences planned for that year.

Students who accrue 180 university credits in accordance with the procedures set out in the degree programme academic regulations, including those relating to the preparation of the final examination for graduation, are allowed to take the final examination and obtain the qualification, regardless of the number of years they have been enrolled at the university.

To take examinations, students must comply with the following prerequisites:

Diagnostic Methods in Pathological Anatomy requires the passing of:

- Cell and Organ Morphology

Diagnostic Methods in Clinical Microbiology requires the passing of:

- Immunology, Pathology and Microbiology

Diagnostic Methods in Clinical Pathology requires the passing of:

- Chemistry and Biochemistry

Diagnostic Methods in Medical Genetics requires the passing of:

- Molecular Biology and Elements of Genetics

Advanced Diagnostics and Research Methods requires the passing of:

- Diagnostic Methods in Pathological Anatomy
- Diagnostic Methods in Clinical Microbiology

Article 17 – Final examination and awarding of qualification

Pursuant to Article 7 of the Interministerial Decree of 19 February 2009, the final examination for graduation, which has the value of a state examination and confers a licence to practise, consists of:

a practical test during which students must demonstrate that they have acquired the theoretical and practical, and technical and operational knowledge and skills of the specific professional profile

preparation of a written thesis and its oral defence

The thesis must be written under the guidance of a supervisor.

The dates are set by decree of the Ministry of University and Research, in agreement with the Ministry of Health, in two nationally defined sessions.

In order to be admitted to the final examination for graduation, it is necessary to have obtained all the credits in the teaching and learning activities set out in the study plan, including those relating to internship and seminar activities. Six university credits are allocated to the preparation of the thesis.

The final mark is expressed in hundredths.

Article 136-4 (supplementing those of articles 116 and 117 of the Statute) states that the final mark is expressed in hundredths (supplementing those of articles 116 and 117 of the Statute).

The results of the evaluation are presented to the University Evaluation Committee, which reports annually to the Board of Directors

Article 23

				and cytology methods and techniques		laboratory sciences and techniques	
			MED/46	Management of pre-analytical phase in pathological anatomy	Characterising	Biomedical laboratory sciences and techniques	1

MED/08

			MED/46	Recombinant biotechnology and cell cultures	Characterising	Biomedical laboratory sciences and techniques	1
			MED/46	Molecular biology applied to medical genetics	Characterising	Biomedical laboratory sciences and techniques	1
			ING-INF/05	Bioinformatic analysis of genomic data	Characterising	Interdisciplinary sciences	1
	Annual	2nd year internship	MED/46	Internship	Internship	Internship	22
	1	2nd year laboratory	MED/46	Workshops	Workshops	Workshops	1
	1	Elective activities		Elective activities	Other activities	Elective activities	2
	2	2nd year seminars		Seminars	Other activities	Seminars	2
3	1	Diagnostic methods in transfusion medicine	MED/05	Immunohaematology and transfusion medicine	Basic	Biomedical sciences	2
			MED/05	Immunohaematology and transfusion centre methods and techniques	Basic	Biomedical sciences	1
	1	Blood diseases	MED/15	Haematology	Characterising	Interdisciplinary and clinical sciences	2
			MED/46	Haematological methods and techniques	Characterising	Biomedical laboratory sciences and techniques	1
	1	Pharmacological sciences	MED/41	Anaesthesiology	Basic	First aid	1
			MED/46	Methods and techniques of pharmacology, toxicology and pharmaceutical formulation	Characterising	Biomedical laboratory sciences and techniques	1
			BIO/14	Pharmacological sciences	Characterising	Medical and surgical sciences	1
			BIO/14	Pharmacotoxicology	Basic	First aid	2

2	Advanced diagnostics and research methods	MED/08	Advanced diagnostics in pathological anatomy	Characterising	Medical and surgical sciences	1
		MED/07	Advanced diagnostics in microbiology	Characterising	Biomedical laboratory sciences and techniques	1
		MED/15	Advanced diagnostics in haemato-oncology	Characterising	Interdisciplinary and clinical sciences	1
		INF/01	Digital pathology	Basic	Propaedeutic sciences	1
2	Health care law and organisation	MED/43	Forensic medicine	Characterising	Prevention and health services sciences	1
		IUS/07	Labour law	Characterising	Health management sciences	1
		PSI/01	Psychology and bioethics	Characterising	Humanities and psycho-educational sciences	2
		MED/45	Integration between health professions	Related and complementary	Related and complementary	1
		SECS-P/07	Business economics	Characterising	Health management sciences	1
2	Quality management system	MED/01	Medical statistics	Basic	Propaedeutic sciences	2

		EXAMINATION				examination	
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