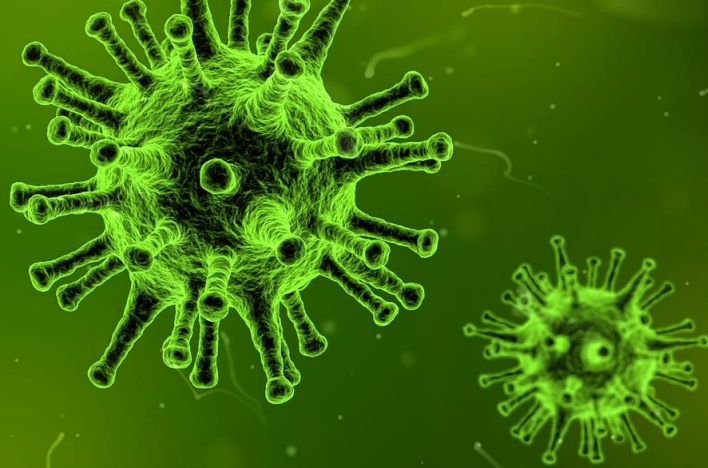


MICROBES & PATHOGEN BIOLOGY



STUDY ABROAD MODULE OPTIONS

LEVEL 1	
DOUBLE SEMESTER: FALL & SPRING	
BIO1301 The World of Microorganisms (40 CATS)	
LEVEL 2	
SEMESTER 1: FALL	SEMESTER 2 : SPRING
BIO2104 Cell Biology (20 CATS)	BIO2205 Applied Genetics (20 CATS)
BIO2102 Experimental Biochemistry (20 CATS)	BIO2203 Invertebrate Biology (20 CATS)
BIO2106 Plant Biology & Rhizosphere Interactions (20 CATS)	BIO2202 Microorganisms in Action (20 CATS)

MODULE OVERVIEWS

BIO1301 The World of Microorganisms

A practical and theoretical introduction to the biology of bacteria, viruses, fungi, algae, protozoa and parasites. On completion of this module, you will be able to describe the basic structure of economically and medically important examples of bacteria, viruses, fungi, together with protozoan and metazoan parasites; outline the various interactions that such organisms may have with animals and plants; describe how microorganisms relate to production and use of food; describe how such organisms may contribute to the manifestation of disease; discuss the biotechnological potential of such organisms for the benefit of humankind.

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



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

GET IN TOUCH
EMAIL: ASKMHLS@QUB.AC.UK
WHATSAPP: 07851880522

MODULE OVERVIEWS

BIO2104 Cell Biology

This module gives a sound understanding of the structure and function of the major cell organelles and their interactions with each other and an appreciation of how a better understanding of cell biology can lead to the development of new therapeutic strategies in various disease states. You will gain practical experience of a number of modern techniques used to study cells such as Cell culture; Fluorescent & electron microscopy; RNAi / CRISPR; Proteomics and Drug development.

BIO2102 Experimental Biochemistry

On completion of this module students should have: a knowledge and understanding of the theoretical background and practical techniques used in modern molecular biosciences through an introduction to the Biochemistry Laboratory, General Laboratory Procedures, Chromatography Techniques, Electrophoresis and Centrifugation in Biochemical Research.

BIO2106 Plant Biology and Rhizosphere Interactions

This module covers an overview of plant developmental biology, root biology, physiology and chemistry. Pathogenic and beneficial plant-microbe interactions will be considered alongside beneficial and pathogenic nematode interactions. A broader ecological assessment of plant-soil interactions will include aspects of food webs, trophic and non-trophic interactions. Finally, the module will expand on the basics by giving an overview of relevant research tools, and presenting a series of short research presentations that expand on this basic knowledge.

BIO2205 Applied Genetics

This module will give an understanding of the following topics: concept of biodiversity; Darwin's theory of evolution; neo-Darwinian theory and the modern synthesis; species concepts; reproductive isolating mechanisms; modes of speciation; gene pools; Hardy-Weinberg law; natural selection; genetic drift; effective population size; gene flow; founder effect; bottleneck; inbreeding; non-random mating; population genetic structuring; genome mapping; selective breeding; importance and practical applications of population genetics theory and genetic techniques in agriculture, terrestrial and marine environments.

BIO2203 Invertebrate Biology

On completion of this module you will be able to identify and distinguish between members of all the major invertebrate phyla and have knowledge of the diagnostic features of the biology of different invertebrates including aspects of development, feeding and reproduction. You will also become familiar with the key attributes of parasitism including the impact of parasites on human and animal welfare and have developed microscopy and dissection skills

BIO2202 Microorganisms in Action

This module will enhance microbiology practical skills acquired at Stage 1, including sterile technique, analysis of experimental results and data presentation. You will develop an appreciation of the ubiquity, importance and tenacity of microorganisms in our world and be able to understand and describe the key roles and activities of microorganisms involved in biogeochemical cycling, plant health, food production, and human health. You will also be able to demonstrate an understanding of the molecular techniques that are used to study microbial populations and search the scientific literature and select relevant information on assigned topics.

