

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 2016-2017.

(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 198 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 30 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 who have successfully completed a similar course at other universities or comparable institutions. 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	2.3
		2.0
		1.7
D+ } D }	Pass	1.3
		1.0
F	Fail	0

- (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 two weeks 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 regulation is 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; 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 252 credits as specified in the syllabuses, which shall include:
 - (i) 12 credits in English language enhancement, including 6 credits in Core University English¹ 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; and
 - (iv) successful completion of a capstone experience as specified in the syllabuses of the degree curriculum.

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 in accordance with the following Cumulative GPA scores, with all courses taken (including failed courses) carrying equal weighting:

<i>Class of honours</i>	<i>CGPA 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 Cumulative 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 Cumulative 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.

¹ Candidates who have achieved Level 5** in English Language in the Hong Kong Diploma of Secondary Education Examination, or equivalent, may at the discretion of the Faculty Board be exempted from this requirement and should take an elective course in lieu.

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

Year 1

Course Code	Course Name	Credit
BPHM1111	Integrated Course in Basic Sciences: Anatomy, Physiology and Biochemistry	12
BPHM1113	Anatomy, Physiology & Pathophysiology I	6
BPHM1121	Evidence-Based Practice	6
BPHM1122	Pharmacy Practice I	6
CAES1000	Core University English ¹	6
CHEM1042	General Chemistry	6
	Common Core Course ²	24

Year 2

Course Code	Course Name	Credit
BPHM2114	Anatomy, Physiology & Pathophysiology II	6
BPHM2123	Pharmacy Practice II	6
BPHM2131	Physicochemical Principles of Pharmacy	6
BPHM2136	Physical Chemistry: Principles and Applications in Pharmaceutical Sciences	6
BPHM2137	Essential Organic Chemistry	6
BPHM2141	Pharmacology and Clinical Pharmacy I	6
BPHM2142	Pharmacology and Clinical Pharmacy II	6
CAES9720	English for Clinical Pharmacy	6
CEMD9005	Practical Chinese for Pharmacy Students	6
	Common Core Course ²	12

Year 3

Course Code	Course Name	Credit
BPHM3115	Microbiology and Immunology	6
BPHM3132	Dosage Form Design	6
BPHM3133	Medicinal Chemistry for Pharmacy Students	6
BPHM3134	Advanced Pharmaceutics	6
BPHM3143	Pharmacology and Clinical Pharmacy III	6
BPHM3144	Pharmacology and Clinical Pharmacy IV	6
BPHM3145	Pharmacology and Clinical Pharmacy V	6
BPHM3146	Advanced Pharmacology	6
BPHM3151	Principles of Pharmacognosy, Herbal Medicines and Nutraceuticals	6
CHEM3244	Analytical Techniques for Pharmacy Students	6

¹ Candidates who have achieved Level 5** in English Language in the Hong Kong Diploma of Secondary Education Examination, or equivalent, may at the discretion of the Faculty Board be exempted from this requirement and should take an elective course in lieu.

² 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 III	6
BPHM4125	Pharmacy Practice IV	6
BPHM4135	Industrial Drug Development	6
BPHM4147	Toxicology and Drug Abuse	6
BPHM4148	Clinical Pharmacy	6
BPHM4149	Clinical Pharmacology and Advanced Clinical Pharmacy	6
BPHM4161	Research Methodology and Research Project	12
	Elective I	6
	Elective II	6

Electives

Complete any 12 credits from the following:

BPHM4141	Molecular Medicine	6
BPHM4142	Molecular Pharmacology	6
BPHM4143	Epidemiology and Precision Medicine	6
BPHM4151	Cosmetic Science	6
BPHM4152	Chinese Medicine for Pharmacy Students	6

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%).

BPHM1113 Anatomy, Physiology & Pathophysiology I (6 credits)

The course builds on the basic concepts of Anatomy and Physiology delivered in BPHM1111 to provide a further 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 the structure, function and dysfunction of the cardiovascular, respiratory and renal systems. Assessment will be in the forms of continuous assessment (30%) and written examinations (70%).

Prerequisite: BPHM1111 Integrated Course in Basic Sciences: Anatomy, Physiology and Biochemistry

BPHM1121 Evidence-Based Practice (6 credits)

This course introduces students to epidemiology and biostatistics, which are key to evidence-based practice. Biostatistics will emphasise application and interpretation, with concepts mostly integrated into epidemiology; technical calculations will be minimal. Students will be able to make sense of data,

and appraise scientific evidence through an understanding of basic epidemiologic and statistical concepts. This course aims to familiarise students with the methods and applications of statistics and epidemiology in health, and to appreciate the evidence-based approach to prevent and tackle today's health problems. Assessments include continuous assessment (30%) and a final examination (70%).

BPHM1122 Pharmacy Practice I (6 credits)

This course is designed to introduce the foundational concepts of pharmacy practice and the roles of pharmacists in healthcare system. The course also introduces the concept of good dispensing practice and provides dispensing practice of simple liquid and solid dosage forms, eye and ear products, parenteral products and cytotoxic drug reconstitution. Development of pharmacy, concept of pharmaceutical care, roles of pharmacists, basic legal aspects of dispensing prescriptions, basic dispensing technique are also covered. Assessment will be in the forms of continuous assessment (30%) and written examinations (70%).

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. Students will also complete four online-learning modules through the Moodle platform on academic grammar, academic vocabulary, citation and referencing skills and understanding and avoiding plagiarism. 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 (65%) and written examinations (35%).

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%).

Common Core Course (24 credits)

Second Year

BPHM2114 Anatomy, Physiology & Pathophysiology II (6 credits)

The course builds on the foundations of Anatomy, Physiology and Pathophysiology delivered in BPHM1111 and BPHM1113 to provide a further 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 the structure, function and dysfunction of the gastrointestinal, head and neck, central nervous, endocrine and reproductive systems. Assessment will be in the forms of continuous assessment (30%) and written examinations (70%).

Prerequisite: BPHM1113 Anatomy, Physiology & Pathophysiology I

BPHM2123 Pharmacy Practice II (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 respiratory and gastrointestinal problems. 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 (30%) and written examinations (70%).

Prerequisite: BPHM1122 Pharmacy Practice I

BPHM2131 Physicochemical Principles of Pharmacy (6 credits)

This course is aimed to provide an introduction to the physicochemical principles underlying the design and preparation of dosage forms. Introduction to preformulation, solid states, solubility and solutions, partitioning, surfactants and micelles, disperse system and colloidal stability, suspensions, emulsions, semi-solid dosage form, rheology, polymers and drug stability. Assessment will be in the forms of continuous assessment (40%) and written examinations (60%).

BPHM2136 Physical Chemistry: Principles and Applications in Pharmaceutical Sciences (6 credits)

This course is designed to broaden the horizon of students in the topics of physical chemistry which are essential in pharmacy and pharmaceuticals. Several fundamental areas in physical chemistry will be discussed in detail with examples related to pharmacy and pharmaceuticals. In addition, spectroscopy and its applications on identifications of unknown substances will be discussed. The course will also guide students to explore and admire the principles behind the spectrometers. Assessment will be in the forms of continuous assessment (30%) and written examination (70%).

BPHM2137 Essential Organic Chemistry (6 credits)

This course helps students to develop the basic understanding of various essential topics of organic chemistry in relation to pharmacy and pharmaceuticals. Through the journey from simple molecular structures, molecular orbital theory, to the many chemical reactions, students can appreciate the intimate relationship between chemistry and modern health care science. The course also contains laboratory sessions in which students have chances to perform isolation and characterization of natural compounds, synthesis of pharmaceutically active ingredients, and analysis of medicinal products. Assessment will be in the forms of continuous assessment (25%) and written examinations (75%).

BPHM2141 Pharmacology and Clinical Pharmacy I (6 credits)

This course is the first in a five-part series on Pharmacology and Clinical Pharmacy. It will address the pharmacology and appropriate clinical use of agents used in the treatment of various common chronic and acute conditions. Course addresses medical conditions related to cardiology, gastroenterology, pulmonary, endocrinology, neurology and immunology. 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 formulating differentials diagnoses, and management strategies of specific medical problems. Assessment will be in the forms of continuous assessment (40%) and written examinations (60%).

BPHM2142 Pharmacology and Clinical Pharmacy II (6 credits)

This course is a continuation of BPHM2141 Pharmacology and Clinical Pharmacy I. This course will build upon previous courses to develop the student's knowledge base of common human disorders and their therapies. Assessment will be in the forms of continuous assessment (40%) and written examinations (60%).

CAES9720 English for Clinical Pharmacy (6 credits)

The overall aim of this course is to develop students' communicative ability in order to enable them to meet the demands of drug information delivery in pharmacy contexts. The course focuses mainly on common communication genres in drug information, and the effective communication of drug information to different target audiences in different contexts, in oral and written form. Students will learn to apply citation and referencing skills to the compilation of drug information documents based on research and pharmacy-related publications. Students will also learn essential word parts in medical terminology, and apply word knowledge and strategies for learning new terms and their pronunciation. Assessment will be in the form of continuous assessment (100%).

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%).

Common Core Course (12 credits)

Third Year

BPHM3115 Microbiology and Immunology (6 credits)

This course offers an overview of the human immune system, as well as aspects of microbiology and infection relevant to pharmacy. It provides an understanding on the fundamentals of immunological cells and molecules, antigen recognition, and cellular pathways during immune responses. The pathology of immunological diseases and drugs affecting the immune system will also 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. Assessment will be in the forms of continuous assessment (30%) and written examinations (70%).

BPHM3132 Dosage Form Design (6 credits)

This course provides students with an understanding of the formulations of solid dosage form, and provides an in-depth knowledge in the rational design of drug delivery systems. Particle characterisation, powder processing, tablets, capsules, modified release dosage form, principles of drug delivery, parenteral delivery, pulmonary delivery, topical delivery, transdermal delivery, vaginal and rectal delivery. Assessment will be in the forms of continuous assessment (40%) and written examinations (60%).

Prerequisite: BPHM2131 Physicochemical Principles of Pharmacy

BPHM3133 Medicinal Chemistry for Pharmacy Students (6 credits)

This course builds on previous knowledge in organic chemistry and analytical chemistry and extends it to drug discovery, design, and development. It introduces how the physico-chemical properties of drugs are related to the integrations of drugs with their targets and discusses how to improve structure-activity relationship in order to improve drug-biomolecule interactions, drug metabolism and drug delivery. This course includes practical courses and PBL sessions in order for students to apply their knowledge to historical developments of drugs. Assessment will be in the forms of continuous assessment (25%) and written examinations (75%).

Prerequisite: BPHM2137 Essential Organic Chemistry

BPHM3134 Advanced Pharmaceutics (6 credits)

This course focuses on the advanced drug delivery systems and industrial pharmaceutics. Topics cover novel formulation strategies, nanotechnology, regenerative medicine, biologics, pharmacogenomics, optimization of pharmaceutical process and products, stability testing, and biosimilar. Assessment will be in the forms of continuous assessment (50%) and written examinations (50%).

Prerequisite: BPHM3132 Dosage Form Design

BPHM3143 Pharmacology and Clinical Pharmacy III (6 credits)

This course is a continuation of BPHM2142 Pharmacology and Clinical Pharmacy II. This course will build upon previous courses to develop the student's knowledge base of common human disorders and their therapies. Assessment will be in the forms of continuous assessment (40%) and written examinations (60%).

BPHM3144 Pharmacology and Clinical Pharmacy IV (6 credits)

This course is a continuation of BPHM3143 Pharmacology and Clinical Pharmacy III. This course will build upon previous courses to develop the student's knowledge base of common human disorders and their therapies. Assessment will be in the forms of continuous assessment (40%) and written examinations (60%).

BPHM3145 Pharmacology and Clinical Pharmacy V (6 credits)

This course is a continuation of BPHM3144 Pharmacology and Clinical Pharmacy IV. This course will build upon previous courses to develop the student's knowledge base of common human disorders and

their therapies. Assessment will be in the forms of continuous assessment (40%) and written examinations (60%).

BPHM3146 Advanced Pharmacology (6 credits)

The course is designed to provide students a more advanced knowledge of pharmacology related to special populations such as woman, paediatrics, elderly and critically ill patients. Pharmacology of more complicated drugs including antibiotics and chemotherapeutic agents is also covered. This knowledge is important to the drug development and facilitates students to understand the concerns and challenges to overcome for therapeutic applications, which are taught in other clinical pharmacy courses. Assessment will be in the forms of continuous assessment (30%) and written examinations (70%).

BPHM3151 Principles of Pharmacognosy, Herbal Medicines and Nutraceuticals (6 credits)

This course broadens the horizon of students in the field of, and provides them with background knowledge of, herbal medicines and nutraceuticals. Phytochemistry, pharmacology of phytochemicals such as alkaloids, phenolic glycosides, volatile oils, terpenoids and carbohydrates; therapeutic uses, adverse effects and drug interactions of common herbal medicines, nutrients, dietary supplements and functional food; safety issues and quality control of herbal medicines and nutraceuticals. Assessment will be in the forms of continuous assessment (50%) and written examinations (50%).

Prerequisite: BPHM2137 Essential Organic Chemistry

CHEM3244 Analytical Techniques for Pharmacy Students (6 credits)

The course covers theories and practicals on various analytical techniques used in pharmaceutical industry. Sampling and data analysis, method validation with respect to regulatory guidelines, ultraviolet/visible, infrared, fluorescence, atomic spectrophotometry, separation techniques such as gas chromatography and liquid chromatography, and modern mass spectrometry with its applications in protein sequencing will be covered in this course. Assessment will be in the forms of continuous assessment (30%) and written examinations (70%).

Fourth Year

BPHM4124 Pharmacy Practice III (6 credits)

This course spells out various laws and codes of practice in the regulation of pharmaceuticals and the pharmacy practice in Hong Kong. The topics include the functions of Pharmacy and Poisons Board, legal classification of pharmaceutical products, control and supply of antibiotics, registration of pharmaceutical products and substances, registration of pharmaceutical products and substances, supply and storage of medicine in institutions, lister seller of poisons, authorized seller of poisons, retail sale of poisons, undesirable medical advertisement ordinance, wholesale of poisons, import and export of pharmaceutical products, control of dangerous drugs, pharmacy ethics. A clerkship programme will also be arranged for the students to learn and practice their knowledge on forensic pharmacy, pharmacy management and pharmaceutical care in community pharmacy settings. Assessment will be in the forms of continuous assessment (40%) and written examinations (60%).

Prerequisite: BPHM2123 Pharmacy Practice II

BPHM4125 Pharmacy Practice IV (6 credits)

The course discusses the pharmacist's role in the assessment of minor medical problems commonly seen in the community pharmacy setting. Students will learn how to apply the process of pharmaceutical care with respect to treating patients with over-the-counter medications, non-prescription drugs, advise patients on prescription items and self-care. Other topics such as pharmacy management, the use of self-diagnostic products and nutritional products will also be covered. Assessment will be in the forms of continuous assessment (30%), objective structured clinical examination (40%) and written examinations (30%).

Prerequisite: BPHM2123 Pharmacy Practice II and BPHM4124 Pharmacy Practice III

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 examinations (60%).

BPHM4147 Toxicology and Drug Abuse (6 credits)

This course provides students with an understanding of the toxicological problems encountered in clinical practice, drug development and medical research. Basic principles of toxicology including mechanisms of toxicity, biotransformation and toxicity of drugs, as well as genetic toxicology will be covered. The clinical toxicology component of this course introduces the concept of therapeutic drug monitoring and management of acute chemical poisoning. This course also aims to highlight the clinical issues associated with drugs of abuse, enhancing the students' understanding on the physiological, pharmacological and sociological consequences of drug abuse and how these issues should be managed in clinical practice. Assessment will be in the forms of continuous assessment (40%) and written examinations (60%).

BPHM4148 Clinical Pharmacy (6 credits)

This course builds upon the skills learned earlier in the Pharmacology and Clinical Pharmacy series. It facilitates the development of pharmaceutical care skills through students' participation in patient care initiatives that contribute to the role of pharmacists in health care. Emphasis is on developing these skills: patient data collection, medication assessment, pharmaceutical care plans involving evidence-based recommendations, chart notes, case presentations, journal club, and written and verbal communications skills. In addition, this course requires students to put the pharmaceutical care skills into practice through clerkship placement. Assessment will be in the forms of continuous assessment (100%).

BPHM4149 Clinical Pharmacology and Advanced Clinical Pharmacy (6 credits)

This clinically orientated course provides students with the chance in understanding the importance of clinical pharmacology in therapeutics and the clinical role of pharmacists in more advanced aspects of therapeutics, especially in special populations such as paediatric, geriatric or palliative patients. Skill development for advanced drug therapy problem identification, assessment and plan resolution for patients will be discussed. The course fosters critical thinking through case discussions; problem-based learning and formulating differentials, diagnoses, and management strategies of specific medical problems. Students work in small group settings to develop problem solving and decision making skills.

Case studies will increase in complexity each semester. Assessment will be in the forms of continuous assessment (40%) and written examinations (60%).

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%).

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%).

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%).

Prerequisite: BPHM2141 Pharmacology and Clinical Pharmacy I

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%).

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%).

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%).

Prerequisite: BPHM3151 Principles of Pharmacognosy, Herbal Medicines and Nutraceuticals
