

## **REGULATIONS FOR THE DEGREE OF BACHELOR OF PHARMACY (BPharm)**

*These regulations are applicable to candidates admitted under the 4-year BPharm curriculum in the academic year 2019-2020 and thereafter.*

*(See also General Regulations and Regulations for First Degree Curricula)*

### **Admission to the BPharm degree**

**BP1** To be eligible for admission to the BPharm degree, candidates shall:

- (a) comply with General Regulations;
- (b) comply with the Regulations for First Degree Curricula; and
- (c) satisfy all the requirements of the curriculum in accordance with these regulations and the syllabuses.

### **Period of study**

**BP2** The curriculum for the degree of Bachelor of Pharmacy shall normally require eight semesters of full-time study, extending over not fewer than four academic years, and shall include any assessment to be held during and/or at the end of each semester. Candidates shall not in any case be permitted to extend their studies beyond the maximum period of registration of six academic years.

### **Selection of courses**

- BP3**
- (a) Candidates shall select their courses in accordance with these regulations and the guidelines specified in the syllabuses before the beginning of each semester. Changes to the selection of courses may be made only during the add/drop period of the semester in which the course begins, and such changes shall not be reflected in the transcript of the candidate. Requests for changes after the designated add/drop period of the semester shall not be considered, unless under exceptional circumstances.
  - (b) Withdrawal from courses beyond the designated add/drop period will not be entertained.

### **Curriculum requirements**

**BP4** To complete the curriculum, candidates shall:

- (a) satisfy the requirements prescribed in UG5 of the Regulations for First Degree Curricula; and
- (b) complete satisfactorily the professional core of 204 credits, in the manner specified in these regulations and the syllabuses, including the course "BPHM4161 Research Methodology and Research Project" to be taken in the final year of study as the capstone experience.

- BP5**
- (a) Candidates shall normally take not fewer than 24 and not more than 36 credits of courses in each semester, unless otherwise permitted or required by the Board of the Faculty.
  - (b) Candidates shall have to satisfactorily complete the prerequisite courses in order to enroll in succeeding courses, unless with exemption granted by the Board of the Faculty.

### **Advanced standing**

- BP6**
- (a) Advanced standing may be granted to candidates in recognition of studies completed successfully before admission to the University. The amount of credits to be granted for advanced standing shall be determined by the Board of the Faculty, in accordance with UG2 of the Regulations for the First Degree Curricula.
  - (b) Credits granted for advanced standing to a candidate shall not be included in the calculation of his/her cumulative GPA unless permitted by the Board of the Faculty but will be recorded on the transcript of the candidate.

## Assessment

- BP7** (a) Candidates shall be assessed for each of the courses which they have registered for, and assessment may be conducted in any one or any combination of the following manners: written examinations or tests, continuous assessment, laboratory work, project reports, or in any other manner as specified in the syllabuses.
- (b) Grades shall be awarded in accordance with UG8(a) of the Regulations for the First Degree Curricula.

<i>Grade</i>	<i>Standard</i>	<i>Grade Point</i>	
A+ } A } A- }	Excellent	4.3 4.0 3.7	
B+ } B } B- }		Good	3.3 3.0 2.7
C+ } C } C- }			Satisfactory
D+ } D }	Pass		
F		Fail	

- (c) Written examinations shall normally be held at the end of each semester unless otherwise specified in the syllabuses.
- (d) Candidates who are unable, because of illness or other special circumstances, to be present at any examination of a course may apply for permission to present themselves at a supplementary examination of the same course to be held before the beginning of the First Semester of the following academic year. Any such application shall be made on the form prescribed within seven calendar days of the first day of the candidates' absence from any examination. Any supplementary examination shall be part of that academic year's examinations, and the provisions made in the regulations for failure at the first attempt shall apply accordingly.
- (e) Candidates shall not be permitted to repeat a course for which they have received a D grade or above for purpose of upgrading.
- (f) Candidates are required to make up for failed courses in the following manner:
- undergoing re-assessment/ re-examination in the failed course to be held no later than the end of the following semester (not including the summer semester); or
  - re-submitting failed coursework, without having to repeat the same course of instruction; or
  - repeating the failed course by undergoing instruction and satisfying the assessments; or
  - for elective courses, taking another course in lieu and satisfying the assessment requirements.

## Discontinuation

- BP8** Candidates shall normally be recommended for discontinuation of their studies if they have:
- failed to complete successfully 36 or more credits in two consecutive semesters (not including the summer semester), except where they are not required to take such a number of credits in the two given semesters; or
  - failed to achieve an average semester GPA of 1.0 or higher for two consecutive semesters (not including the summer semester); or

- (c) exceeded the maximum period of registration specified in BP2 of the regulations of the degree; or
- (d) failed in a core or pharmacy elective course three times.

### Requirements for graduation

- BP9** To be eligible for the award of the degree of Bachelor of Pharmacy, candidates shall have:
- (a) satisfied the requirement in the UG5 of the Regulations for First Degree Curricula; and
  - (b) passed not fewer than 258 credits as specified in the syllabuses, which shall include:
    - (i) 12 credits in English language enhancement, including 6 credits in Core University English<sup>1</sup> and 6 credits in an English in the Discipline course;
    - (ii) 6 credits in Chinese language enhancement;
    - (iii) 36 credits of courses in the Common Core Curriculum, comprising at least one and not more than two courses from each Area of Inquiry with not more than 24 credits of courses being selected within one academic year except where candidates are required to make up for failed credits;
    - (iv) successful completion of a capstone experience as specified in the syllabuses of the degree curriculum; and
    - (v) successful completion of any other non-credit bearing courses as required.

### Award of Degree/ Degree classification

- BP10** (a) The degree of Bachelor of Pharmacy shall be awarded in five divisions: First Class Honours, Second Class Honours Division One, Second Class Honours Division Two, Third Class Honours and Pass. The classification of honours shall be determined by the Board of Examiners for the degree in accordance with the following Graduation GPA scores (GGPA), with all courses taken (including failed courses) carrying weightings which are proportionate to their credit values<sup>2</sup>:

<i>Class of honours</i>	<i>GGPA range</i>
First Class Honours	3.60 – 4.30
Second Class Honours	(2.40 – 3.59)
Division One	3.00 – 3.59
Division Two	2.40 – 2.99
Third Class Honours	1.70 – 2.39
Pass	1.00 – 1.69

- (b) Honours classification may not be determined solely on the basis of a candidate's Graduation GPA and the Board of Examiners for the degree may, at its absolute discretion and with justification, award a higher class of honours to a candidate deemed to have demonstrated meritorious academic achievement but whose Graduation GPA falls below the range stipulated in BP10(a) of the higher classification by not more than 0.1 Grade Point.
- (c) A list of candidates who have successfully completed all degree requirements shall be posted on Faculty noticeboards.

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<sup>1</sup> Candidates who have achieved Level 5 or above in English Language in the Hong Kong Diploma of Secondary Education Examination, or equivalent, are exempted from this requirement, and the Core University English is optional. Those who do not take this course should take an elective course in lieu, see Regulation UG6.

<sup>2</sup> For students in the 2017-18 intake and thereafter who have successfully completed six Common Core courses, the calculation of Graduation GPA is subject to the proviso that either five Common Core courses with the highest grades (covering all four Areas of Inquiry), or all six courses will be counted towards Graduation GPA, depending on which generates the higher Graduation GPA.

## SYLLABUSES FOR THE DEGREE OF BACHELOR OF PHARMACY (BPharm)

*These syllabuses are applicable to candidates admitted under the 4-year BPharm curriculum in the academic year 2022-23.*

### Year 1

Course Code	Course Name	Credit
BPHM1111	Integrated Course in Basic Sciences: Anatomy, Physiology and Biochemistry	12
BPHM1121	Research Methods in Pharmacy Practice	6
BPHM1122	Introduction to Pharmacy	6
BPHM1132	Drug Discovery	12
CAES1000	Core University English <sup>1</sup>	6
CHEM1042	General Chemistry	6
	Common Core Course <sup>2</sup>	24
	<b>Total</b>	<b>72</b>

### Year 2

Course Code	Course Name	Credit
BPHM2123	Pharmacy Practice: Introduction	6
BPHM2133	Pharmaceutical Chemistry	6
BPHM2136	Dosage Form Design	6
BPHM2141	Pharmacy in Body System Series – Respiratory System	6
BPHM2142	Pharmacy in Body System Series – Gastrointestinal System, Drug Kinetics and Toxicities	6
BPHM2143	Pharmacy in Body System Series – Cardiovascular and Renal	12
CAES9720	Academic Communication for Pharmacy Students	6
CEMD9005	Practical Chinese for Pharmacy Students	6
	Common Core Course <sup>2</sup>	12
	<b>Total</b>	<b>66</b>

### Year 3

Course Code	Course Name	Credit
BPHM3125	Pharmacy Practice: Community Pharmacy	6
BPHM3134	Advanced Drug Delivery	6
BPHM3137	Pharmaceutical Analysis	6
BPHM3144	Pharmacy in Body System Series – Endocrinology	12
BPHM3145	Pharmacy in Body System Series – Central Nervous System, Musculoskeletal and Connective Tissue Disorders	12
BPHM3146	Pharmacy in Body System Series – Microbiology and Infectious Diseases	12
BPHM3147	Pharmacy in Body System Series – Oncology	6
	<b>Total</b>	<b>60</b>

<sup>1</sup> Candidates who have achieved Level 5 or above in English Language in the Hong Kong Diploma of Secondary Education Examination, or equivalent, are exempted from this requirement, and the Core University English is optional. Those who do not take this course should take an elective course in lieu, see Regulation UG6.

<sup>2</sup> Candidates are required to successfully complete six Common Core Courses, comprising at least one and not more than two courses from each Area of Inquiry with not more than 24 credits of courses being selected within one academic year before the end of the second year of study, except where candidates are required to make up for failed credits.

#### Year 4

Course Code	Course Name	Credit
BPHM4124	Pharmacy Practice: Pharmacy Law and Ethics	6
BPHM4135	Industrial Drug Development	6
BPHM4138	Biopharmaceutical Technology and Future Medicines	6
BPHM4148	Pharmacotherapy of Special Populations	6
BPHM4153	Enrichment Modules	12
BPHM4161	Research Methodology and Research Project	12
	Elective I	6
	Elective II	6
	Total	60

#### Electives

Complete any 12 credits from the following:

BPHM4141	Molecular Medicine	6
BPHM4142	Molecular Pharmacology	6
BPHM4143	Epidemiology and Precision Medicine	6
BPHM4144	Big Data in Healthcare	6
BPHM4151	Cosmetic Science	6
BPHM4152	Chinese Medicine for Pharmacy Students	6

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#### Core Courses

##### First Year

#### **BPHM1111 Integrated Course in Basic Sciences: Anatomy, Physiology and Biochemistry (12 credits)**

The course provides a basic understanding of the normal organization and functioning of the human body, and the abnormal changes in function that occur in disease states. The areas covered in this course are introduction to human anatomy, cell structure, tissues, functional significance of cells, organs and systems, homeostasis, embryonic differentiation, epithelia, skeletal and articular structures, physiological properties of membranes, excitable tissues, autonomic nervous system, body fluids, haematology and immune systems metabolic rate, body temperature regulation, biomolecules, essential features of cell metabolism, and central dogma of molecular biology for progression to specialist knowledge of the profession. Assessment will be in the forms of continuous assessment (40%) and written examinations (60%).

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#### **BPHM1121 Research Methods in Pharmacy Practice (6 credits)**

This course introduces students to a comprehensive set of knowledge and practical skills necessary for understanding, appraising, and conducting clinical research. Students will start by examining the epistemological basis of scientific inquiry and its evolution, and begin formulating relevant research questions within an empirical framework. Students will then be introduced to different approaches to answer research questions, including major epidemiologic study designs and qualitative methods, and will learn about important considerations when conducting research, including ethics, survey design, and data management and analysis. Finally, students will move past learning about the “doing” aspect of research and focus on developing skills related to interpreting and communicating results from studies. Assessment will be in the forms of continuous assessment (60%) and final examination (40%).

### **BPHM1122 Introduction to Pharmacy (6 credits)**

This course is designed to introduce a broad perspective on pharmacy as a profession and the foundational concepts of pharmacy practice. The course will explore the roles of pharmacists among various pharmacy settings (hospital, community and industrial pharmacies). The concept of pharmaceutical care and the principle of patient care process will be discussed. Topics covered include the process of drug discovery, medication adherence, drug information retrieval and application, pharmaceutical calculations and evaluation of laboratory results. Moreover, the course will introduce the concept of good dispensing practice and provides dispensing practice of drug in different dosage forms. Assessment will be in the forms of continuous assessment (40%) and written examinations (60%).

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### **BPHM1132 Drug Discovery (12 credits)**

The course will introduce students to the basic principles of organic chemistry and particularly focus on functional group chemistry and how these effects the physicochemical properties of a drug, absorption, distribution, metabolism and elimination, etc. Changes to functional groups chemistry and the effects upon receptor binding will also be illustrated. Examples of earlier drugs and their discovery will lead to the development of drugs, exploiting structural changes to affect different pharmacological and medicinal chemistry changes. The course will continue to develop the concepts of novel drug design and newer medicinal chemistry concepts. Assessment will be in the forms of continuous assessment (50%) and written examinations (50%).

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### **CAES1000 Core University English (6 credits)**

The Core University English (CUE) course aims to enhance first-year students' academic English language proficiency in the university context. CUE focuses on developing students' academic English language skills for the Common Core Curriculum. These include the language skills needed to understand and produce spoken and written academic texts, express academic ideas and concepts clearly and in a well-structured manner and search for and use academic sources of information in their writing and speaking. Four online-learning modules through the Moodle platform on academic speaking, academic grammar, academic vocabulary, citation and referencing skills and avoiding plagiarism will be offered to students to support their English learning. This course will help students to participate more effectively in their first-year university studies in English, thereby enriching their first-year experience. Assessment will be in the form of continuous assessment (100%).

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### **CHEM1042 General Chemistry (6 credits)**

This course aims to provide students with a solid foundation of the basic principles and concepts of chemistry. It also provides students with hands-on training of basic laboratory skills and techniques including volumetric analysis, preparation, purification and characterization of chemical substances and some basic instrumental methods. Students will be equipped with a good foundation of theoretical and practical knowledge and skills for further studies in Chemistry. Assessment will be in the forms of continuous assessment (40%) and written examinations (60%).

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### **Common Core Course (24 credits)**

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## **Second Year**

### **BPHM2123 Pharmacy Practice: Introduction (6 credits)**

The course discusses the pharmacist's role in health screening, health promotion and patient education. Students will learn how to apply non-prescription drugs on treating patients with minor illnesses and how to counsel prescription items. Students will also know how to advise patients on appropriate self-care in areas such as wound management and dental care. The course emphasizes on helping students to build up effective skills in drug history taking and communication in pharmacy practice. The concept of social pharmacy and influence of public health policy on pharmacy practice are also introduced. Assessment will be in the forms of continuous assessment (40%) and written examinations (60%).

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### **BPHM2133 Pharmaceutical Chemistry (6 credits)**

This course is aimed to provide an introduction to the physical chemistry and physicochemical principles underlying the design and preparation of dosage forms. It allows students to understand the concept of rational design and manufacture of dosage forms such that the required biological and physical performance of the therapeutics are attained. Topics including phase equilibrium, solubility, partitioning, surface tension, disperse and colloidal system, rheology and polymers will be discussed in details with examples related to pharmaceuticals. Assessment will be in the forms of continuous assessment (40%) and written examinations (60%).

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### **BPHM2136 Dosage Form Design (6 credits)**

This course provides students with an understanding of the design of different dosage forms and the principles of their formulations. It equips students with the knowledge and skills to ensure that medicines are properly designed, formulated and manufactured with acceptable standard before they are given to the patients. The manufacture and quality assessment of dosage forms are introduced through the laboratory classes. The course aims to develop students' ability to analyse, interpret and present experiment data in a scientific manner. Assessment will be in the forms of continuous assessment (40%) and written examinations (60%).

Prerequisite: BPHM2133 Pharmaceutical Chemistry

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### **BPHM2141 Pharmacy in Body Systems Series: Respiratory System (6 credits)**

This course is part of an integrated system-based block on the respiratory system. This block incorporates teaching from biomedical sciences including anatomy, biochemistry and physiology, pharmacology, clinical pharmacy, pharmacy practice and toxicology concepts to address the clinical use of pharmacotherapeutic agents in chronic and acute respiratory and related conditions. The course addresses the anatomy and the mechanics of the respiratory system, gas exchange and gas transport, alveolar ventilation and lung perfusion, serious conditions including respiratory failure and chronic diseases including asthma and COPD. The components of smoking cessation, toxicology and drug interactions of respiratory drugs will also be featured to provide a broad overview of the respiratory system. Emphasis will be placed in the integration of pharmacology and clinical pharmacy to promote the understanding and rational approach to the use of pharmacotherapeutics and its related adverse effects. Autonomic pharmacology, cholinergic and adrenergic transmission and important neurotransmitters involved in the respiratory system will be featured to promote the understanding of the mechanisms of action of drugs used and the adverse effects experienced. Therapeutic goals, patient management plans, dosage regimens, pharmacotherapy and non-pharmacotherapy management options will be featured in respective respiratory diseases. The goal of the course is to enable students to develop pharmaceutical care plans, conduct medication reviews and make drug choice and dosage recommendations for patients. The course incorporates critical thinking through different learning modalities and platforms including problem-based learning, hands-on use of inhalers through an

inhalation device workshop, smoking cessation workshop and tutorials and case studies. Assessment will be in the forms of continuous assessment (50%) and written examinations (50%).

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**BPHM2142 Pharmacy in Body Systems Series: Gastrointestinal System, Drug Kinetics and Toxicities (6 credits)**

This course offers an overview of gastroenterology, covering aspects of anatomy and physiology of gastric intestinal system. Medicinal chemistry, pharmacology and toxicity of GI drugs will be covered. Strong emphasis will be placed on the role of pharmacists in the management of gastrointestinal diseases. The other part of this course will be focused on the important fundamental concepts of pharmacokinetics / pharmacodynamics and toxicology. Basic principles of toxicology including mechanisms of toxicity, biotransformation and toxicity of drugs, as well as genetic toxicology will be covered. The concept of therapeutic drug monitoring and management of acute chemical poisoning will also be introduced. Assessment will be in the forms of continuous assessment (50%) and written examinations (50%).

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**BPHM2143 Pharmacy in Body Systems Series: Cardiovascular and Renal (12 credits)**

This course provides a general knowledge on the anatomy and physiology of the cardiovascular and renal systems, and outlines the pathophysiology of the disorders of these systems. It also integrates the pharmacology, medical chemistry, toxicology and clinical pharmacy aspects of the current drug treatments and introduces the rationale behind the therapeutic strategies for the management and prevention of cardiovascular and renal diseases. Emphasis is placed on applying the concepts of pathophysiology, medicinal chemistry, pharmacology, toxicology and clinical pharmacy in making evidence-based decisions within the patient care process framework. Students will develop the ability to design and monitor safe and effective treatment plans as well as to provide appropriate information to patients, caregivers, and health professionals. This course will increase students' breadth and depth of therapeutic knowledge and fosters critical thinking through problem-based learning, case discussions and management strategies of cardiovascular and renal disorders. Assessment will be in the forms of continuous assessment (50%) and written examinations (50%).

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**CAES9720 Academic Communication for Pharmacy Students (6 credits)**

This six credit English-in-the-Discipline course is offered to second year students studying Pharmacy. It helps students develop the necessary skills to communicate effectively using written and spoken English within their studies and beyond. In the writing component, students will write a Wikipedia article for a real-world audience on a pharmacy topic, using research and reading skills, coherent and accurate language, appropriate tone and citation and referencing. In the speaking component, students will present the information from their research in an academic-style oral presentation format which is engaging for the audience. Students will also learn essential word parts in medical terminology, and apply word knowledge and strategies for learning new terms and their pronunciation. Assessment is entirely by continuous assessment.

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**CEMD9005 Practical Chinese for Pharmacy Students (6 credits)**

This course is designed specifically to raise the students' level of proficiency in the use of the Chinese language in the pharmacy profession. It aims at sharpening the students' skills both of writing documents (such as letters, pamphlets, newspaper and magazine columns) and of effectively communicating with patients. Emphasis is placed on how to use Chinese pharmaceutical terms in a precise and concise manner. Common technical terms frequently used in the official Chinese Pharmacopoeia will also be brought to the attention of the students so as to enhance their ability to comprehend pharmacological writings in Chinese. There are also drilling practices to familiarize the

students with the simplified forms of some basic Chinese medical terms. Assessment will be in the forms of continuous assessment (50%) and written examinations (50%).

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## **Common Core Course (12 credits)**

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### **Third Year**

#### **BPHM3125 Pharmacy Practice: Community Pharmacy (6 credits)**

This course covers the pharmacist's role in responding to symptoms/ product request to various conditions encountered in the community setting. Students will learn how to apply the process of pharmaceutical care with respect to managing patients with both prescription and non-prescription drugs and advising patients on appropriate self-care. Other topics such as use of self-diagnostic products and nutrition will also be covered. Assessment will be in the forms of continuous assessments (40%) and written examination (60%).

Prerequisite: BPHM2123 Pharmacy Practice: Introduction

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#### **BPHM3134 Advanced Drug Delivery (6 credits)**

This course provides students with an in-depth knowledge in the rational design of drug delivery systems. It provides a review of the major routes of drug delivery and an overview of the new approaches to the development of drug delivery systems. Some novel drug delivery and targeting technologies, biotechnology and drug development strategies will also be discussed in details. Assessment will be in the forms of continuous assessment (40%) and written examinations (60%).

Prerequisite: BPHM2136 Dosage Form Design

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#### **BPHM3137 Pharmaceutical Analysis (6 credits)**

This course provides the basic concepts of different analytical techniques for small molecules and their use in quality control of pharmaceutical products. These include ultraviolet, infra red, nuclear magnetic and mass spectroscopy. These techniques and their application to drug analysis and clinical biochemistry will be taught. Various statistical tools for data analysis are introduced. This course also covers the analysis for biotechnologically produced medicinal products. Assessment will be in the forms of continuous assessment (40%) and written examinations (-60%).

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#### **BPHM3144 Pharmacy in Body Systems Series: Endocrinology (12 credits)**

This course provides a general knowledge on the anatomy and physiology of various systems comprises endocrinology. It also integrates the pharmacology, medical chemistry, toxicology and clinical pharmacy aspects of the current drug treatments and introduces the rationale behind the therapeutic strategies for the management and prevention of endocrine disorders. Emphasis is placed on applying the concepts of pathophysiology, medicinal chemistry, pharmacology, toxicology and clinical pharmacy in making evidence-based decisions within the patient care process framework. Students will develop the ability to design and monitor safe and effective treatment plans as well as to provide appropriate information to patients, caregivers, and health professionals. This course will increase students' breadth and depth of therapeutic knowledge and fosters critical thinking through problem-based learning, case discussions and management strategies of endocrine disorders. Assessment will be in the forms of continuous assessment (50%) and written examinations (50%).

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**BPHM3145 Pharmacy in Body Systems Series: Central Nervous System, Musculoskeletal and Connective Tissue Disorders (12 credits)**

This course is part of an integrated system-based block on the central nervous system, musculoskeletal and connective tissue disorders. This block incorporates teaching from biomedical sciences including anatomy, biochemistry and physiology; medicinal chemistry; pharmacology; clinical pharmacy; pharmacy practice; anaesthesia; and toxicology concepts to address the clinical use of pharmacotherapeutic agents in chronic and acute central nervous system, musculoskeletal and connective tissue disorders. The course addresses the anatomy and physiology of the central nervous system with focus on the head and neck, reflexes, senses, cortical functions and movement as well as disorders of these systems, pain and the management of pain. Psychiatric and behavioural disorders and neurological disorders will also be featured.

Emphasis will be placed in the integration of between disciplines to promote the understanding and rational approach to the use of pharmacotherapeutics and its related adverse effects in patients undergoing treatment for disorders of the central nervous system, skeletal and connective tissue disorders. The goal of the block is to enable students to develop pharmaceutical care plans, conduct medication reviews and make drug choice and dosage recommendations for patients. The course incorporates critical thinking through different learning modalities and platforms including practicals, problem-based learning, ward visits and case studies. Assessment will be in the forms of continuous assessment (50%) and written examinations (50%).

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**BPHM3146 Pharmacy in Body Systems Series: Microbiology and Infectious Diseases (12 credits)**

This course offers an overview of infectious diseases covering aspects of the human immune system, microbiology and clinical management of infection relevant to pharmacy. Pharmacology and toxicity of antimicrobial agents will be covered. Basic pharmaceutical microbiology on medically important bacteria, viruses, fungi, and parasites is introduced. Infections by these organisms, their diagnosis, and control are emphasized. Aseptic techniques, sterilisation, and cleanroom practices will be introduced. Relevant aspects of microbiology in the pharmaceutical industrial setting will also be covered. Strong emphasis will be placed on the role of pharmacists in the management of infectious diseases. Assessment will be in the forms of continuous assessment (50%) and written examinations (50%).

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**BPHM3147 Pharmacy in Body Systems Series: Oncology (6 credits)**

This course will address the pharmacology and appropriate clinical use of agents and standard therapies used in the treatment of various common hematologic and oncology disorders. Principles of pharmacology that promote the understanding and rational approach to therapeutics will be covered. Emphasis is placed on the considerations for the drug therapy used, therapeutic goals, plans of treatment, dosage regimens, therapeutic alternatives and therapeutic endpoints. The goal of the course is to enable the student to assist in the development of the safest and most rational plan of drug therapy for a given patient. The course fosters critical thinking through case discussions, problem-based learning and management strategies of hematologic and oncology disorders. Assessment will be in the forms of continuous assessment (50%) and written examinations (50%).

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**Fourth Year**

**BPHM4124 Pharmacy Practice: Pharmacy Law and Ethics (6 credits)**

This course allows students to gain knowledge of the theoretical, legal and ethical aspects of pharmacy practice. The lectures cover areas of pharmacy law which equip the students with the required skills and the fundamental concepts to practice as a competent pharmacist. Student will be able to apply their knowledge in case-based situation through tutorials in the module. The clerkship programme, guided by our community pharmacist tutors, will be arranged for the students to learn and practice their knowledge in the community pharmacy setting. Students will be assessed through various continuous assessments including clerkship assessment, objective structured clinical examinations (OSCE) and written examination to ensure students are competent to practice as a pharmacist. Assessment will be in the forms of continuous assessment (50%) and written examinations (50%).

Prerequisite: BPHM2123 Pharmacy Practice: Introduction

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### **BPHM4135 Industrial Drug Development (6 credits)**

This course provides knowledge on the processes involved in the development of pharmaceutical products, including product design, process validation, quality assurance, PIC/S manufacturing practices, product registration and intellectual property protection. The development of products will be studied with an emphasis on quality, safety, and efficacy. Students will undertake a clerkship placement in a pharmaceutical company to gain experience, professional competence, and confidence in the industrial setting. Assessment will be in the forms of continuous assessment (40%) and written examination (60%).

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### **BPHM4138 Biopharmaceutical Technology and Future Medicines (6 credits)**

This course provides an in-depth discussion of the use of biotechnology for drug manufacture, drug discovery and new drug development. Students will gain an appreciation of the research breakthroughs in biology, genetics and pharmaceutical sciences that are driving the invention of future medicines. This course allows students to look ahead into the new generation of therapeutics such as gene therapy, gene-editing and stem cell therapy, consider their manufacture and registration challenges, and the ethical issues related to the use of these technologies. Assessment will be in the forms of continuous assessment (100%).

Prerequisite: BPHM3134 Advanced Drug Delivery

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### **BPHM4148 Pharmacotherapy of Special Populations (6 credits)**

This course will familiarize students with geriatrics, paediatrics and other special populations. Students will expand their knowledge and skills regarding these populations and will apply therapeutic knowledge in the context of patient centred care. In addition, this course facilitates the development of pharmaceutical care skills through students' participation in experiential learning (hospital clerkship rotation, elderly outreach project) that contribute to the roles of pharmacists in health care. Students' critical thinking and clinical skills will be further fostered through case discussions and formulating differentials, diagnoses, and management strategies of specific medical problems. Assessment will be in the forms of continuous assessment (40%) and written examinations (60%).

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### **BPHM4153 Enrichment Modules (12 credits)**

This course is designed to enhance the students' total learning experience through engagement in individually tailored enrichment activities. Students will need to plan and undertake their own teaching and learning activities which may include, but not limited to, service or humanitarian work, research attachment and/or other forms of self-initiated experiential learning activities approved by the Department. Through engaging the experiential learning process in the real world intellectually and

socially, students will further develop the knowledge, skills and qualities that are required for successful transition into successful professional career. Assessment will be in the forms of continuous assessment (100%).

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#### **BPHM4161 Research Methodology and Research Project (12 credits)**

Students will complete a research project under the supervision of a departmental staff. The area of research may be pharmaceuticals, pharmacy practice, clinical pharmacy, pharmacology, medicinal chemistry, or other areas of interest agreed between the supervisors and students. Students are required to write a literature review and a final report on their project. They also need to perform an oral presentation on their research findings at the end of the course. Assessment will be in the form of continuous assessment (100%).

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#### **Elective Courses (Complete any 12 credits from the following)**

##### **BPHM4141 Molecular Medicine (6 credits)**

This course covers molecular basis of cancer and viral diseases, and molecular therapeutics. Specific topics may include mouse model of human diseases, cell cycle regulation, cell motility, programmed cell death, oncogenes and tumor suppressor genes, genome instability, HIV science, genetics and pathogenesis of influenza viruses, molecular approaches to vaccine development, stem cells, gene therapy, and nucleic acid therapeutics. Assessment will be in the forms of continuous assessment (20%) and written examinations (80%).

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##### **BPHM4142 Molecular Pharmacology (6 credits)**

This advanced course in pharmacology focuses on the principles and mechanisms of drug-target interactions and the applications in innovative medicines for the treatment of complex diseases, such as cancer, cardiovascular and metabolic abnormalities. Regulation of gene transcription, receptors, channels, enzymes and lipids signaling will be emphasized in order to understand the mechanism-based design of drugs and biopharmaceuticals. The use of *in silico*, *in vitro* and *in vivo* models for drug screening and evaluation will also be covered. Assessment will be in the forms of continuous assessment (70%) and written examinations (30%).

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##### **BPHM4143 Epidemiology and Precision Medicine (6 credits)**

Pharmacists are considered "drug expert" and play a unique role in clinical decision of medication use. Recent advances in genomics facilitate the development of precision medicine, which is known to be a revolution in medicine. Nowadays, many developed countries are promoting "education in precision medicine" for pharmacy students and practising pharmacists, in order to prepare them for the precision medicine era. Precision medicine uses patients' individual factors to tailor-made the most suitable individualised clinical management plan. The development of precision medicine requires multi-interdisciplinary knowledge, such as epidemiology and genetics. In this course, various pharmacy-related epidemiology, and genetics and genomics will be covered, with the emphasis on critical thinking and data-driven approaches in developing clinical decision in medication use. Assessment will be in the forms of continuous assessment (60%) and written examinations (40%).

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##### **BPHM4144 Big Data in Healthcare (6 credits)**

Pharmacists play a unique role in use of best evidence in making decisions about the drug and healthcare of individual patients. Advances in the realm of big data analytics in healthcare setting facilitates the evidence-based medicine for pharmacists to deliver better pharmaceutical care, improve patient outcomes, efficiency of resource utilization, reduce costs and medication error. The development of big data in healthcare requires multi-interdisciplinary knowledge, such as electronic healthcare records, genetics, and epidemiology. In this course, pharmacy-related epidemiology, and genetics and genomics will be covered, along with practical exercises, with the emphasis on critical thinking and data-driven approaches to explore emerging big healthcare data and provide practical experience in applying big data in a real-life setting. Assessment will be in the forms of continuous assessment (60%) and written examinations (40%).

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#### **BPHM4151    Cosmetic Science (6 credits)**

This course provides scientific information on the formulation of different cosmetic preparations, and examines their uses, principles of action, safety and efficacy. Anatomy and physiology of skin, hair and nails; formulation of cosmetic products, physico-chemical tests of raw materials and finished products, quality control, safety and stability of finished products, assessment of efficacy. Assessment will be in the forms of continuous assessment (60%) and written examinations (40%).

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#### **BPHM4152    Chinese Medicine for Pharmacy Students (6 credits)**

Although Chinese Medicine is categorized as a complementary health system in Western countries, it is an important form of primary care in many Asian countries. In China, Chinese Medicine has developed over a long period of more than 2000 years into a unique medical system with specific theories and guiding principles to diagnose and cure human illnesses. As Chinese Medicine has always enjoyed popularity in the Chinese communities and is widely used in Hong Kong, it is important for pharmacists, who are trained in modern Western medicine, to have a better appreciation and understanding of the roles played by these traditional practices in the prevention and treatment of human diseases in our society. Assessment will be in the forms of continuous assessment (40%) and written examinations (60%).