



澳門大學

UNIVERSIDADE DE MACAU

UNIVERSITY OF MACAU

## **Programme Introduction for Bachelor of Science – Pharmaceutical Sciences and Technology, Faculty of Health Sciences**

(The programme will be newly offered in 2022/2023 academic year and will come into operation upon publication in Macao SAR Gazette)

### **Introduction**

Pharmaceutical Sciences and Technology forms the foundational scientific basis of the physical, chemical, biological and the biomedical aspects of drug properties and actions combining a broad range of scientific disciplines that are critical to the discovery and development of new drugs and therapies. Through this undergraduate programme, students can gain a well-rounded understanding of drug discovery and development, and can master the relevant laws and regulations. The graduates are well equipped with generic, subject-specific and transferable knowledge and skills suited to a career in the pharmaceutical industry, drug laboratory-based scientific disciplines. Pursuing further post-graduate studies or professional studies such as pharmacy are also popular options for graduates.

### **Features**

- The programme covers a wide range of areas in biology, chemistry, physics and pharmaceutical sciences.
- The programme provides professional training in developing scientific mindset and skills in the fields of pharmaceutical chemistry, pharmacology and pharmacokinetics, drug discovery, research and development, and social and administrative pharmacy (including pharmaceutical industry, marketing, legal, regulatory and drug information).
- The design of the programme targets talents who plan to engage in:
  - ✓ a career aspect that is related to pharmaceutical manufacturing, evaluation, sales, marketing and quality control, regulatory affairs, along with clinical trials and research and development; and
  - ✓ pharmaceutical and biomedical academia, etc..

### **Graduate Prospects<sup>^</sup>**

- Research positions: universities, research institutes and companies, and medical institutes
- Administrative positions: scientific officer, regulator, inspector, administrator
- Entrepreneur positions: Entrepreneur and risk taker

<sup>^</sup> The Bachelor of Science in Pharmaceutical Sciences and Technology programme equips students with scientific mindset and skills for pursuing a further study or career development in pharmaceutical research and development. The completion of this programme does not fulfill the professional qualification for a pharmacist in Macao, and the requirement for this profession is governed by Regulamento Administrativo n.º 23/2021.

### **Admission Channel**

- Applicants may apply for admission by one of the following channels, whichever is applicable to them:
  - ✓ Principals' Recommended Admission (Application period: from 20 September to 8 October 2021)
  - ✓ Admission Examination (Application period: from 5 to 19 January 2022)
  - ✓ Direct Admission (Application period: from 24 January to 22 April 2022)



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- Please refer to the Registry webpage at <https://reg.um.edu.mo/admission/> for details.

**Academic and Teaching Arrangement** (Below curriculum may subject to change and final version will be announced in Macao SAR gazette)

1. Degree: Bachelor of Science
2. Academic Field: Science
3. Major: Pharmaceutical Sciences and Technology
4. Normal programme duration: 4 years
5. Medium of instruction: English
6. Graduation requirement: 137.5 credits and pass all required courses
7. Programme curriculum: listed as below:

**Table I**

| Course   | Type       | Study Hours | Credits |
|--|------------|-------------|---------|
| <i>1<sup>st</sup> Academic Year</i>                                |            |             |         |
| General Physics <sup>1</sup>                                       | Compulsory | 180         | 4       |
| Physics Lab <sup>1</sup>   | "          | 45          | 1       |
| Introduction to Computer Science <sup>1</sup>                      | "          | 135         | 3       |
| General Chemistry <sup>1</sup>                                     | "          | 135         | 3       |
| General Chemistry Lab <sup>1</sup>                                 | "          | 90          | 2       |
| Introduction to Biological Sciences <sup>1</sup>                   | "          | 135         | 3       |
| General and Clinical Biochemistry <sup>1</sup>                     | "          | 135         | 3       |
| Biochemistry Lab <sup>1</sup>                                      | "          | 67.5        | 1.5     |
| Organic Chemistry <sup>1</sup>                                     | "          | 180         | 4       |
| Organic Chemistry Lab <sup>1</sup>                                 | "          | 90          | 2       |
| Introduction to Probability <sup>1</sup>                           | "          | 45          | 1       |
| Community and Peer Education <sup>2</sup>                          | "          | 105         | 2       |
| Languages and Skills <sup>2,3</sup> / Free Elective <sup>3,4</sup> | "          | 270         | 6       |
| General Education <sup>2</sup>                                     | "          | 135         | 6       |
| <i>2<sup>nd</sup> Academic Year</i>                                |            |             |         |
| Physical Chemistry <sup>1</sup>                                    | Compulsory | 135         | 3       |
| Programming Science <sup>1</sup>                                   | "          | 135         | 3       |



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| Course   | Type       | Study Hours | Credits |
|--|------------|-------------|---------|
| General and Clinical Microbiology <sup>1</sup>                     | "          | 135         | 3       |
| Microbiology Lab <sup>1</sup>                                      | "          | 67.5        | 1.5     |
| Physiology and Pathophysiology <sup>1</sup>                        | "          | 135         | 3       |
| Human Anatomy <sup>1</sup>   | "          | 135         | 3       |
| Pharmacology <sup>1</sup>  | "          | 135         | 3       |
| Pharmacology Lab <sup>1</sup>                                      | "          | 67.5        | 1.5     |
| Analytical Chemistry <sup>1</sup>                                  | "          | 135         | 3       |
| Analytical Chemistry Lab <sup>1</sup>                              | "          | 90          | 2       |
| Medicinal Chemistry <sup>1</sup>                                   | "          | 135         | 3       |
| Biostatistics and Experimental Design <sup>1</sup>                 | "          | 135         | 3       |
| Community and Peer Education <sup>2</sup>                          | "          | 45          | 1       |
| Languages and Skills <sup>2,3</sup> / Free Elective <sup>3,4</sup> | "          | 270         | 6       |
| General Education <sup>2</sup>                                     | "          | 135         | 3       |
| <b>3<sup>rd</sup> Academic Year</b>                                |            |             |         |
| Biopharmaceutics and Pharmacokinetics <sup>1</sup>                 | Compulsory | 135         | 3       |
| Chinese Medicine <sup>1</sup>                                      | "          | 135         | 3       |
| Pharmaceutics <sup>1</sup>   | "          | 135         | 3       |
| Pharmaceutics Lab <sup>1</sup>                                     | "          | 67.5        | 1.5     |
| Pharmaceutical Analysis <sup>1</sup>                               | "          | 135         | 3       |
| Pharmaceutical Analysis Lab <sup>1</sup>                           | "          | 67.5        | 1.5     |
| Pharmacy Administration <sup>1</sup>                               | "          | 135         | 3       |
| Required Elective <sup>1,5</sup>                                   | "          | 135         | 3       |
| Languages and Skills <sup>2,3</sup> / Free Elective <sup>3,4</sup> | "          | 135         | 3       |
| General Education <sup>2</sup>                                     | "          | 540         | 12      |
| <b>4<sup>th</sup> Academic Year</b>                                |            |             |         |



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| Course                                | Type       | Study Hours | Credits      |
|---------------------------------------|------------|-------------|--------------|
| Graduation Project I <sup>1</sup>     | Compulsory | 135         | 3            |
| Graduation Project II <sup>1</sup>    | "          | 135         | 3            |
| Toxicology <sup>1</sup>               | "          | 135         | 3            |
| Required Elective <sup>1,5</sup>      | "          | 270         | 6            |
| General Education Course <sup>2</sup> | "          | 135         | 3            |
| <b>Grand Total Credits</b>            |            |             | <b>137.5</b> |

\* The study hour of each credit includes at least 15 hours of face-to-face teaching.

Remark:

1. The courses that compose the major. The total credit of “Compulsory Major” of the programme is 95.5.
2. The relevant course list will be posted on University of Macau’s website
3. The requirement of taking “Languages and Skills” and “Free Elective” will be posted on University of Macau’s website.
4. Students can select any courses provided by home faculty or other faculties as free elective courses to fulfil credit requirement of “Free Elective”.
5. Students must select the “Required Elective” from Table II to get 9 credits.

**Table II**

| Course                              | Type              | Study Hours* | Credits |
|-------------------------------------|-------------------|--------------|---------|
| Biomedical Materials                | Required Elective | 135          | 3       |
| Phytochemistry                      | "                 | 135          | 3       |
| Drug Discovery and Development      | "                 | 135          | 3       |
| Public Health                       | "                 | 135          | 3       |
| Translational Medicine              | "                 | 135          | 3       |
| Pharmaceutical Economics and Policy | "                 | 135          | 3       |
| Pharmacoinformatics                 | "                 | 135          | 3       |

\* The study hour of each credit includes at least 15 hours of face-to-face teaching.