

# MSc in Biotechnological and Chemical Sciences in Diagnostics

## First Year

TOPIC	SCIENTIFIC AREA	SEMESTER	ECTS	HOURS	LEARNING MODE
BIOANALYTICAL METHODS	ANALYTICAL CHEMISTRY	1	5	40	TRADITIONAL
SPECTROSCOPY AND NANOMATERIAL INTERACTIONS	PHYSICAL CHEMISTRY	1	5	40	TRADITIONAL
CELL BIOLOGY IN DIAGNOSTICS	CELLULAR BIOLOGY	1	4	32	TRADITIONAL
FONDAMENTALS OF MOLECULAR BIOLOGY	MOLECULAR BIOLOGY	1	3	32	ONLINE (START@UNITO)
IN VIVO DIAGNOSTICS: IMAGING TECHNOLOGIES	INORGANIC CHEMISTRY	1	6	72	TRADITIONAL (48 h) PRACTICAL (24 h)
MATHEMATICAL METHODS AND TOOLS	MATHEMATICS	1	3	24	TRADITIONAL ONLINE (START@UNITO)
PHYSICAL METHODS AND TOOLS	APPLIED PHYSICS	1	3	24	TRADITIONAL
IN VITRO DIAGNOSTICS AND DATA ANALYSIS	ANALYTICAL CHEMISTRY	2	7	56	TRADITIONAL
ELECTRON MICROSCOPY	PHYSICAL CHEMISTRY	2	4	50	TRADITIONAL (32 h) PRACTICE (18 h)
APPLIED CELL BIOLOGY IN DIAGNOSTICS	CELLULAR BIOLOGY	2	2	16	TRADITIONAL
APPLIED MOLECULAR BIOLOGY IN DIAGNOSTICS	MOLECULAR BIOLOGY	2	7	56	TRADITIONAL
ADVANCED MOLECULAR IMMUNOLOGY	IMMUNOLOGY	2	6	48	TRADITIONAL (32 h) ONLINE (16 h)
ITALIAN FOR INTERNATIONAL STUDENTS BEGINNER LEVEL (FOR FOREIGN STUDENTS)	LANGUAGE	YEARLY	3	24	ONLINE
LABORATORIO: INTERCOMPRESIONE FRA LINGUE AFFINI (FOR ITALIAN STUDENTS)	LANGUAGE	YEARLY	3	24	ONLINE
INTERNSHIP I	STUDENT CHOICE	/	6	150	LABORATORY

# MSc in Biotechnological and Chemical Sciences in Diagnostics

## Second Year

TOPIC	SCIENTIFIC AREA	SEMESTER	ECTS	HOURS	LEARNING MODE
IN VIVO DIAGNOSTICS: IMAGING PROBES	INORGANIC CHEMISTRY	1	9	88	TRADITIONAL (72 h) PRACTICAL (16 h)
MEDICINAL CHEMISTRY	PHARMACEUTICAL CHEMISTRY	1	9	72	TRADITIONAL
ADVANCED SYNTHETIC STRATEGIES	ORGANIC CHEMISTRY	1	6	48	TRADITIONAL
NUCLEAR MEDICINE IN MOLECULAR IMAGING	INORGANIC CHEMISTRY	2	6	48	TRADITIONAL
INTERNSHIP II	STUDENT CHOICE	/	6	150	LABORATORY ACTIVITY
EXPERIMENTAL THESIS	STUDENT CHOICE	/	12	300	LABORATORY ACTIVITY

## Optional Courses (8 ECTS required)

TOPIC	SCIENTIFIC AREA	YEAR/ SEMESTER	ECTS	HOURS	LEARNING MODE
METALS IN MEDICINE AND BIOLOGICAL SYSTEMS	INORGANIC CHEMISTRY	First/First	4	32	TRADITIONAL
ADVANCED MASS SPECTROMETRY	ANALYTICAL CHEMISTRY	First/Second	4	32	TRADITIONAL
EXTRACELLULAR VESICLES IN DIAGNOSTICS AND PRECISION MEDICINE	MEDICAL TECHNOLOGIES	First/Second	4	32	TRADITIONAL
MOLECULAR MEDICINAL CHEMISTRY	PHARMACEUTICAL CHEMISTRY	Second/Second	4	32	TRADITIONAL
COMPUTATIONAL DRUG DISCOVERY	PHARMACEUTICAL CHEMISTRY	Second/Second	4	32	TRADITIONAL
CLINICAL APPLICATIONS OF DIAGNOSTIC TECHNOLOGIES IN HEMATOLOGY	CLINICAL HEMATOLOGY	Second/Yearly	4	32	TRADITIONAL