

Pharmaceutical Science



“The students from Temasek Polytechnic are generally well-rounded in terms of communication skills and clinical knowledge. The curriculum is well-balanced enough to provide sufficient coverage as well as depth to adequately equip the students for the internship programme.”

Esther Ang Pei Jing
Outpatient Pharmacy
KK Women's & Children's Hospital

Do you have a passion to safeguard health by making quality drugs and imparting knowledge on the safe use of medicines? If so, this course is for you! You will learn about the effects of medicines on the human body and how they work to cure diseases, and acquire the knowledge and skills required to design, analyse, manufacture and market new therapies for diseases.

With a rapidly growing ageing population and higher incidence of lifestyle-related illnesses such as Type 2 diabetes and heart diseases, there is an increase demand for healthcare services, pharmaceutical and biologic drugs. Singapore has positioned herself to be a regional biomedical hub and has committed S\$3.7 billion to the biomedical industry, attracting leading biopharmaceutical companies to make Singapore their global manufacturing base and creating many job opportunities in these industries. In addition, with new hospitals, polyclinics and nursing homes in the pipeline, there will also be an unprecedented need for pharmacy technicians and pharmacists in Singapore to work in this industry.

This course will build your foundation in chemistry and biology, and equip you with the knowledge and core skills in pharmacy practice, pharmaceutical and biopharmaceutical technologies and analysis. You will learn specialised subjects

related to drug action on diseases, medicine legislations and patient counselling to prepare you for work in pharmacies. You will also learn about pharmaceutical manufacturing and bioprocessing technologies and good manufacturing practice.

In your third year of study, you can choose to specialise either in the Pharmacy Practice or Pharmaceuticals and Biologics elective cluster, where you will deepen your knowledge in these areas and apply your skills in the relevant fields during the six-month enhanced internship programme. You will be able to take up an internship position at hospitals, retail pharmacies, pharmaceutical manufacturing industry, or QC and research laboratories in Singapore or overseas. The internship enables you to apply theory to practice on real industry projects. During the course of your study, you can also take part in research projects offered by the school or research institutes in various research topics such as pharmaceutical science, analytical science, biologics and traditional medicine.

As part of the government's SkillsFuture initiatives to encourage continuing education and skill mastery, Continuing Education and Training (CET) programmes such as the Attach-and-Train for Biologics Sector and Advanced Diploma in Pharmaceutical Sciences as well as many other modular courses have been launched, providing ample opportunities for our Diploma in Pharmaceutical Science graduates to deepen and upgrade their skills.

Career Opportunities

Graduates can work as pharmacy technicians in hospitals, community and retail pharmacies, QA/QC assistants to conduct analysis and quality checks on finished pharmaceutical products or production technicians to manufacture drugs in the pharmaceutical and biopharmaceutical industry. For the research-inclined, you can also join research institutes or pharmaceutical companies to assist in research work on drug development and clinical trials. You can also embark on a career in technical sales and marketing for pharmaceutical and health products.

Graduation Requirements

Cumulative Grade Point Average : min 1.0

TP Fundamental Subjects : 40 credit units

Diploma Subjects

Core Subjects : 71 credit units

Elective Subjects : min 9 credit units

Total Credit Units Completed : min 120 credit units

Application

Apply during the Joint Admissions Exercise following the release of the GCE O Level results. For other categories of local applicants, please refer to the section on “Admission and Requirements”. For international students, please refer to the section on “Information for International Students”.

Entry Requirements for Singapore-Cambridge GCE O Level Qualification Holders

To be eligible for consideration for admission, applicants must obtain 26 points or better for the net ELR2B2 aggregate score (i.e. English Language, 2 relevant subjects and best 2 other subjects, including CCA Bonus Points) and meet the minimum entry requirements of this course. CCA cannot be used to meet the minimum entry requirements.

For details on GCE O Level Minimum Entry Requirements, refer to page 6.

Course Structure

TP FUNDAMENTALS (TPFun) SUBJECTS				
SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS	
ACS1005	Communication & Information Literacy (IComm)	1	2	
ACS1006	Workplace Communication (WkComm)	1	2	
ACS1007	Persuasive Communication (PComm)	1	2	
AGS1002	Global Studies	1	3	
AGS1003	Managing Diversity at Work*	1	3	
AGS1004	Global Citizenship & Community Development*	1	3	
AGS1005	Expressions of Culture*	1	3	
AIN1001	Innovation & Entrepreneurship	1	2	
GCC1001	Current Issues & Critical Thinking	1	2	
LEA1011	Leadership: Essential Attributes & Practice 1	1	1	
LEA1012	Leadership: Essential Attributes & Practice 2	1	1	
LEA1013	Leadership: Essential Attributes & Practice 3	1	1	
LSW1002	Sports & Wellness	1	2	
MCR1001	Career Readiness 1	1	1	
MCR1002	Career Readiness 2	1	1	
MCR1003	Career Readiness 3	1	1	
TGL1001	Guided Learning	1	3	
ASI3029	Student Internship Programme	3	16	

* Students must choose one of these three subjects or TGL1001 Guided Learning.

DIPLOMA SUBJECTS – CORE SUBJECTS

SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS
ABT1001	Cell Biology	1	4
ACH1007	Organic & Biological Chemistry	1	4
ACH1009	Principles of Inorganic & Physical Chemistry	1	4
AMA1004	Statistics for Applied Science	1	3
AMB1002	Human Anatomy & Physiology	1	5
AMB1004	Basic Microbiology	1	3
APH1001	Principles of Pharmacology	1	3
APH1002	Basic Pathology & Immunology	1	3
APH1003	Introduction to Pharmacy Practice	1	3
AMB2007	Pharmaceutical Microbiology	2	3
APH2001	Pharmaceutical Analysis 1	2	4
APH2009	Pharmacy Practice 1	2	5
APH2010	Pharmacy Practice 2	2	4
APH2011	Bioprocess Technology & Analysis	2	3
AMP3012	Major Project	3	8
APH3004	Pharmaceutical Manufacturing Technology	3	4
APH3011	Current Good Manufacturing Practice & Process Improvement	3	4
APH3012	Pharmaceutical Analysis 2	3	4

DIPLOMA SUBJECTS – ELECTIVE CLUSTER SUBJECTS

Students will be required to read an Elective Cluster offered by the School and complete a minimum of 9 credit units. The Elective Cluster to be offered by the course, and the subjects under this Cluster, are summarised below.

SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS
<u>Pharmacy Practice</u>			
APH2012	Pharmaceutical Legislation, Marketing & Management	2	5
APH3013	Health Management in Patient Care	3	4
<u>Pharmaceuticals & Biologics</u>			
APH2013	Pharmaceutical Unit Operations	2	4
APH3015	Biopharmaceutical Processing	3	5
<u>Free Electives</u>			
ACH1010	Principles of Inorganic & Physical Chemistry 2	1	4
ABT2013	Molecular Biology	2	4
ACE2009	Occupational Safety & Health	2	4
ACE2015	Process Control & Instrumentation	2	4