

University of Cambridge Summer School 2019

(Medical Subjects)



This two-week program is to offer the medical and life-sciences students a brief insight into medical-related subjects and cutting-edge researches, as well as experiencing the Cambridge student life. It will not only prepare the students into later stages of their undergraduate studies but also show them how to be a researcher in medical-related fields.

Course introductions:

Biomedical Sciences – 5 hours

Biomedical science transforms our understanding of health and disease. This lecture will put students at the cutting edge of science. It covers everything from healthcare issues to research-based science, learning how disease is caused, identified and treated. Topics includes the structure and function of biological fluids, cells and tissues, and the relationship between bodily systems and health, disease and the environment.

Medical English – 5 hours

This course focuses on the language of medicine in English, both spoken and written. It is designed to help students master specific medical vocabulary and idioms and to improve their ability to communicate in English in a hospital or clinical setting.

Tumor Biology – 5 hours

This course is designed to provide students with a current and comprehensive review of biologic structure and function at the cellular, tissue, and organ system levels. Clinical correlation sessions, which illustrate the contributions of cell biology to specific medical problems, are interspersed in the lecture schedule.

Neurodegenerative Diseases – 5 hours

Researches into neurodegenerative diseases are progressing very quickly due to a large patient population worldwide. Many neurodegenerative diseases – including amyotrophic lateral sclerosis, Parkinson's, Alzheimer's, and Huntington's – occur as a result of neurodegenerative processes. The students will learn the mechanisms, therapeutics and cutting age researches in this field.

Genetics – 2.5 hours

This lecture discusses the principles of genetics with application to the study of biological function at the level of molecules, cells, and multicellular organisms, including humans. The topics include: structure and function of genes, chromosomes and genomes, biological variation resulting from recombination, mutation, and selection, population genetics, use of genetic methods to analyse protein function, gene regulation and inherited disease.

DNA sequencing techniques – 2.5 hours

Students will learn about DNA, genomics, and how DNA sequencing is used. The lecture will introduce the previous technologies such as Sanger sequencing and recent high-throughput sequencing technologies which have revolutionised the study of genomics and molecular biology.

Academic Writing – 2.5 hours

This is an early-stage course which provide the foundations needed for clear, accurate and appropriate communication and the language functions needed to write for the

thesis and for publication. The course also focuses on some of the main features of formal scientific writing, including academic style, vocabulary, and text organisation. A series of medical related journals will be introduced to students

Introduction to Clinical Medicine in Cambridge – 5 hours

Based on the Cambridge Biomedical Campus and at Cambridge University Hospitals NHS Trust, the Clinical School offers the opportunity to study in one of the most exciting medical centres in the UK, where high quality clinical care is supported by excellent teaching and research. The focus for teaching and learning is patient-centredness, such that students are encouraged to think of medical care from the patients' perspective throughout. The curriculum is built around a common set of themes, which allow integration of a wide range of medical subjects around core principles of healthcare for the individual and for communities.

Medical statistics – 5 hours

This lecture provides an introduction to important topics in medical statistical concepts and reasoning. It will offer students an understanding of basic statistical principles. Real examples from published clinical research literature will be discussed.

Theoretical Biology and Medical Modelling – 2.5 hours

Theoretical Biology and Medical Modelling adopts a broad definition of "biology" and focuses on theoretical ideas and models associated with developments in biology and medicine. This lecture covers interrelationships between theoretical and experimental aspects of research, and the roles of modelling and statistics.

Program Activities:

College Garden Party. Health and safety training – 2.5 hours

Introduction to the programs & activities, meet with the instructors

Cambridge University History Introduction – 2.5 hours

The University of Cambridge is a collegiate public research university in Cambridge, England with more than 800 years history. This session will introduce the special collegiate structure of Cambridge University, its long history and stories.

Cambridge Colleges Tour – 2.5 hours

Students could explore the most important aspects of the city, University and have internal visits to colleges. Internal visits to colleges. Those interested in Architecture will be able to explore 1000 years of some the finest buildings in the UK, whilst the wealth of scientific history can cover Newton, Darwin, the splitting of the atom and the unravelling of the structure of DNA.

Cambridge Museums and River Tour – 2.5 hours

Cambridge is also home to world-class museum collections. The students will visit the most famous museums in Cambridge. The River Cam runs through the heart of Cambridge enabling students to enjoy fantastic views of the world-famous Cambridge College 'Backs' from the comfort of a traditional Cambridge Punt.

Meet with Cambridge Graduate Students with Medical-Related Background – 2.5 hours

To learn about the research and non-research career path in medical and biomedical fields

Meet with Cambridge Medical-Related Students with Research experience – 2.5 hours

To learn about conducting research in medical and biomedical fields and how to apply to be a graduate student in Cambridge University

English Etiquette and Manners (links to College Formal Dinner) – 2.5 hours

English people have historically been known to place a great deal of importance in good manners. Whether it be in relation to speech, timeliness, body language or dining, politeness is key. Students will learn these etiquette and manners before College Formal Dinner.

College Formal Dinner – 3 hours

Formal Hall is a formal meal held at Cambridge University, at which students usually dress in formal attire and often gowns to dine. Students will have this unique opportunity to experience such special formal meal as a closing reception of this whole program.