SBIM1BA - Introduction

Introduction

SBIM1BA - Teaching profile

Learning outcomes

Bachelor in Biomedicine students must endeavour to prepare themselves for the training offered in the various Master's programmes taught by the School of Biomedical Sciences. To this end, students will apply themselves to acquiring the knowledge and skills that will enable them to become specialists in a field of biomedicine and play an integral part in a scientific project.

As part of the Bachelor in Biomedicine programme, students will study in detail the basic scientific foundations required to practise biomedicine and will discover a variety of specific areas of biomedical research. These activities will enable them to decide on their training projects for the Master's programme. In addition, practical lab work will enable Bachelor students to acquire the professional skills that they will develop during the Master's programme with increasing robustness and independence.

The objective of the School of Biomedical Sciences is to produce health sector professionals capable of conducting and interpreting scientific projects intended to improve the understanding, diagnosis and treatment of human diseases. In particular, the training is aimed at developing the skills required for the acquisition and analysis of observations and experiments in biomedicine, while at the same time cultivating scientific robustness and integrity.

On successful completion of this programme, each student is able to :

1 Use the tools required to acquire integrated knowledge in biomedicine

1.a Incorporate the general knowledge and methodologies in experimental biomedicine: biochemistry and molecular biology; cellular biology, general and special histology, general anatomy; general and special physiology; principal pathologies and their multifactorial pathogenesis, genetic diseases as experiments by nature; the major principles of pharmacology.
1.b Describe the experimental approaches and observation methods that resulted in this knowledge base.
1.c Use modern knowledge sources to effectively research pertinent, new and specific information.

2 Master the culture of numbers and representations

2.a Understand units and deal with orders of magnitude; use the standardisations and tests limiting the dispersion of experimental measurements; use reasoning and statistical tools; use forms of graphical representation.
2.b Understand the functions and rules of modern mathematical modelling; understand the mathematical translation of the major laws of physics, chemistry and biology (speed and constants, flux, interactions and affinity); identify the crucial limiting parameters.
2.c Display command of the IT tools that assist analysis and calculation.

3 Conduct biomedical experiments

3.a Formulate a biomedical problem, translate it into a scientific question and determine an experimental strategy to deal with it.
3.b Execute the successive steps of an experimental protocol:

i.e.:

- understand and accurately describe them, so that they may be reproduced by another scientist.

3.c Conduct experiments:

i.e.:

- manipulate biological and chemical equipment, demonstrating manual dexterity and observing laboratory best practices, including safety and waste management standards;
- use measuring and imaging instruments appropriately, as well as the IT tools associated with them;
- ensure effective reproducibility through accurate and thorough know-how.

4 Analyse, write and evaluate data from biomedical experiments

4.a Robustly analyse the observations in order to draw interpretations from them; identify analogical and deductive reasonings; identify correlation and causality.
4.b On the basis of the above reasonings, present a detailed argument of the results by comparing them with the bibliographical data (critical analysis).
4.c Recognise the failures and identify their causes.

				Year 1	2	3
WSBIM1313	Experimental design in biomedical sciences	Luc Bertrand Charles De Smet Pascal Kienlen-Campard (coord.)	[q2] [40h] [4 Credits] *> English-friendly*			x
WSBIM1335	Introduction to pathophysiology	Christiani Andrade Amorim Antoine Froidure Jean-Christophe Jonas (coord.) Shakeel Kautbally	[q2] [30h] [3 Credits]			x
WSBIM1293	Training course in cell biology	Laure Dumoutier (coord.) Julie Stockis	[q2] [30h] [2 Credits]		x	

Course prerequisites

The **table** below lists the activities (course units, or CUs) for which there are one or more prerequisites within the programme, i.e. the programme CU for which the learning outcomes must be certified and the corresponding credits awarded by the jury before registering for that CU.

These activities are also identified **in the detailed programme**: their title is followed by a yellow square.

Prerequisites and student's annual programme

As the prerequisite is for CU registration puposes only, there are no prerequisites within a programme year. Prerequisites are defined between CUs of different years and therefore influence the order in which the student will be able to register for the programme's CUs.

In addition, when the jury validates a student's individual programme at the beginning of the year, it ensures its coherence, meaning that it may:

- require the student to combine registration in two separate CUs which it considers necessary from a pedagogical point of view.
- transform a prerequisite into a corequisite if the student is in the final year of a degree course.

For more information, please consult the Academic Regulations and Procedures.

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Prerequisities list

LANGL1855 "Anglais médical" has prerequisite(s) LANGL1854

- LANGL1854 - Medical English

LANGL2454 "Anglais pour étudiants en sciences biomédicales" has prerequisite(s) LANGL1855

- LANGL1855 - Medical English

WFARM1202 "Eléments d'épidémiologie appliquée aux sciences pharmaceutiques et biomédicales" has prerequisite(s) WFARM1247 ET WSBIM1207 ET LANGL1855

- WFARM1247 - Statistical data processing
- WSBIM1207 - Introduction to bioinformatics
- LANGL1855 - Medical English

WFARM1213S "Physiologie des systèmes et éléments de physiopathologie - (partim SBIM)" has prerequisite(s) WMD1120 ET WFARM1009 ET WMD1006

- WMD1120 - General biology and an experimental approach to biology
- WFARM1009 - Elements of general and functional anatomy
- WMD1006 - Cytology and general histology

WFARM1221S "Biochimie et biologie moléculaire (partim biochimie)" has prerequisite(s) WMD1120 ET WMD1006 ET WMD1106

- WMD1120 - General biology and an experimental approach to biology
- WMD1006 - Cytology and general histology
- WMD1106 - ORGANIC CHEMISTRY

WFARM1247 "Traitement statistique des données" has prerequisite(s) WMD1102 ET WSBIM1001 ET LANGL1854

- WMD1102 - Physique expérimentale et introduction mathématique aux sciences expérimentales (1e partie)
- WSBIM1001 - MATHEMATICAL METHODS IN BIOMEDICAL SCIENCES
- LANGL1854 - Medical English

WFARM1282 "Microbiologie générale" has prerequisite(s) WMD1120 ET WMD1006 ET WSBIM1001

- WMD1120 - General biology and an experimental approach to biology
- WMD1006 - Cytology and general histology
- WSBIM1001 - MATHEMATICAL METHODS IN BIOMEDICAL SCIENCES

WFARM1305 "Eléments de pathologie humaine" has prerequisite(s) WFARM1213S ET WSBIM1203

- WFARM1213S - Human physiology and basics of physiopathology - (Partim SBIM)
- WSBIM1203 - Special histology and hematology

WFARM2139T "Pharmacocinétique, pharmacogénomique et toxicologie (partim toxicologie, 22h)" has prerequisite(s) WFARM1221S ET WSBIM1201T ET WSBIM1201P ET WSBIM1205

- WFARM1221S - Biochemistry and molecular biology
- WSBIM1201T - General physiology - General physiology (theory part, 40h)
- WSBIM1201P - General physiology - General physiology (practical part, 25h)
- WSBIM1205 - Introduction to toxicology

WFARM2177 "Biostatistique" has prerequisite(s) WFARM1247

- WFARM1247 - 800537 Tm [(•)] TJ /F1 8 Tf 1 5 0.2 hasJ 0 1 58.626y

WMDS1231 "Biochimie humaine pathologique" has prerequisite(s) WFARM1213S ET WFARM1221S ET WSBIM1227 ET WFARM1282 ET WFARM1247 ET WSBIM1201T ET WSBIM1201P

- WFARM1213S - Human physiology and basics of physiopathology - (Partim SBIM)
- WFARM1221S - Biochemistry and molecular biology
- WSBIM1227 - Molecular biology and integrated biochemistry
- WFARM1282 - General microbiology
- WFARM1247 - Statistical data processing
- WSBIM1201T - General physiology - General physiology (theory part, 40h)
- WSBIM1201P - General physiology - General physiology (practical part, 25h)

WPHAR1300 "Pharmacologie 1re partie" has prerequisite(s) WFARM1213S ET WSBIM1201T ET WSBIM1201P

- WFARM1213S - Human physiology and basics of physiopathology - (Partim SBIM)
- WSBIM1201T - General physiology - General physiology (theory part, 40h)
- WSBIM1201P - General physiology - General physiology (practical part, 25h)

WSBIM1200 "Analyse instrumentale biomédicale et radioprotection" has prerequisite(s) WSBIM1001 ET WMD1105 ET WMD1106

- WSBIM1001 - MATHEMATICAL METHODS IN BIOMEDICAL SCIENCES
- WMD1105 - Chimie générale et minérale
- WMD1106 - ORGANIC CHEMISTRY

WSBIM1201P "Physiologie générale (partie travaux pratiques, 25h)" has prerequisite(s) WMD1102 ET WMD1104

- WMD1102 - Physique expérimentale et introduction mathématique aux sciences expérimentales (1e partie)
- WMD1104 - Physique expérimentale et introduction mathématique aux sciences expérimentales (2e partie)

WSBIM1201T "Physiologie générale (partim théorie, 40h)" has prerequisite(s) WMD1120 ET WMD1006 ET WMD1102 ET WMD1104

- WMD1120 - General biology and an experimental approach to biology
- WMD1006 - Cytology and general histology
- WMD1102 - Physique expérimentale et introduction mathématique aux sciences expérimentales (1e partie)
- WMD1104 - Physique expérimentale et introduction mathématique aux sciences expérimentales (2e partie)

WSBIM1203 "Histologie spéciale et hématologie" has prerequisite(s) WFARM1009 ET WMD1006

- WFARM1009 - Elements of general and functional anatomy
- WMD1006 - Cytology and general histology

WSBIM1205 "Introduction à la toxicologie" has prerequisite(s) WMD1105 ET WMD1106

- WMD1105 - Chimie générale et minérale
- WMD1106 - ORGANIC CHEMISTRY

WSBIM1206 "Du nutriment à l'aliment" has prerequisite(s) WFARM1009 ET WMD1105 ET WMD1106

- WFARM1009 - Elements of general and functional anatomy
- WMD1105 - Chimie générale et minérale
- WMD1106 - ORGANIC CHEMISTRY

WSBIM1207 "Introduction à la bio-informatique" has prerequisite(s) WMD1102 ET WSBIM1001 ET LANGL1854

- WMD1102 - Physique expérimentale et introduction mathématique aux sciences expérimentales (1e partie)
- WSBIM1001 - MATHEMATICAL METHODS IN BIOMEDICAL SCIENCES
- LANGL1854 - Medical English

WSBIM1211 "Méthodologie de la biologie cellulaire et moléculaire" has prerequisite(s) WMD1120 ET WMD1006 ET WSBIM1001 ET WMD1105

- WMD1120 - General biology and an experimental approach to biology
- WMD1006 - Cytology and general histology
- WSBIM1001 - MATHEMATICAL METHODS IN BIOMEDICAL SCIENCES
- WMD1105 - Chimie générale et minérale

WSBIM1220 "Neurobiologie" has prerequisite(s) WFARM1009

- WFARM1009 - Elements of general and functional anatomy

WSBIM1226 "Biologie moléculaire (dont l'épigénétique) et travaux dirigés" has prerequisite(s) WMD1120 ET WMD1106

- WMD1120 - General biology and an experimental approach to biology
- WMD1106 - ORGANIC CHEMISTRY

WSBIM1227 "Biologie moléculaire et biochimie intégrée" has prerequisite(s) WSBIM1001 ET WMD1106

- WSBIM1001 - MATHEMATICAL METHODS IN BIOMEDICAL SCIENCES
- WMD1106 - ORGANIC CHEMISTRY

WSBIM1293 "Stage de biologie cellulaire" has prerequisite(s) WMD1120 ET WMD1006 ET WMD1104 ET WSBIM1001

- WMD1120 - General biology and an experimental approach to biology
- WMD1006 - Cytology and general histology
- WMD1104 - Physique expérimentale et introduction mathématique aux sciences expérimentales (2e partie)
- WSBIM1001 - MATHEMATICAL METHODS IN BIOMEDICAL SCIENCES

WSBIM1302 "Virologie moléculaire" has prerequisite(s) WSBIM1227 ET WFARM1282

- WSBIM1227 - Molecular biology and integrated biochemistry
- WFARM1282 - General microbiology

WSBIM1305 "Introduction à la nutrition humaine" has prerequisite(s) WFARM1221S ET WSBIM1206

- WFARM1221S - Biochemistry and molecular biology
- WSBIM1206 - From nutrient to food

WSBIM1306 "Atelier d'histologie et d'anatomie pathologique" has prerequisite(s) WFARM1213S ET WSBIM1203

Detailed programme per annual block

SBIM1BA - 1ST ANNUAL UNIT

- Mandatory
- Optional
- Not offered in 2024-2025
- Not offered in 2024-2025 but offered the following year
- Offered in 2024-2025 but not the following year
- Not offered in 2024-2025 or the following year
- Activity with requisites
- Open to incoming exchange students
- Not open to incoming exchange students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

Click on the course title to see detailed informations (objectives, methods, evaluation...)

Majeure

Des atomes, des molécules et des systèmes qui les régissent

WMD1102	Physique expérimentale et introduction mathématique aux sciences expérimentales (1e partie)	Alexandre Lazarescu (compensates Eduardo Cortina Gil) Fabio Maltoni	FR [q1] [60h +21h] [8 Credits]
WMD1104	Physique expérimentale et introduction mathématique aux sciences expérimentales (2e partie)	Bryan Debin	FR [q2] [30h +21h] [5 Credits]
WSBIM1001	MATHEMATICAL METHODS IN BIOMEDICAL SCIENCES	Pierre Bieliavsky Annie Robert	FR [q2] [45h +20h] [5 Credits]
WMD1105	Chimie générale et minérale	Olivier Riant Alexandru Vlad	FR [q1] [60h +30h] [9 Credits]
WMD1106	ORGANIC CHEMISTRY	Mohamed Ayadim Olivier Riant Michael Singleton	FR [q2] [60h +30h] [9 Credits]

De la cellule à l'être humain

WMD1120	General biology and an experimental approach to biology	Marie Boucquey Charles De Smet Jean Baptiste Demoulin (coord.) Pascal Kienlen-Campard	FR [q1] [75h +25h] [10 Credits]
WMD1006	Cytology and general histology	Christophe Pierreux	FR [q2] [10h +40h] [5 Credits]
WFARM1009	Elements of general and functional anatomy	Christine Galant (coord.) Catherine Hubert Alain Poncelet	FR [q2] [30h] [3 Credits]

L'homme et la société : approche contextuelle

WFARM1160	Philosophy	Nathalie Grandjean	FR [q1] [30h] [3 Credits]
LANGL1854	Medical English	Stéphanie Brabant Aurélie Deneumoustier Ariane Halleux Carlo Lefevre (coord.) Mark Theodore Pertuit Marine Volpe	EN [q2] [30h] [3 Credits]

SBIM1BA - 3RD ANNUAL UNIT

- Mandatory
- Optional
- Not offered in 2024-2025
- Not offered in 2024-2025 but offered the following year
- Offered in 2024-2025 but not the following year
- Not offered in 2024-2025 or the following year
- Activity with requisites
- Open to incoming exchange students
- Not open to incoming exchange students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

Click on the course title to see detailed informations (objectives, methods, evaluation...)

Majeure

Des atomes, des molécules et des systèmes qui les régissent

WPHAR1300	Pharmacology Part 1	Emmanuel Hermans Joseph Lorent	FR [q1] [30h +7.5h] [3 Credits] > English-friendly

De la cellule à l'être humain

WSBIM1310	Human embryology	Charles De Smet (coord.) Christophe Pierreux	FR [q2] [24h] [2 Credits]
WSBIM1306	Histology and pathological anatomy workshop	Yves Guiot Christophe Pierreux (coord.) Mieke Van Bockstal	FR [q2] [30h] [2 Credits]
WMDS1231	Biochimie humaine pathologique	Guido Bommer Frédéric Lemaigre (coord.)	FR [q2] [30h] [3 Credits] > English-friendly
WMDS1229	Génétique humaine	Miikka Vikkula	FR [q2] [20h] [2 Credits] > English-friendly
WSBIM1334	general immunology		

Useful Contact(s)

- Personne de contact de la 1re année de bachelier: Fabienne Titeux
- Personne de contact du cycle de bachelier (hors première): Guillaume Arnould
- Président de la commission d'enseignement de l'école de sciences biomédicales: Charles De Smet
- Conseiller aux études: Laure Dumoutier
- Responsable administrative de la faculté de pharmacie et de sciences biomédicales: Johanne Garny