

LIFE SCIENCES



I chose to study abroad at UCL to have the opportunity to live in one of the world's biggest, most diverse and exciting cities, to study at one of the world's leading academic institutions, and to follow in the steps of Mohandas Gandhi, Alexander Graham Bell and Sir Francis Crick.

Coming to UCL has given me a second home in London – I would love to return here to work after graduation, or for graduate school! It has given me the confidence to seek and seize opportunities outside of my comfort zone. The change of scene from my school in the US has been highly beneficial – being in such a diverse and intellectually stimulating environment has given me a new perspective on my education and has helped me appreciate it in a global context. I would highly recommend UCL to anyone considering applying.



Olga Alexeeva
Emory University
Georgia, USA

BIOLOGICAL SCIENCES

Dramatic and exciting developments in Biology over recent years have led to an increasing and varied range of options at UCL. UCL's Galton Laboratory was the first department of human genetics in the world, and this pioneering approach continues in our research and teaching today.

Why study Biological Sciences at UCL?

At UCL you will be taught Biological Sciences by active researchers within a supportive environment. The Grant Museum of Zoology is an excellent teaching resource and field courses offer you the opportunity to explore the European wildlife. Our London location also allows you to visit world-famous institutions, such as Kew Gardens, London Zoo, the Natural History Museum and the Science Museum.

What you will gain from study at UCL

Studying Biological Sciences at UCL offers you the excitement of examining life processes at all levels. Our courses span the study of cells and organisms, human and animal genes and entire ecosystems. In addition to gaining theoretical understanding, you will be able to explore these subjects further in the laboratory, the field or through bioinformatic analysis.

Teaching and Assessment

Since students admitted to this programme for the Fall Term only are unable to sit the end-of-year examinations in the Summer Term, they will be assessed by alternative examination in December.

LEVEL 1 COURSES

BIOL1001	
Biological Inter-Relationships	
Availability	Spring Term
Credit Value	4 (US) 7.5 (ECTS)

A course designed for first year students in which the major topic will be host/parasite inter-relationships. A field trip in June will be an important part of this course.

BIOL1002	
Quantitative Biology	
Availability	Fall Term
Credit Value	4 (US) 7.5 (ECTS)

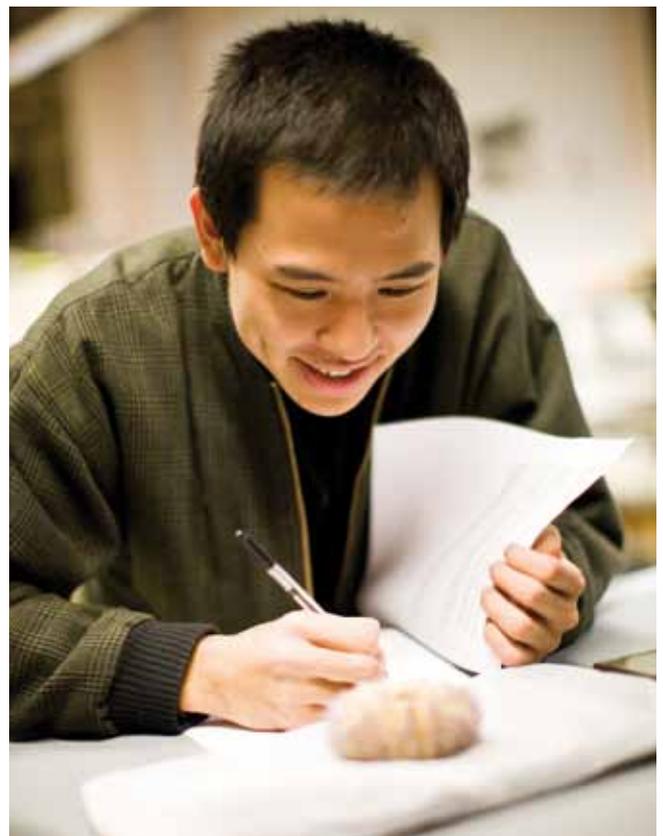
The course is designed to develop and/or enhance your skills in experimental design and data handling in a context appropriate for biological sciences.

BIOL1003	
Introduction to Microbiology	
Availability	Spring Term
Credit Value	4 (US) 7.5 (ECTS)

Provides a broad introduction to micro-organisms – from viruses to bacteria to eukaryotic microbes – and considers their evolution, biology, medical, industrial and ecological significance.

BIOL1005	
Introduction to Genetics	
Availability	Spring Term
Credit Value	4 (US) 7.5 (ECTS)

An introduction to the genetics of a variety of organisms from peas to humans with the aim of introducing modern genetics in a specifically non-molecular context.



Extended descriptions of the courses available can be found by visiting the web address at the top of this page

Contact Name

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Availability

Year
Fall Term
Spring Term

Tuition Fees

£18,500 (for full explanation of tuition fees please see page 165)

Related courses can be found in these departments:

- Biomedical Sciences and Neuroscience, page 102
- Molecular Biosciences, page 106

BIOL1006**Life on Earth**

<i>Availability</i>	Fall Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

An introduction to the diversity of life, evolution and development of body form in a wide variety of organisms.

LEVEL 2 COURSES**BIOL2002****Field Course in Environmental Biology**

<i>Availability</i>	Spring Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

This field course provides training in field sampling methods used in environmental biology. It includes a field trip to the Scottish Highlands in early June.

BIOL2003**The Life of Plants**

<i>Availability</i>	Spring Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

The course introduces aspects of physiology, genetics, evolution and molecular biology of plants. It also includes a visit to the world-famous botanical gardens at Kew.

BIOL2004**Fundamentals of Molecular Biology**

<i>Availability</i>	Fall Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

Introduction to molecular biology and its use in research, biotechnology and medicine aiming to give a broad understanding of the principles and applications of modern techniques.

**BIOL2005****Genetic Systems**

<i>Availability</i>	Spring Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

Aims to provide a detailed introduction to the major plant, animal and fungal models used to study eukaryotic genetics.

BIOL2006**Introduction to Human Genetics**

<i>Availability</i>	Fall Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

Aims to introduce students to the subject of human genetics, to enable them to appreciate the implications of genetic research for society.

BIOL2007**Evolutionary Genetics**

<i>Availability</i>	Spring Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

A course dealing with the forces which control evolution, covering the ecological and genetic core of evolutionary biology using prokaryote, animal and plant examples.

BIOL2009**Animal Form and Function**

<i>Availability</i>	Fall Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

Introduces the range of form and function evolved by animals; including terrestrial, aquatic and aerial locomotion; feeding and respiration in water and air.

BIOL2010**The Biology of Development**

<i>Availability</i>	Spring Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

An introduction to the modern science of development covering a variety of organisms and discussing evolutionary, cellular and genetic bases of animal development.

BIOL2011**Behavioural Ecology and Sociobiology**

<i>Availability</i>	Spring Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

An introduction to the application of evolutionary concepts to the behaviour and ecology of animals, including humans.

BIOL2012**Fundamentals of Ecology**

<i>Availability</i>	Spring Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

The aim of the course is to introduce the problems tackled in ecology, from populations through to communities and ecosystems.

BIOL2014**Cell Biology**

<i>Availability</i>	Spring Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

A broad-based cell biology course that aims to introduce a wide range of topics related to the biological functioning of eukaryotic cells.

BIOL7008**Field Course in Ecological Genetics**

<i>Availability</i>	Spring Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

Organised around a ten-day field trip to Southern Spain during the Easter vacation; random and directed processes leading to genetic change in natural populations will be studied.

LEVEL 3 COURSES

BIOL3002

Plants, Environment and Climate Change

<i>Availability</i>	Fall Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

This course is aimed at providing an account of the ways in which plants respond to environmental stresses, including the impact of climate change on plants.

BIOL3003

Aquatic Biology

<i>Availability</i>	Spring Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

The course looks at the functioning of aquatic systems – from small streams through to oceans.

BIOL3004

Literature Review

<i>Availability</i>	Year
<i>Credit Value</i>	8 (US) 15 (ECTS)

The course provides the opportunity to undertake an individual review of published literature on a specified topic under supervision.

BIOL3005

Introduction to Research

<i>Availability</i>	Year
<i>Credit Value</i>	12 (US) 22.5 (ECTS)

The course provides the opportunity to undertake an individual research project of nine weeks' duration (including writing the assessed report) under supervision.

BIOL3008

Species Conservation and Biodiversity

<i>Availability</i>	Fall Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

The aim of this course is to describe the scientific basis of conservation, showing how biological evidence underpins conservation decisions.

BIOL3010

Molecular Evolution

<i>Availability</i>	Spring Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

Aims to provide students with bioinformatic skills useful in molecular data analysis, as well as to test recent theories of molecular evolution.

BIOL3011

Advanced Human Genetics (2): Complex Disorders

<i>Availability</i>	Spring Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

The course focuses on the genetics of a variety of phenotypes which are not inherited in a simple Mendelian fashion.

BIOL3012

Sex, Genes and Evolution

<i>Availability</i>	Spring Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

The aim of this course is to introduce students to an advanced understanding of current scientific research in evolutionary genetics.



BIOL3013

Advanced Human Genetics (1): Single Gene Disorders

<i>Availability</i>	Fall Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

Covers the methodology used for the cloning of genes responsible for Mendelian diseases and how genetic analysis has provided insights into the biology of human disease.

BIOL3017

Biology of Ageing

<i>Availability</i>	Fall Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

This course surveys the biology of ageing (biogerontology) covering topics such as evolutionary theories of ageing, age-related disease and social and ethical issues.

BIOL3018

Vertebrate Life and Evolution

<i>Availability</i>	Spring Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

Provides a broad review of vertebrate evolution from a variety of perspectives, including the fossil record, modern anatomy and molecular evidence.

BIOMEDICAL SCIENCES AND NEUROSCIENCE

Biomedical Sciences at UCL combines a fascinating diversity of interlinked life science topics, spanning anatomy, cell and developmental biology, neuroscience, pharmacology and physiology. Focused academic expertise and an interdisciplinary approach contribute to an inspiring and exciting learning environment.

Why study Biomedical Sciences and Neuroscience at UCL?

UCL has a pioneering history and distinguished research reputation in biomedical sciences – teaching and research are closely linked, ensuring you will be exposed to the most-up-to-date discoveries and techniques. You can study a broad range of courses to match your own interests or a more defined set that takes advantage of UCL's international expertise in neuroscience.

What you will gain from study at UCL

You will be taught by research-active academics who pride themselves on providing a friendly and stimulating environment. In addition to the theoretical aspects of the subject you will learn practical and quantitative skills and techniques required to go forward into further study, research or career opportunities in the biomedical sciences.

Teaching and Assessment

Teaching varies between courses, but normally involves seminars and tutorials in addition to lectures. Many courses have associated laboratory classes. Assessment is usually by written examination and coursework assessment, but may also include laboratory write-ups and poster presentations.

Extended descriptions of the courses available can be found by visiting the web address at the top of this page

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Availability

Year, Fall Term, Spring Term

Tuition Fees

£18,500 (for full explanation of tuition fees please see page 165)

Related courses can be found in these departments:

- Biological Sciences, page 99
- Molecular Biosciences, page 106

LEVEL 1 COURSES

ANAT1003

Introduction to Human Anatomy

Availability	Fall Term
Credit Value	4 (US) 7.5 (ECTS)

Introduction to anatomy and histology of the human nervous system, cardiovascular system, respiratory system, digestive system, endocrine system, musculoskeletal system and special senses.

PHAR1001

An Introduction to Mechanisms of Drug Action

Availability	Fall Term
Credit Value	4 (US) 7.5 (ECTS)

Introductory course in which important molecular and cellular principles are established by using specific examples such as the treatment of HIV, malaria and diseases of the central nervous system.

PHOL1001

Mammalian Physiology

Availability	Year
Credit Value	8 (US) 15 (ECTS)

This is a fundamental course in the principal body systems which provides core physiological knowledge with particular reference to basic body homeostasis.

LEVEL 2 COURSES

ANAT2008

Developmental Neurobiology

Availability	Spring Term
Credit Value	4 (US) 7.5 (ECTS)

Introduction to development in the nervous system, from the earliest embryonic events to the development of perception and complex behaviour in the neonate.

ANAT2010

Human Neuroanatomy

Availability	Spring Term
Credit Value	4 (US) 7.5 (ECTS)

Medically relevant neuroanatomy and neurophysiology. Provides sufficient background for Level 3 neuroscience courses.

ANAT2050

Human Anatomy and Embryology

Availability	Year, Fall Term, Spring Term
Credit Value	4/8 (US) 7.5/15 (ECTS)

The course comprises ANAT2051 Thorax, Abdomen and Pelvis (Part A; Fall Term) and ANAT2052 Head and Limbs (Part B; Spring Term). The two parts may be taken independently.

ANAT2099

Ethics of Biomedical Research

Availability	Spring Term
Credit Value	4 (US) 7.5 (ECTS)

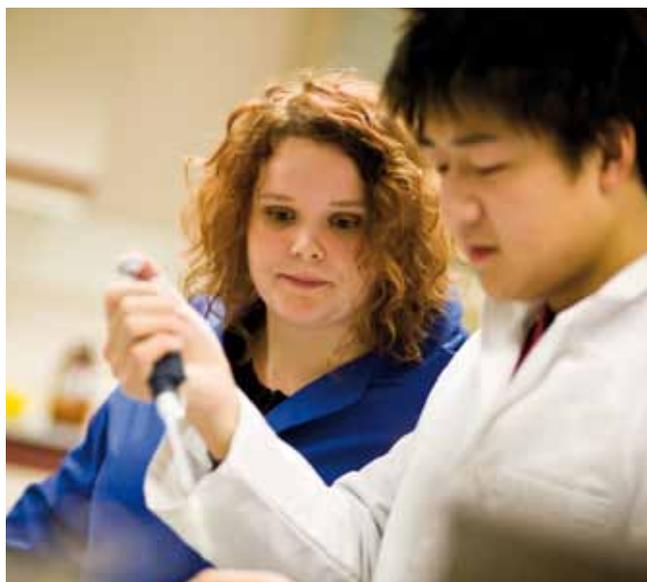
Seminar and discussion based course about legal and ethical implications of *in vitro* fertilisation, genetic manipulation, genetic diagnosis, selective breeding, stem cell research, embryo research.

PHAR2001

Drugs and the Mind

Availability	Year
Credit Value	4 (US) 7.5 (ECTS)

Pharmacology of the central nervous system. An ideal course for students whose main field is not pharmacology but who require knowledge on how drugs modulate the actions of the central nervous system.

**PHAR2002****General and Systematic Pharmacology**

Availability	Year
Credit Value	8 (US) 15 (ECTS)

This core Pharmacology course provides a sound knowledge of the actions of many of the important groups of drugs used in medicine.

PHAR2003**Experimental Pharmacology**

Availability	Year
Credit Value	8 (US) 15 (ECTS)

This core experimental course in pharmacology covers all aspects of preparation, techniques, and results presentation.

PHAR2005**Introductory Pharmacology**

Availability	Year
Credit Value	4 (US) 7.5 (ECTS)

A course for life science students whose main field of study is not pharmacology but who require a good understanding of the subject.

PHAR2006**Practical Pharmacology**

Availability	Year
Credit Value	4 (US) 7.5 (ECTS)

This course provides an introduction to experimental methods in pharmacology.

PHOL2001**Animal and Human Physiology – Maintenance and Regulatory Mechanisms**

Availability	Fall Term
Credit Value	4 (US) 7.5 (ECTS)

This course runs as the first half of the PHOL2002 course with lectures, tutorials and workshops in respiratory, cardiovascular, endocrine, gastrointestinal and renal physiology.

PHOL2002**Animal and Human Physiology**

Availability	Year
Credit Value	8 (US) 15 (ECTS)

A substantive course in physiology aimed at advancing and consolidating prior knowledge and allowing students to develop specialist interests in physiology.

PHOL2003**Animal And Human Physiology – Systems Neuroscience and Research**

Availability	Spring Term
Credit Value	4 (US) 7.5 (ECTS)

This course runs as the second half of the PHOL2002 course with lectures and tutorials on the autonomic nervous system, sensory physiology and the control of movement.

PHOL2005**Structure and Function of Nervous Systems**

Availability	Fall Term
Credit Value	4 (US) 7.5 (ECTS)

Introductory course covering fundamental topics such as cells of the nervous system, development of the brain and spinal cord and the neural basis of behaviour.

PHOL2006**Cellular Neurophysiology**

Availability	Spring Term
Credit Value	4 (US) 7.5 (ECTS)

The aim of the course is to provide an introduction to the production, transmission and integration of signals within the nervous system.

LEVEL 3 COURSES**ANAT3003****Mechanisms of Development**

Availability	Fall Term
Credit Value	4 (US) 7.5 (ECTS)

This advanced course aims to bring the students' knowledge and understanding of developmental biology to the level of current research.

ANAT3005**Mechanisms of Development**

Availability	Year
Credit Value	8 (US) 15 (ECTS)

Combines the lectures given in ANAT3003 with a series of practicals based on the animal models studied (*Drosophila*, *Xenopus*, zebrafish, chick and mammal).

ANAT3028**The Neurobiology of Neurodegenerative Disease**

Availability	Spring Term
Credit Value	4 (US) 7.5 (ECTS)

Genetics, and cellular and molecular biology of Alzheimer's, Huntington's, Parkinson's and motor neurone disease, with emphasis on the mechanisms leading to cell death.

ANAT3042**Pain**

Availability	Spring Term
Credit Value	4 (US) 7.5 (ECTS)

This course presents an integrated approach to understanding pain, covering basic mechanisms, clinical manifestations, therapy and management, and problems with measurement.

ANAT3050**Advanced Molecular Cell Biology**

Availability	Fall Term
Credit Value	4 (US) 7.5 (ECTS)

Advanced course in molecular cell biology discussing selected topics of current research.

ANAT3105**Clocks, Sleep and Biological Time**

<i>Availability</i>	Spring Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

Examines the importance of time, and oscillations, in a range of biological problems. The central theme will be the mechanisms and influence of the circadian or daily clock.

HMED3004**Madness and Society**

<i>Availability</i>	Fall Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

This course examines the ways in which deviant behaviour has been identified and controlled from the ancient world to the present.

HMED3006**Medicine and Modern Society**

<i>Availability</i>	Spring Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

This course will explore the emergence of modern medicine from the 18th century to the present day in European society.

HMED3010**Disease in History**

<i>Availability</i>	Spring Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

What is disease? How has our understanding of disease, and people's experiences of disease, changed over time? This course will give you some new and challenging ways to think about these questions.

HMED3014**History of Asian Medicine**

<i>Availability</i>	Fall Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

Aims to provide knowledge of the background and development of key concepts and practices in the history of Chinese medicine, with a secondary focus on the history of Tibetan medicine.

HMED3016**Genetics Past and Present: From Gregor Mendel to Dolly the Sheep**

<i>Availability</i>	Fall Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

The history of genetics in the 20th century; examining how heredity and the gene have been conceptualised and how genetic knowledge has been used in medicine.

HPSC3029**Medicine, Disease and History**

<i>Availability</i>	Fall Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

This course addresses the changes and developments in Western medicine from the Ancient Greek world to 1700.

NEUR3001**Advanced Visual Neuroscience**

<i>Availability</i>	Spring Term
<i>Credit Value</i>	8 (US) 15 (ECTS)

This course provides a strong foundation in visual neuroscience as well as an extensive and unique coverage of the expertise in vision and visual neuroscience at UCL.

NEUR3018**Neural Basis of Motivation and Learning**

<i>Availability</i>	Fall Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

Anatomy, physiology, and function of neural structures involved in learning, memory, emotion, motivation and navigation, including the amygdala, septum, hippocampus, and prefrontal cortex.

NEUR3025**Advanced Functional Neuroanatomy**

<i>Availability</i>	Fall Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

Provides a presentation of the structural organisation of the mammalian central nervous system together with some understanding of its functional and clinical significance.

NEUR3031**The Control of Movement**

<i>Availability</i>	Spring Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

Anatomy and physiology of motor systems, including muscles; proprioception; spinal integration; ascending and descending pathways in the spinal cord; motor cortex; basal ganglia and cerebellum.

NEUR3041**Neural Computation: Models of Brain Function**

<i>Availability</i>	Fall Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

This course examines how behaviour results from the computations of synapses, neurons, and neural systems in the brain.

ANAT3045**Visual Neuroscience**

<i>Availability</i>	Spring Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

This course presents the fundamentals of visual neuroscience from a multidisciplinary point of view that includes anatomical, physiological, genetic and psychological perspectives.

PHAR3001**Neuropharmacology**

<i>Availability</i>	Fall Term
<i>Credit Value</i>	8 (US) 15 (ECTS)

Advanced course in neuropharmacology emphasising neurotransmitter function and malfunction in variety of central nervous system (CNS) pathologies. Contains a significant amount of practical work.

PHAR3002**Neuropharmacology**

<i>Availability</i>	Fall Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

Advanced neuropharmacology course investigating the role of neurotransmitters in normal and pathological CNS function.

PHAR3003**Molecular Pharmacology**

<i>Availability</i>	Fall Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

Studies the molecular events involved in the initiation of the response of cells to drugs or hormones.

PHAR3004**Receptor Mechanisms**

<i>Availability</i>	Fall Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

Studies the mechanism involved in generating the response to the activation of receptors by drugs and hormones.

PHAR3005**Immunopharmacology**

<i>Availability</i>	Spring Term
<i>Credit Value</i>	8 (US) 15 (ECTS)

Inflammatory mechanisms underlie many pathological conditions. This course investigates the cellular and molecular bases of inflammation, mechanisms by which inflammation results in disease and drugs which modulate inflammation.

PHAR3008**Psychopharmacology**

<i>Availability</i>	Spring Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

An advanced course dealing with conditions such as depression, anxiety, schizophrenia, eating and sleep disorders and the effects of recreational drugs.

PHAR3011**Synaptic Pharmacology: The Synapse – a Major Target for Disease and Drug Action**

<i>Availability</i>	Spring Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

The course ranges from the consideration of neurotransmitter release and action to the current and potential treatment of diseases precipitated by synaptic dysfunction.

PHAR3031**Immunopharmacology**

<i>Availability</i>	Spring Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

Studies the mechanisms involved in the formation, release and subsequent actions of chemical mediators involved in inflammation. Drugs used to modify inflammation are also discussed.

PHOL3001**Respiration in Health and Disease**

<i>Availability</i>	Spring Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

A systems physiology course on respiration building on basic concepts to examine how breathing is monitored and controlled in a range of physiological pathophysiological conditions.

PHOL3002**Heart and Circulation**

<i>Availability</i>	Fall Term
<i>Credit Value</i>	8 (US) 15 (ECTS)

A substantive course in the essential aspects of cardiac and vascular physiology.

PHOL3003**Fetal and Neonatal Physiology**

<i>Availability</i>	Spring Term
<i>Credit Value</i>	8 (US) 15 (ECTS)

The course addresses fundamental questions on the physiology of the early mammalian embryo, foetus and neonate.

STUDENT VIEW**Manasi Jiwrajka**

Vassar College, New York



I wanted to pursue medicine and take courses that would better prepare me for medical school. I like the fine balance of the practicals and the theory in Biomedical Sciences. Not only do we have detailed lectures on anatomy but also have corresponding practical sessions on cadavers. One other aspect I like about the department is the chance to do a dissertation for the course which requires independent research on the topic of my choice. There is a huge variety of possible topics.

**PHOL3004****Cell Signalling in Health and Disease**

<i>Availability</i>	Fall Term
<i>Credit Value</i>	8 (US) 15 (ECTS)

An in-depth look at the cellular control systems that regulate living organisms and the pathologies that arise when things go wrong.

PHOL3006**The Cellular Basis of Brain Function**

<i>Availability</i>	Fall Term
<i>Credit Value</i>	8 (US) 15 (ECTS)

A course designed to provide a thorough grounding in the cellular mechanisms of brain function in health and disease.

PHOL3016**Epithelial Function in Health and Disease**

<i>Availability</i>	Year
<i>Credit Value</i>	8 (US) 15 (ECTS)

Aims to provide an understanding of epithelia tissues, including structures and functions, and their importance in wound healing and cancer.

MOLECULAR BIOSCIENCES

Biochemistry, Molecular Biology and Biotechnology underpin the area of Molecular Biosciences, a major part of the disciplines needed for modern medical and biological research. Teaching is research led with specialisms in structural biology, cancer and cell biology and control of gene expression.

Why study Molecular Biosciences at UCL?

The Molecular Biosciences at UCL benefit from world-class teaching and research and very close links with local communities including the Bloomsbury Structural Biology consortium, Medical Research Council laboratories and the UCL Institute of Child Health. The delivery of structural and molecular biology course content is thus from teachers at the forefront of their respective research fields.

What you will gain from study at UCL

Our research-led teaching means you gain cutting-edge knowledge in the most up-to-date areas of the subjects studied. The department is keen to encourage good communication skills in science and you can expect to present seminars and posters, and to interact in the tutorial environment, thereby gaining new skills that will support your study and equip you for a career.

Teaching and Assessment

Teaching is delivered through lectures, tutorials, laboratory classes and on-line activities including podcasts. Assessment of most courses is by a combination of unseen written examination, coursework, practical work and online exercises.



Extended descriptions of the courses available can be found by visiting the web address at the top of this page

Contact Name

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Availability

Year
Fall Term
Spring Term

Tuition Fees

£18,500 (for full explanation of tuition fees please see page 165)

Related courses can be found in these departments:

- Biological Sciences, page 99
- Biomedical Sciences and Neuroscience, page 102

LEVEL 1 COURSES

BIOC1001	
Cellular and Molecular Biology	
Availability	Year
Credit Value	8 (US) 15 (ECTS)

General introduction to cell biology, nucleic acids, protein structure, metabolism, cell physiology and cell signalling in development and differentiation. Requires a background in chemistry.

BIOC1007	
The Principles and Practice of Experimental Biochemistry	
Availability	Year
Credit Value	8 (US) 15 (ECTS)

Introduction to the approaches and methods of modern experimental biochemistry and molecular biology. Requires a background in chemistry and a good level of competency in mathematics.

BIOC1008	
General Biochemistry	
Availability	Fall Term
Credit Value	4 (US) 7.5 (ECTS)

Considers the structure and function of cells and organisms at the molecular level and all aspects of their control. Comprises half the BIOC1001 course, omitting practical/laboratory classes.

BIOC1009	
General Biochemistry for the Natural Sciences	
Availability	Fall Term
Credit Value	4 (US) 7.5 (ECTS)

This course is identical in lecture content to BIOC1008 however it has some additional practical/laboratory classes.

LEVEL 2 COURSES

BIOC2001	
Molecular Biology	
Availability	Year
Credit Value	8 (US) 15 (ECTS)

This course covers all aspects of prokaryotic and eukaryotic molecular biology and recombinant DNA technology and includes a five-week laboratory-based cloning exercise.

BIOC2002	
General Biochemistry	
Availability	Year
Credit Value	8 (US) 15 (ECTS)

Provides students with an intermediate level grounding in Cell and Molecular Biology and Biochemistry covering all aspects of structure function and control. No laboratory classes.

BIOC2003	
Further Topics in Biochemistry	
Availability	Fall Term
Credit Value	4 (US) 7.5 (ECTS)

This course is formed from the first half of BIOC2002 and provides intermediate level coverage of Cell and Molecular Biology including structure, function and control.

BIOC2004	
Biomolecular Structure and Function	
Availability	Fall Term
Credit Value	4 (US) 7.5 (ECTS)

Covers all aspects of the structure and function of proteins at an intermediate level. Biophysical/Biochemical aspects of proteins are explored along with kinetics and chemical mechanisms.

BIOC2005**Metabolism and its Regulation**

<i>Availability</i>	Spring Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

This course in intermediate level metabolism covers all aspects of cell organisation and regulation and looks at both catabolic and anabolic cellular processes and their control.

BIOC2006**Metabolic Processes: Cellular Specialisation and Co-ordination**

<i>Availability</i>	Spring Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

Covers more specialised aspects of intermediate level metabolic biochemistry looking closely at control systems and further at the structures in cells that help bring about specialisation and control.

LEVEL 3 COURSES**BIOC3003****Advanced Biomolecular Structure**

<i>Availability</i>	Fall Term
<i>Credit Value</i>	8 (US) 15 (ECTS)

This course covers all aspects of protein structure and function at an advanced level.

BIOC3004**Advanced Molecular Biology**

<i>Availability</i>	Fall Term
<i>Credit Value</i>	8 (US) 15 (ECTS)

This course provides coverage of all aspects of advanced molecular biology.

BIOC3005**Cellular Regulation and Biotechnology**

<i>Availability</i>	Fall Term
<i>Credit Value</i>	8 (US) 15 (ECTS)

This advanced-level course in metabolic biochemistry covers all aspects of cellular regulation.

BIOC3007**The Molecular Basis of Cellular Regulation**

<i>Availability</i>	Fall Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

This course is half of the course BIOC3005 dealing exclusively with the regulatory mechanisms in cells and tissues.

BIOC3008**Cellular Regulation in Biotechnology, Health and Disease**

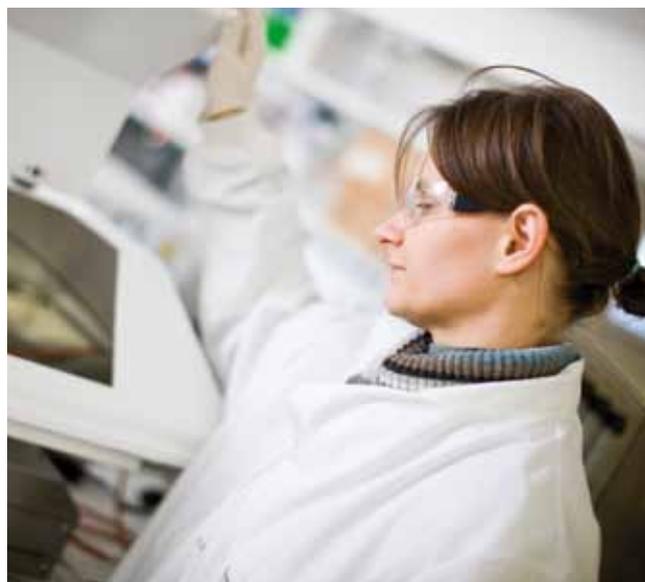
<i>Availability</i>	Fall Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

This course comprises the half of BIOC3005 dealing exclusively with the role of membrane dynamics and compartmentation in cellular regulation.

BIOC3010**Computational and Systems Biology: *In Silico* Analysis of Genes and Proteins and their Biological Roles**

<i>Availability</i>	Spring Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

This course covers the topic of bioinformatics: the use of computers to study genes and proteins using complex databases to handle the vast amount of information re: the genome and proteome.

**BIOC3011****Biochemistry of Health and Disease**

<i>Availability</i>	Spring Term
<i>Credit Value</i>	8 (US) 15 (ECTS)

Covers aspects of the biochemistry of the diseased state and areas as diverse as nutrition and metabolism and molecular genetics and carcinogenesis.

BIOC3012**Nutrition and Metabolism in Health and Disease**

<i>Availability</i>	Spring Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

This advanced-level course covers the nutrition and metabolism content of the BIOC3011 course.

BIOC3013**Cancer Biology**

<i>Availability</i>	Spring Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

Comprises half of the BIOC3011 course, specifically covering the molecular genetics and carcinogenesis sections.

BIOC3016**Genes to Disease**

<i>Availability</i>	Fall Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

Introduces students to advanced ideas of molecular genetics.

BIOC3017**Cellular and Molecular Aspects of Cardiovascular Disease**

<i>Availability</i>	Spring Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

Examines new developments in molecular and cellular biology and their applications to cardiovascular disease.

BIOC3024**Molecular Mechanisms of Gene Expression and Regulation**

<i>Availability</i>	Fall Term
<i>Credit Value</i>	4 (US) 7.5 (ECTS)

Shows how molecular biology is steadily revealing the mechanisms of previously-intractable problems, for example control of gene expression.