



## Study Plan

**School:** School of Sciences and Technology

**Degree:** Master

**Course:** Biochemistry (cód. 133)

### 1st Year - 1st Semester

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
QUI07652	Bioinformatics and Biochemical Simulation	Biochemistry	4	Semester	104
QUI07653	Quality Control	Chemical Engineering	5	Semester	130
MVT07654	Clinical Microbiology	Biology	5	Semester	130
QUI07655	Advanced Biochemical Methods	Biochemistry	5	Semester	130
MAT07656	Experimental Planning	Mathematics	4	Semester	104
QUI07657	Stress and Cellular Death	Biochemistry	5	Semester	130
FIL07658	Ethics of Scientific and Technological Research in Life Sciences	Philosophy	2	Semester	52

### 1st Year - 2nd Semester

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
QUI07659	Biomaterials	Chemistry	3	Semester	78
QUI07660M	Clinical Biochemistry	Biochemistry	6	Semester	156
QUI07661	Biochemical Pharmacology	Biochemistry	6	Semester	156
QUI07662	Pharmaceutical Chemistry	Chemistry	5	Semester	130
QUI07663	Advanced Topics in Medical Biochemistry	Biochemistry	10	Semester	260

### 2nd Year - 3rd Semester

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
QUI07665	Research Seminar	Biochemistry	1	Semester	26

#### Group of Options

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
QUI07664	Advanced Courses	*** TRANSLATE ME: Bioquímica, Sociologia e Química ***	9	Semester	243

#### Mandatory alternatives

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
	Dissertation				
	Internship				

### 2nd Year - 4th Semester

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
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#### Mandatory alternatives

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
	Dissertation				
	Internship				



## Conditions for obtaining the Degree:

\*\*\* TRANSLATE ME: Para aprovação na componente curricular deste Mestrado, é necessário a aprovação (através de avaliação ou creditação) das seguintes unidades curriculares: { \ } newline

1.º Semestre { \ } newline

- 7 UC Obrigatórias num total de 30 ECTS { \ } newline

2.º Semestre { \ } newline

- 5 UC Obrigatórias num total de 30 ECTS { \ } newline

3.º Semestre { \ } newline

- 1 UC Obrigatórias num total de 1 ECTS { \ } newline

- 1 UC Optativa num total de 9 ECTS { \ } newline

{ \ } newline

Para obtenção do grau, é necessário também a aprovação em Dissertação, com o total de 50 ECTS, no 3.º e 4.º Semestre. \*\*\*

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### Quality Control (QUI07653)

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### Clinical Microbiology (MVT07654)

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### Advanced Biochemical Methods (QUI07655)

1 - Spectral methods of analysis of biomolecules for qualitative and quantitative determination

2 - Methods of analysis based on the use of probes for analysis without the use of chemical reagents - Biosensors. Relevance of Electrochemistry in the context of contemporary Biochemistry: exposure and conversation about common cases and of cutting edge. Reagents, materials and equipment essential to the implementation of electrochemical methods in biochemistry. Electrochemical techniques (e.g., potentiometry, voltammetry, amperometry and electrochemical impedance spectroscopy) of (a) analysis of species with biochemical interest and (b) development/characterization of electrochemical biosensors.

3 - Immunochemistry methods - concepts and applications: i) Antibodies and antigens; ii) Production of antibodies; iii) Detection and quantification of biomolecules using antibody based techniques; iv) Application of antibodies in diagnostics; v) Application in therapeutics.

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### Experimental Planning (MAT07656)



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**Biomaterials (QUI07659)**

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**Clinical Biochemistry (QUI07660M)**

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**Biochemical Pharmacology (QUI07661)**

Structural relationship and activity

Pharmacokinetics

Absorption, distribution, metabolism and excretion

Pharmacokinetic Models

Pharmacodynamics

Action and pharmacological effect

Receivers

Drug-receptor interaction

Characteristics of a receiver

Dynamics of activation of a receptor

-Receptor binding interaction

Union drug-receptor

Pharmacodynamic interaction

Increase or decrease the effects due to mechanisms of drug action

Effect of drugs

Quantitative pharmacodynamic models

Maximum effect and potency of a drug

Effect of agonist and antagonist drugs

Individual variation in response to a drug

Different classes of drugs

Drugs that act at synapses and junctions Neuroeffector

Drugs with actions on the central nervous system

Autacoids

Drugs affecting renal and cardiovascular functions

Drugs affecting gastrointestinal function

Chemotherapy anti-microbial and anti-parasitic

Chemotherapy of neoplastic diseases

Immunomodulators

Drugs that act on the blood and organs

Hormones and their antagonists



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**Pharmaceutical Chemistry (QUI07662)**

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**Advanced Courses (QUI07664)**