

PHARMACY, PHARMACEUTICAL SCIENCE, & PHARMACEUTICAL BIOTECHNOLOGY



STUDY ABROAD MODULE OPTIONS

LEVEL 1	
DOUBLE SEMESTER: FALL & SPRING	
PMY1026 Pharmaceutical Physiology (40 CATS)	
PMY1016 Physiology for Pharmacy (40 CATS)	
LEVEL 1	
SEMESTER 1: FALL	SEMESTER 2 : SPRING
PMY1021 Pharmaceutical and Applied Microbiology (20 CATS)	PMY1025 Introduction to Pharmacy (20 CATS)
PMY1001 Pharmaceutical Microbiology (20 CATS)	PMY1017 Practising as a Pharmacist (20 CATS) <i>*Additional checks required to participate in this module. Includes placement.</i>
LEVEL 2	
DOUBLE SEMESTER: FALL & SPRING	
PMY2020 Industrial Pharmaceutics (40 CATS)	
PMY2024 Medicinal Substances (40 CATS)	
PMY2021 Principles of Drug Action (40 CATS)	

Please note: modules may require demonstration of prior learning. Modules may be subject to change.



**QUEEN'S
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FACULTY OF
MEDICINE,
HEALTH AND
LIFE SCIENCES

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MODULE OVERVIEWS

PMY1026 Pharmaceutical Physiology

This module is a study of basic physiology and tissue morphology that defines normal and abnormal physiology within the main body systems including: gastrointestinal tract; cardiovascular system; respiratory system; urinary tract; nerve and muscle; central nervous system; endocrine system; reproductive system. On completion of the module you will be able to apply your understanding of the basic mechanisms of human physiology to the future demands of research and practice in Pharmacy. You will understand the physiological and medical language to the level necessary to continue their education in later years. You will have developed practical skills in physiological measurement and understand the methods of acquiring and processing physiological information.

PMY1016 Physiology for Pharmacy

On completion of the module the student will have gained a fundamental understanding of the function of the human body at the molecular, cellular, tissue and system levels and be able to place in context the basic pathophysiology of these systems. The module covers basic physiology and tissue morphology that defines normal and abnormal physiology within the main body systems including: gastrointestinal tract; cardiovascular system; respiratory system; urinary tract; nerve and muscle; central nervous system; endocrine system; reproductive system.

PMY1021 Pharmaceutical and Applied Microbiology

This module will teach you the application of microbiology to the pharmaceutical sciences. This includes the structure, function, nutrition and metabolism of bacteria, fungi, viruses and protozoa relevant to the pharmaceutical sciences, bacterial genetics, antimicrobial agents and antimicrobial resistance, the basic principles and methods of sterilisation and disinfection, contamination of pharmaceutical products, an introduction to microbial biofilms and infectious diseases. Having completed this module you will have an understanding of the role microorganisms play in contamination of pharmaceuticals, of the methods by which such contamination may be prevented, and will have developed practical skills in microbiological techniques.

PMY1025 Introduction to Pharmacy

On completion of this module you will have a comprehensive understanding of the theory of physicochemical processes underlying the pharmaceutical sciences plus associated laboratory skills attainment. These include: Chemical bonding, intermolecular forces, solid state properties, thermodynamics, kinetics, properties of solutions, solubility and dissolution, partitioning and distribution, disperse systems, surface and interfacial phenomena, basics of rheology.

PMY1001 Pharmaceutical Microbiology

The application of microbiology to pharmacy including the structure, function, nutrition and metabolism of bacteria, fungi, viruses and protozoa relevant to pharmacy, bacterial genetics, the basic principles and methods of sterilisation and disinfection and an introduction to microbial biofilms and infectious diseases. Having completed this module you will have an understanding of the role microorganisms play in infectious disease and contamination of pharmaceuticals, of the methods by which infection and contamination may be prevented, and will have developed practical skills in microbiological techniques.



PMY1017 Practising as a Pharmacist

This module includes the development of Pharmacy Practice-related skills in personal development, oral communication, numeracy and statistics. It also comprises an introduction to pharmacy practice in the community, hospital and industrial sectors, and introduction to the role of pharmacy within the NHS, professionalism, the Code of Conduct for Pharmacy Students, equality and diversity, professionalism and ethics, Continuing Professional Development (CPD), fitness to practise and medicines governance. In addition, this module presents a wide-ranging review of medicines detailing their origin and development, how they work, production of dosage forms suitable for the patient and factors relating to their everyday use in the community. The module also includes topics of current interest e.g. testing of drugs, misuse of drugs in society and in sport.

PMY2020 Industrial Pharmaceutics

This module covers a range of industrial pharmaceutical topics, including:

- Formulation Science
- Sterile Manufacturing
- Radiochemistry
- Biopharmaceutics
- Solid Oral Dosage Forms
- Pharmaceutical Engineering
- Pharmaceutical Packaging
- Stability of Pharmaceutical Products
- Radiopharmacy

On completion of this module, you will have a comprehensive understanding of pharmaceutical formulation, and practical experience in the preparation of a wide variety of dosage forms, including sterile dosage forms. You will also understand and perform pharmaceutical calculations relevant to formulation science.

PMY2024 Medicinal Substances

This module studies drug substances of natural, synthetic and semi-synthetic origin.

Metabolic conversion of drug substances. Cell and molecular biology, and regulatory processes in cells. The relationship between the structure of drug substances and their physicochemical and biological/pharmacological properties. Pharmacophore and ligand-protein interactions. Qualitative and quantitative pharmaceutical analysis of drug substances by a range of analytical techniques. The design, workings and operating principles of a range of instruments employed for pharmaceutical characterisation of medicinal substances. Analytical aspects of Pharmacopoeial monographs. On completion of this module you will have a sound basic understanding of the instrumentation, common analytical techniques and procedures used in pharmaceutical analysis of medicinal substances. In addition, you will have a basic understanding of sources of drug substances and an appreciation of the methods used in their isolation, purification and identification, the relationship between structure and function, and the cellular responses to drug substances.



PMY2021 Principles of Drug Action

This module covers the core principles of Drug Action:

- ADME: The absorption, distribution, metabolism and excretion of drugs, pharmacokinetics, drug interactions, toxicology
- Receptors: Introduction to pharmacology; classification of receptors and drug targets; quantification of drug-receptor interactions.
- Peripheral Nervous System: Introduction to the autonomic nervous system (sympathetic and parasympathetic divisions) and the pharmacology of the drugs directed against this system. Introduction to the neuromuscular junction and the pharmacology of drugs directed against this system.
- Inflammatory Disease: The pharmacology of drugs used to treat inflammatory diseases of the respiratory tract and the musculoskeletal system.
- Infectious Disease: The pharmacology of drugs used to treat infectious diseases.
- Cardiovascular Disease: The pharmacology of drugs used to treat cardiovascular diseases and diabetes.
- Diabetes and GI tract: The pharmacology of drugs used to treat diabetes and GI tract related disease.
- Cancer: The pharmacology of drugs used for cancer treatment.
- Antibody Drugs: The uses and pharmacology of antibody based drugs.

On completion of the module you will have knowledge of (i) factors that affect the absorption, distribution, metabolism and excretion of drugs, basic principles of toxicology and drug interactions; (ii) qualitative and quantitative aspects of drug-receptor interactions; (iii) the structure and function of the autonomic nervous system and the mechanisms of action of the drugs targeted against this system; (iv) the mechanisms of action of drugs used for the treatment of a range of inflammatory, infectious, cardiovascular and central nervous system diseases, as well as those used to treat diabetes and cancer.



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