

# FACULTY OF SCIENCE AND TECHNOLOGY POSTGRADUATE COURSES

LONDON  
IS OUR CAMPUS

UNIVERSITY OF  
WESTMINSTER 卐



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# WELCOME

The Faculty of Science and Technology is located in the heart of London, and provides a supportive and enriching educational environment for all students, enabling you to reach your full potential and to prepare you for professional life.

The Faculty offers a broad range of courses across the STEM (Science, Technology, Engineering and Mathematics) subjects, and is divided into five academic departments – Biomedical Sciences, Computing, Engineering, Life Sciences and Psychology – each staffed by supportive and experienced academics.

Our high-quality teaching is informed by our internationally recognised research, which encompasses a wide range of disciplines. In the most recent Research Assessment Exercise a proportion of the research outputs in all subject areas were judged to be at world-leading and internationally excellent levels.

Our teaching is also underpinned by our wide-ranging links to industry and professional bodies, with most of our courses offering some form of professional recognition which may lead to professional membership on graduation. The range of bodies which accredit or recognise our courses includes: Association for Nutrition; British Acupuncture Council; British Computer Society; British Psychological Society; Engineering Council; European Herbal and Traditional Medicine Practitioners Association; Health and Care Professions Council; Institute of Biomedical Sciences; Institution of Engineering and Technology.



Our diversity and multi-disciplinary culture gives students exposure to a wide-reaching science community, creating a friendly and inspiring place to study. All of our departments are based at Cavendish Campus which has undergone an extensive multi-million pound programme of renovation, and continuous investment in our facilities means we can offer all students access to state-of-the-art laboratories.

These facilities will equip you with the technical know-how for your future career, and all our courses have a strong emphasis on developing and using your practical skills. Significant numbers of our students also continue into further study and careers in research or academia.

## **Professor Jane Lewis**

Pro-Vice Chancellor and Dean,  
Faculty of Science and Technology







# BIOSCIENCES

Having recently reviewed our Biosciences Masters course portfolio we are delighted to offer a range of exciting courses in Applied Biotechnology, Biomedical Sciences, Medical Molecular Biology and Pharmacology tailored to your future career aspirations.

The Applied Biotechnology MSc explores ways in which biotechnology can be used by today's society. You will complement theoretical studies around various topics (eg fermentation technology, production of novel bioactive products) with hands-on experience (eg using fermenters) in our dedicated Pilot Plant.

The Biomedical Sciences MSc degree offers pathways in Cancer Biology, Cellular Pathology, Clinical Biochemistry, Haematology, Immunology and Medical Microbiology while the Applied Biomedical Science MSc meets the Supplementary Education requirements of the Institute of Biomedical Science (IBMS) for graduates needing to 'top up' a non-IBMS accredited undergraduate degree. As a combination of 'top up' and extended studies, this programme offers an attractive career enhancing course of study for part-time students working towards Health and Care Professions Council (HCPC) registration.

The MSc in Medical Molecular Biology offers two pathways, one of which is

focussed on the molecular mechanisms of diseases, their diagnosis and their treatment while the Bioinformatics pathway is for students wishing to explore the use of cutting-edge computer applications in modern biology and medicine.

Our Pharmacology MSc provides detailed insight into Pharmacology, Pharmacogenomics, Bioinformatics and Toxicology with the opportunity to take specialist modules in Immunopharmacology and Neuropharmacology. Teaching methods include formal lectures and tutorials as well the use of computer simulation software and our Human Patient Simulator (METI).

Our graduates have gone on to work in fields as diverse as the biotechnology industry, diagnostic pathology, healthcare management, medicine, medical research, genetics, agriculture, forensic sciences and the pharmaceutical industry both within the UK and across the globe.

All of our courses have links to the relevant professional bodies; for example, the MSc degrees in Biomedical Sciences and Medical Molecular Biology courses are accredited by the Institute of Biomedical Science (IBMS) while the Applied Biomedical Science course is also approved by the Health and Care Professions Council (HCPC).

# APPLIED BIOMEDICAL SCIENCE MSc

## Length of course

One year full-time, or part-time on a flexible basis

## Location

Central London (Cavendish)

## Course fees

See [westminster.ac.uk/fees](http://westminster.ac.uk/fees)

## Course Leader

Dr Ian Locke  
[i.c.locke@westminster.ac.uk](mailto:i.c.locke@westminster.ac.uk)

This course has been specifically designed as a 'top-up' qualification for individuals who wish to become Health and Care Professions Council (HCPC)-registered biomedical scientists but who do not hold an Institute of Biomedical Science (IBMS)-accredited BSc Honours degree. This programme is accredited by the IBMS and, in combination with a suitable first degree, the Applied Biomedical Science MSc will ensure that you possess the required academic knowledge for HCPC registration. When you have completed both this course and the IBMS registration training portfolio (and been awarded your Certificate of Competence from the IBMS) you will then meet the HCPC standards of competency and can apply to become registered as a biomedical scientist.

The combination of modules that you study will be based in part upon your requirements for supplementary education as identified by the IBMS but, depending on the number of compulsory modules required, there is still some scope to tailor the course to match your own interests. The course also includes the opportunity to study Masters-level research methods and perform an independent research project in an area of your interest.



## CORE MODULES

- Postgraduate Project
- Postgraduate Research Methods

## OPTION MODULES

- Cellular Pathology
- Clinical Chemistry
- Clinical Immunology
- Haematology and Transfusion Science
- Medical Microbiology
- Molecular and Cellular Therapeutics
- Molecular Science and Diagnostics
- Principles of Molecular Medicine

For a detailed description of modules please see p32.

Not all option modules will necessarily be offered every academic year. Please see [westminster.ac.uk/fst](http://westminster.ac.uk/fst) for information on which modules are currently available.



## ASSOCIATED CAREERS

If you do not already have an IBMS-accredited BSc Honours degree in Biomedical Science then this MSc programme is the next step on your path to becoming a HCPC registered Biomedical Scientist. Biomedical scientists have the knowledge and skills to provide the crucial laboratory diagnostic service central to modern medicine and will be involved in 70 per cent of all disease diagnoses, from ante-natal care to emergency medicine. More information about biomedical science, the role of the biomedical scientist and the process of HCPC registration can be found on the IBMS website at [ibms.org](http://ibms.org)

## ENTRY REQUIREMENTS

You must have a non-IBMS accredited BSc Honours degree in Biomedical Sciences or closely related subject. You must also have a letter from the IBMS confirming that your qualifications have been submitted to the IBMS, evaluated against the HCPC standard of proficiency for biomedical scientists (3a.1) and that the outcome has been the identification of specific subject shortfalls. This course is not suitable for you if the IBMS has determined that you are required to complete a full IBMS-accredited Biomedical Science BSc Honours degree to meet the HCPC standard of proficiency. If you are applying for part-time study, you will normally be working in a relevant area and will require written support from your employer including confirmation that facilities will be available in your workplace for you to carry out your research project.

If your first language is not English you should have an IELTS score of at least 6.5, with 6.0 in each element. During the induction stage of the course, if you do not have English as your first language, you will need to complete Academic English screening and any resulting recommended Academic English support activity.

# BIOMEDICAL SCIENCES MSc

## Length of course

One year full-time study or part-time on a flexible basis

## Location

Central London (Cavendish)

## Course fees

See [westminster.ac.uk/fees](https://westminster.ac.uk/fees)

## Course Leader

Dr Ian Harmer  
[i.harmer@westminster.ac.uk](mailto:i.harmer@westminster.ac.uk)

This course allows you to plan your own taught programme to match your interests and experience by selecting modules from a diverse range of option modules in the Faculty of Science and Technology, with the advice of the Course Leader. For example, you could combine modules on microbiology and molecular biology or those on haematology and clinical biochemistry. Alternatively, you can combine basic science with study of the communication or commercialisation of science. We also offer the opportunity to consider the increasing role of automation in diagnostic laboratories. Those studying part time are free to develop their module choices as they progress.

Whatever the combination, you will be able to expand your understanding of human diseases, their investigation and therapy, and develop your competence in the design and execution of a laboratory-based project.

The course is accredited by the Institute of Biomedical Science.



## CORE MODULES

- Postgraduate Research Methods
- Postgraduate Project

## OPTION MODULES

- Advanced Cancer Biology
- Advances in Cellular Pathology
- Automation in Biomedical Sciences
- Cell Signalling and Genetics
- Cellular Haematology
- Clinical Aspects of Microbial Physiology and Chemotherapy
- Clinical Endocrinology and Metabolism
- Communicating Science
- Concepts and Principles of Nutrition
- Diagnostic Cellular Pathology
- Diagnostic Clinical Biochemistry
- Extended Postgraduate Project
- Immunohaematology and Haemostasis
- Immunopathology
- Immunotherapy
- Infectious Diseases and Public Health
- Molecular and Cellular Therapeutics
- Molecular Bioinformatics
- Molecular Science and Diagnostics
- Principles of Molecular Medicine
- Principles of Pharmacology and Drug Discovery
- Regenerative Medicine
- Science, Technology and Commercialisation
- Systems Biology

For a detailed description of modules please see p32.

Not all option modules will necessarily be offered every academic year. Please see [westminster.ac.uk/fst](https://westminster.ac.uk/fst) for information on which modules are currently available.



## ASSOCIATED CAREERS

You will develop a range of transferable skills that will enhance your employment prospects and your research opportunities in the UK or overseas. Graduates of this course can find employment in a diverse range of biomedical careers in many countries. These may include opportunities in research, pharmaceutical and diagnostic industries as well as in diagnostic pathology.

## ENTRY REQUIREMENTS

You must have at least a BSc Honours in Biomedical Sciences or a closely related subject, a professional qualification of equivalent status and associated work experience, or an equivalent qualification deemed suitable by the course team. If you are applying for part-time study, you will normally be working in a relevant area and will require written support from your employer including confirmation that facilities will be available in your workplace for you to carry out your research project.

If your first language is not English you should have an IELTS score of at least 6.5, with 6.0 in each element. During the induction stage of the course, if you do not have English as your first language you will need to complete Academic English screening and any resulting recommended Academic English support activity.



# BIOMEDICAL SCIENCES (CANCER BIOLOGY) MSc

## Length of course

One year full-time study or part-time on a flexible basis

## Location

Central London (Cavendish)

## Course fees

See [westminster.ac.uk/fees](http://westminster.ac.uk/fees)

## Course Leader

Dr Miriam Dwek  
[m.v.dwek@westminster.ac.uk](mailto:m.v.dwek@westminster.ac.uk)

Improved global life expectancy has resulted in a cancer epidemic. It is well recognised that accurate early diagnosis is an essential aspect of the administration of increasingly expensive and tailored cancer treatment care plans.

The Biomedical Sciences (Cancer Biology) MSc course has been devised to provide knowledge of key aspects of this increasingly important disease area.

You will become familiar with the genetic and cellular changes occurring in both solid and blood-borne cancers, the current and emerging technological approaches for diagnosis of the disease, and the effect of pertinent cellular changes on patient prognosis. Studies on populations and the influence of genotypic variation will ensure that you are qualified to make sense of cancer statistics.

You are able to tailor your programme by selecting from a menu of option modules and pursuing a research project in an area ranging from molecular through to cellular or tissue-based aspects of cancer.



During the course you will join our thriving research environment and will have access to excellent laboratory facilities within the Faculty. On successful completion of the course you will be equipped to take forward your career with an in-depth knowledge of this increasingly common disease area.

The course is accredited by the Institute of Biomedical Science (IBMS).

## CORE MODULES

- Advanced Cancer Biology
- Cell Signalling and Genetics
- Molecular Science and Diagnostics
- Postgraduate Project
- Postgraduate Research Methods

## OPTION MODULES

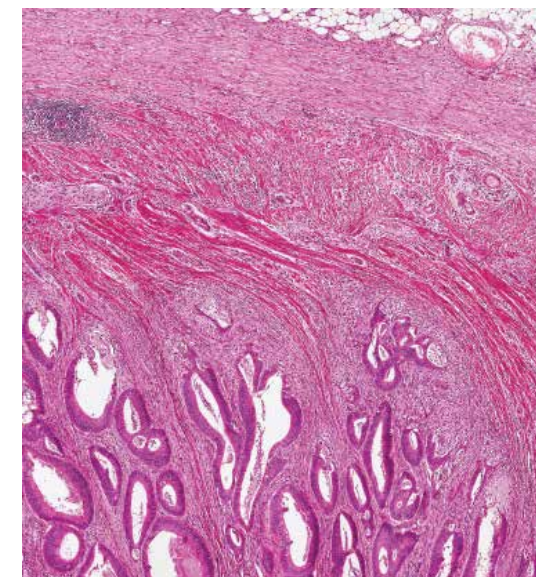
- Communicating Science
- Extended Postgraduate Project
- Immunopathology
- Immunotherapy
- Molecular and Cellular Therapeutics
- Systems Biology

For a detailed description of modules please see p32.

Not all option modules will necessarily be offered every academic year. Please see [westminster.ac.uk/fst](http://westminster.ac.uk/fst) for information on which modules are currently available.

## ASSOCIATED CAREERS

After graduation, you will be equipped with the skills and knowledge to pursue a range of cancer-focused careers including appointments in diagnostic laboratories, and academic, biotechnological and pharmaceutical research. As a graduate of this course, you will be ideally placed to play an essential role in both diagnosis and improved care of cancer patients. Opportunities are also available to pursue a career in clinical trials and in areas such as data analysis and public health.



## ENTRY REQUIREMENTS

You must have at least a BSc Honours in Biomedical Sciences or a closely related subject, a professional qualification of equivalent status and associated work experience, or an equivalent qualification deemed suitable by the course team. If you are applying for part-time study, you will normally be working in a relevant area and will require written support from your employer including confirmation that facilities will be available in your workplace for you to carry out your research project.

If your first language is not English you should have an IELTS score of at least 6.5, with 6.0 in each element. During the induction stage of the course, if you do not have English as your first language you will need to complete Academic English screening and any resulting recommended Academic English support activity.

# BIOMEDICAL SCIENCES (CELLULAR PATHOLOGY) MSc

## Length of course

One year full-time study or part-time on a flexible basis

## Location

Central London (Cavendish)

## Course fees

See [westminster.ac.uk/fees](http://westminster.ac.uk/fees)

## Course Leader

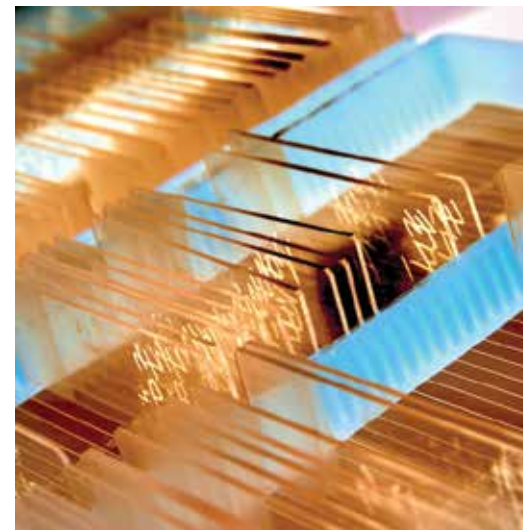
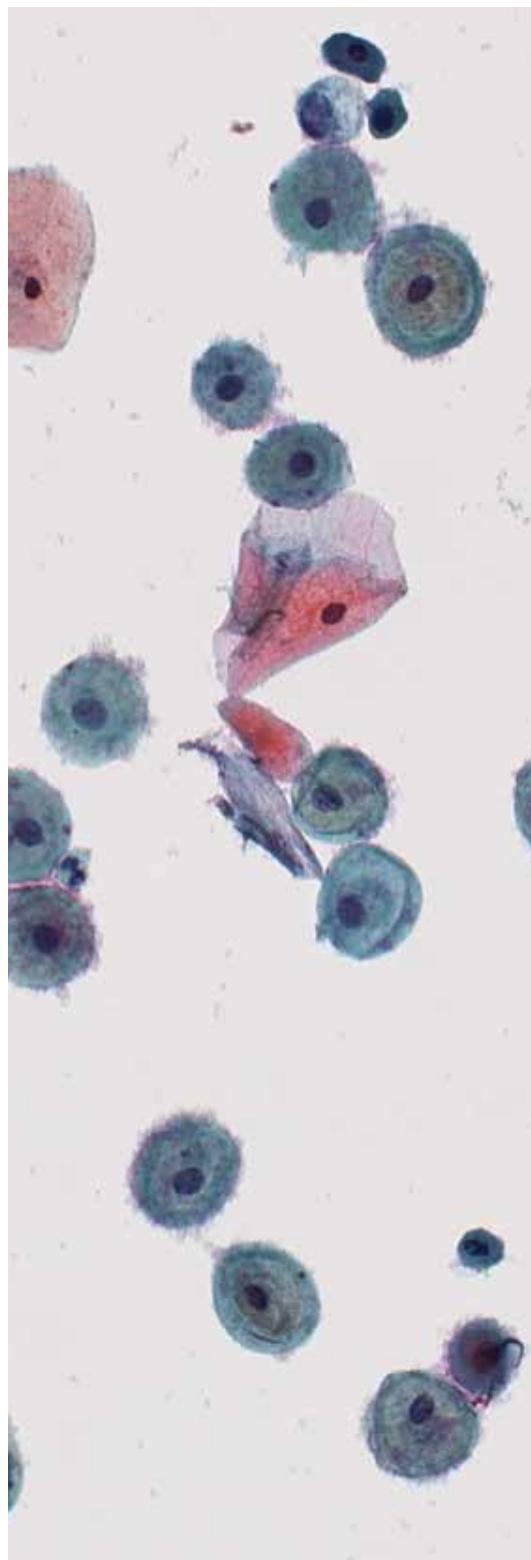
Dr Tony Madgwick

[t.madgwick@westminster.ac.uk](mailto:t.madgwick@westminster.ac.uk)

This course will enable you to enhance your knowledge and understanding of modern cellular pathology through a range of option modules. In addition, the core modules in cellular pathology are designed to deliver a comprehensive overview of contemporary technical practice in the context of service delivery to the pathologist for diagnostic practice, or for the scientist engaged in cell and tissue-based research.

Our specialist cellular pathology modules are supported by the online use of interactive digital microscopy, for example in pathology case studies, to illustrate the applications of a range of visualisation methods in cellular pathology. Practical experience in research design and methodology is gained through the laboratory-based research project.

The course is accredited by the Institute of Biomedical Science (IBMS).



## ASSOCIATED CAREERS

As a graduate of this course you will possess a range of transferable skills that will enhance your employment prospects and your research opportunities in the UK or overseas. For those biomedical scientists (or international equivalents) undertaking continuing professional development, this course will enhance your knowledge base in your chosen specialist discipline and open up the potential for career advancement or moves towards involvement in research and development.

Successful completion of the course will enhance the career prospects of graduates for entering PhD programmes; you may also find employment in hospital laboratories, academia, research institutes, or in the pharmaceutical and related industries.

## CORE MODULES

- Advances in Cellular Pathology
- Diagnostic Cellular Pathology
- Molecular Science and Diagnostics
- Postgraduate Project
- Postgraduate Research Methods

## OPTION MODULES

- Automation in Biomedical Sciences
- Cell Signalling and Genetics
- Extended Postgraduate Project
- Immunopathology
- Immunotherapy
- Molecular and Cellular Therapeutics
- Principles of Molecular Medicine

For a detailed description of modules please see p32.

Not all option modules will necessarily be offered every academic year. Please see [westminster.ac.uk/fst](http://westminster.ac.uk/fst) for information on which modules are currently available.

## ENTRY REQUIREMENTS

You must have at least a BSc Honours in Biomedical Sciences or a closely related subject, a professional qualification of equivalent status and associated work experience or an equivalent qualification deemed suitable by the course team. If you are applying for part-time study, you will normally be working in a relevant area and will require written support from your employer including confirmation that facilities will be available in your workplace for you to carry out your research project.

If your first language is not English you should have an IELTS score of at least 6.5, with 6.0 in each element. During the induction stage of the course, if you do not have English as your first language, you will need to complete Academic English screening and any resulting recommended Academic English support activity.



# BIOMEDICAL SCIENCES (CLINICAL BIOCHEMISTRY) MSc

## Length of course

One year full-time study or part-time on a flexible basis

## Location

Central London (Cavendish)

## Course fees

See [westminster.ac.uk/fees](http://westminster.ac.uk/fees)

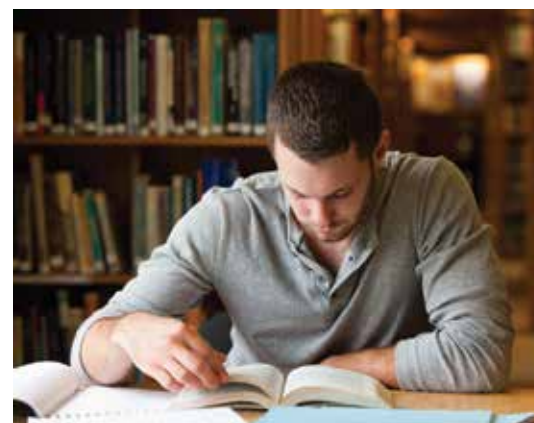
## Course Leader

Dr Ian Locke  
[i.c.locke@westminster.ac.uk](mailto:i.c.locke@westminster.ac.uk)

This course aims to provide you with the skills and knowledge of theory and practice that will enable you to work as a professional capable of making important contributions in the field of clinical biochemistry. The programme aims to further enhance your knowledge of clinical biochemistry, to engage you with contemporary issues and debates within the discipline, and to develop your critical and analytical skills.

The taught programme contains specific modules in Clinical Biochemistry, such as endocrinology and metabolism and diagnostic clinical biochemistry, which you can apply to diagnostic biomedicine, as well as offering you a choice of modules related to molecular diagnostics or haematology.

The course is accredited by the Institute of Biomedical Science (IBMS).



## ASSOCIATED CAREERS

The course has been designed to provide professionals with a broad range of transferable skills in clinical biomedical sciences, with particular reference to possessing the ability to critically discuss and evaluate concepts, analytical techniques, current research and advanced scholarship in clinical biochemistry. Successful completion of the course will enhance your career prospects for entering PhD programmes; you may find employment in hospital laboratories, academia and research institutes, as well as in the pharmaceutical and related industries.

## CORE MODULES

- Clinical Endocrinology and Metabolism
- Diagnostic Clinical Biochemistry
- Molecular Science and Diagnostics
- Postgraduate Project
- Postgraduate Research Methods

## OPTION MODULES

- Automation in Biomedical Sciences
- Cell Signalling and Genetics
- Cellular Haematology
- Communicating Science
- Immunohaematology and Haemostasis
- Immunopathology
- Principles of Molecular Medicine

For a detailed description of modules please see p32.

Not all option modules will necessarily be offered every academic year. Please see [westminster.ac.uk/fst](http://westminster.ac.uk/fst) for information on which modules are currently available.

## ENTRY REQUIREMENTS

You must have at least a BSc Honours in Biomedical Sciences or a closely related subject, a professional qualification of equivalent status and associated work experience or an equivalent qualification deemed suitable by the course team. If you are applying for part-time study, you will normally be working in a relevant area and will require written support from your employer including confirmation that facilities will be available in your workplace for you to carry out your research project.

If your first language is not English you should have an IELTS score of at least 6.5, with 6.0 in each element. During the induction stage of the course, if you do not have English as your first language you will need to complete Academic English screening and any resulting recommended Academic English support activity.

# BIOMEDICAL SCIENCES (HAEMATOLOGY) MSc

## Length of course

One year full-time study or part-time on a flexible basis

## Location

Central London (Cavendish)

## Course fees

See [westminster.ac.uk/fees](http://westminster.ac.uk/fees)

## Course Leader

Dr Ian Locke  
[i.c.locke@westminster.ac.uk](mailto:i.c.locke@westminster.ac.uk)

This course will focus on the physiology and pathology of blood and its use as a diagnostic and therapeutic tool. A variety of areas of molecular and cellular bioscience will be covered with an emphasis on new technologies and developments in haematology and related disciplines such as transfusion science.

You will expand your knowledge of the basic science and analytical techniques relating to haematology and gain an up-to-date understanding of the application of haematology in bioscience/pharmaceutical research, as well as in diagnostic and therapeutic medicine.

There will be an emphasis in the course on development of critical analysis skills in the assessment of scientific literature and laboratory data. In addition you will have the opportunity to design and execute your own research project. The course team is supported by visiting lecturers who are practising scientists in the field, which helps ensure that taught material is current and relevant.

The course is accredited by the Institute of Biomedical Science (IBMS).



## CORE MODULES

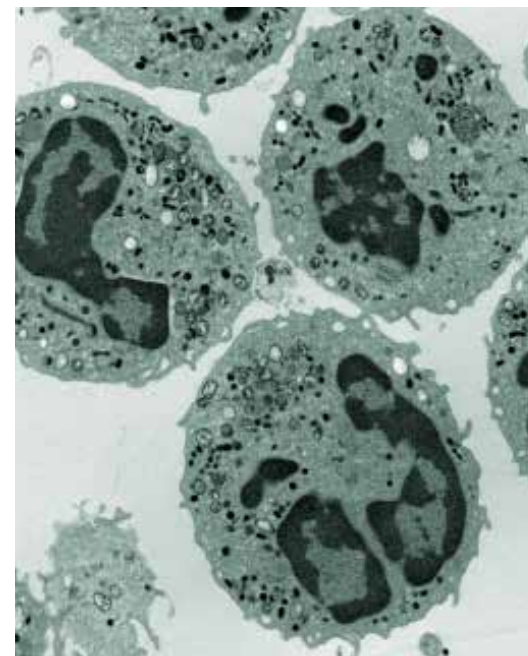
- Cellular Haematology
- Immunohaematology and Haemostasis
- Molecular Science and Diagnostics
- Postgraduate Project
- Postgraduate Research Methods

## OPTION MODULES

- Advanced Cancer Biology
- Automation in Biomedical Sciences
- Cell Signalling and Genetics
- Communicating Science
- Extended Postgraduate Project
- Immunopathology
- Molecular and Cellular Therapeutics
- Principles of Molecular Medicine

For a detailed description of modules please see p32.

Not all option modules will necessarily be offered every academic year. Please see [westminster.ac.uk/fst](http://westminster.ac.uk/fst) for information on which modules are currently available.



## ASSOCIATED CAREERS

As well as gaining specialist knowledge in haematology and related disciplines, you will develop a range of transferable skills that will enhance your employment prospects and research opportunities in the UK or overseas. The course is taken by both UK and international students, preferably (but not necessarily) with relevant work experience. It is relevant to career pathways in diagnostic haematology, immunology and transfusion laboratories, research institutions and pharmaceutical companies.

## ENTRY REQUIREMENTS

You must have at least a BSc Honours in Biomedical Sciences or a closely related subject, a professional qualification of equivalent status and associated work experience or an equivalent qualification deemed suitable by the course team. If you are applying for part-time study, you will normally be working in a relevant area and will require written support from your employer including confirmation that facilities will be available in your workplace for you to carry out your research project.

If your first language is not English you should have an IELTS score of at least 6.5, with 6.0 in each element. During the induction stage of the course, if you do not have English as your first language you will need to complete Academic English screening and any resulting recommended Academic English support activity.

# BIOMEDICAL SCIENCES (IMMUNOLOGY) MSc

## Length of course

One year full-time study or part-time on a flexible basis

## Location

Central London (Cavendish)

## Course fees

See [westminster.ac.uk/fees](https://westminster.ac.uk/fees)

## Course Leader

Dr Nino Porakishvili  
[n.porakishvili@westminster.ac.uk](mailto:n.porakishvili@westminster.ac.uk)

The course will allow you to expand your understanding of immunology, immunopathology and immunotherapy, to further develop skills in analytical approaches to immunodiagnosis and molecular therapeutics, as well as enhance your competence in the design and execution of a laboratory-based project. You will be able to take a proactive role in research, development, evaluation and implementation of current immunological techniques while perceiving the subject in the broader perspective of health care and scientific progress.

The scope of the modules included will ensure a breadth of knowledge appropriate for the scientific and professional needs of practising immunologists, at the same time making use of your knowledge and experience. This course is designed so that you can plan your own taught programme to match your interests and experience by combining core and optional modules with emphasis on therapeutics, diagnostics, haematology or public health.

The course is accredited by the Institute of Biomedical Science (IBMS).



## CORE MODULES

- Cell Signalling and Genetics
- Immunopathology
- Immunotherapy
- Postgraduate Project
- Postgraduate Research Methods

## OPTION MODULES

- Advanced Cancer Biology
- Extended Postgraduate Project
- Immunohaematology and Haemostasis
- Infectious Diseases and Public Health
- Molecular and Cellular Therapeutics
- Molecular Science and Diagnostics
- Principles of Molecular Medicine
- Systems Biology

For a detailed description of modules please see p32.

Not all option modules will necessarily be offered every academic year. Please see [westminster.ac.uk/fst](https://westminster.ac.uk/fst) for information on which modules are currently available.



## ASSOCIATED CAREERS

As well as gaining specialist knowledge in immunology and related disciplines, you will develop a range of transferable skills that will enhance your employment prospects and research opportunities in the UK or overseas. The course is taken by both UK and international students, preferably (but not necessarily) with relevant work experience. It is relevant to career pathways in diagnostic haematology, immunology and transfusion laboratories, research institutions and pharmaceutical companies

## ENTRY REQUIREMENTS

You must have at least a BSc Honours in Biomedical Sciences or a closely related subject, a professional qualification of equivalent status and associated work experience or an equivalent qualification deemed suitable by the course team. If you are applying for part-time study, you will normally be working in a relevant area and will require written support from your employer including confirmation that facilities will be available in your workplace for you to carry out your research project.

If your first language is not English you should have an IELTS score of at least 6.5, with 6.0 in each element. During the induction stage of the course, if you do not have English as your first language you will need to complete Academic English screening and any resulting recommended Academic English support activity.



# BIOMEDICAL SCIENCES (MEDICAL MICROBIOLOGY) MSc

## Length of course

One year full-time study or part-time on a flexible basis

## Location

Central London (Cavendish)

## Course fees

See [westminster.ac.uk/fees](http://westminster.ac.uk/fees)

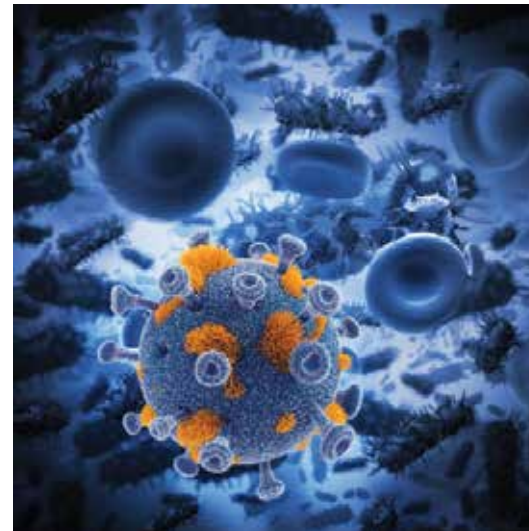
## Course Leader

Dr Patrick Kimmitt  
[p.kimmitt@westminster.ac.uk](mailto:p.kimmitt@westminster.ac.uk)

This course is designed to give you the opportunity to study and analyse the theoretical and practical basis of medical microbiology and many of the specialist areas within it. You will gain greater insight into the importance and role of medical microbiology, with an emphasis on cutting-edge areas such as molecular diagnostics and genomics, emerging pathogens and antibiotic resistance.

You will study a range of core and option modules that will allow you to tailor studies to your own requirements. You will expand your knowledge of the basic science and analytical techniques relating to medical microbiology and gain an up-to-date understanding of the application of medical microbiology in bioscience/pharmaceutical research, as well as in diagnostic and therapeutic medicine. There will be an emphasis in the course on development of critical analysis skills in assessment of scientific literature and laboratory data. In addition you will have the opportunity to design and execute your own research project. The course team is supported by visiting lecturers who are practising scientists in the field, which helps to ensure that taught material is current and relevant.

The course is accredited by the Institute of Biomedical Science (IBMS).



## ASSOCIATED CAREERS

As well as gaining knowledge and skills in medical microbiology and associated subject areas you will develop numerous other skills that are designed to make you competitive in the jobs market. Some students will already be working in healthcare and public health laboratories in the UK and overseas while others will be gaining the skills they need to work as a biomedical or clinical scientist. The course will also allow you to work in industry including the pharmaceutical and biotechnology sectors as well as regulatory affairs. You will also be well prepared for a career in research including further study at PhD level.

## CORE MODULES

- Clinical Aspects of Microbial Physiology and Chemotherapy
- Infectious Diseases and Public Health
- Molecular Science and Diagnostics
- Postgraduate Project
- Postgraduate Research Methods

## OPTION MODULES

- Automation in Biomedical Sciences
- Communicating Science
- Extended Postgraduate Project
- Immunopathology
- Molecular Bioinformatics
- Principles of Molecular Medicine
- Systems Biology

For a detailed description of modules please see p32.

Not all option modules will necessarily be offered every academic year. Please see [westminster.ac.uk/fst](http://westminster.ac.uk/fst) for information on which modules are currently available.

## ENTRY REQUIREMENTS

You must have at least a BSc Honours in Biomedical Sciences or a closely related subject, a professional qualification of equivalent status and associated work experience or an equivalent qualification deemed suitable by the course team. If you are applying for part-time study, you will normally be working in a relevant area and will require written support from your employer including confirmation that facilities will be available in your workplace for you to carry out your research project.

If your first language is not English you should have an IELTS score of at least 6.5, with 6.0 in each element. During the induction stage of the course, if you do not have English as your first language you will need to complete Academic English screening and any resulting recommended Academic English support activity.

# MEDICAL MOLECULAR BIOLOGY MSc

## Length of course

One year full-time study or part-time on a flexible basis.

## Location

Central London (Cavendish)

## Course fees

See [westminster.ac.uk/fees](http://westminster.ac.uk/fees)

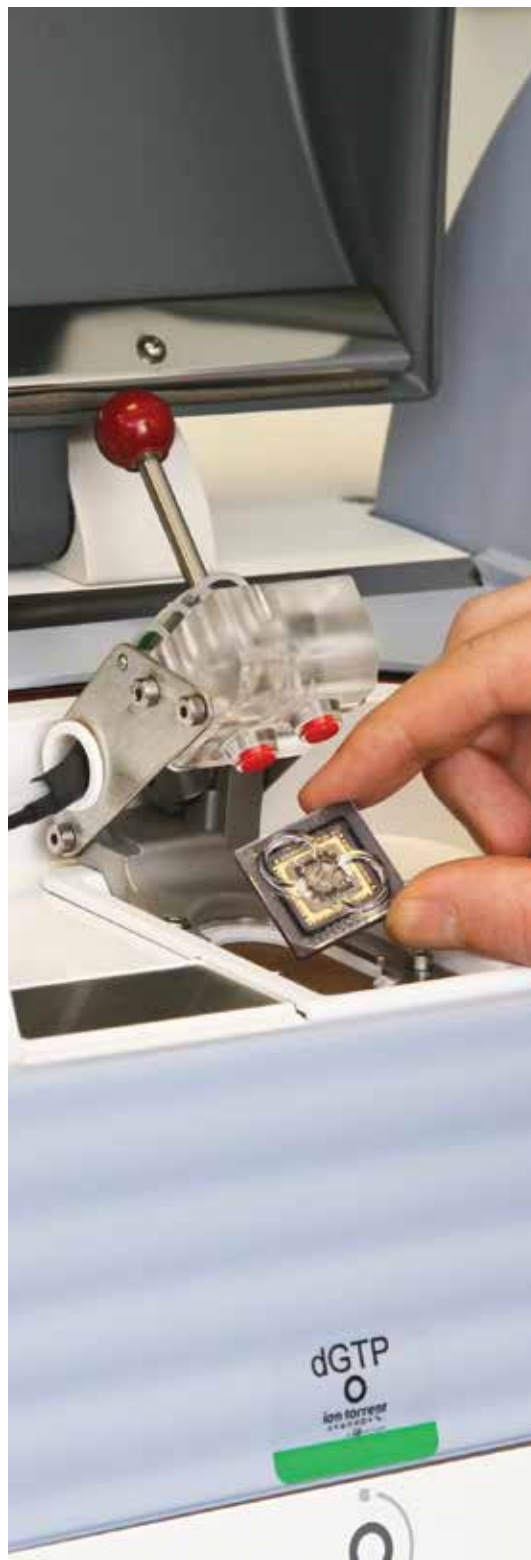
## Course Leader

Dr Pamela Greenwell  
[greenwp@westminster.ac.uk](mailto:greenwp@westminster.ac.uk)

This course enables you to study “cutting edge” molecular methods employed for the understanding of molecular mechanisms of diseases and for their diagnosis and treatment. Your studies will be underpinned by essential knowledge in genetics, cell signalling and molecular medicine.

You will be offered the flexibility to select option modules that reflect your own interest in molecular biology and these will be combined with core modules and an independent research project. The course is suitable for newly qualified graduates, those employed in related work and those with medical qualifications.

The course is accredited by the Institute of Biomedical Science (IBMS).



## CORE MODULES

- Molecular and Cellular Therapeutics
- Molecular Science and Diagnostics
- Principles of Molecular Medicine
- Postgraduate Project
- Postgraduate Research Methods

## OPTION MODULES

- Cell Signalling and Genetics
- Extended Postgraduate Project
- Immunopathology
- Immunotherapy
- Molecular Bioinformatics
- Systems Biology

For a detailed description of modules please see p32.

Not all option modules will necessarily be offered every academic year. Please see [westminster.ac.uk/fst](http://westminster.ac.uk/fst) for information on which modules are currently available.

## ASSOCIATED CAREERS

You will develop a range of course-specific and transferable skills that will enhance your employment prospects, career progression and research opportunities in the UK and/

or overseas. It is anticipated that a significant number of graduates will go on to pursue a career in research after registering for a higher degree. Others will seek employment in healthcare laboratories, industry, research laboratories, government laboratories or academia in the UK or worldwide. One of the strengths of this degree is the mixture of backgrounds/experience and career aspirations of the students recruited.

## ENTRY REQUIREMENTS

You must have at least a BSc Honours in Biology, Chemistry or a related subject, a professional qualification of equivalent status and associated work experience or an equivalent qualification deemed suitable by the course team. If you are applying for part-time study, you may be working in a relevant area and in which case you will require written support from your employer including confirmation that facilities will be available in your workplace for you to carry out your research project. For those not employed in related areas or for whom a work-based project is not viable we can provide projects at the university.

If your first language is not English you should have an IELTS score of at least 6.5, with 6.0 in each element. During the induction stage of the course, if you do not have English as your first language you will need to complete Academic English screening and any resulting recommended Academic English support activity.



# MEDICAL MOLECULAR BIOLOGY (BIOINFORMATICS) MSc

## Length of course

One year full-time study or part-time on a flexible basis

## Location

Central London (Cavendish)

## Course fees

See [westminster.ac.uk/fees](http://westminster.ac.uk/fees)

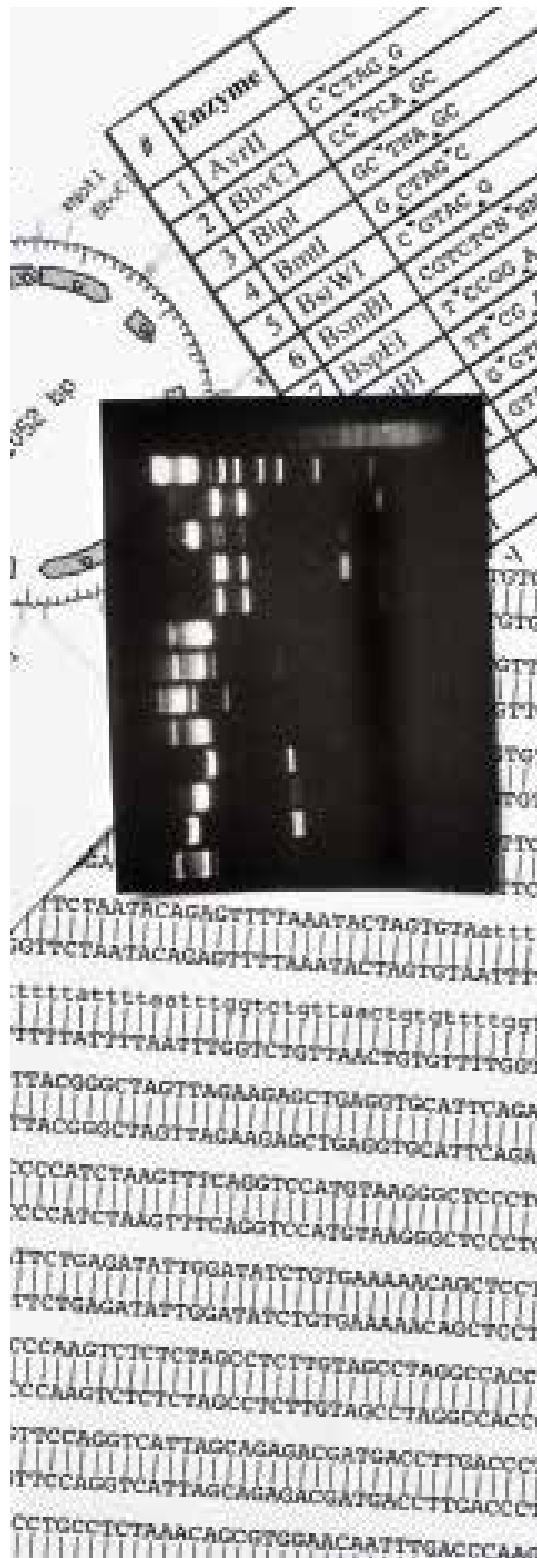
## Course Leader

Dr Pamela Greenwell  
[greenwp@westminster.ac.uk](mailto:greenwp@westminster.ac.uk)

This course focuses on the interaction between bioinformatics techniques and cutting-edge molecular methods to give you an insight into the mechanisms, diagnosis and treatment of disease. It is most appropriate for those wishing to study the impact and utility of bioinformatics tools in molecular medicine. The project modules will enable you to understand the requirements and rigours of project design, execution and publication within this discipline.

The course is suitable for newly qualified graduates, those employed in related work and those with medical qualifications. It is important that prospective students are comfortable with the use of web-based computing tools but programming skills are not required as this is a course designed for end users, not developers of the technology.

The course is accredited by the Institute of Biomedical Science (IBMS).



## CORE MODULES

- Cell Signalling and Genetics
- Molecular and Cellular Therapeutics
- Molecular Bioinformatics
- Molecular Science and Diagnostics
- Principles of Molecular Medicine
- Postgraduate Project
- Postgraduate Research Methods
- Systems Biology

For a detailed description of modules please see p32.

## ASSOCIATED CAREERS

You will develop a unique blend of skills and knowledge of bioinformatics and molecular biology to enable you to fulfil an important role at the interface between these disciplines. It is expected that a significant number of graduates will pursue a career in research after registering for a higher degree. Others will seek employment in healthcare laboratories, industry, research laboratories, government laboratories or academia in the UK or worldwide where bioinformatics is becoming an indispensable tool in molecular medicine. One of the strengths of this degree is the mixture of backgrounds/experience and career aspirations of the students recruited. You do not require prior work experience and we are happy to take students who are working in fields unrelated to science to support their studies.

## ENTRY REQUIREMENTS

You must have at least a BSc Honours in Biology, Chemistry or a related subject, a professional qualification of equivalent status and associated work experience or an equivalent qualification deemed suitable by the course team. If you are applying for part-time study, you may be working in a relevant area and in which case you will require written support from your employer including confirmation that facilities will be available in your workplace for you to carry out your research project. For those not employed in related areas or for whom a work-based project is not viable we can provide projects at the university.

If your first language is not English you should have an IELTS score of at least 6.5, with 6.0 in each element. During the induction stage of the course, if you do not have English as your first language, you will need to complete Academic English screening and any resulting recommended Academic English support activity.





# APPLIED BIOTECHNOLOGY MSc

## Length of course

One year full-time study or part-time on a flexible basis.

## Location

Central London (Cavendish)

## Course fees

See [westminster.ac.uk/fees](https://www.westminster.ac.uk/fees)

## Course Leader

Dr Godfrey Kyazze  
[g.kyazze@westminster.ac.uk](mailto:g.kyazze@westminster.ac.uk)

Our established programme in Biotechnology, which has been extensively updated, includes a wide range of modern molecular biology techniques and how biotechnology can be used by today's society. You will complement your theoretical studies with hands-on experience of fully controlled fermenters that are up to pilot-plant scale, and are linked to modern monitoring and control systems.

You will study a range of subjects in considerable depth, including bioactive compounds, industrial bioprocesses, microbial physiology and fermentation technology, microbial production of novel metabolites, monitoring and control of fermentation, topics in biotechnology, and types of bioreactors.



## CORE MODULES

- Applied Molecular Biology
- Fermentation Technology
- Industrial and Environmental Biotechnology
- Postgraduate Project
- Postgraduate Research Methods
- Science, Technology and Commercialisation

## OPTION MODULES

- Communicating Science
- Extended Postgraduate Project
- Molecular Bioinformatics
- Molecular and Cellular Therapeutics
- Regenerative Medicine
- Systems Biology

For a detailed description of modules please see p32.

Not all option modules will necessarily be offered every academic year. Please see [westminster.ac.uk/fst](https://www.westminster.ac.uk/fst) for information on which modules are currently available.

## ASSOCIATED CAREERS

The course is aimed at those aspiring to be researchers and managers in the biotechnology and pharmaceutical industries or other biosectors.

## ENTRY REQUIREMENTS

You must have a good (at least a lower second class) BSc Honours in Biological Sciences or a related discipline, a professional qualification of equivalent status and associated work experience or an equivalent qualification deemed suitable by the course team. If you are applying for part-time study, you will normally be working in a relevant area and will require written support from your employer including confirmation that facilities will be available in your workplace for you to carry out your research project.

If your first language is not English you should have an IELTS score of at least 6.5, with 6.0 in each element. During the induction stage of the course, if you do not have English as your first language you will need to complete Academic English screening and any resulting recommended Academic English support activity.

# PHARMACOLOGY MSc

## Length of course

One year full-time study or part-time on a flexible basis

## Location

Central London (Cavendish)

## Course fees

See [westminster.ac.uk/fees](http://westminster.ac.uk/fees)

## Course Leader

Dr Stephen Getting  
[s.getting@westminster.ac.uk](mailto:s.getting@westminster.ac.uk)

The course aims to provide students, with the opportunity to greatly enhance and expand their understanding of pharmacology, toxicology and closely associated disciplines. Cutting edge content will allow students to take a more proactive role in understanding research and development of novel pharmacological agents, as well as evaluating their safety. Additionally, students will also evaluate the subject in a broader context by looking at how funding for health care and pharmaceconomics impacts upon the drug discovery and development process. The overall course objective is to develop students' competencies so that they can establish a career in pharmacology, toxicology and drug discovery, including the public and private sector and non-government organisations at local, national and international level.

You will study a number of core modules and option modules thus allowing you to tailor the course to your own particular requirements through a pure pharmacology route or via a more business-orientated route depending on module choice/availability. You will expand your knowledge of the basic principles of pharmacology, drug discovery and toxicology. In addition you will gain knowledge of specialised areas of pharmacology including bioinformatics, immunopharmacology, neuropharmacology and state-of-the-art research in cellular signalling cascades, relevant to disease, drugs and therapeutics at the molecular and genetic level.



To enhance your learning experience you will have the opportunity to utilise some of the excellent teaching tools available to our students including computer simulation software and our Human Patient Simulator (METI).

As we help you to develop as scientists, there will be an emphasis on the development of critical analysis skills, through interpretation of literature and data. You will also get the opportunity to undertake an independent research project within our research laboratories, thus developing your practical skills. The course team are dedicated to the development of the field of pharmacology, through membership of the British Pharmacological Society and through their published research. In addition, we are supported by visiting lecturers helping to bring diversity of knowledge from many areas of the discipline to enhance this course.



## CORE MODULES

- Molecular Bioinformatics
- Molecular Pharmacology and Pharmacogenomics
- Postgraduate Project
- Postgraduate Research Methods
- Principles of Pharmacology and Drug Discovery
- Xenobiotic Metabolism, Pharmacokinetics and Toxicology

## OPTION MODULES

- Communicating Science
- Extended Postgraduate Project
- Immunopharmacology
- Molecular and Cellular Therapeutics
- Neuropharmacology
- Science, Technology and Commercialization

For a detailed description of modules please see p32.

Not all option modules will necessarily be offered every academic year. Please see [westminster.ac.uk/fst](http://westminster.ac.uk/fst) for information on which modules are currently available.

## ASSOCIATED CAREERS

The course is aimed at those aspiring to be researchers within university research laboratories or to work in the pharmaceutical industry. During the course you will develop a range of transferable skills that will enhance your prospects for employment and research opportunities in the UK and overseas.

## ENTRY REQUIREMENTS

You must have a good (at least a lower second class) BSc Honours in Pharmacology, Physiology, Biochemistry or a closely related subject, a professional qualification of equivalent status and associated work experience or an equivalent qualification deemed suitable by the course team. If you are applying for part-time study, you will normally be working in a relevant area and will require written support from your employer including confirmation that facilities will be available in your workplace for you to carry out your research project.

If your first language is not English you should have an IELTS score of at least 6.5, with 6.0 in each element. During the induction stage of the course, if you do not have English as your first language you will need to complete Academic English screening and any resulting recommended Academic English support activity.

# BIOSCIENCE COURSES

	Applied Biomedical Sciences	Applied Biotechnology	Biomedical Sciences (BMS)	BMS (Cancer Biology)	BMS (Cellular Pathology)		BMS (Clinical Biochemistry)	BMS (Haematology)	BMS (Immunology)	BMS (Medical Microbiology)	Medical Molecular Biology	Medical Molecular Biology (Bioinformatics)	Pharmacology
Advanced Cancer Biology			O	C				O	O				
Advances in Cellular Pathology			O		C								
Applied Molecular Biology		C											
Automation in Biomedical Sciences			O		O		O	O		O			
Cell Signalling & Genetics			O	C	O		O	O	C		O	C	
Cellular Haematology			O				O	C					
Cellular Pathology	O												
Clinical Aspects Microbial Physio. & Chemotherapy			O							C			
Clinical Chemistry	O												
Clinical Endocrinology & Metabolism			O				C						
Clinical Immunology	O												
Communicating Science		O	O	O			O	O		O			O
Concepts & Principles of Human Nutrition			O										
Diagnostic Cellular Pathology			O		C								
Diagnostic Clinical Biochemistry			O				C						
Extended Postgraduate Project		O	O	O	O		O	O	O	O	O		O
Fermentation Technology		C											
Haematology & Transfusion Science	O												
Immunohaematology & Haemostasis			O				O	C	O				
Immunopathology			O	O	O		O	O	C	O	O		
Immunopharmacology													O
Immunotherapy			O	O	O				C		O		
Industrial & Enviro. Biotechnology		C											
Infectious Diseases & Public Health			O						O	C			
Medical Microbiology	O												
Molecular & Cellular Therapeutics	O	O	O	O	O			O	O		C	C	O
Molecular Bioinformatics		O	O							O	O	C	C
Molecular Pharm. & Pharmacogenomics													C
Molecular Science & Diagnostics	O		O	C	C		C	C	O	C	C	C	
Neuropharmacology													O
Postgraduate Project	C	C	C	C	C		C	C	C	C	C	C	C
Postgraduate Research Methods	C	C	C	C	C		C	C	C	C	C	C	C
Principles of Molecular Medicine	O		O		O		O	O	O	O	C	C	
Principles of Pharmacology & Drug Discovery			O										C
Regenerative Medicine		O	O										C
Science, Tech. & Commercialisation		C	O										O
Systems Biology		O	O	O					O	O	O	C	
Xenobiotic Metabolism, Pharmacokinetics & Toxicology													C

Key: C - Core module  
O - Option module



## MODULE INFORMATION

### Advanced Cancer Biology

This module will explore the role of common signalling pathways and other molecular mechanisms implicated in carcinogenesis, including the role of cancer stem cells in disease progression and metastasis. Recent advances in diagnostic methods and therapeutic strategies will be discussed as well as ways in which public health initiatives can lower the risk of cancer development, and how issues related to cancer are reported in the media.

### Advances in Cellular Pathology

This module will engage with modern pathology practice in the cellular pathology specialty. You will evaluate advances in diagnostic, prognostic and predictive testing in the laboratory, discussed in the light of developments in our underpinning understanding of pathology and of evolving technologies.

### Applied Molecular Biology

This module is designed to provide you with insight into current research topics in biochemistry and molecular biology. Since these areas are evolving rapidly, the most recent relevant topics are selected year-to-year. Examples of topics might include: molecular biology of cancer, personalised medicine, transgenic plants, epigenetics, metabolomics, proteomics, gene therapy and stem cell research.

### Automation in Biomedical Sciences

This module will explore the current and potential impact of laboratory automation on the practice of biomedical science in the context of diagnosis and research. You will explore automation from the perspectives of technology, quality, impact on skill requirements, cost/benefit and laboratory organisation. The module will include site visits to laboratories using state-of-the-art automation.

### Cell Signalling and Genetics

This module provides up-to-date information on cell signalling processes coupling surface receptor engagement to changes in gene expression. Transcriptional, post-transcriptional and post-translational mechanisms are discussed in relation to selected cell-signalling pathways responsible for controlling cell functions such as cell cycle, cell differentiation and cell death. Examples of defective cell signalling through inherited and somatically acquired mutations in signalling components will be highlighted in relation to human disease.

### Cellular Haematology

This module will enable you to understand how blood cells are produced and how they function in normal and pathological situations. You will consider the causes, consequences and laboratory features of a range of red cell disorders and haematological malignancies, and be able to evaluate and interpret the relevant diagnostic testing procedures.

### Cellular Pathology

The aim of this module is to encourage you to evaluate the aetiology and pathogenesis of non-neoplastic disease at the molecular, cellular and tissue levels. You will gain a broad and critical understanding of the current and future needs of your department in the continually evolving field of scientific support and diagnostic confirmation of malignant disease.

### Clinical Aspects of Microbial Physiology and Chemotherapy

The module aims to enable you to analyse critically aspects of microbial physiology, metabolism and chemotherapy and relate these to appropriate areas of medical microbiology, such as pathogenicity, disease diagnosis, treatment and control.

### Clinical Chemistry

You will discuss and debate current issues in the field of clinical chemistry, emphasising new technologies, assays and biochemical markers of pathology. The module aims to integrate aspects of physiology, biochemistry and chemical analysis of clinical samples for understanding disease processes and discipline-based inter-relationships for their investigation.

### Clinical Endocrinology and Metabolism

This module aims to emphasise the intellectual skills and knowledge you require to understand endocrine function, assays of hormone concentration, pathologies and their laboratory investigation. Emphasis is placed on developing a deep understanding of the cellular and biochemical processes which underlie pathology.

### Clinical Immunology

This module aims to build on your knowledge of basic immunology and apply that knowledge clinically by relating the concepts and mechanisms of immunology to disease diagnosis and pathogenesis. It will provide you with the underpinning language skills to successfully study biosciences at postgraduate level.

### Communicating Science

Introducing you to key concepts in science communication, its challenges, rewards and applications, this module is designed to incorporate scenarios related to your interests, such as health, drug discovery and water science. The roles of science and scientists in society and how the public perceives, interacts with and responds to the information produced by scientists are explored, with the history of communicating science used to contextualise current issues in disseminating information.

### Concepts and Principles of Human Nutrition

This module introduces you to the basic concepts and principles of nutritional science that underpin the theory and practice of public health nutrition. You will explore the role of macro- and micro-nutrients in maintaining health, and their effects when consumed in excess or when deficient, through the appraisal of scientific information relating to their structure, function, sources and bio-availability. This module emphasises the skills required to develop a critical understanding of the scientific basis of nutritional requirements, factors that influence them, and how they are applied to populations throughout the life cycle.

### Diagnostic Cellular Pathology

This module provides you with a clear understanding of the science, practice and scope of routine diagnostic cellular pathology. The module will encourage you to evaluate disease pathogenesis at the molecular, cellular and tissue levels with particular reference to the diagnosis of disease in the cellular pathology laboratory.

### Diagnostic Clinical Biochemistry

An in depth study of the aetiology, pathogenesis and laboratory investigation of selected pathologies and their laboratory investigation. Principles of key and current analytical methods in the field are also included as well as the latest developments in diagnostic clinical biochemistry.

### Extended Postgraduate Project

This module gives you the opportunity to investigate an appropriate research topic, generate and critically analyse data, and present your results and discuss findings in the context of previously published work. The project proposed and undertaken must include rigorous and critical analysis of data with a high level of initiative. This module is intended for students wishing to gain greater research experience and includes an extended period of research activity and extended assessment regime.

### Fermentation Technology

This module aims to examine and discuss the essential, qualitative and quantitative principles in growth of cultures and subsequent bio-products to provide the needed expertise for the bio-industries. You will gain an understanding of fermentation processes, as well as small- and large-scale production of fermentation products, microbial strain/culture selection and development, and microbial culture.

### Haematology and Transfusion Science

The module presents the three main fields of transfusion science: immunohaematology; blood donations (to include preparation of blood components, their appropriate use, and quality assurance); and the developments in stem cell/tissue transplantation and related legislation. Emphasis will be given to diagnostic blood transfusion science, to enable you to work competently and develop professional skills in areas of transfusion science.

### **Immunohaematology and Haemostasis**

This module will cover clinically important blood group systems and laboratory techniques used to identify blood group antigens and antibodies, and to ensure safety of blood components for transfusion and transplantation. In addition you will examine the various components of the haemostasis system together with clinical disorders leading to increased risk of bleeding or thrombosis. Anticoagulant therapy and relevant laboratory techniques for investigation of haemostasis will also be covered.

### **Immunopathology**

You will analyse and discuss cellular and molecular aspects of innate and adaptive immune responses, and advances in modern methods for disease diagnosis and treatment. This will include strategies available for the diagnosis of inherited and acquired immunological disorders, normal and pathological immune responses to extracellular and intracellular pathogens, transplantation of organs and tissues, immune surveillance of tumours, autoimmune and immunodeficiency disorders.

### **Immunopharmacology**

The module examines the pathological basis of inflammatory and immune disease states. It will explore in depth the pharmacology of drugs acting on the immune system and the identification of novel therapeutic targets for their treatments.

### **Immunotherapy**

The module aims to investigate the role of immunological tools such as vaccines, monoclonal antibodies and cytokines in the treatment of human disease.

### **Industrial and Environmental Biotechnology**

This module will explore applications of bacterial, fungal, and mammalian culture to the production of bio-products (eg enzymes, biopharmaceuticals) and examine ways in which micro-organisms are applied in the solution of environmental problems. The latest trends in the improvement of plant yield, tolerance to water/drought stress and pests, as well as the use of plants as bio-reactors will also be covered.

### **Infectious Diseases and Public Health**

The module explores the factors determining the importance of infectious diseases and the role of surveillance in their control. You will develop a critical approach to contemporary literature on selected diseases, evaluating the relative importance of epidemiology, routine laboratory investigations, laboratory-based research, clinical diagnosis and control of infectious diseases.

### **Medical Microbiology**

You will gain greater insight into the factors determining the importance of infectious diseases and to develop a critical approach to contemporary literature on selected diseases, enabling an evaluation of the relative importance of routine laboratory investigations, laboratory-based research, clinical diagnosis and control of infectious diseases.

### **Molecular and Cellular Therapeutics**

This module reviews and discusses the ways in which molecular biology has been used to treat inherited and acquired diseases. You will investigate the ethics and legislation involved in the use of novel therapies in humans.

### **Molecular Bioinformatics**

Bioinformatics is at the interface of computer science, informatics and biology. This module shows how it can be used to successfully answer questions that lie at the heart of modern biology and medicine by providing a comprehensive overview of the discipline.

### **Molecular Pharmacology and Pharmacogenomics**

This module provides an overview of state-of-the-art research in cellular signalling cascades, protein biochemistry, genetics, structural biology, pharmacology and toxicology that is relevant to disease, drugs and therapeutics at the molecular and genetic level. Content will include detailed analysis of the molecular basis of cellular signalling cascades, related tools and techniques, and genetic and genomic techniques.

### **Molecular Science and Diagnostics**

This module is designed to make you aware of the impact of molecular biology on the diagnosis of human diseases. You will critically review the technologies and determine the advantages and disadvantages associated with each diagnostic strategy. Issues of accuracy, implementation, ethics and safety will be addressed.

### **Neuropharmacology**

The module provides a comprehensive review of the major CNS disorders and drugs used to treat them. It will explore in depth how drugs interact with the neuronal and system level allowing for integration of the disciplines of neuropharmacology, clinical neuroscience and neuropathology.

### **Postgraduate Project**

This module aims to enhance your skills of self-management, experimental design, critical analysis and interpretation of data, enabling you to present and justify your research.

### **Postgraduate Research Methods**

You will be able to develop your skills in information retrieval, critical analysis and presentation relevant to your research topic, and form a clear plan for your project.

### **Principles of Molecular Medicine**

The module provides you with a critical appreciation of the human genome, its regulation, functional significance of gene mutations and current approaches of identification of human genetic disorders. Topics covered include: molecular basis of host-pathogen interaction; molecular pathology of disease with simple genetics; molecular genetics of disease; complex systems, immunogenetics and disease; and molecular genetics of cancer.

### **Principles of Pharmacology and Drug Discovery**

You will explore the role that pharmacology plays in the development of drugs from bench to bedside, examining the need for improving pharmacotherapy for existing and emerging diseases and the role that pharmacoeconomics plays in the drug discovery process.

### **Regenerative Medicine**

The module provides information on the current scope of regenerative medicine, emerging techniques, novel biomaterials and scaffold sources, stem cell harvesting and differentiation. The module also provides information on the use of bio-reactors in the creation and culturing of three dimensional constructs.

### **Science, Technology and Commercialisation**

You will gain an insight into the scope of commercial biotechnology, starting and financing a company, the role of intellectual property protection, writing a business plan, assessing projects, managing a company, managing company finances, and coping with industrial safety legislation.

### **Systems Biology**

This module will introduce the theoretical and practical underpinnings of systems biology. The emphasis is on studies of entire systems, assisted by the use of bioinformatics and how the knowledge from these may be applied to medicine. The module will examine databases and other resources as well as discuss issues key to the studies of entire systems.

### **Xenobiotic Metabolism, Pharmacokinetics and Toxicology**

This module provides a sound understanding of toxicokinetics and reviews the molecular mechanisms underpinning toxic side effects. You will explore the role of major metabolic pathways in the variation of an individual's drug response, and the protocols for toxicity testing.



# COMPUTING

Our Computing courses are broadly comprised of three main themes—Business Information Systems, Computer Science and Software Engineering, and Multimedia Computing.

The Business Information Systems programmes develop professionals who understand business challenges, and conceive and manage solutions which are increasingly ICT-dependent. By examining issues such as security, privacy and ethics in information systems, you will enhance your understanding of societal use of information systems.

The Computer Science and Software Engineering industries move fast and our MSc courses will help you stay at the cutting edge. Our students are well placed to both develop and exploit the emerging technologies that play a key role in defining the way society uses technology. Designers, programmers, systems analysts and project managers – our graduates are flourishing in the business, commercial and entrepreneurial sectors.

The Multimedia MSc course equips students with the technical skills for the next generation of interactive technology. Our graduates can be found in multimedia production houses, corporate environments (marketing, communications, IT and training), the media, entertainment and film industries.

All of our Masters teaching is informed by links to industry and supported by up-to-the-minute research conducted by in-house research teams active in the areas like Data and Knowledge Management, Health and Social Care Modelling, Computational Intelligence, Parallel Computing, Distributed and Intelligent Systems, Semantic Computing, and Computer Vision and Imaging.



# BUSINESS INFORMATION SYSTEMS

## BUSINESS INFORMATION SYSTEMS MSc

### Length of course

One year, full-time or two years, part-time

### Location

Central London (Cavendish)

### Course fees

See [westminster.ac.uk/fees](http://westminster.ac.uk/fees)

### Course Leader

Dr Panos Chountas

[p.i.chountas@westminster.ac.uk](mailto:p.i.chountas@westminster.ac.uk)

The demand for information technology specialists is steadily rising all over the world. The European Commission believes that even in a 'stagnation' scenario, demand for IT specialists will exceed supply within the EU, while all forecasts suggest that, as economic growth resumes, the demand for IT expertise will be even greater.

This innovative course responds to the latest developments in business practice. It examines the broader issues of business imperatives and technology responses that have changed the way information systems are perceived. It also addresses the key aspects of contemporary business information systems, from requirements analysis, system modelling and design to the development of modern software solutions and databases that can be incorporated into fully operational information systems.

You will explore the latest technologies and industry standards, with a particular emphasis on the web, internet applications, enterprise information systems, service-oriented and component-based development, and similar areas. By examining issues such as security,



privacy and ethics in information systems, you will enhance your understanding of societal use of information systems.

The course provides an excellent vehicle for challenging postgraduate study, which will develop your skills for employment and professional life. The course is aimed both at graduates with a good Honours degree in an IT or computing-related discipline, and at practitioners who want to further their careers, update their technical skills and deepen their knowledge of emerging technologies.

## COURSE CONTENT

The course contains three pathways or themes which enable you to specialise your studies in contemporary information systems, enterprise-wide information systems, or application development. Your course project consolidates the taught subjects of the course, while giving you the opportunity to pursue in-depth study in your chosen area. Teaching methods include lectures, student-led activity and smaller, instructor-led groups. Your coursework will range from presentations and group investigations to software development or research review.

## CORE MODULES

### Architectures, Design and Deployment of IS

You will explore the role and applicability of component-based modelling and relevant platforms available from industry, within the process of developing Information Systems (IS).

### Methods for Research and Industry

This module aims to develop your knowledge and competence of the research process, and the application of research methods in the area of Business Information Management.

### Postgraduate Project Module

The project consolidates the taught subjects of the course, while giving you the opportunity to pursue in-depth study in your chosen area of Business Information Systems.

### Requirements and System Modelling

This module introduces you to the discipline of requirement analysis through requirements modelling in order to capture, validate, specify and manage requirements in Information Systems Development (ISD) projects. You will also focus on the analysis of risks and failures of ISD projects, with emphasis on the role of requirement analysis when building 'right' systems.

## OPTION MODULES

### Business Systems Programming

This module provides you with a solid foundation in programming in general, and object-oriented programming in particular. You will use Java to cover topics such as data structures, GUI programming, applets, programming with database, and server side programming for the internet (using JSP). You will study object-oriented concepts to re-use existing solutions and facilitate new designs of software components; fundamentals of Java programming; how to handle events through programming; and how to design and implement web-based applications communicating with a database.

### Computing for Business and Management

You will cover topics in computing considered essential for business and industry. These will include the spreadsheet as a tool for developing decision-support applications; event-driven and object-oriented programming and GUI generation (eg VBA); and the construction of databases, with emphasis placed on integrating MS Access and MS SQL Server with other applications to create decision-support applications.

### Data Management and Repositories

You will cover theoretical and practical issues related to technologies employed for the persistent storage of data. The module discusses and evaluates the underlying technologies used in capturing, maintaining and modelling persistent data. Pursuing this, you will examine the evolution of database management systems, their components and functionality, along with some of the predominant and emerging data models.

## Data Warehousing and OLAP

The module focuses and addresses recent technological developments in integrating and analysing large amounts of business data that today's transactional/ operational enterprise systems are capable of collecting. You will explore multidimensional modelling, the integration of multi-source data and analysis, aiming to support better business decision making. Most of the topics covered in lectures will be associated with a number of supervised, Oracle-supported computer laboratory/ workshop sessions. The exercises and study materials used in these sessions will utilise material and courseware drawn from Oracle documents and Oracle university courses.

## Database Languages

Through this module you will discuss in detail the features and constructs of the SQL, the de-facto database language for the definition and manipulation of relational-data constructs. The module also covers procedural aspects of the language and issues related to the efficient use of and client/server programming constructs. The module is a hands-on skills module; the exercises and materials used in the delivery of the module are based on Oracle University materials, and you will have access to Oracle courseware that can help you with your preparation for Oracle Certification exams.

## Enterprise Utility Computing

You will focus on technologies and software delivery methods based on the utility computing model at the networked enterprise. The module gives you an overview of the underlying concepts of utility computing, such as its business and service provisioning model, outsourcing, and virtualisation. You will also examine how clusters, grids and clouds can be utilised for enterprise computing, and what new challenges are raised regarding quality of service, security, and ethical and legal issues.

## IT Business Models

This module provides you with an overview of emerging IT business models in the context of e-business and enterprise computing. You will cover different e-business models (B2B, B2C, B2A), and analyse the relationship between e-business/e-commerce front-ends and enterprise resource planning systems. You will also examine

emerging B2C and B2B business revenue models based on the e-enterprise from technological, business, legal and ethical perspectives.

## Project Management

You will examine the role of the project manager, together with the techniques used for project planning, scheduling, monitoring and controlling projects throughout the project life cycle. The PRINCE2 project management method is used as a framework for understanding the key issues, providing you with practical experience in using a project management software tool for project scheduling.

## Semantic and Collaborative Technologies

This module will provide you with skills in manipulating XML-based and semantic web technologies, for modelling, querying and reasoning about distributed and interoperable data over the internet. You will understand the general vision and impact of collaborative and semantic web technologies and their applications, and be able to describe web resources in RDF and RDF schemas for supporting semantic interoperability and defining vocabularies for web resources. You will also learn how to develop, validate and query metadata documents in XML-based technologies, engineer ontologies using semantic web languages, and query and reason about ontologies using formal and descriptive logics.

## Social Systems

This module focuses on the use of social systems in enterprises. You will be introduced to the underlying theory, the technology that enables the social system and the application areas within enterprises and organisations.

## Systems Interoperability

This module analyses the problem of interoperability in data centric applications and gives you an insight into different approaches that addressed the problem in the last decade. You will focus on the impact of internet technologies on the interoperability of current database systems, discuss standards for data interchange and address interoperability of distributed heterogeneous database applications using XML-based web services.



## Web-Enabled Database Applications

The module offers a study in the field of server-side and client-side scripting, and you will be presented with techniques for creating dynamic web pages, while a server-side language will be covered to the depth required for implementing functional applications. The module aims to examine alternative methods for the development of dynamic web applications; to equip you with the ability to analyse, evaluate and implement web-based business applications; to provide an introduction to using a server-side language for the development of web applications; and to enable you develop a theoretical and practical knowledge of the W3C.

## ASSOCIATED CAREERS

Graduates can expect to find employment as business intelligence consultants, business systems analysts and designers, enterprise consultants and managers, ETL marketers, and ETL/OLAP programmers and application developers. Recent graduates have found employment with a range of organisations including Accenture, the British Council,

Centaur Holdings PLC, Deutsche Bank, Foreign and Commonwealth Office, GlaxoSmithKline, Home Office, IBM, Logica, Merrill Lynch, Nationwide, PricewaterhouseCoopers, Standard and Poor's, University of Hertfordshire, Taylor Woodrow, and a number of local authorities.

## ENTRY REQUIREMENTS

You are expected to have a good Honours degree (at least a Lower Second Class) from a UK university (or overseas equivalent) in an IT or computing discipline, or in another discipline that is either closely related to IT or computing (eg economics and business studies), or provides important underpinning for/insight into it (eg sciences or engineering). You may also be considered according to work experience and other qualifications.

If your first language is not English you will need an IELTS score of 6.5 or equivalent.



# BUSINESS INFORMATION SYSTEMS

## BUSINESS INTELLIGENCE AND ANALYTICS MSc

### Length of course

One year, full-time or two years, part-time

### Location

Central London (Cavendish)

### Course fees

See [westminster.ac.uk/fees](http://westminster.ac.uk/fees)

### Course Leader

Professor Thierry Chausalet  
[chausst@westminster.ac.uk](mailto:chausst@westminster.ac.uk)

This course addresses the need to propel information gathering and data organisation, and exploit potential information and knowledge hidden in routinely collected data to improve decision making. The course, which builds on the strengths of two successful courses on data mining and on decision sciences, is more technology focused, and stretches the data-mining and decision-sciences theme to the broader agenda of business intelligence.

You will focus on developing solutions to real-world problems associated with the changing nature of IT infrastructure and increasing volumes of data, through the use of applications and case studies, while gaining a deep appreciation of the underlying models and techniques. You will also gain a greater understanding of the impact technological advances have on the nature and practices adopted within the business intelligence and analytics environments, and know how to adapt to these changes.



## COURSE CONTENT

Embedded into the course are two key themes. The first will help you to develop your skills in the use and application of various technologies, architectures, techniques, tools and methods. These include data warehousing and data mining, distributed data management, and the technologies, architectures, and appropriate middleware and infrastructures supporting application layers.

The second theme will enhance your knowledge of algorithms and the quantitative techniques suitable for analysing and mining data and developing decision models in a broad range of application areas. The project consolidates the taught subjects covered, while giving you the opportunity to pursue in-depth study in your chosen area.

Teaching approaches include lectures, tutorials, seminars and practical sessions. You will also learn through extensive coursework, class presentations, group research work, and the use of a range of industry – standard software such as SAS, SPSS, iThink, Simul8, MS SQL Server 2005 Analysis Services, and Oracle Data Mining Suite. Taught modules may be assessed entirely through coursework, or may include a two-hour exam at the end of the year.

## CORE MODULES

### Data Mining

The module provides you with an in-depth analysis of the most practical topics in data mining and knowledge discovery, such as decision tree and other classification methods, association analysis, clustering and statistical mining.

### Project

The project module plays a unifying role and it aims to encourage and reward your individual inventiveness and application of effort. The scope of the project is not only to complete a well-defined piece of work in a professional manner, but also to place the work into the context of the current state of the art in business intelligence and/or analytics.

### Research Methods and Professional Practice

You will strengthen your skills for the research and industry needs of the course, the final project, and for your future career and study. The module guides your personal development plan towards the professional requirements of the discipline, and covers methods of critical evaluation, gathering and analysing information, and preparing and defending a project proposal.

### Statistics and Operational Research

This is a self-contained module in applied statistics and operational research that lays the foundations for more advanced modules in data mining and analytics. You will cover topics such as hypothesis testing, regression, forecasting, linear programming and network modelling, and use software such as EXCEL Solver, SPSS, R, SAS, and AIMMS.

## OPTION MODULES

### Business Optimisation

This module provides you with an in-depth analysis of advance topics in operational research, such as discrete optimisation, multiple criteria optimisation and modern heuristic approaches.

### Computing for business and Management

You will cover topics in computing considered essential for business and industry. These will include the spreadsheet as a tool for developing decision support applications; event-driven and object-oriented programming and GUI generation (eg VBA); and the construction of databases, with emphasis placed on integrating MS Access and MS SQL Server with other applications to create decision support applications.

### Data Management and Repositories

You will cover theoretical and practical issues related to technologies employed for the persistent storage of data. The module discusses and evaluates the underlying technologies used in capturing, maintaining and modelling persistent data. Pursuing this, you will examine the evolution of database management systems, their components and functionality, along with some of the predominant and emerging data models.





### Data Warehousing and OLAP

The module focuses and addresses recent technological developments in integrating and analysing large amounts of business data that today's transactional/ operational enterprise systems are capable of collecting. You will explore multidimensional modelling, the integration of multi-source data and analysis, aiming to support better business decision making. Most of the topics covered in lectures will be associated with a number of supervised, Oracle-supported computer laboratory/ workshop sessions. The exercises and study materials used in these sessions will utilise material and courseware drawn from Oracle documents and Oracle university courses.

### Database Languages

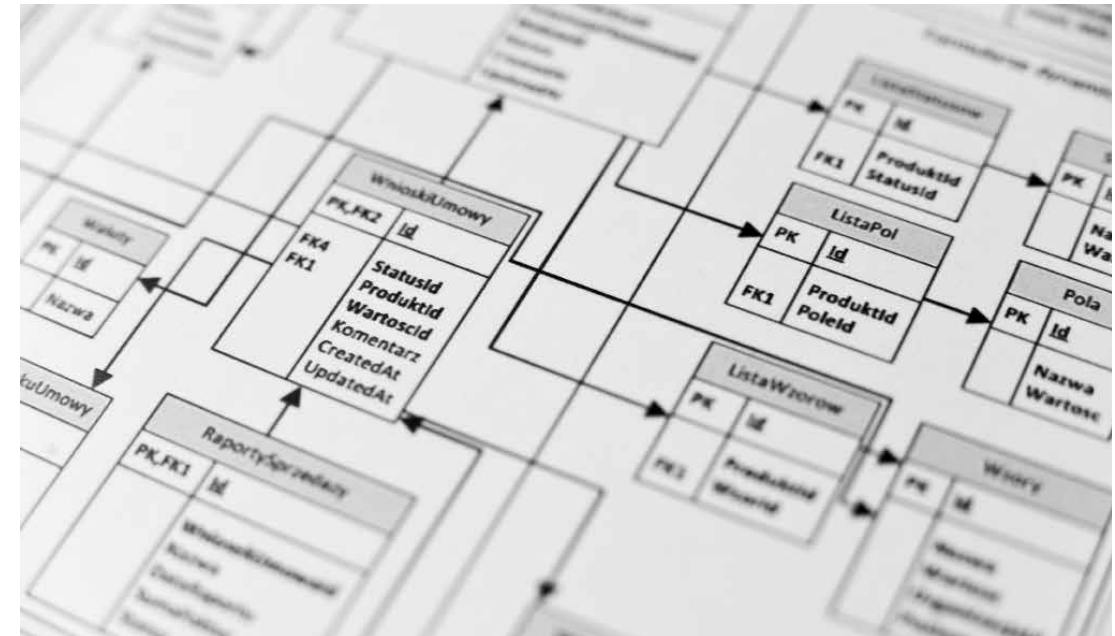
Through this module you will discuss in detail the features and constructs of the SQL, the de-facto database language for the definition and manipulation of relational-data constructs. The module also covers procedural aspects of the language and issues related to the efficient use of and client/server programming constructs. The module is a hands-on skills module; the exercises and materials used in the delivery of the module are based on Oracle University materials, and you will have access to Oracle courseware that can help you with your preparation for Oracle Certification exams.

### Project Management

You will examine the role of the project manager, together with the techniques used for project planning, scheduling, monitoring and controlling projects throughout the project life cycle. The PRINCE2 project management method is used as a framework for understanding the key issues, providing you with practical experience in using a project management software tool for project scheduling.

### Risk Modelling and Simulation for Business and Industry

This module focuses on the choice and use of appropriate simulation models to treat real-world problems, developing solution(s) using powerful Monte Carlo and discrete-event simulation software such as @RISK and SIMUL8, and explaining the business and industrial implications thereof. It will also give you concepts of analytical methods if and when appropriate, such as influence diagrams and queuing theory.



### Web Mining

You will cover the fields of information retrieval and text mining. In the first you will be given an overview of how search engines work, why they are successful and to some degree how they fail. In the second part of the module you will focus on case studies drawn from scientific research and business to study essential text mining algorithms.

You may take instead another module from the Faculty postgraduate portfolio, at the course leader's discretion.

### ASSOCIATED CAREERS

Graduates can expect to find employment as business intelligence consultants, business systems analysts and designers, enterprise consultants and managers, ETL marketers, and ETL/OLAP programmers and application developers. Recent graduates have found employment with a range of organisations including Accenture, the British Council, Centaur Holdings PLC, Deutsche Bank, Foreign and Commonwealth Office, GlaxoSmithKline, Home Office, IBM, Logica, Merrill Lynch, Nationwide, PricewaterhouseCoopers, Standard and Poor's, University of Hertfordshire, Taylor Woodrow, and a number of local authorities.

### ENTRY REQUIREMENTS

You are expected to already have quantitative skills, with an interest in developing these further to support postgraduate activity in analysing, evaluating and reporting on a range of real-world data-intensive problems. You will have a suitable Honours degree from a UK university (or equivalent qualification) in a scientific or engineering discipline with some exposure to the use of IT, or in an area of computer science or IT with a strong interest in quantitative analysis. If you do not have a formal qualification, but you are already in employment, you may be considered if your role involves the data-mining and decision-support techniques and technologies deployed in the course.

If your first language is not English you will need an IELTS score of 6.5 or equivalent.

# BUSINESS INFORMATION SYSTEMS

## DATABASE SYSTEMS MSc

### Length of course

One year, full-time or two years, part-time

### Location

Central London (Cavendish)

### Course fees

See [westminster.ac.uk/fees](http://westminster.ac.uk/fees)

### Course Leader

Tasos Ptohos  
[t.ptohos@westminster.ac.uk](mailto:t.ptohos@westminster.ac.uk)

This course has been designed to enhance your professional abilities, and deepen your knowledge and understanding of emerging, state-of-the-art database technologies. It will equip you with the range of highly marketable, hands-on skills required in data modelling, and in designing, managing, monitoring and administering corporate database systems divisions, information centres and web-enabled database applications.

The course combines academic study with Oracle certification training, and you will be encouraged to take the associated Oracle exams and become an Oracle Certified Associate. It is suitable for recent graduates who wish to study for a higher qualification and/or gain relevant technical and professional skills in database systems. It's also a strong course for practitioners looking to enhance their professional abilities, develop their careers, and update their technical skills, knowledge and understanding of state-of-the-art and emerging technologies.



## COURSE CONTENT

The course addresses new technologies, and advanced theories and techniques, along with their application, implementation and integration with legacy systems. You will analyse new demands and the application of new technologies in the management of data and information resources, and examine emerging technologies shaping the way data is now processed, accessed, retrieved, structured and modelled.

The course offers three specialist pathways or themes which can lead you to different areas of the database systems environment. One pathway leads to roles related to database administration and the ability to deliver and administer web-enabled database solutions. A second pathway leads to roles related to database application development, and the ability to deliver web-enabled information systems solutions. The third pathway focuses on the role of data architect, and the skills and knowledge needed to organise and design data and manage projects in a way that harnesses potential emerging technologies.

Teaching methods include lectures, student-led activity and smaller, instructor-led groups. You are encouraged to gain greater understanding of topics through practical activity and the use of scaled down versions of real life scenarios. The Oracle training materials that we use will prepare you to take the Oracle Certified Associate (OCA) exams. Assessment usually involves a combination of exams and coursework, leading to a product such as a presentation, group investigation, technical solution, a piece of software or a research review. Exams are normally two hours long and take place at the end of the year.

## CORE MODULES

### Business Information System Postgraduate Project Module

The project module plays a unifying role, and aims to encourage and reward your individual inventiveness and application of effort. It is an exercise that may take a variety of forms and which provides you with the experience of planning and bringing to fruition a major piece of individual work.

### Business Systems Programming

This is a hands-on module that uses Java to develop your programming skills and to give you a good practical understanding of object-oriented programming and concepts. Topics covered include data structures, GUI programming, applets, database connectivity, server-side programming (using JSP). As part of the module, you will learn the fundamentals of Java programming; how to handle events through programming; how to design and implement web-based applications communicating with a database and how object-orientation can enable you to re-use existing solutions and to facilitate new designs of software components.

### Data Management and Repositories

You will learn about the theoretical and practical issues related to technologies employed for the persistent storage of data. This module discusses and evaluates the underlying technologies used in capturing, maintaining and modelling persistent data. Pursuing this, the evolution of Database Management Systems, their components and functionality will be discussed, along with some of the predominant and emerging data models.

### Database Languages

This is a hands-on module that develops your database skills for the definition and manipulation of data constructs. You will use Oracle's SQL to learn the features and constructs that contemporary ad hoc Database Query Languages offer; Oracle's PL/SQL is used to teach the procedural and object-relational aspects of Data Query Languages; issues related to the efficient use of client/server programming constructs are also addressed. You will be given access to Oracle courseware that can help you with your preparation for Oracle Certification Exams, whereas the exercises and teaching materials used in this module are based on Oracle University materials.



### Research Methods and Professional Practice

This module will develop further your research and industry skills required for your professional development, future career and study. Among the skills that will be strengthened are those related to the awareness of the professional, legal and ethical issues, the critical evaluation, the collection and analysis of information, and the development and defence of a sound project proposal.

## OPTION MODULES

### Data Warehousing and OLAP

The module focuses and addresses recent technological developments in integrating and analysing large amounts of business data that today's transactional/operational enterprise systems are capable of collecting. You will explore multi-dimensional modelling, the integration of multi-source data and analysis, aiming to support better business decision making. Most of the topics covered in lectures will be associated with a number of supervised, Oracle-supported, computer laboratory/workshop sessions. The exercises and study materials used in these sessions will utilise material and courseware drawn from Oracle documents and Oracle university courses.

### Database Administration and Management

The module provides you with extensive coverage of the principles of database administration, including transaction management and control, backup and recovery, availability and security. It aims to define the role of the database administrator, to provide an in-depth appreciation of the underlying technical issues involved in managing a database within an organisation, and to investigate the mechanisms that are available to handle the additional complexity that arises from managing distributed and replicated data. Lectures and tutorials will be complemented by special workshops covering issues related to concepts and technologies used to administer Oracle installations. The exercises and materials used in these workshops will be drawn from materials used in Oracle University courses.

### Enterprise Utility Computing

You will focus on technologies and software delivery methods based on the utility computing model at the networked enterprise. The module gives you an overview of the underlying concepts of utility computing, such as its business and service provisioning model, outsourcing, and virtualisation. You will also examine how clusters, grids and clouds can be utilised for enterprise computing, and what new challenges are raised regarding quality of service, security, and ethical and legal issues.

### IT Business Models

This module provides you with an overview of emerging IT business models in the context of e-business and enterprise computing. You will cover different e-business models (B2B, B2C, B2A), and analyse the relationship between e-business/e-commerce front-ends and enterprise resource planning systems. You will also examine emerging B2C and B2B business revenue models based on the e-enterprise from technological, business, legal and ethical perspectives.

### Project Management

You will examine the role of the project manager, together with the techniques used for project planning, scheduling, monitoring and controlling projects throughout the project life cycle. The PRINCE2 project management method is used as a framework for understanding the key issues, providing you with practical experience in using a project management software tool for project scheduling.

### Requirements and System Modelling

This module introduces you to the discipline of requirement analysis through requirements modelling in order to capture, validate, specify and manage requirements in Information Systems Development (ISD) projects. You will also focus on the analysis of risks and failures of ISD projects, with emphasis on the role of requirement analysis when building 'right' systems.

### Semantic and Collaborative Technologies

This module will provide you with skills in manipulating XML-based and semantic web technologies, for modelling, querying and reasoning about distributed and interoperable data over the internet. You will understand the general vision and impact of collaborative and semantic web technologies and their applications, and be able to describe web resources in RDF and RDF schemas for supporting semantic interoperability and defining vocabularies for web resources. You will also learn how to develop, validate and query metadata documents in XML-based technologies, engineer ontologies using semantic web languages, and query and reason about ontologies using formal and descriptive logics.

### Systems Interoperability

This module analyses the problem of interoperability in data centric applications and gives you an insight into different approaches that addressed the problem in the last decade. You will focus on the impact of internet technologies on the interoperability of current database systems, discuss standards for data interchange and address interoperability of distributed heterogeneous database applications using XML-based web services.

### Web-Enabled Database Applications

The module offers a study in the field of server-side and client-side scripting, and you will be presented with techniques for creating dynamic web pages, while a server-side language will be covered to the depth required for implementing functional applications. The module aims to examine alternative methods for the development of dynamic web applications; to equip you with the ability to analyse, evaluate and implement web-based business applications; to provide an introduction to using a server-side language for the development of web applications; and to enable you develop a theoretical and practical knowledge of the W3C.

### Web Mining

You will cover the fields of information retrieval and text mining. In the first you will be given an overview of how search engines work, why they are successful and to some degree how they fail. In the second part of the module you will focus on case studies drawn from scientific research and business to study essential text mining algorithms.

You may also take another module from the postgraduate portfolio, at the course leader's discretion.

## ASSOCIATED CAREERS

Graduates can expect to find employment as business systems analysts and designers, data analysts, database administrators, database application developers, database systems consultants, information resources managers, systems designers and systems integrators. Recent graduates have joined a variety of organisations, including Bank of America, the Metropolitan Police, Network Rail, and a number of local authorities.

## ENTRY REQUIREMENTS

You are expected to have a good Honours degree (at least a Lower Second Class) from a UK university (or overseas equivalent) in an IT or computing discipline, or in another discipline that either provides important underpinning for or insight into IT and computing, or is closely related to it (eg sciences or engineering). You may also be considered according to work experience and other qualifications.

If your first language is not English you will need an IELTS score of 6.5 or equivalent.



# COMPUTER SCIENCE AND SOFTWARE ENGINEERING

## COMPUTER FORENSICS MSc

### Length of course

One year, full-time or two years to five years, part-time

### Location

Central London (Cavendish)

### Course fees

See [westminster.ac.uk/fees](http://westminster.ac.uk/fees)

### Course Leader

Paul Douglas  
[p.douglas@westminster.ac.uk](mailto:p.douglas@westminster.ac.uk)

Computer crime is increasingly widespread and sophisticated, and there is a growing need for computing professionals qualified to deal with it. This course combines technical computer forensic skills with the requirements of an expert witness. You will gain experience of a range of current and certified forensic tools, as well as investigating relevant professional, legal and ethical issues.

You will benefit from a broad and varied array of state-of-the-art technologies, including:

- EnCase, FTK and open-source forensic tools, and a dedicated forensics computer laboratory
- Sunray servers connected to a 1GB fibre optic network with links to both the Super-Janet 4 network and the London Metropolitan Network, connecting the Greater London education and research community
- a Uni-Backbone network that supports IP Multicasts to deliver a constant stream of interactive, multimedia-rich content



- over 20 laboratories providing access to Unix, Novell and NT servers, all supported by high-bandwidth networks
- specialist technicians to ensure you can get the most out of these technologies.

## COURSE CONTENT

You will examine a variety of tools available on the open market, and the use of forensic tools to retrieve data from electronic sources. You will also consider the analysis of professional and ethical issues relating to computer forensics, and the development of professional competencies, such as report writing and presenting evidence in court.

Teaching methods include lab-based sessions, student-led tutorials and lectures by internal staff and guest speakers from industry. Our courses are offered by friendly, highly experienced staff, and benefit from the diverse specialist knowledge and skills within the departments of the Faculty. Assessments will be carried out mostly through practical or research-based course work and in-class tests.

## CORE MODULES

### Advance Computer Forensics

This module continues the examination of essential digital forensics concepts. The topics you will cover include network forensics, live systems, mobile phones and other devices. A further aim of the module is to introduce you to developing areas of computer forensics, and provide you with the skills to investigate new areas of computer forensics, such as covert analysis and intruder artefacts.

### Computer Forensics Fundamentals

This module gives you an introduction to some of the general concepts of computer forensics, as well as helping you to develop the skills that will be needed on other modules. You will cover in detail the layout of volumes on storage devices, and file systems within volumes, with particular emphasis on the FAT file system. You will learn to look at raw devices using low-level tools like hex editors, and gain familiarity with the Unix operating system.

### Computer Forensics Tools

This module looks at a range of tools that might be used by a forensic examiner. You will consider high-level tools like EnCase, FTK and Autopsy, although your main focus will be on low-level tools such as dd and the Sleuthkit tools, as these help to develop your understanding of what (and how) the higher level tools are actually doing. In addition you will learn a scripting language (currently Perl), so that you can develop your own forensic tools.

### Computer Systems Security

You will examine the issues involved with recognising security threats to computer systems, their consequences and methods of dealing with such threats. In particular, you will gain an overview of security issues for databases, operating systems and networked systems, and consider the relationship between computer forensics and computer security. The module also considers the consequences of security threats in terms of privacy, integrity, availability and accountability, and the selection and evaluation of different approaches to building and enhancing secure systems.

### Data Recovery and Analysis

You will cover many of the most important concepts of digital forensics through this module, including various methods of data recovery (noting those that meet ACPO guidelines for evidence preservation). Analysis of the data will include finding and recovering deleted files, searching slack space on storage devices, examining log and registry entries, and constructing timelines of activity.

### Evidence and Procedure

You will examine the legal obligations of computer forensics, gaining an understanding of the relevant statutes and industry guidelines, and of proving the authenticity of evidence via a chain of custody from collecting evidence through to presenting findings in a professional manner. The module also aims to provide you with a broad understanding of the professional factors that influence the work of professional practitioners, particularly in the context of the 'Expert Witness'.



### Postgraduate Project Module

This module is the culmination of the course. It is an opportunity for you to put into practise many of the skills learned elsewhere on the course. It is a major piece of work on a topic chosen by you (normally, this topic will be chosen as part of the Research Methods module). You will undertake this work individually, and will be assigned a project supervisor to assist with and guide the development of the project.

### Research methods

This module is shared with other MSc courses run by the Department. Its main focus is on introducing you to research, and developing the skills you need to read and evaluate original research literature. This in turn leads into the Project, and a major outcome of the module should be a Project Proposal. In addition, the module addresses certain aspects of Personal Development Planning (PDP).

### ENTRY REQUIREMENTS

You are normally expected to have a good Honours degree (at least Upper Second Class) in a computing-related discipline from a UK university or overseas equivalent.

If your first degree does not have a strong computing content, you will need to demonstrate that you have sufficient knowledge or industry experience of computing. Your work experience and other qualifications may also be taken in to account. You must submit a statement of purpose with your application in which you should present your key interests and career aspirations, how you believe the course can help you to achieve these, and what relevant personal qualities and experience you will bring to the course. You may be invited by the admissions tutor to an informal interview.

If your first language is not English you will need an IELTS score of 6.5 or equivalent.

### ASSOCIATED CAREERS

The course is intended for those involved with, or wishing to be involved with, corporate computer forensics or law enforcement computer forensics. Successful graduates will be able to safeguard the chain of digital evidence of potentially illegal or improper activity, from detection, safe collection and preservation, through to analysis and presentation in a court of law. Employment opportunities range from supporting the police and associated law enforcement agencies to computer security and computer audit roles in commercial companies.



# COMPUTER SCIENCE AND SOFTWARE ENGINEERING

## COMPUTER SCIENCE MSc

### Length of course

One year, full-time or two years to five years, part-time

### Location

Central London (Cavendish)

### Course fees

See [westminster.ac.uk/fees](http://westminster.ac.uk/fees)

### Course Leader

Dr Simon Courtenage  
[courtes@westminster.ac.uk](mailto:courtes@westminster.ac.uk)

This redesigned course focuses on the specific emerging domains within computer science and software engineering, where there is increasing industry demand and a skills shortage. It will enable you to develop the skills and knowledge you need to build your career in these new and important areas of computer science, significantly enhancing your employment opportunities while also providing a solid core of good software engineering practice that will enhance and reinforce your existing skills.



## COURSE CONTENT

Among the areas you will cover is the development of sophisticated touch surface devices such as the iPad and the iPhone, which requires skills in native programming techniques, graphics and animation, and mobile application development. The course includes modules that will give you the knowledge and practical techniques to develop applications for these new devices, covering the rich, user-centric, multiple-touch client software and the web-based service that this software consumes.

The course also covers the increasingly important area of resource virtualisation, services and systems administration. Businesses are now regularly using virtualised systems and techniques to lower costs and complexity and increase availability in computing environments. This course has a pathway of modules that will impart these principles and practice and provides a solid foundation for you to gain entry into this specialism.

## CORE MODULES

### Computer Science Project

You will undertake an extended, individual piece of work on an approved topic, which unifies and extends the theoretical and practical knowledge of software engineering by applying them to develop a software application. A supervisor will provide you with guidance on planning, development, documentation and demonstration.

### Enterprise Application Development

This module introduces you to the development of a distributed application within a contemporary software framework such as .NET and J2EE. You will examine the underlying principles and apply them to the development of typical n-tier application. You will consider both stationary and mobile applications will be considered. Other topics covered include: enterprise development frameworks, client, business, repository layers and MVC design pattern, event-driven programming, GUI applications, storage and file handling, database access, and web services.

### iPhone Application Development

You will gain the necessary knowledge and practical experience to develop applications for native platforms through this module. It will give you the skills to produce applications that take advantage of the underlying hardware features of contemporary mobile devices, such as smartphones and multi-touch surfaces, location features, and natural gesturing through combination of accelerometer and touch surfaces.

### Mobile Application Development

The module examines the use of application development technology for mobile devices including Java-enabled devices and Android.

### Pervasive Computing and Interactive Systems

The module is designed to give you a theoretical and practical background to the development of immersive environments for various platforms, using industry standard toolkits. You will focus particularly on the algorithms, theories and design of new digital media, and their application to multi-platform environments such as mobile interfaces, pervasive games, web applications and web logs (blogs), interactive installations, interactive museum guides, and virtual and augmented environments.

### Research Methods

This module is shared with other MSc courses run by the Department. Its main focus is on introducing you to research, and developing the skills you need to read and evaluate original research literature. This in turn leads into the Project, and a major outcome of the module should be a Project Proposal. In addition, the module addresses certain aspects of Personal Development Planning (PDP).





### Resource Virtualisation

Virtualisation introduces abstraction into hardware and software architectures. This abstraction enables creating hardware and software solutions independent of complex low-level details using a black box model. As a result, software sitting on top of this black box should not know what is happening inside this box. Virtualisation enables workload consolidation and allows interoperability among different hardware and software platforms, also providing a more robust and secure computing environment. The module covers major aspects of virtualisation, particularly hardware virtualisation (processor, memory, storage, network) at one side and software virtualisation (application and operating system) at the other side.

### Service Oriented Architectures and Web Services

You will explore software-oriented architecture and web services including its architecture, features, standards (such as WSDL, UDDI and SOAP) and implementations. The module covers analysis, design, development, installation and maintenance issues of web service-based applications. You will gain theoretical knowledge by learning the service-oriented architecture (SOA), web services models, and web services standards, and practical skill by designing and developing web services-based applications.

### Software Engineering Context

You will examine the nature of software engineering and important external factors that influence the work of a practising software engineer. In particular you will explore software engineering life cycles, requirements engineering, user-interface design, software quality assurance, testing, and selected professional issues.

## OPTION MODULES

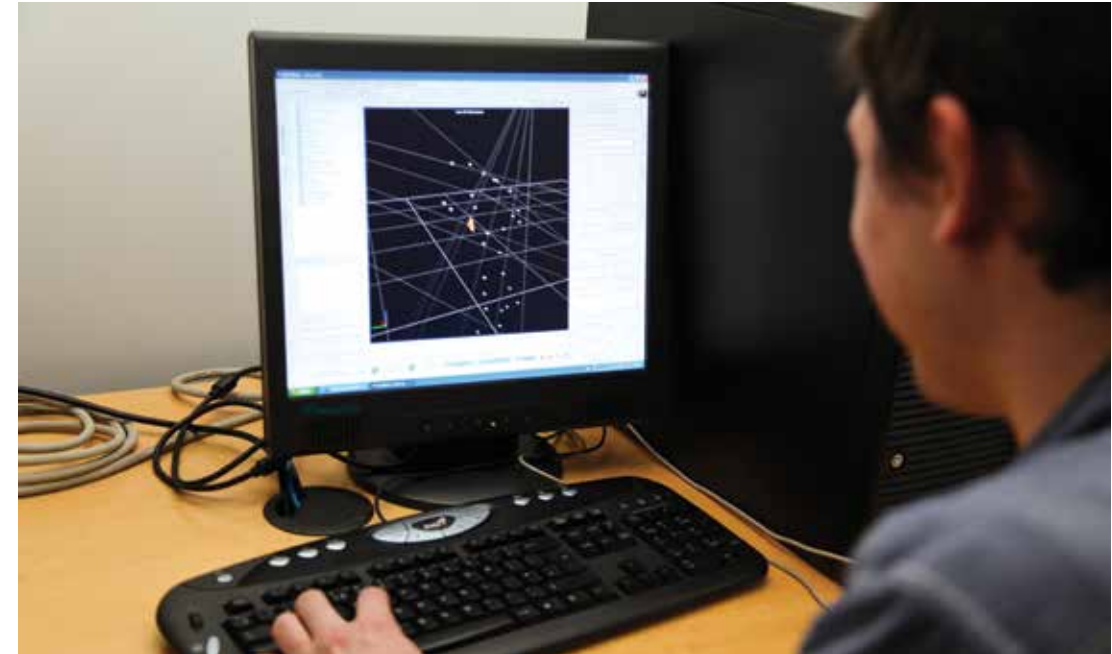
In addition you will pursue a pathway of your choice, selected with the guidance and advice of our academic staff. You can choose from the following pathways modules:

#### Systems Administration

This module covers the skills and techniques required to manage and system administer computers in a wide range of environments. Topics covered include common tasks, network-oriented administration, hardware and maintenance.

#### 3D Animation

This module introduces you to the principles, algorithms, and techniques of 3D computer animation. You will undertake both theoretical study of 3D computer animation, and practical animation techniques using industry standard applications and languages.



### 3D Graphics

This module introduces you to the theories, algorithms, and applications of 3D computer graphics. You will undertake both theoretical study of 3D graphics, and practical 3D graphics programming skills using the industry-standard graphics API for embedded accelerated 3D graphics (OpenGL ES) for application development on embedded systems including game consoles, phones (eg iPhone), appliances and vehicles.

## ASSOCIATED CAREERS

Graduates will typically be part of a team working on sophisticated n-tier applications, as a designer, programmer, systems administrator or systems analyst (among others). Graduates will also find positions within new and established businesses that specialise in mobile applications. Other roles are possible in computer science research for either a commercial enterprise or academic institution. Further PhD study opportunities within the University of Westminster are also an option.

## ENTRY REQUIREMENTS

You will normally have a good honours degree in a subject related to computer science from a UK university, or equivalent qualification. Suitable subjects might include computing, computer science or software engineering, joint degrees including one of these subjects, or possibly other science or maths-based subjects that include significant amounts of computer science material.

If your first language is not English, and you have not had your secondary or tertiary education in English, you will need an IELTS score of at least 6.5. It's important that you will be able to complete the course and benefit from it, so other factors such as continuous professional development, training and your current role may also be taken into account.

# COMPUTER SCIENCE AND SOFTWARE ENGINEERING

## SOFTWARE ENGINEERING MSc

### Length of course

One year, full-time or two years to five years, part-time

### Location

Central London (Cavendish)

### Course fees

See [westminster.ac.uk/fees](http://westminster.ac.uk/fees)

### Course Leader

Dr Paul Howells  
[p.howells@westminster.ac.uk](mailto:p.howells@westminster.ac.uk)

Software engineering is the area of computing that is concerned with applying engineering-style methods to the production of computer software. It is a dynamic and expanding field that continues to play a central role in the UK's future economic growth. The continuing shortage of qualified software engineers means that graduates have been very successful in gaining software-related jobs by integrating their existing and newly acquired skills.

The course is aimed at software developers and programmers. The course's main theme is software development using the object-oriented paradigm. If you do not have a formal computing background, this course will give you greater skills and understanding of the development of software applications, from initial requirements through to implementation, with an emphasis on programming. Alternatively, if you do have a significant background in software engineering, the course will enable you to build on your existing knowledge.



You will benefit from a broad and varied array of state-of-the-art technologies, including:

- Sunray servers connected to a 1GB fibre optic network with links to both the Super-Janet 4 network and the London Metropolitan Network, connecting the Greater London education and research community
- a Uni-Backbone network that supports IP Multicasts to deliver a constant stream of interactive, multimedia-rich content
- over 20 laboratories providing access to Unix, Novell and NT servers, all supported by high-bandwidth networks
- specialist technicians to ensure you can get the most out of these technologies.

## COURSE CONTENT

The core modules focus on the stages of the object-oriented software life cycle, from requirements analysis and capture to software design, software implementation of a design, software testing techniques, software system integration, and ending with software maintenance. The option modules offer you the opportunity to apply and extend these core skills in a variety of software application areas, including mobile devices, databases, enterprise development and system administration. You will complete a software development project that requires the application of the knowledge and skills taught on the course, as well as providing an opportunity to acquire new skills and knowledge. You will also gain extensive experience of many of the software tools and environments used in the software development industry.

A variety of teaching methods are used, ranging from formal lectures, problem-solving tutorials and programming laboratory sessions, to student presentations, student-led seminars and group work activities. By the end of the course, you will have the knowledge and skills required to be a professional practitioner in object-oriented software development and software engineering, and hence, to become a successful member of the IT industry.

## CORE MODULES

### Algorithmics

This module will give you the skills and theoretical knowledge to design and analyse algorithms in terms of their computational complexity. You will cover the general techniques of algorithm design, with illustrations from system and end-user application areas, and an emphasis on the design and analysis of alternative algorithmic solutions to practical problems. Other topics you will cover include types of algorithm, time and space complexity, and the use of standard libraries.

### Object-Oriented Programming

This module introduces you to the features of an object-oriented programming language (C++), and then uses this to demonstrate program development using the object-oriented paradigm. The topics covered include core language features, problem solving, object-oriented paradigm and the development of libraries.

### Research Methods

The module aims to develop your knowledge and competence of the research process, and the application of research methods in the area of software engineering. The topics you will cover include research methods, strategies and paradigms, as well as supporting skills and professional issues relating to a career in software engineering. You will undertake a literature review, critical reading of research papers and the writing and presentation of a research proposal.

### Software Design

You will examine the techniques and methods appropriate for the development of object-oriented software. You will explore the conceptual foundations of the object-oriented approach, and acquire practical skills in object-oriented design, and in the implementation of such designs. The main topics you will cover include unified modelling language (UML), data modelling, behavioural modelling, design and implementation.

### Software Development (Project)

You will undertake an extended, individual piece of work on an approved topic, which unifies and extends your theoretical and practical knowledge of software engineering



by applying them to develop a software application. A supervisor will provide you with guidance on planning, development, documentation and demonstration.

### Software Engineering Context

You will examine the nature of software engineering and important external factors that influence the work of a practising software engineer. In particular you will explore software engineering life cycles, requirements engineering, user-interface design, software quality assurance, testing, and selected professional issues.

## OPTION MODULES

You may choose two from the following:

### Database Languages

Through this module you will discuss in detail the features and constructs of the SQL, the defacto database language for the definition and manipulation of relational-data constructs. The module also covers procedural aspects of the language and issues related to the efficient use of and client/server programming constructs. The module is a hands-on skills module; the exercises and materials used in the delivery of the module are based on Oracle University materials, and

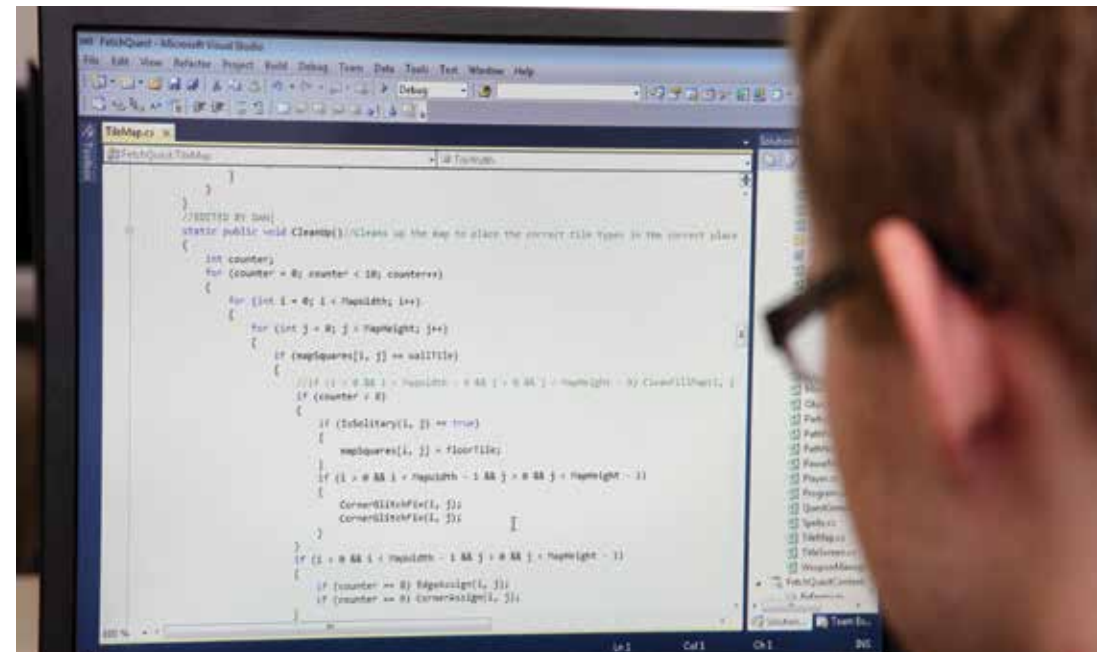
you will have access to Oracle courseware that can help you with your preparation for Oracle Certification exams.

### Enterprise Application Development

This module introduces you to the development of a distributed application within a contemporary software framework such as .NET and J2EE. You will examine the underlying principles and apply them to the development of typical n-tier application. You will consider both stationary and mobile applications will be considered. Other topics covered include: enterprise development frameworks, client, business, repository layers and MVC design pattern, event-driven programming, GUI applications, storage and file handling, database access, and web services.

### iPhone Application Development

You will gain the necessary knowledge and practical experience to develop applications for native platforms through this module. It will give you the skills to produce applications that take advantage of the underlying hardware features of contemporary mobile devices, such as smartphones and multi-touch surfaces, location features, and natural gesturing though combination of accelerator and touch surfaces.



### Mobile Application Development

This module covers mobile development approaches, application development technology for mobile devices including Java-enabled devices, the Android platform, the J2ME platform, and object-oriented programming.

### Systems Administration

This module covers the skills and techniques required to manage and system administer computers in a wide range of environments. Topics covered include common tasks, network-oriented administration, hardware and maintenance.

## ASSOCIATED CAREERS

Graduates are employed in a wide variety of roles related to software development, including internet programmer, programmer, software designer, systems administrator and web application programmer. The common theme of these roles is the need to understand and apply techniques related to the stages of the software life cycle process. Some graduates also go on to undertake a research degree related to the object-oriented paradigm.

## ENTRY REQUIREMENTS

You will normally have a good first degree (at least a Lower Second Class). This may contain a significant amount of computing or software engineering, and you may wish to reinforce and build on your existing knowledge. Alternatively, this may be in a subject not containing a significant amount of computing or software engineering, in which case you will be expected to demonstrate prior interest in, or aptitude for, programming and working with computers. Under exceptional circumstances, if you do not have a degree, you may be considered if you have extensive professional experience of programming and software engineering.

If your first language is not English you will need an IELTS score of 6.5 or equivalent. If you satisfy the basic academic entry requirements you are invited to one of the University's open evenings, where you can meet the course leader and discuss any issues regarding the course.



# MULTIMEDIA

## MULTIMEDIA MSc

### Length of course

One year, full-time or or two to three years, part-time, block mode

### Location

Central London (Cavendish)

### Course fees

See [westminster.ac.uk/fees](http://westminster.ac.uk/fees)

### Course Leader

Ashif Tejani  
[a.tejanic@westminster.ac.uk](mailto:a.tejanic@westminster.ac.uk)

This course has been designed to produce 'hands on' professionals with a broad range of career possibilities in the multimedia industry, either working as multimedia designers/producers, or as part of a development team. This sector is expanding rapidly in all areas, with major social media companies now trading on the stock exchange with revenues of billions of dollars and applications like WhatsApp selling for \$19 billion. Companies are spending billions on their online and digital strategies, on mobile optimised websites, applications and content like videos, the demand for skilled professionals who can deliver these strategies continues to grow.

The course has been designed to address the needs of these emerging areas, and ensure graduates can adapt to the changing needs of the sector. We have excellent links within the multimedia industry, and many companies and experts have visited the Faculty in previous years to give presentations, including MPC, Sky, Apple and Adobe as well as companies looking to recruit students after finishing the Masters. The Multimedia MSc hosts [multimediatrainingvideos.com](http://multimediatrainingvideos.com), a comprehensive repository of freely accessible multimedia training videos to which the teaching team have been significant contributors to the site over the last few years. This site has become one of the biggest Open Educational Resources (OER) sites for multimedia on the internet and was funded by JISC.



## COURSE CONTENT

The course emphasises the key multimedia principles, theories and concepts, as well as exposing you to the industry standard languages and tools including Flash, HTML, AJAX, After Effects and Xcode. You will examine a number of areas, including human computer interaction and the user experience, project management, web development, scripting for interactivity, and analytics. The course will enable you to develop the knowledge and skills required in a number of careers as well as preparation to continue to a PhD.

## CORE MODULES

### Multimedia Management

This module gives you a broad understanding of the planning and organisation that goes into developing a product. You will work with a real client, taking the process right through from an initial meeting to the execution of a prototype, providing you with practice in many of the key tools and concepts used in project management.

### Multimedia Scripting for Interactivity

You will develop and implement an interactive application, using an industry standard development environment and object-oriented scripting language. You will organise and plan the production of the prototype, with an emphasis on the approach taken to coding.

### Project

The project is an extended piece of supervised independent work relevant to the field. This can be either undertaken as a work-based project or on a topic proposed by the student or faculty.

### Research Methods and Professional Practice

You will strengthen your skills for the research and industry needs of the course, the final project, and for your future career and study. The module guides your personal development plan towards the professional requirements of the discipline, and covers methods of critical evaluation, gathering and analysing information, and preparing and defending a project proposal.

### User-Centred Interface Design

The module will explore the foundations of user-centred interface design and the user experience through applied theory. You will be introduced to the importance of the Human Computer Interaction discipline, and the need to consider both the cognitive and interaction perspective. Building from this you will explore related issues such as design, interaction, globalisation, accessibility and navigation.

## OPTION MODULES

### Digital Editing and Motion Graphics

You will explore areas related to the creation of motion graphics, and gain an overview of non-linear editing techniques using industry standard tools from Adobe and Apple.

### iPhone Application Development

You will gain the necessary knowledge and practical experience to develop applications for native platforms through this module. It will give you the skills to produce applications that take advantage of the underlying hardware features of contemporary mobile devices, such as smartphones and multitouch surfaces, location features, and natural gesturing through combination of accelerometer and touch surfaces.

### Mobile Application Development

The module gives consideration to the use of application development technology for Mobile devices including Java enabled devices and Android.

### Pervasive Computing and Interactive Systems

The module is designed to give you a theoretical and practical background to the development of immersive environments for various platforms, using industry standard toolkits. You will focus particularly on the algorithms, theories and design of new digital media, and their application to multi-platform environments such as mobile interfaces, pervasive games, web applications and web logs (blogs), interactive installations, interactive museum guides, and virtual and augmented environments.



### Web Development

You will focus on the foundations of modern web development languages and environments, with an emphasis on efficient client-side development as well as an overview of database connectivity. You will also focus on emerging standards including HTML5.

### Web Marketing and Analytics

The module focuses on the fundamental concepts and strategies of web and digital marketing, and will develop your critical knowledge and skill of the current technologies and techniques used including SEO, analytics and Buzz Web 2.0 marketing.

### 3D Animation

This module introduces you to the principles, algorithms, and techniques of 3D computer animation. You will undertake both theoretical study of 3D computer animation, and practical animation techniques using industry standard applications and languages.

### 3D Graphics

This module introduces you to the theories, algorithms, and applications of 3D computer graphics. You will undertake both theoretical study of 3D graphics, and practical 3D graphics programming skills using the industry-standard graphics API for embedded accelerated 3D graphics and OpenGL ES for application development on embedded systems including game consoles, phones (eg iPhone), appliances and vehicles.

You may also take another module from the postgraduate portfolio, at the course leader's discretion.



## ASSOCIATED CAREERS

Graduates may find employment in multimedia production houses, corporate environments (marketing, communications, IT and training), educational institutions, the media and film industry, and in entertainment. Possible roles include multimedia authoring specialist, project/production manager, website developer, and usability designer. We have excellent links with the multimedia industry (particularly in education), and previous graduates have been employed by companies such as 2Simple, 20:20 Media, Moving Picture Company, Oxford University Press, and Tiscali. Successful graduates may also apply for a research degree in a related area.

## ENTRY REQUIREMENTS

The course is open to computer literate graduates with a good first degree (minimum Second Class Honours) or equivalent in a related discipline such as graphic design, computer science, digital imaging or journalism. Alternatively you may have in-depth work experience in a related field, or already be employed in the sector and are undertaking the programme to further enhance your career plans. The relevance of your first degree or industrial experience and suitability for the course will be usually determined by interview and, where relevant, portfolio.

If English is not your first language, you will need an IELTS score of 6.5.



# COMPLEMENTARY MEDICINE CHINESE MEDICINE

Our challenge at the University is to translate, evaluate and promote clinically effective treatments from the East Asian medical tradition, in order to properly integrate them into Western healthcare. Translation includes language but also history and culture. This is an area which is key to the research being carried out within EASTmedicine (East Asian Sciences and Traditions in Medicine).

The Chinese medicine department at Westminster is the longest standing academic department of its kind in the UK and Europe. For 17 years now our teaching team, through discussion and debate with each other and across other departments in the University, has woven together teaching, practice and research. Our teachers have been involved in the development of the acupuncture and Chinese herbal medicine professions and sit on a number of committees keeping up to date with politics, conduct and ethics. Through this they bring a wealth of teaching skills, professional and personal knowledge of what it is to practice Chinese medicine in the UK and in particular London with its diversity of students and patients.

As a student on one of our Chinese medicine courses you will benefit from this experience. Extensive literature is available through both the physical libraries at Westminster, Wellcome Trust and SOAS, and via online access. You will be asked to critically appraise your own practice – both traditional and current – in terms of philosophy and theory, and to pursue the evidence base of your practice. There will be opportunities to study abroad through our links with China Medical University in Taiwan and Shanghai University of TCM.

Both Masters courses in Chinese Herbal Medicine and Chinese Medicine Acupuncture have been developed for practitioners who already have an undergraduate degree in Chinese Medicine: Acupuncture. On that professional entry degree you will have covered all the theories of Chinese Medicine and diagnostic skills. You will have covered basic biomedical pathology and disease differentiation, research methods and therapeutic relationship. You will have started in practice. These courses are aimed at extending your professional skills and knowledge into areas that will develop you as a leader in practice, research, clinical governance and policy.



# CHINESE MEDICINE

## CHINESE HERBAL MEDICINE MSc

### Length of course

One year full-time — two days attendance per week; two years part-time — one day attendance per week  
An example timetable is available on request

### Location

Central London (Cavendish)

### Course fees

See [westminster.ac.uk/fees](http://westminster.ac.uk/fees)

### Course Leader

Alan Treharne  
[a.treharne@westminster.ac.uk](mailto:a.treharne@westminster.ac.uk)

The Chinese Herbal Medicine MSc extends your acupuncture practice into the other major modality of Chinese medicine. It is a theoretical and clinical professional entry-training. You will develop your case formulation and diagnostic skills and also learn the materia medica and formulae of herbal medicine. Phytochemistry and pharmacokinetics are integrated into the understanding of the energetic interactions of herbs. Extensive practice with patients will take place in our on-site teaching clinic where theory is deconstructed and applied. Working in the dispensary with raw herbs will develop your kinaesthetic skills to deepen understanding. The aim is that you learn how to modify classic formulae to create new formulae which address complex patterns of illness.

This course contextualises Chinese medicine (CM) within its historical roots, and grounds it in the legal, ethical and interprofessional framework of the UK.



## CORE MODULES

### Chinese Herbal Medicine Clinical Practice

In this module you will take developing responsibility for all aspects of patient care. You will be guided in the construction of individual herbal formulae, applying research to ensure each patient is effectively treated. You will develop your case history taking skills, and your understanding of the relevance of tongue and pulse diagnosis to the construction of a complex diagnosis and treatment principle relevant for herbal medicine. You will also explore the various ways that herbal medicine may be applied or dispensed, dosage levels, and cautions and the yellow card protocol. You will complete your research project within this module.

### Chinese Herbal Medicine in the UK

This module will look at issues that concern the practice of Chinese herbal medicine (CHM) in the UK at present, to include: the legal and political context of CHM in the UK and Europe; pharmacology, pharmacognosy, toxicology, CITES, quality assurance and quality control; inter-professional working; codes of ethics and practice; and research methods and issues. There will be field trips to Bristol Herb Garden and Royal Botanical Gardens Kew.

### Chinese Herbs and Formulae

This is the first module of the Chinese Herbal Medicine MSc course. Building on your foundation CM skills, you will develop and refine your understanding and articulation of aetiological and pathological processes while you learn the 150 most common herbs and 50 main formulae within treatment categories, patterns and common diseases. You will be introduced to the phytochemistry, pharmacodynamics and pharmacokinetics of herbs and be introduced to dispensary preparation.

### Formulas and Strategies

This module involves the exploration and innovation of formulae from the perspective of Chinese Medicine bianbing (disease categories) and explores diseases recognised in the West but not traditionally described in Chinese medicine (eg post-viral syndrome, autoimmune disease, dermatology). You will be expected to evaluate, challenge, modify and develop theory and practice and apply critical enquiry into both traditional and modern theories in the light of new research. This module includes clinical and dispensary practice.



### Postgraduate Research Methods

This module provides the foundation of knowledge and skills needed to undertake ethical work-based research at Masters level. The process of research and evaluation from study design through data collection and data analysis is covered. A forum is provided for critical debate, enabling you to develop critical reasoning in relation to research design.

### The Classics

This module focuses on the reconceptualising of materia medica at the level assumed in formula construction. You will cover the principles of CM formulae construction from various perspectives, eg shang han lun and wen bing, and develop your competence and a greater appreciation of the roles of individual herbs through critical research, in a collaborative learning environment. You will also be introduced into the clinic, where you will take increasing responsibility for the treatment of patients under supervision and work in the dispensary becoming familiar with materia medica.

### PROFESSIONAL ACCREDITATION

The University of Westminster Chinese Herbal Medicine MSc is accredited (approved) by the European Herbal and Traditional Medicine Practitioners Association. This enables graduates

from the Chinese Medicine MSc to apply for membership of the Register of Chinese Herbal Medicine.

### ASSOCIATED CAREERS

This course is designed for acupuncturists who want to extend their practice repertoire to include herbal medicine, or for Chinese herbal medicine practitioners who wish to upgrade their academic skills to Masters level. Individual modules can be taken as continuing professional development (CPD).

### ENTRY REQUIREMENTS??

You must have at least a BSc Honours Chinese Medicine: Acupuncture degree or equivalent and associated work experience. Where equivalence is accepted, the length, depth, content and orientation of the syllabus will be considered. You will need the higher education skills needed for post-graduate level study, including evidence of critical thinking, academic writing, IT, reflective practice and communication together with collaborative approaches to learning. If your first language is not English you should have an IELTS score of at least 6.5, with 6.0 in each component. Academic English support activities including academic writing may be recommended.



# CHINESE MEDICINE

## CHINESE MEDICINE: ACUPUNCTURE MSc

### Length of course

One year full-time — two days attendance per week; two years part-time — one day attendance per week

An example timetable is available on request

### Location

Central London (Cavendish)

### Course fees

See [westminster.ac.uk/fees](http://westminster.ac.uk/fees)

### Course Leader

Felicity Moir  
[f.moir@westminster.ac.uk](mailto:f.moir@westminster.ac.uk)

The Chinese Medicine: Acupuncture MSc is aimed at making practice better, at developing your personal and professional skills and knowledge as a scholar practitioner deepening your initial acupuncture training. This is primarily a theoretical course which will require you to draw on your professional experience as an acupuncture practitioner. We make assumptions of what Chinese medicine is, what the Chinese body is, what is qi. These ideas will be challenged through analysis, criticality and humanity within inter-professional groups that foster original and independent thinking. You will decide the focus and direct your assessments to meet your own interests and specialist areas. You will look at diversity of practice and learn how to integrate research and practice.

The aim of the course is for you to expand your current practice either into a specialist area, to expand your clinical abilities, or to widen into research, clinical governance policy and practice within the acupuncture profession.



## CORE MODULES

### Acupuncture a Living Tradition

The aim of this module is to help you to critically appraise historic and current literature in order to contextualise Chinese medicine as a living tradition. We will look at its historical development, diversity of practice and the features that make it a unique system of medicine. Through this and group discussion the personal context of your own practice and thinking should be revealed.

### Clinical Reasoning

This module focuses on the reconceptualising of materia medica at the level assumed in formula construction. You will cover the principles of CM formulae construction from various perspectives, eg shang han lun and wen bing, and develop your competence and a greater appreciation of the roles of individual herbs through critical research, in a collaborative learning environment. You will also be introduced into the clinic, where you will take increasing responsibility for the treatment of patients under supervision and work in the dispensary, becoming familiar with materia medica.

### Postgraduate Research Methods

This module provides the foundation of knowledge and skills needed to undertake ethical work-based research at Masters level. The process of research and evaluation from study design through data collection and data analysis is covered. A forum is provided for critical debate, enabling you to develop critical reasoning in relation to research design.

### Researching Contemporary Issues in Complementary Medicine

This module aims to equip you with the skills you need to review and critique the evidence relating to contemporary issues in your own field, by gaining academic credit for formal learning such as seminars, conference presentations and workshops, and disseminating your findings in a collaborative inter-professional setting.

### Research Project

In this module you will undertake a supervised research project relevant to your areas of professional practice and/or work setting. This module builds on and draws together the knowledge and skills gained in other modules, in particular Research Methods. We will help you to develop your capacity as an autonomous researcher who, through reflection on supervision, can apply effective, rigorous, and ethical research skills in the critical in-depth investigation of a chosen topic relevant to your practice.

## ASSOCIATED CAREERS

This course is designed for acupuncturists who want to extend their current practice and encourage diversity into other areas of work and in other healthcare environments such as the NHS and GP practices, charitable organisations and private outpatient clinics. Graduates may continue onto PhDs or Professional Doctorates. Employment is now becoming more possible in academic or research institutes as well as management and marketing, government and community healthcare provision. Individual modules may be taken as part of your continuing professional development (CPD).

## ENTRY REQUIREMENTS

You must have at least a Chinese Medicine: Acupuncture BSc (Hons) degree or equivalent and associated work experience. Where equivalence is accepted, the length, depth, content and orientation of the syllabus will be considered. You will need the higher education skills needed for postgraduate — level study, including evidence of critical thinking, academic writing, IT, reflective practice and communication together with collaborative approaches to learning. If your first language is not English you should have an IELTS score of at least 6.5, with 6.0 in each component. Academic English support activities including academic writing may be recommended.





## COMPLEMENTARY MEDICINE HERBAL MEDICINE

Herbal medicine has developed from the traditional use of plants and plant extracts from many parts of the world, confirmed and updated by scientific understanding and research. However, it maintains a holistic approach to treatment, focusing on illness in the person rather than symptoms of disease. The Herbal Medicine MSc course is offered to qualified practitioners and concentrates on developing you professionally and personally as a scholar practitioner and leader in research.

Plant extracts contain a wide range of potentially active chemical compounds at relatively low concentrations. The identification and characterisation of these chemical components is complex but very important in determining their potential therapeutic and safe use. The Medicinal Plant Science MSc course is designed to provide an in-depth understanding of plant science from molecular level to whole plant and extract quality and safety through to medicinal uses.

Our staff are recognised for their excellence in teaching and research. Our dedicated polyclinic and state-of-the-art laboratories provide important practical training opportunities and research facilities. Students will have opportunities attending field courses in UK and abroad.

# HERBAL MEDICINE

## HERBAL MEDICINE MSc

### Length of course

One year full-time; two to five years part-time  
An example timetable is available on request.  
Qualified practitioners will also need to undertake the equivalent of one day per week in private practice

### Location

Central London (Cavendish)

### Course fees

See [westminster.ac.uk/fees](http://westminster.ac.uk/fees)

### Course Leader

Julia Green  
[j.green3@westminster.ac.uk](mailto:j.green3@westminster.ac.uk)

The focus of this course is on furthering your growth as a scholar practitioner, and enabling you to develop as a leader in research, clinical governance and policy and practice within the herbal medicine profession, while advancing your own professional practice. The underpinning ethos is to equip you with the knowledge, skills and practical experience to enhance your professional role in the field of herbal medicine. This is fostered through the academic and professional experience in both the theoretical concepts and the diagnostic practice within your own specialty.

The course presents appropriate clinical and analytical content in an inter-professional dimension, and engenders an understanding and appreciation of the importance and role of peer mentoring and supervision. It will support your research in a specialist area, enable you to develop a wide variety of transferable skills and critical analytical skills, and provide a forum in which you can engage with contemporary issues and debates within the discipline.



## CORE MODULES

### Advanced Herbal Medicine Materia Medica and Therapeutics

The module aims to extend your knowledge and critical analysis of the western materia medica and herbal medicine therapeutics through engaging in critical analysis and debate of current issues and therapeutic approaches. You will consider the practice of herbal medicine in relation to wider medical and healthcare contexts, with special reference to safety and effectiveness in combination with other care regimes and environmental factors.

### Clinical Reasoning

This module aims to develop your clinical reasoning as a confident, independent and effective clinician within a community of practice. We will consider how we use deductive and inductive reasoning, intuition or tacit knowledge, narrative reasoning and experience. Knowledge and practice will be challenged through observation and discussion of clinical situations within your own discipline and in inter-disciplinary care. Group and individual supervision and mentoring will help you to develop the reflexive skills of the practitioner. You will need to undertake the equivalent of one day a week in practice to complete this module.

### Postgraduate Research Methods

This module provides a foundation of knowledge and skills needed to undertake ethical work-based research at Masters level. The module covers the process of research and evaluation from study design through data collection and data analysis. A forum is provided for critical debate, enabling you to develop critical reasoning in relation to research design. It will provide knowledge and skills in research design to enable you to independently design a profession-related study and basis for building skills in research planning, management and data collection and analysis. The work will be underpinned by an overview of ethics in research.

### Researching Contemporary Issues in Complementary Medicine

You will develop the skills you need to review and critique the evidence relating to contemporary issues in your relevant field, by gaining academic credit for formal learning such as seminars, conference presentations and workshops, and disseminating your findings in a collaborative inter-professional setting.

### Research Project

The purpose of this module is to enable you to undertake a supervised research project relevant to your area of professional practice and/or work setting. This module builds on and draws together the knowledge and skills gained in other modules, in particular Postgraduate Research Methods. The module aims to develop your capacity as an autonomous researcher who, through reflection on supervision, can apply effective, rigorous, and ethical research skills in the critical in-depth investigation of a chosen topic relevant to practice.



## ASSOCIATED CAREERS

This course is designed to enhance the skills of professionals already in practice and encourage diversity into other areas of work and in other healthcare environments such as the NHS and GP practices, charitable organisations and private outpatient hospitals. Graduates may continue in private practice or progress on to PhD/ Professional Doctorate study, or find employment in academic or research institutes, as well as management, marketing and development in government and community healthcare provision and related industries.

Individual modules can be taken as Continuing Professional Development (CPD) short courses and some elements within each module may be offered as one-day seminars. Please talk to the Course Leader for more information.

## ENTRY REQUIREMENTS

You will hold a good BSc Honours degree in Herbal Medicine, an equivalent professional qualification and associated work experience, or qualification deemed suitable by the course team. Where equivalence is accepted, the length, depth, content and orientation of syllabus, of courses followed, will be considered. You will need higher education skills required for postgraduate – level study, including evidence of research, critiquing and academic writing skills, IT, reflective practice and communication together with collaborative approaches to working.

If your first language is not English you should have an IELTS score of at least 6.5 (with 6.0 minimum for each component).





# HERBAL MEDICINE

## MEDICINAL PLANT SCIENCE MSc

### Length of course

MSc: one year full-time; two years part-time

PgDip: two semesters full-time

PgCert: one semester full-time

(all these are target exit awards)

### Location

Central London (Cavendish)

### Course fees

See [westminster.ac.uk/fees](http://westminster.ac.uk/fees)

### Course Leader

Professor Annie Bligh

[a.bligh@westminster.ac.uk](mailto:a.bligh@westminster.ac.uk)

This course is designed to respond to the growing market in the use of medicinal plants and natural products, which needs professional expertise to support its quality, analysis and development. The taught Medicinal Plant Science MSc course provides a programme of advanced study for graduates from pharmacy, horticulture, herbal medicine and biochemical sciences, to equip them for future careers in the pharmaceutical, phyto-pharmaceutical, nutraceutical, and cosmeceutical industries, and in quality assurance of herbal medicine. Through studying medicinal plants, from their genesis as plants in a field to analysing them in a chemical laboratory, the course equips you with a unique perspective and critical understanding of plant medicines. You will also learn their traditional uses and the technical skills to unlock their future potential.

Medicinal Plant Science MSc aims to produce tomorrow's researchers and leaders in development of quality phytomedicines. Students will benefit from internship opportunities in the medicinal herbs quality research laboratory, and the University's polyclinic dispensary, providing valuable real-world practical experience.



## CORE MODULES

### Applied Phytomedicine (20 credits)

In-depth exploration of the current nature and context of herbal medicine, relating uses of herbs from different countries and from different herbal traditions to contemporary research and the evidence base for therapeutic applications. Detailed study of selected important herbs and herbal preparations.

### Pharmaceutical Analysis and Quality Assurance (20 credits)

In-depth understanding of analytical techniques in use in the pharmaceutical industry with emphasis on quality and regulatory controls.

### Phytopharmaceuticals (20 credits)

Study of research and development of a wide range of plant-based pharmaceuticals, their preparations and formulation, pharmacology and physiological actions and up-to-date scientific research.

### Phytotherapeutics (20 credits)

In-depth exploration of a range of medicinal herbs from different countries and from different herbal traditions, and the evidence base for their therapeutic use; critical evaluation of the clinical use of herbal medicines in the context of integrated health care and current legislation; consideration of the efficacy and effectiveness for chosen herbs in specific therapeutic applications or health conditions.

### Plant Science (option, 20 credits)

In-depth understanding of medicinal plants, taxonomy and identification, and herbal preparations for therapeutic uses.

### Postgraduate Research Methods (20 credits)

Principles and practice of research with a focus on study design and methods of data collection, evaluation and research; taught in a supportive and intellectually challenging environment within which you develop your knowledge, understanding and skills as a researcher.

### Research Project (40 credits)

You will investigate an appropriate research topic, generate and critically analyse data, as well as present your results and discuss your findings in the context of previously published



work. You will include rigorous and critical analysis of data with a high level of initiative, supported by a series of generic and theme-specific tutorials, which will include preparation for your employment and career development.

## OPTION MODULES

### Pharmacology and Drug Discovery (option, 20 credits)

You will explore the scope of pharmacology and concepts of drugs as biologically active molecules through the drug discovery phases. You will interact with cellular targets and experimental techniques used in pharmacology, from target identification through to pre-clinical models of disease and clinical applications.

### Xenobiotic, Metabolism, Pharmacokinetics and Toxicology (option, 20 credits)

In-depth view of the molecular mechanisms of toxicology, with perspectives on drug metabolism and pharmacokinetics and how these process can lead to toxicity; aspects of tissue specific toxicology and the literature basis behind research in this area.

Other option modules include Molecular Bioinformatics, and Molecular Pharmacology and Pharmacogenomics modules.

## ASSOCIATED CAREERS

The course is designed to enhance the skills of graduates with wide-ranging backgrounds in plant, biological, chemical, pharmaceutical and pharmacy disciplines to pursue a career in research and/or development in the pharmaceutical, phyto-pharmaceutical, nutraceutical, and cosmeceutical industries. Graduates may continue in education, entering PhD programmes on traditional uses of medicinal herbs to contemporary research and the evidence base for therapeutic approaches. In addition, the course is also designed to enhance the analytical skills in quality assurance, drug discovery, phyto-pharmacology and toxicology for herbal medicine practitioners. Graduates may find employment in academia or research institutes, as well as management, marketing and development in complementary and alternative healthcare provision.

## ENTRY REQUIREMENTS

The normal standard of entry is a BSc Honours degree at a minimum of a Lower Second Class or equivalent, in Herbal Medicine, Pharmacy, Pharmaceutical Science, Pharmacology, Botany, Horticulture, Biochemistry or related subjects.

If your first language is not English you should have an IELTS score of at least 6.5, and minimum 6.0 for each component.





# ELECTRONIC, NETWORK AND COMPUTER ENGINEERING

The postgraduate courses offered by the Department of Engineering provide a unique mix of practical, hands-on learning and short-course-based teaching. They have been designed to equip you with the job-related skills required in the embedded microprocessor, communication networks and microelectronic industries. As an Engineering student at the University of Westminster, you will benefit from some of the best teaching and facilities available. Our staff and courses are recognised for their excellence in teaching, and our state-of-the-art laboratories are dedicated to our students.

Recent graduates have gone to work in fields as diverse as broadcasting, aerospace, chip design, mobile communications, medical electronics, embedded systems, network security, control systems and instrumentation and measurement.

Our students are now working in companies such as ARM Holdings Ltd, BBC, Broadcom, British Aerospace, BskyB, BT, Cisco, Dell, Fujitsu, Google Enterprise, HP, Huawei Technologies, Mitsubishi, Panasonic, Philips, Quinix, Rolls Royce, Sony, Virgin, Xilinx and other smaller companies.

Our research-active staff work in areas such as digital signal processing, ultra-low-power signal processor design, communication networks, distributed computing, microwave filter and circuit design, satellite navigation, and next-generation communication systems. Furthermore, staff are actively involved with industry and these links, together with the research activity, inform the teaching of these state-of-the-art MSc courses.

All our courses have been fully accredited by the Institution of Engineering and Technology (IET). In addition, the Embedded Systems and Computer Networks courses are also accredited by the British Computer Society (BCS).



# COMPUTER NETWORKS MSc

## Length of course

One year, full-time or two to three years, part-time, block mode

## Location

Central London (Cavendish)

## Course fees

See [westminster.ac.uk/fees](http://westminster.ac.uk/fees)

## Course Leader

Professor Vladimir Getov  
[v.s.getov@westminster.ac.uk](mailto:v.s.getov@westminster.ac.uk)

The unprecedented growth in commercial and information management uses of the internet and the World Wide Web is only the visible tip of the vast scientific, computing, technical and engineering developments that are occurring in the field. As a result of this growth, new computer science and engineering disciplines must emerge. The programming techniques and technological requirements of this rapidly developing field are new territory, not only for those who have worked in this sector for some time, but also to many recent computer science graduates.

There is now a long-term and growing market for professionals possessing a clear overview of current information and communication networks capabilities, standards and trends, along with a firm grasp of specifics in areas ranging from data network protocols to network security issues. Whatever developments occur, there will always be a need for the designer and engineer who has knowledge and experience of both the engineering and implementation of a distributed or network system, and the ability to work at the higher levels of abstraction and programming of networked and distributed computing. As a graduate of this course, you will have the knowledge and skills to meet those needs. The course is accredited by both the Institute of Engineering and Technology and the British Computer Society.



## COURSE CONTENT

The Computer Networks MSc focuses on computer communications from the Data Link Layer upwards. It covers the architectures, protocols and services in both local-area and wide-area networks. The provision of end-to-end services and internet servers are covered together with the design of secure networks. It is distinguished from the Mobile, Wireless and Broadband Communications MSc in its focus on the higher layers in the communication reference model, with a greater emphasis on network software and computer-to-computer communication. The final project counts for one third of the course and involves undertaking a substantial research or product development. In addition to the project, the course consists of the following modules.

## CORE MODULES

### Communication and Computer Networks

This module provides both a theoretical and a practical insight into fixed broadband telecommunication networks and their latest technologies, and an in-depth understanding of network architectures and protocols.

### Network Configuration and Operation

This module provides an insight into the design and development of real-world networks, and gives you practical hands-on experience of network configuration and problem diagnosis.

### Network Programming

The module introduces the tailoring of a modern programming language (Java) to the design and implementation of socket-level network programs.

## OPTION MODULES

### Broadband Wireless Networks

This module provides an insight into high-speed wireless communications including mobile broadband wireless networks, wireless local area and metropolitan-area wireless networks. It develops the skills you need for network planning and performance evaluation.

### Communication Principles

You will enhance the skills necessary for the analysis of signals and systems; the module introduces the functional building blocks of digital communication systems.

### Network Security

The module investigates threats to computer networks and techniques used to reduce vulnerability and mitigate the effects of attacks, including the use of cryptography and network security tools for the Web and wireless networks.

Any other module from Embedded Systems MSc, Microelectronic System Design MSc or Mobile, Wireless and Broadband Communications MSc.

## ENTRY REQUIREMENTS

You should have qualifications equivalent to a good Honours degree from a UK university in computer engineering, computer science with knowledge of computer hardware, or in electronic engineering with some programming experience. Relevant work experience will be taken into account.

An IELTS score of 6.5 or equivalent will normally be required from applicants whose first language is not English, or who have not studied their secondary and Bachelor's degree education in English.

# EMBEDDED SYSTEMS MSc

## Length of course

One year, full-time or two to three years, part-time, block mode

## Location

Central London (Cavendish)

## Course fees

See [westminster.ac.uk/fees](http://westminster.ac.uk/fees)

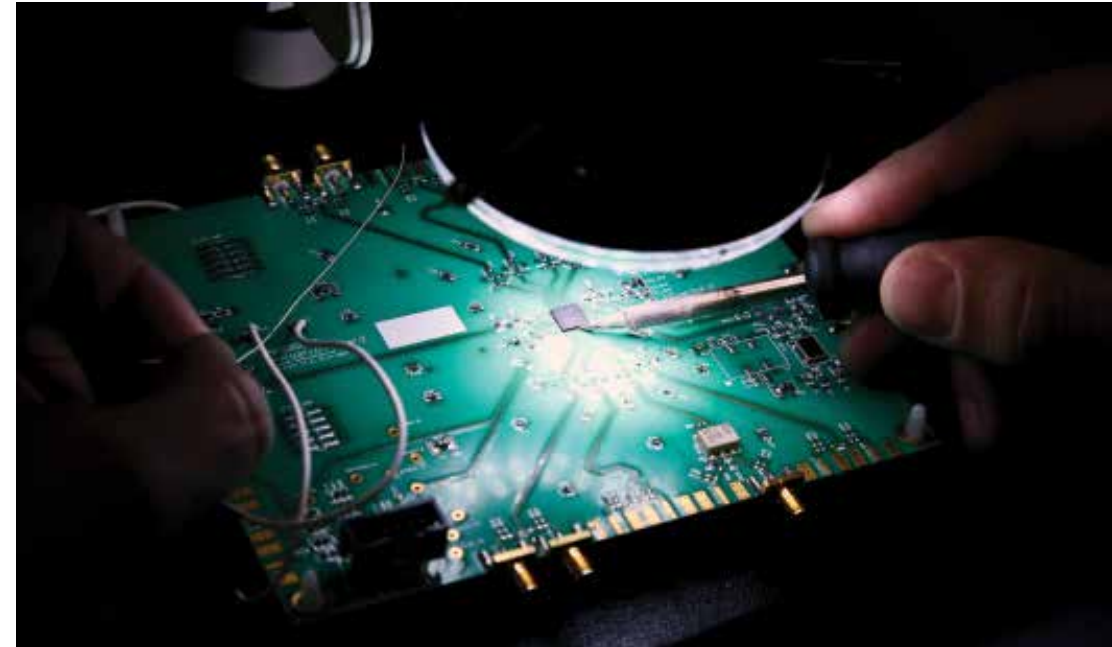
## Course Leader

Martin Giles  
[gilesm1@westminster.ac.uk](mailto:gilesm1@westminster.ac.uk)

The demand for embedded system engineers in all areas of engineering is flourishing, as embedded systems find yet more applications in everyday life. All electronic and software products are now embedded systems, with everyday examples including digital cameras, media players, ATM machines and robotic surveillance tools. These applications require a high level of skill in hardware and software engineering and an understanding of the practical realities of real systems. They also require knowledge in specialist subjects including Digital Signal Processing (DSP), communications, mechatronics and requirements engineering.

The course will expose you to the latest embedded system development tool chains and software development techniques for a variety of leading-edge embedded system platforms, including those from ARM and Microchip. The hands-on approach will allow you to use these tools extensively and develop the skills you need to enter the ever-expanding embedded system engineering sector as a practicing engineer.

As a graduate of this course, you will have the knowledge and skills to meet those needs. The course is accredited by both the Institute of Engineering and Technology and the British Computer Society.



## COURSE CONTENT

This course will equip you with the key skills required to work with embedded systems, including real-time operating systems and microcontrollers. In particular, it will develop your expertise in the use of a range of MCU architectures and tool chains including those from ARM Holding Ltd and Microchip.

We have a network laboratory for the design and evaluation of computer network architectures, an FPGA (Field Programmable Gate Array) laboratory for the latest chip creation technology, and an embedded systems laboratory for the development of systems using ARM CORTEX and PIC microcontrollers and digital signal processors. These facilities are for the exclusive use of students and staff, providing resources that are among the best in the country.

You will develop your key transferable skills through a variety of teaching methods, including presentations, technical discussions, project work and formal reports, as well as group and one-to-one tutorials and lectures. Engineering problem-solving skills are enhanced through the use of software for all aspects of design, documentation and testing of hardware. The final project counts for one third of the course and involves undertaking a substantial component of research or product development. In addition to the project, you will study the following modules.

## CORE MODULES

### Embedded System Design

This module develops your practical skills in prototyping, testing and specifying the requirements of practical standalone embedded systems to final implementation. To this end, you will critically evaluate and use real-world components by implementing a complete embedded system. Various development platforms will be explored including the Microchip and ARM CORTEX tool chains.





### Integrated Digital Systems Design

This module introduces you to the methodology and techniques required for the 'right first time' design of digital integrated circuits. It will impart confidence in you to design custom chips targeted to FPGA and standard cell implementations, and build up familiarity with design tools at various levels of the IC design process including schematic capture, HDL definition, logic synthesis and design verification.

### Real-Time Environments

This module aims to introduce and explore aspects of operating systems and programming languages essential to real-time and embedded systems. It will also provide you with a stronger understanding of practical engineering issues raised by the specification, design and implementation of real-time embedded systems.

## OPTION MODULES

### Broadband Wireless Networks

This module provides an insight into high-speed wireless communications including mobile broadband wireless networks, wireless local area and metropolitan-area wireless networks. It develops the skills you need for network planning and performance evaluation.

### Communication Principles

You will enhance the skills necessary for the analysis of signals and systems. The module introduces the functional building blocks of digital communication systems.

### DSP and Communication Processor Design

This module bridges the gap between the behavioural design of DSP algorithms and their practical implementation in custom-designed VLSI processors, by comparing different DSP structures and VLSI processor architectures and dealing with the finite word-length effects of overflow and quantisation.

### SoC and FPGA Design Project

This module gives you experience in the top-down development of integrated circuits, enabling you to implement design-for-test (DFT) procedures and use CAE hierarchical design tools. It will also give you more experience in producing synthesisable VHDL code, providing a practical understanding of the rigours of a modern design methodology.

### Video and Image Processing

You will gain a working knowledge of a broad range of video and image processing, including pattern recognition, morphology, texture analysis compression, segmentation, classification, machine vision tasks and watermarking. Any other module from MSc Computer Networks, MSc Embedded Systems, and MSc Microelectronic System Design.

Any other module from Computer Networks MSc, Microelectronic System Design MSc or Mobile, Wireless and Broadband Communications MSc.

## ENTRY REQUIREMENTS

You should have qualifications equivalent to a good Honours degree from a UK university in computer systems engineering, computer science with knowledge of computer hardware, or in electronic engineering with some programming experience. Relevant work experience will be taken into account.

An IELTS score of 6.5 or equivalent will normally be required from applicants whose first language is not English, or who have not studied their secondary and Bachelor's degree education in English.





# MICROELECTRONIC SYSTEM DESIGN MSc

## Length of course

One year, full-time or two to three years, part-time, block mode

## Location

Central London (Cavendish)

## Course fees

See [westminster.ac.uk/fees](http://westminster.ac.uk/fees)

## Course Leader

Dr Adem Coskun  
[coskunad@westminster.ac.uk](mailto:coskunad@westminster.ac.uk)

The Microelectronic System Design MSc focuses on the design and implementation of digital custom and embedded integrated circuits on the CMOS and Field Programmable Gate Array (FPGA) fabrics. It covers design methodologies using both hardware description languages (VHDL) and full-custom approaches. There is a strong emphasis on developing design skills. The design of custom digital signal processors is a unique feature of this course. It is distinguished from the Embedded Systems MSc in its focus on the design of chip/FPGA-level Application-Specific Integrated Circuits (ASICs) for embedded applications.



## COURSE CONTENT

In addition to the final project which counts for one third of the course and involves undertaking a substantial research or product development, the course consists of the following modules.

## CORE MODULES

### Integrated Digital System Design

This module introduces the methodology and practical techniques required for the right-first-time design and test of digital integrated circuits and FPGA circuits, using a variety of techniques including synthesis from hardware description languages such as VHDL.

### Microelectronic Circuit Design

In this module you will focus on the transistor circuits that underpin digital integrated circuits, gaining practical experience of the use of computer-aided design and simulation packages for the custom design of digital CMOS integrated circuits.

### SoC and FPGA Design Project

This module gives you hands-on experience of the hierarchical design of a complete System-on-Chip (SoC), through the guided design of a toy robot controller together with the testbench for conformance testing and the use of Design-for-Test (DfT) techniques, with a final FPGA implementation that is tested in-situ to control the toy robot.

## OPTION MODULES

### Broadband Wireless Networks

You will gain a theoretical insight into broadband wireless communication from a network point of view, along with a thorough understanding of the principles, technologies and the state-of-the-art of the wireless communication networks. The module aims to familiarise you with the latest development of wireless communication network systems and the different approaches that are used in their analysis, and enable you to understand application in systems such as LTE, WLAN, WPAN, Point-to-point wireless links, and Fixed/Mobile WiMAX.

### Communication and Computer Networks

You will gain an in-depth understanding of the infrastructure of computer networks in terms of design, logical organisation, protocol structures and physical interconnections. This module gives you a theoretical and practical insight into the fixed broadband communication networks, and reviews the most important broadband technologies.

### Communication Principles

This module enhances the skills you need for the analysis of signals and systems, and introduces the key concepts and functional building blocks of digital communication systems. Topics include the Fourier transform and convolution, energy and power spectral densities of deterministic and random signals, sampling and baseband signalling, digital modulation schemes, spread-spectrum systems, and channel coding.

### DSP and Communication Processor Design

This module introduces you to implementations of dedicated algorithms for signal and data processing structures. It develops your understanding of design techniques and approaches for high-speed area and power efficient computational and arithmetic architectures, and creates awareness for algorithm, circuit and architecture trade-offs, as well as introducing you to arithmetic and number representation standards.

### Embedded System Design

This module develops your skills in prototyping and specifying the requirements of practical standalone embedded systems to final implementation. You will critically evaluate design choices and examine the practical limitations of real-world components. Various prototyping methodologies and platforms are demonstrated and explored via group-based laboratory sessions and lectures. You will also explore the future trends, emerging technologies and applications of these systems.

### Real-Time Environments

This module aims to introduce and explore aspects of operating systems and programming languages essential to realtime and embedded systems. It will also provide you with a stronger understanding of practical engineering issues raised by the specification, design and implementation of real-time embedded systems.

### Video and Image Processing

You will gain a working knowledge of a broad range of video and image processing, including pattern recognition, morphology, texture analysis compression, segmentation, classification, machine vision tasks and watermarking.

Any other module from Computer Networks MSc, Embedded Systems MSc or Mobile, Wireless and Broadband Communications MSc.

## ENTRY REQUIREMENTS

You should have qualifications equivalent to a good Honours degree from a British university in electronic engineering or a good Honours degree in computer science, mathematics or other technological subject with knowledge of mathematics and digital systems. Relevant work experience will be taken into account.

If your first language is not English, you will need an IELTS score of 6.5 (with 6.0 in each aspect) or the equivalent.



# MOBILE, WIRELESS AND BROADBAND COMMUNICATIONS MSc

## Length of course

One year full-time or two to three years part-time, block mode

## Location

Central London (Cavendish)

## Course fees

See [westminster.ac.uk/fees](http://westminster.ac.uk/fees)

## Course Leader

Dr Mahi Lohi  
[m.lohi@westminster.ac.uk](mailto:m.lohi@westminster.ac.uk)

The demand for engineers in both wide-area and local-area communication networks is currently flourishing, and is expected to continue growing as multimedia data transmissions find more applications in everyday life. The latest communications standards have been hugely influential in accelerating dissemination of mobile telephony, internet-on-the-move, video and audio streaming and mobile computing. They have achieved truly compatible international communications for everyone, and society is displaying a voracious appetite for communications on a scale that surpasses even the most optimistic projections of a few short years ago.

The expansion of communications companies is prodigious. While most of the headlines focus on large corporate entities, there is a strong upsurge of small and medium enterprises devoted to niche products and services fuelling the communications machine. This has led to a colossal demand for engineers skilled in these emerging communications technologies, and has shaped this MSc course. There is now a long-term and growing market for graduates possessing a clear overview of current communications capabilities in both cellular and broadband wireless networks. This course sets out to give



you just such a breadth of view, and press home experience of implementation details via problem-solving, project and simulation work. The course is accredited by the Institute of Engineering and Technology.

## COURSE CONTENT

The Mobile, Wireless and Broadband Communications MSc focuses on digital communications from an engineering viewpoint, concentrating on the Physical Layer upwards to the Network Layer. It covers both cellular and broadband wireless networks as well as wired networks supporting the wireless infrastructure. It is distinguished from similar MSc courses in its focus on the lower layers in the communication reference model, with a greater emphasis on the physical channel, transmitter and receiver design and telephony as well as media networks in addition to computer networks. The final project counts for one third of the course and involves undertaking a substantial research or product development. In addition to the project, you will study the following modules:

## CORE MODULES

### Broadband Wireless Networks

This module provides an insight into high-speed wireless communications including mobile broadband wireless networks, wireless local area and metropolitan-area wireless networks and develops the skills necessary for network planning and performance evaluation.

### Communication and Computer Networks

This module provides both a theoretical and a practical insight into fixed broadband telecommunication networks and their latest technologies, and an in-depth understanding of network architectures and protocols.

### Communication Principles

You will enhance the skills necessary for the analysis of signals and systems; the module introduces the functional building blocks of digital communication systems.

## OPTION MODULES

### DSP and Communication Processor Design

This module bridges the gap between the behavioural design of DSP algorithms and their practical implementation in custom-designed VLSI processors, by comparing different DSP structures and VLSI processor architectures and dealing with the finite word-length effects of overflow and quantisation.

### Network Configuration and Operation

This module provides an insight into the design and development of real-world networks, and gives you practical hands-on experience of network configuration and problem diagnosis.

### Network Security

The module investigates threats to computer networks and techniques used to reduce vulnerability and mitigate the effects of attacks, including the use of cryptography and network security tools for the Web and wireless networks.

Any other module from Computer Networks MSc, Embedded Systems MSc, and Microelectronic System Design MSc.

## ENTRY REQUIREMENTS

You should have qualifications equivalent to a good Honours degree from a UK university in electronic engineering or a good Honours degree in computer science, mathematics or other technological subject with knowledge of mathematics and signal processing. Relevant work experience will be taken into account.

An IELTS score of 6.5 or equivalent will normally be required from applicants whose first language is not English, or who have not studied their secondary and Bachelor's degree education in English.





State-of-the-art laboratories and the highest calibre teaching staff makes studying Nutrition at Westminster a fascinating opportunity to excel.

Our courses address nutritional issues across a wide range of people, from those with health issues relating to obesity and diet-related diseases (Public Health Nutrition MSc), those in countries with issues relating to malnutrition and micronutrient deficiencies (International Public Health Nutrition MSc) or elite athletes requiring nutritional advice to optimise performance (Sports and Exercise Nutrition MSc).

As a student on our Nutrition courses you will gain the specialist knowledge and practical skills you need to meet your future career challenges. The courses explore the evidence base relating to the relationship between diet, physical activity and health, and the role that interventions can have in promoting health and treating disease. The Public Health Nutrition MSc and International Public Health Nutrition

MSc courses are accredited by the Association for Nutrition (AfN), therefore graduates are immediately eligible to join the Register as Associate Nutritionists using the direct entry pathway. The Sports and Exercise Nutrition MSc has been designed to prepare students for certification by an internationally recognised sports body.

Graduates in this exciting field gain employment as nutrition advisors, dietitians, sports nutritionists, teachers and researchers.

# INTERNATIONAL PUBLIC HEALTH NUTRITION MSc

## Length of course

One year, full-time or two years, part-time

## Location

Central London (Cavendish)

## Course fees

See [westminster.ac.uk/fees](http://westminster.ac.uk/fees)

## Course Leader

Regina Keith  
[r.keith@westminster.ac.uk](mailto:r.keith@westminster.ac.uk)

Nutrition has long been recognised as a vitally important determinant of health status within both industrialised and industrialising countries, but significant changes are occurring in the profile of nutritional problems. Many countries continue to face problems of malnutrition and micronutrient deficiencies, but countries in economic transition also face the public health challenge of rising rates of diet-related chronic disease, such as obesity and coronary heart disease. Also, many industrialised countries now face problems of food insecurity among low income groups. These challenges have led to a growing international demand for trained public health nutritionists to work in a range of contexts to control and prevent these issues.

This course will give you the specialist scientific knowledge and practical skills to take an active role in international public health nutrition in a range of different settings. Training in statistics, epidemiology, research methods, nutritional assessment and programme design will enhance your professional skills and competencies, employability and development as a public health professional.

The course is accredited by the Association for Nutrition as part fulfilment of the requirements for registration as an associate Public Health Nutritionist.



## CORE MODULES

### Concepts and Principles of Nutrition

This module introduces you to the basic concepts and principles of nutritional science that underpin the theory and practice of public health nutrition. You will explore the role of macro- and micro-nutrients in maintaining health, and their effects when consumed in excess or when deficient, through the appraisal of scientific information relating to their structure, function, sources and bioavailability. This module emphasises the skills required to develop a critical understanding of the scientific basis of nutritional requirements, factors that influence them, and how they are applied to populations throughout the life cycle.

### Food and Nutrition in Public Health and Policy

This module introduces you to the context of public health and policy as they relate to public health nutrition, and the professional skills required to work as a public health nutritionist. A comparative and interdisciplinary approach is taken to examine different models of public health, the scope and nature of the challenges it faces including climate change and sustainability, and food and nutrition policy responses to these challenges. There is a strong emphasis on developing your skills for professional practice, including professional accountability.

### Food Security

This is a relatively new concept, but one which has become more current since the recent global food price crisis. This module considers the multi-factorial nature of food security, the methods used for food security assessment, and current global standards for interventions designed to enhance food security.

### International Nutrition Programme Planning

This module examines nutritional disorders of public health significance, and looks at some different intervention strategies available to alleviate and prevent these. You will be able to apply your nutritional knowledge and to address current nutritional issues with considered, evidence-based interventions.

### Nutrition Assessment

You will cover the theory and techniques used to assess nutritional status, and gain practical skills in the measurement of body composition, energy expenditure and anthropometry.

### Professional Skills for Nutritionists

This module provides a foundation in knowledge and skills necessary for a future career as a public health nutritionist. The module covers the interpretation and presentation of nutritional data and analysis. The module aims to broaden students' knowledge base and skills in the application of research methods as related to nutritional epidemiology and statistics, and, to further develop students' ability to recognise, develop and reflect on professional skills and personal attributes that contribute to employability enhancement. Students are supported to become more reflective practitioners, helping them to develop skills like effective team leadership and performing well under stress while managing conflict. Students are also supported to engage in Public Health Nutrition advocacy, governance and leadership.

### Research Methods

This module aims to develop your knowledge and competence of the research process, and the application of research methods in the area of International Public Health Nutrition.

### Research Project in Public Health

The project is an extended piece of work on a relevant topic which you select, with the approval of the Course Leader. The topic will draw on knowledge, skills and methodological techniques covered by the course. The research topic needs to have an international perspective and/or data collection should take place overseas.

## ASSOCIATED CAREERS

The course is designed for people wishing to work, or already working in, public health contexts such as government ministries, UN organisations and non-governmental organisations.

## ENTRY REQUIREMENTS

You should have a good Honours degree from a UK university, or equivalent from a non-UK university, in a relevant science or social science subject. Preference is given to those with related work experience.

If your first language is not English you should have an IELTS score of at least 6.5, with 6.0 in each element.

# PUBLIC HEALTH NUTRITION MSc

## Length of course

One year, full-time or two years, part-time

## Location

Central London (Cavendish)

## Course fees

See [westminster.ac.uk/fees](https://www.westminster.ac.uk/fees)

## Course Leader

Dr Claire Robertson

[c.robertson@westminster.ac.uk](mailto:c.robertson@westminster.ac.uk)

The part that nutrition plays in public health has long been recognised. Within the UK's national health system, tackling obesity and the chronic diseases that result remains a priority. This is reflected in the growing provision of locally based food and lifestyle projects intended to prevent obesity and other diet-related diseases, and designed to address inequalities in health. These challenges have led to a growing demand for trained public health nutritionists to work in a range of different projects.

This course will give you the specialist scientific knowledge and practical skills you need to meet those challenges, and take an active role in public health nutrition in a range of different settings. Training in statistics, epidemiology, research methods, nutritional assessment, and health promotion and behaviour change will enhance your professional skills and competencies, employability and development as a public health professional.

The course is accredited by the Association for Nutrition as part fulfilment of the requirements for registration as an associate Public Health Nutritionist.



## CORE MODULES

### Concepts and Principles of Nutrition

This module introduces you to the basic concepts and principles of nutritional science that underpin the theory and practice of public health nutrition. You will explore the role of macro- and micro-nutrients in maintaining health, and their effects when consumed in excess or when deficient, through the appraisal of scientific information relating to their structure, function, sources and bioavailability. This module emphasises the skills required to develop a critical understanding of the scientific basis of nutritional requirements, factors that influence them, and how they are applied to populations throughout the life cycle.

### Food and Nutrition in Public Health and Policy

This module introduces you to the context of public health and policy as they relate to public health nutrition, and the professional skills required to work as a public health nutritionist. A comparative and interdisciplinary approach is taken to examine different models of public health, the scope and nature of the challenges it faces including climate change and sustainability, and food and nutrition policy responses to these challenges. There is a strong emphasis on developing your skills for professional practice, including professional accountability.

### Health Promotion in Nutrition

This module covers the skills and tools needed for information gathering, needs analysis, implementation of intervention strategies to address diet related chronic diseases.

### Nutrition Assessment

You will cover the theory and techniques used to assess nutritional status, and gain practical skills in the measurement of body composition, energy expenditure and anthropometry.



### Professional Skills for Nutritionists

This module provides a foundation in knowledge and skills necessary for a future career as a public health nutritionist. The module covers the interpretation and presentation of nutritional data and analysis. The module aims to broaden students' knowledge base and skills in the application of research methods as related to nutritional epidemiology and statistics, and, to further develop students' ability to recognise, develop and reflect on professional skills and personal attributes that contribute to employability enhancement. Students are supported to become more reflective practitioners, helping them to develop skills like effective team leadership and performing well under stress while managing conflict. Students are also supported to engage in Public Health Nutrition advocacy, governance and leadership.

### Research Methods

This module aims to develop your knowledge and competence of the research process, and the application of research methods in the area of International Public Health Nutrition.

### Research Project in Public Health

The project is an extended piece of work on a relevant topic which you select, with the approval of the Course Leader. The topic will draw on knowledge, skills and methodological techniques covered by the course.





## OPTION MODULE

### Communicating Science

Introducing you to key concepts in science communication, its challenges, rewards and applications, this module is designed to incorporate scenarios related to your interests, such as health, drug discovery and water science. The roles of science and scientists in society and how the public perceives, interacts with and responds to the information produced by scientists are explored, with the history of communicating science used to contextualise current issues in disseminating information.

### Prevention and Treatment of Obesity in Children

This module takes an ecological approach to the prevention of obesity in children, and addresses the evidence base for current strategies to prevent and treat obesity.

## ASSOCIATED CAREERS

The course is designed for people wishing to work, or already working in, public health contexts such as government ministries, UN organisations and non-governmental organisations.

## ENTRY REQUIREMENTS

You should have a good Honours degree from a UK university, or equivalent from a non-UK university, in a relevant science or social science subject. Preference is given to those with related work experience.

If your first language is not English you should have an IELTS score of at least 6.5, with 6.0 in each element.

Servings per Tin	Serving Size		28grams for 295ml
Calories 120 per serve			
	Average quantity per serving	Average quantity per 100g	
Energy	502.42 kJ	1794.34 kJ	
Protein	1g	3.57g	
Fat Total	2g	7.14g	
Fat Saturated	2g	7.14g	
Fat Trans	0g	0g	
Carbohydrate	23g	82.11g	
Sugar	15g	53.55g	
Dietary Fibre	0g	0g	
Sodium	45mg	160.65mg	
Recommended Daily Allowances (United States)			
Vitamin A	0%	Vitamin C	0%
Calcium	15%	Iron	2%
Nutritional Information			
Ingredients: Sugar, non dairy creamer (corn syrup solids, coconut oil, sodium caseinate (a milk derivative), dipotassium phosphate, maltodextrin, mono- and diglycerides, tricalcium phosphate, silicon dioxide, carrageenan, soy lecithin, stevia, Arabica coffee, natural and artificial flavors)			

# SPORTS AND EXERCISE NUTRITION MSc

## Length of course

One year, full-time; two to five years, part-time

## Location

Central London (Cavendish)

## Course fees

See [westminster.ac.uk/fees](https://www.westminster.ac.uk/fees)

## Course Leader

Dr Sally Parsonage

[s.parsonage@westminster.ac.uk](mailto:s.parsonage@westminster.ac.uk)

The amazing feats of world-class athletes across the huge range of sports has projected the issues of performance into the public eye, and sports nutrition is now recognised as a key part of supporting training and competition at all levels of participation. The Masters degree in Sport and Exercise Nutrition at the University of Westminster offers the chance to study the science behind sports nutrition, and its applications for both the 'weekend warrior' and the elite athlete. It also puts the controversies surrounding the use of supplements under scientific scrutiny, looking at the key evidence for and against performance benefits. The aim of the course is to produce sports nutritionists who are strongly focused on the science behind the subject, but who also have some experience of the practicalities of delivering sound guidance to individuals and teams who are looking to use nutrition as part of their training programmes. To this end, a number of guest lecturers contribute their expertise in key related areas, and students are also given the opportunity of shadowing established sports nutrition practitioners.



## COURSE CONTENT

The course covers the key principles of sports nutrition and exercise physiology, including the latest research papers, and aims to develop the ability to apply critical awareness to topics across the broad remit of sports nutrition, from measurement of exercise performance to the assessment of mental performance. The modules studied are designed to underpin the subject, and create a sound base for the development of ideas for the research project, which offers students a wide degree of flexibility to pursue their personal interests. The course can be studied full-time over one year, or in part-time mode over a varying time, up to five years.

## CORE MODULES

### Advanced Performance Nutrition

You will look at nutritional needs of specific athletic populations, the impact of extremes of environment, and possible contributions of diet and ergogenic aids. You will also work shadow a professional sports nutrition practitioner, and produce a reflective report.

### Assessment of Health and Fitness

You will examine the range of techniques used in assessing health and fitness, from general population up to elite performers, and the appropriate evaluation of results.

### Concepts and Principles of Nutrition

This module aims to develop critical understanding of the scientific basis of nutritional requirements, and the many factors influencing them.

### Nutrition and Performance

This module examines the role of nutrition in enhancing exercise and sports performance, including understanding of nutritional ergogenic aids and their regulation.

### Nutritional Assessment

You will study the theory and practice of methods of assessing nutritional status, at individual, group and population levels.

### Practitioner Skills for Sports Nutrition

The module aim is to prepare students for the professional demands they will be required to meet once practicing in a consultancy or team environment. This includes assessing and analysing, communication skills, and models for

changes, compliance, and follow up that are needed and can significantly impact the outcome of nutritional interventions either positively or negatively, as well as ethics, governance, professional conducts and business skills.

### Research Methods

This module ensures that basic methodology, design study, data handling and statistics are approached correctly in formulating the research project.

### Research Project

Your project should be an original study reflecting your expertise or interest, supervised by a research-active member of staff, requiring a high-level of scientific rigour and originality, and culminating in your project dissertation.

## ASSOCIATED CAREERS

The Sport and Exercise Nutrition MSc has received the Recognition Award of the International Society for Sports Nutrition (ISSN), and students are encouraged to take the Certification of the ISSN (CISSN) exam towards the end of their period of study. Accreditation by the Association for Nutrition (AfN) has been applied for, and once confirmed will allow students to take the title Associate Nutritionist, which is the first step on the professional recognition and registration ladder. Qualified sport and exercise nutritionists find employment in a number of areas, ranging from research, to public health nutrition, to performance training, and many eventually become self-employed and create their own consultancy companies which can be very successful. The course is designed to make transition into any of these areas as smooth and effective as possible.

## ENTRY REQUIREMENTS

You should have a first degree in a life sciences subject with a strong element of nutrition and/or physiology, but if you are a graduate in another discipline there is an opportunity to gain entry via successful completion of an Online Nutrition course. The fees for this will be refunded on successful registration on the Masters course.

If your first language is not English you should have an IELTS score of at least 6.5, including 6.5 in Writing, or TOEFL score of at least 98, with a minimum of 25 in the writing component.



# PSYCHOLOGY

The Department of Psychology in the Faculty of Science and Technology offers an exciting and distinctive range of postgraduate courses in some of the most interesting areas of applied psychology. Each of our courses has been developed by a team of psychologists who are specialists in their area.

The Cognitive Rehabilitation MSc is an applied, interdisciplinary course that integrates research and clinical practice with the fields of cognitive neuropsychology and neuroscience. It aims to develop strategies and techniques to support individuals who have specific cognitive difficulties.

The first course of its kind in Europe, the Business Psychology MSc has established itself as a leader in the field and our graduates can be found all around the world, applying business psychology to a wide range of organisational and interpersonal issues.

Our Health Psychology MSc has led the way in its emphasis on the evidence base for the discipline, and for its stimulating practice-related assessments.

The Psychology MSc provides the opportunity for you to pursue postgraduate study and develop a career in psychology, if your first degree was not a psychological discipline. We also welcome MPhil and PhD students, and provide expert supervision towards doctoral qualification.

The Department of Psychology has a strong reputation for postgraduate teaching. We aim to provide you with a supportive and interactive learning environment that equips you not only with theory and insights, but also with skills that can be applied in a professional setting. We gained the maximum possible mark in the last Quality Assurance Agency review of Psychology teaching, and many of our staff have been recognised for the quality of their teaching, with three winning prestigious national awards.

We believe strongly in maintaining close links between our teaching and research activities. You will be taught by active researchers who are passionate about sharing their enthusiasm for their subject area. Our vibrant research culture is distinctive for its openness, collaboration and inter-disciplinarity. We value and promote the inter-relationship of research, enterprise, knowledge transfer and teaching activity.



# BUSINESS PSYCHOLOGY MSc

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## Length of course

One year, full-time or two years, part-time

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## Location

Central London (Cavendish and Regent)

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## Course fees

See [westminster.ac.uk/fees](https://www.westminster.ac.uk/fees)

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## Course Leader

Professor Stephen Benton  
[bentons@westminster.ac.uk](mailto:bentons@westminster.ac.uk)

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Our overarching aim is to produce graduates who can diagnose and communicate organisational and behavioural needs, design and implement business psychology interventions, and build strategic HR goals and programmes. The emphasis is to equip you with theoretical and analytical skills, as well as practical business psychology skills in areas such as team building, conflict resolution, decision making, facilitation and organisational diagnostics.

You will therefore gain knowledge and skills that will enable you to work effectively within a wide range of interpersonal and multicultural situations, while formulating cost-effective solutions to operational HR problems. The course has an outstanding professional development programme, one that runs in parallel with the taught schedule and which will bring you expertise from existing practitioners through workshops, seminars and mentoring.



## CORE MODULES

### Conflict Resolution: Negotiation

The module evaluates ways in which negotiations are formed and what processes may be applied to enable or disable the negotiation process. You will study and experience methods which promote the identification of different negotiation strategies and tactics, including the Harvard model of principled negotiation. The module considers approaches to resolving disputes, and what makes an effective negotiator. We will examine professional best practice, how this promotes the design of effective organisational dispute resolution systems, and how to make them work for organisations and disputants. You will develop a body of knowledge and skills that are key to understanding interpersonal, transnational and multicultural conflict in the workplace.

### Development of Competency Frameworks: An Approach for Individuals, Teams and Organisations

The common organisational language for behavioural analysis is that of competency. This module examines the role of competency based analyses in the assessment of a wide range of workplace behaviour. You will gain an understanding of how to diagnose skill needs at both the organisational and personal level, and how to build competence-based interventions. Various exercises guide your understanding of how to utilise different psychological models in the building of frameworks. You will also focus on the role of personality models in the utilisation of diverse, culturally and individually relevant, routes to competence.

### Facilitated Decision Making

You will examine decision-aiding techniques and practise a wide range of facilitation skills. The module examines approaches to decision making, and how to apply structuring techniques to problem solving and decision making. Techniques will include Multi-Criteria Decision Analysis (MCDA), a software-based decision support technology, and Systems Thinking, which provide methods for diagnosing, designing and implementing decision support interventions. However, effective facilitation is as much about the human dimension as it is about structuring techniques, so there is also a focus on human information processing, interpersonal biases, and information processing limitations in developing effective facilitation behaviours.

### Organisational Diagnostics: Tools and Approaches

As an introduction to the range and type of behavioural and performance information available within an organisation. This module will provide both theoretical knowledge and practical experience in the ways in which information can be collected and used in pursuit of organisational competitiveness. It provides an overview of the different levels (individual, team and organisational) at which evaluations and measurement may be conducted and how business psychologists utilise this information to form the basis for mapping organisational and behavioural complexity.

### Research Dissertation (Project)

The module is designed to develop your ability to evaluate a specific business psychology problem, practice, policy or opportunity. You will be encouraged and guided in developing your research proposal and completing a discrete piece of research for your dissertation. The choice of research topic will be addressed relative to your learning experience, as well as personal and career objectives, and you will be guided on questionnaire design, selection of relevant software applications and data analysis.

### Teamwork for Effective Organisations

In this module you will learn how to use models of behaviour to recognise and manage interpersonal differences in terms of their impact on team behaviour. Various methods are explored and applied during exercises, and you will also learn how to apply methods of team structuring which provide the basis for diagnosing team behaviour. An examination of team models, group dynamics and cognitive biases will provide you with a portfolio of interventions. You will learn how to conduct evaluations of team behaviour and how this can prompt the design of team-building interventions and workshops.

### ENTRY REQUIREMENTS

You should have a good UK Honours degree (or overseas equivalent) in Business Studies, Psychology or related subjects, or qualifications which include a substantial business or management studies component. If you do not have these qualifications, but you do have significant relevant work experience, your application may still be considered.

If your first language is not English, you will need an IELTS score of 6.5 or equivalent.



# COGNITIVE REHABILITATION MSc

## Length of course

One year, full-time or two years, part-time

## Location

Central London (Cavendish and Regent)

## Course fees

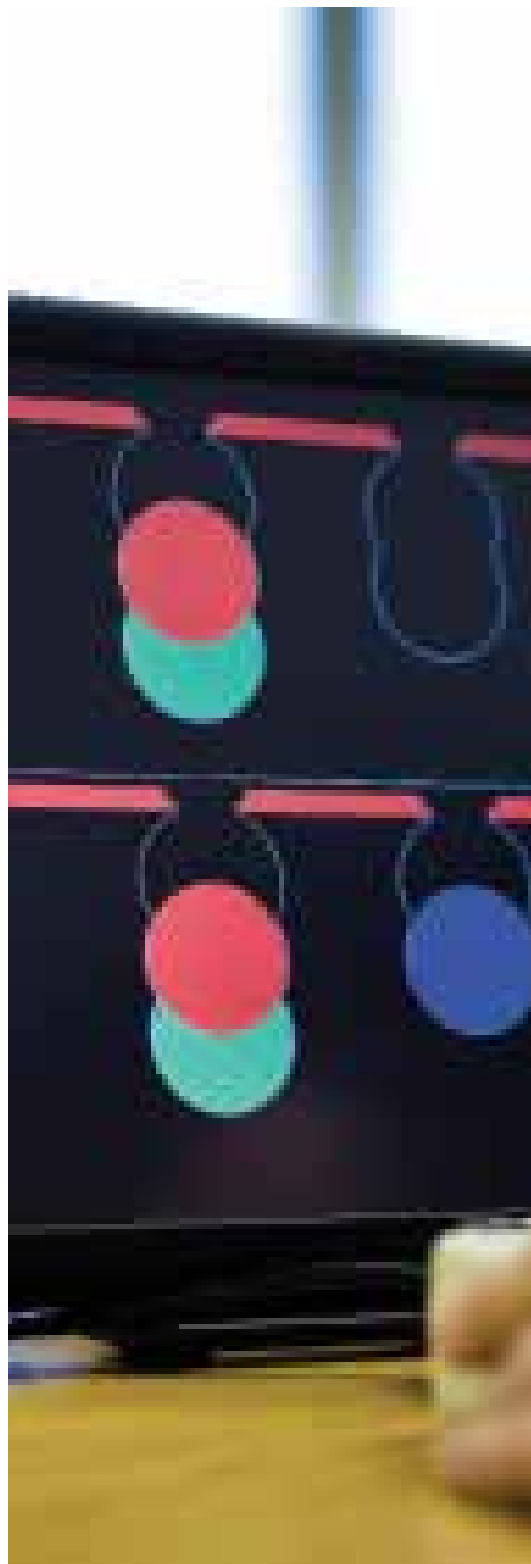
See [westminster.ac.uk/fees](https://www.westminster.ac.uk/fees)

## Course Leader

Dr Trudi Edginton  
[t.edginton@westminster.ac.uk](mailto:t.edginton@westminster.ac.uk)

Cognitive rehabilitation is a rapidly emerging field that integrates research and clinical practice within the field of cognitive neuropsychology and neuroscience and applies it to the development and evaluation of evidence-based assessment and intervention.

This course has been carefully designed to provide graduates from psychology, the life sciences and allied health professions with the theoretical knowledge and practical experience to develop their clinical skills, academic rigour and research expertise. The interdisciplinary nature of the course will provide you with a strong background in brain anatomy and function, clinical neuroscience, cognitive neuropsychology and cognitive rehabilitation, ensuring that you have training and practice in assessment, targeted rehabilitation and the ethical and professional aspects of working in a clinical setting.



## COURSE CONTENT

The focus on professional learning is supported with a work experience module that offers you the opportunity to gain valuable experience in a clinical setting. An independent research project provides you with a chance to develop your specific areas of interest with the supervision of a member of staff with relevant clinical, academic and research expertise.

## CORE MODULES

### Clinical Neuroscience

This module gives you the opportunity to investigate in some depth the neuroscience of a range of clinical disorders, and to think critically about how this contributes to our overall understanding of cognition. You are encouraged to think critically about research in this field, with emphasis on treatment strategies.

### Cognitive Neuropsychology

You will examine the theory and practice of developing a deeper understanding of cognitive neuroscience through the observation and assessment of cognitive functioning in patients with various forms of brain pathology.

### Cognitive Rehabilitation Interventions

This module will give you the opportunity to critically examine the literature with a view to developing a sophisticated understanding of the theoretical rationale and evidence-based approaches to working with individuals in a real-world setting. You will be encouraged to explore the impact of developmental changes and individual differences across the lifespan and discuss the implications for intervention and education.

### Data Handling for Applied Psychology

This module addresses the theoretical and practical issues involved in acquiring and analysing quantitative and qualitative data for research practice in the field of applied psychology. The main topics covered include: experimental designs – hypotheses, models and theories; Anova, Manova and Ancova; regression, discriminant, factor and cluster analysis; survey and questionnaire design

and psychometrics; interview techniques; qualitative analysis; content analysis; focus groups and grounded theory.

### Principles of Cognitive Rehabilitation

This module provides you with an understanding of the relevant models of healthy cognition, the biological basis of cognitive impairments and their impact on everyday functioning. Within this module you will explore historical and current methodologies and approaches to targeted cognitive rehabilitation techniques.

### Research Project with Portfolio

The Project in cognitive rehabilitation is an extended piece of work on a relevant topic that you will select with the approval of the Course Leader. The topic will draw on knowledge, skills and methodological techniques covered by the course. This may involve an in-depth exploration of one aspect of the taught course or a related aspect not formally covered in depth. On completion of the project, you are required to submit a journal-style paper, a reflective commentary and a research portfolio.

## ENTRY REQUIREMENTS

The course is open to graduates from psychology, life sciences, or allied health professions. Your application will be considered if you can demonstrate necessary experience or knowledge in essential biology, psychology or health. In addition to a fundamental understanding of basic neuroscience, you will also require some research skills, including some experience of experimental design, statistical analysis and report writing.

You will need fluent written and spoken English to study at postgraduate level. If your first language is not English, you will need an IELTS score of 6.5 or equivalent. The University offers pre-sessional summer programmes if you need to improve your English before starting your course.



# HEALTH PSYCHOLOGY MSc

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## Length of course

One year, full-time or two years, part-time

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## Location

Central London (Cavendish and Regent)

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## Course fees

See [westminster.ac.uk/fees](http://westminster.ac.uk/fees)

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## Course Leader

Dr Tina Cartwright  
[cartwrt@westminster.ac.uk](mailto:cartwrt@westminster.ac.uk)

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This course, established in 1995, was one of the first Masters in Health Psychology, and has been accredited by the British Psychological Society (BPS) since 1999. It includes an innovative portfolio of assessments – which have been consistently praised by external examiners – geared to developing your transferable skills, and relating directly to the world of work. Our assessments include critical reviews, grant application preparation tasks, presenting your work in an end of module conference, designing and implementing a behaviour change intervention, and writing your research project as a short paper suitable for submission to a peer review journal. This year we have introduced an optional work experience module which will allow students to develop skills which will help you to prepare for the workplace, and consider your future career development plans. Successful completion of the course (Stage 1) is a prerequisite for the further training (Stage 2) you will need to be able to register with the Health Professions Council (HPC) as a Health Psychologist. The course is taught by a core team of research-active staff, with collaborative links to external institutions in London and beyond.



## COURSE CONTENT

The course will give you an in-depth understanding of the theoretical and applied bases of health, illness and disease. The main aim is to help you to develop the theoretical and methodological skills essential for conducting independent research and applying health psychology in practice.

We provide a coherent programme of study covering the content, methods and application of health psychology as defined by the core Stage 1 curriculum of the BPS, Division of Health Psychology. In particular, the course emphasises the importance of an evidence-based approach to health psychology, and develops the core skills you will need for Stage 2 training. Within the core modules, there is considerable flexibility for you to choose particular areas of study of interest.

## CORE MODULES

Core modules include two introductory modules:

### Theories and Perspectives in Health Psychology

This introductory module explores a broad range of topics in health psychology within a multidisciplinary framework. You will consider the social and cultural context of health and illness, the importance of social cognition models in health care, and issues around communication and health care decisions. The module emphasises theoretical and methodological issues in health psychology research and application, and describes the historical context within which it has been developed. It encourages the critical evaluation of research and methodology in health psychology.

### Health Psychology: A Lifespan Development Perspective

This module takes a developmental approach to understanding relationships between biological and social factors that influence health and disease through the lifespan. It emphasises the dynamics of change rather than a 'stage' approach. Using this approach you will examine a number of key topics including children's health and the family context, normative transitions and life events, and vulnerability and resilience. Age-related and gender issues are also explored.

Followed by:

### Data Handling and Research Methods for Applied Psychology

Through lectures, seminars and practical classes you will address the theoretical and practical issues involved in acquiring and analysing quantitative and qualitative data for health psychology research. From a qualitative perspective, we explore interview techniques and interviewer effects, and qualitative analysis (including content analysis, interpretive phenomenological analysis and grounded theory). The main quantitative topics covered are: an introduction to discriminant, factor and cluster analysis; Anova/Manova; epidemiological statistics; experimental designs – hypotheses, models and theories; multiple regression; power analysis; questionnaire design; survey design and sampling.

### Health Psychology in Practice

You will examine a range of issues relating to health psychology practice, including client-related issues, ethical considerations, intervention issues, and professional development in health psychology. Practising Health Psychologists will be invited to contribute to the module, and teaching and learning will take place in interactive group sessions where issues relating to current health psychology practice will be discussed. These sessions will involve a range of teaching methods which will give you the experience of participation, while also demonstrating good practice for running sessions as trainers/leaders. You will also be able to put theory into practice in regular practical sessions.

### Individual Differences, Health, Stress and Illness

This module aims to give you an appreciation of the role of individual differences (including social and cultural factors) in health and illness. It will introduce you to the biological mechanisms by which stress can impact on physical and psychological health (psychoneuroimmunology), and how stress and well-being can be measured to enable evaluation of stress-management interventions. You will also consider the physiological and psychological correlates of acute and chronic pain, the theories, perception and management of chronic illness, and the meaning and mechanism of action of the placebo effect.

### Research Based Project: Health Psychology

This module is designed to enable you to realise your training in the context of a particular research problem, aspect of methodology, or policy. The area of work should bring together your occupational experience or preference with the substantive material covered during the taught components of the course. There is no set syllabus, and projects are intended to give you maximum flexibility in selecting an appropriate area of application, and investigating and assessing potential research sources and their relevance to the existing field of knowledge.

### Specialist Topics for Applied Psychology

This module will cover the areas of review writing skills, systematic review protocol, design critique, and grant application writing skills. Relevant professional issues will also be explored, including: inter professional working; research ethics; presentation skills; careers; portfolio development for project research; national and international perspectives on applied psychology; and practice specific issues.

Students who take the optional module: 'Work Experience in a Psychological Setting for MSc Students' will spend proportionately less time on the Research Based Project: Health Psychology module.

## ENTRY REQUIREMENTS

Normally you should have a good Honours degree that confers eligibility for the Graduate Basis for Chartered Membership (GBC) of the BPS. However, we will consider candidates without GBC with some evidence of interest in the discipline. This can be demonstrated by your choice of undergraduate modules, undergraduate project area, or your work experience within health psychology or a related field. You may be invited for an informal interview.

If your first language is not English, you will need an IELTS score of 6.5 or equivalent. The University offers pre-sessional summer programmes if you need to improve your English before starting your course.



# PSYCHOLOGY MSc

## Length of course

One year, full-time or two years, part-time

## Location

Central London (Cavendish and Regent)

## Course fees

See [westminster.ac.uk/fees](http://westminster.ac.uk/fees)

## Course Leader

Dr Ian Hodges  
[i.hodges@westminster.ac.uk](mailto:i.hodges@westminster.ac.uk)

This BPS-accredited conversion course is designed for graduates who wish to pursue a career in psychology but need to acquire the Graduate Basis for Chartered Membership (GBC) of the British Psychological Society (BPS). This was previously termed 'Graduate Basis for Registration' (GBR). You do not need to have studied psychology to be eligible for this programme. We welcome applications from graduates who have either completed an honours degree in another subject, or who have insufficient psychology in their honours degree to be eligible for GBC.

## COURSE CONTENT

You will take modules at Masters level in core areas of psychology, as specified by the BPS. You will also take one Masters – level option module in psychology from a selection available within the department. We offer a Work Experience in Psychology module as an option for those who would like to gain valuable experience in the work place. The content of the curriculum of the MSc covers the core areas of Psychology stipulated by the BPS for GBC. This consists of Cognitive Psychology, Developmental Psychology, History and Philosophy of Psychology, Individual Differences, Empirical Project, Psychobiology, Qualitative and Quantitative Research Methods, and Social Psychology. In all of the modules there is a strong emphasis on critical evaluation of theory and practice.



## CORE MODULES

### Developmental and Differential Psychology

You will develop a wide-ranging knowledge of the key developmental concepts used within psychology, enabling a deeper understanding and appreciation of human psychological development and individual differences in intelligence and personality.

### Fundamentals of Psychology

This module provides an introduction to the fundamental concepts, methods and study skills required in psychology.

### Project for Psychology MSc

This module requires you to carry out an independent empirical research project, under supervision from your tutor.

### Psychobiology and Cognitive Psychology

You will examine the fundamental concepts of the biological bases of human behaviour. You will also develop an insight into the discipline of cognitive psychology via an appraisal of the history, methodology and key empirical findings of the area.

### Qualitative Research Methods

This module is designed to develop your knowledge and skills of the key techniques and methods for collecting and analysing qualitative data within psychology.

### Quantitative Research Methods

This module enables you to develop key skills and advanced knowledge of quantitative research methodologies within Psychology.

### Social Psychology and Conceptual Issues in Psychology

This module examines the key characteristics of the socio-psychological perspective on human behaviour. You will also develop your knowledge and understanding of the social and historical context of contemporary psychology.

## ASSOCIATED CAREERS

The Graduate Basis for Chartered Membership (GBC) is the first step towards becoming a Chartered Psychologist. It is the prerequisite for progression to postgraduate professional training in psychology and subsequent registration as a Chartered Psychologist working in any of the fields of professional psychology – including clinical, counselling, educational, occupational, and health psychology. It is a requirement for Masters and Doctorate courses in psychology that lead to professional qualifications, such as Doctorates in Counselling, Clinical and Educational Psychology, and Masters courses in Organisational/Occupational Psychology.

## ENTRY REQUIREMENTS

We welcome applications from graduates with a recognised university degree at Second Class Honours level or above (or equivalent). Applicants who have taken an Honours programme but only obtained a pass/ordinary/aegrotat degree will not be eligible for the course. As statistical procedures are a key element of psychology, we require applicants to demonstrate competence in mathematics, for example through having obtained GCSE mathematics (or equivalent). We also encourage applicants to provide evidence of interest in the discipline of psychology and reflection on the ways that their experience to date would enable them to succeed at Masters level.

If your first language is not English, an attainment of at least IELTS 6.5 or equivalent must be demonstrated. The University offers pre-sessional summer programmes if you need to improve your English before starting your course. Students from all backgrounds, irrespective of age, gender, sexuality or ethnic/cultural background are encouraged to apply.



## ENGLISH LANGUAGE SUPPORT

International students who have been offered a place to study a postgraduate course at Westminster, but who have not met the English language requirements, may also be offered a place on one of our pre-sessional courses.

If you are an international student who has met the English language requirements for your course, but would still like to study on one of our pre-sessional courses, you may also apply to the admissions officers responsible for your course.

To be admitted onto either the six-week or 12-week course, you will need to meet minimum English language criteria; full details of entry requirements can be found on our website, at [westminster.ac.uk/courses/english-as-a-foreign-language/pre-sessional/undergraduate-and-postgraduate-in-september](https://westminster.ac.uk/courses/english-as-a-foreign-language/pre-sessional/undergraduate-and-postgraduate-in-september)

Once you have started your degree, our Professional Language Centre can offer you further language skills support through our Academic English modules.



### Pre-sessional English

Our pre-sessional English courses will help you to develop the language and study skills necessary for academic life on your postgraduate course. You will also experience student life through our social and welcome programmes.

Our aim is to provide you with a solid foundation in the use of Academic English orally and in writing for when you start your degree course, and to give you the skills, knowledge and experience to make the most of your time at university.

### Academic English modules

Our Academic English modules have been designed to allow you to consolidate, extend and develop your proficiency in Academic English alongside your degree course. Assessment of your level of proficiency in Academic English will take place during orientation week and learning week one (exact dates and time-slots will be circulated to students in early September or early January, depending on your course start date). This will determine whether you will benefit from taking one of the modules.

For more information visit [westminster.ac.uk/academic-english](https://westminster.ac.uk/academic-english)



# RESEARCH

Research in the Faculty of Science and Technology encompasses a wide range of disciplines, drawn from the life sciences, electronics and computer science, and psychological sciences.

Life science subjects range from pure to applied science, integrating areas from structural biology, molecular genetics, applied microbiology and biotechnology. Our life science expertise extends to human performance, Chinese medicine, public health nutrition and wellbeing. Research in electronics and computer science focuses on theoretical and practical solutions to modern society's needs, such as ICT services, health and social care, green technologies, safety and security, and environments for teaching and learning. Research in psychology includes psychobiology, cognitive psychology and cognitive neuroscience, and social psychology.

Our research is internationally recognised. In the most recent Research Assessment Exercise, the research outputs of a number of staff were judged to be at the levels of World Leading (4\*) and Internationally Excellent (3\*).

Much of our work has an applied focus, with real-world impact. Experienced and research-active staff work in close collaboration with the bio-industry, NHS and other research institutions within the UK, Europe and the US. Our facilities at the Cavendish Campus are equipped with state of the art instrumentation.

Students may register for research degrees in full-time or part-time modes. We have an excellent track record of student success, with the majority of students completing their studies in three to four years.

Our research is supported by major grants and awards from government departments, research councils, the European Union and industry, and benefits from strong national and international links with leading academic and commercial organisations. We offer services to industry such as consultancy, system development, seminars and professional training programmes all linked to the educational and research portfolio of the Faculty.



## RESEARCH AREAS

Research in the Faculty is focused around a number of thematic clusters:

- Applied Biotechnology: brings together researchers specialising in the application of biotechnology in a variety of milieu.
  - Cell Communication: fosters a multidisciplinary approach to explore the basic bioscience underpinning health, and incorporates the Against Breast Cancer Research Unit.
  - Diagnostics and Therapeutics: a multidisciplinary cluster centred on the detection of disease and development of novel treatments.
  - Electronic and Communication Engineering: incorporates research groups working on Systems Analysis, Applied DSP and VLSI, Wireless Communications, and Communications and Compunetics.
  - Faculty of Science and Technology Higher Education: brings together pedagogical research and innovation in academic practice across all the Faculty's disciplines.
  - Operational Research and Intelligence Systems: focuses on Data and Knowledge Management, Health and Social Care Modelling, and Computational Intelligence.
  - Parallel and Distributed Computing: incorporates the Centre for Parallel Computing and the Distributed and Intelligent Systems group.
  - Perspectives in Health: brings together patient experience, research and EASTmedicine.
- Psychology: encompasses work in a number of areas, with particular strengths in Psychobiology and Health Psychology (including the Psychophysiology and Stress Research Group), Cognitive Psychology and Cognitive Neuroscience, and Social Psychology.
  - Semantic Computing and Systems Engineering: incorporates the Semantic Computing and Computer Vision and Imaging groups.
  - Westminster Water Science: a centre of research and excellence in developing science and policy for sustainable water resource management.





# MPhil/PhD

## Length of course

MPhil – three years full-time, up to five years part-time

PhD – four years full-time, up to eight years part-time

## Location

Central London (Cavendish)

## Course fees

See [westminster.ac.uk/fees](http://westminster.ac.uk/fees)

The Faculty of Science and Technology provides research degree training for suitably qualified candidates carrying out projects that relate to the research interests of academic staff. Normally, you are expected to study for a period of at least 33 months (or 45 months in the case of part-time enrolment), and to have completed your doctoral research within a maximum of four years (eight years if part-time).

As a postgraduate research student you will have access to dedicated office space, telephone and computer facilities within the Faculty. You will also be able to take advantage of various academic events, such as research seminars (in which internal and external speakers present research findings), and an annual Research Forum. All this will help facilitate your integration into the research culture of the Faculty. Our library holds specialist books and journals and you will also be close to other specialist libraries including the British Library and the University of London Library.



## COURSE STRUCTURE

You will usually first enrol as an MPhil/PhD student. You will then be required to pass a formal interview (with an independent assessor) about half way through your course of study before you can transfer to full PhD student status. Only in exceptional situations (usually when an applicant already has a MPhil degree) can students register directly for PhD study. Within four months (or six months if part-time) of initial enrolment, you will be required to submit a formal application for MPhil/PhD registration. This includes a fully developed, detailed plan of academic work. MPhil/PhD registration is only confirmed when this application has been formally approved by the University. Once admitted as a PhD student, you will have a supervisory team with a Director of Studies. We provide a research training programme which you will take alongside your own research activities. The PhD is assessed by the submission of a thesis and a viva voce examination by a panel that includes an external examiner.

## ENTRY REQUIREMENTS

You should normally hold at least an Upper Second Class Honours degree, and preferably a Masters degree.

If your secondary level education has not been conducted in English you should also demonstrate evidence of appropriate English language proficiency, normally defined as 6.5 in IELTS (6.0 in every band).

## PROFESSIONAL DOCTORATE IN HEALTH SCIENCES

The Professional Doctorate in Health Sciences provides the opportunity to produce doctoral level practice-based research, based upon your professional expertise and the work of your organisation.

This degree is for senior practitioners, clinicians, team leaders, managers, and specialists working in the wide domain of life sciences.

We are particularly interested in applicants who wish to study in the following areas:

- Biomedical sciences and diagnostic services.
- Health and well-being: men's health, successful ageing, health promotion and behavioural change.
- Healthcare governance: clinical and integrated governance, the patient and service – user experience, management of healthcare services.
- Nutrition: sports and exercise nutrition, international public health nutrition, food security.
- Public health.

## HOW TO APPLY

The University of Westminster accepts applications through the national, online UK Postgraduate Application and Statistical Service (UKPASS) system. Once you have registered you can apply free of charge.

Before submitting an application you need to contact a prospective supervisor to discuss your research ideas. Our research interests are listed on our website [westminster.ac.uk/about-us/faculties/science-and-technology/research](http://westminster.ac.uk/about-us/faculties/science-and-technology/research)

For more information and to apply visit [westminster.ac.uk/research/graduate-school/prospective-students](http://westminster.ac.uk/research/graduate-school/prospective-students)

If you are suitably qualified and we can offer supervision in your chosen area, you will need to attend a formal interview; telephone interviews may be arranged if you are based abroad.

If you have any enquiries regarding the admission process you can contact our Research Office team on +44 (0)20 7911 5731 or email [researchadmissions@westminster.ac.uk](mailto:researchadmissions@westminster.ac.uk)



## ABOUT THE UNIVERSITY OF WESTMINSTER

For more than 175 years the University of Westminster has been a vibrant and creative place for learning, where students have enjoyed a dynamic professional and educational environment, graduating with the skills they need to succeed in their chosen career.

As an international centre for learning and research we are committed to continuing those traditions. We pride ourselves on our record of excellence in research that makes a difference – to academia, to the professions, to business, to industry. Westminster has led the way – nationally and internationally – in research in architecture, art, and media and communications. Our work in areas such as business, computing, law, life sciences and the environment, planning, and psychology has been recognised as internationally excellent, and many of our courses have also received top quality ratings.

In 2012/13 we launched our Graduate School, a dynamic 'hub' and cross-university focus for all staff and doctoral researchers engaged in research activity. The School supports the personal and professional development of doctoral and early career researchers through a range of activities, including seminars and networking events to facilitate sharing of best practice.

Each year a diverse mix of students of many backgrounds and abilities join the Westminster family. We have more than 20,000 students from over 150 nations (a quarter of whom are postgraduates) studying with us.

From our prime locations across three large campuses in London's West End, we are well connected to the UK's major centres of business, law, science and architecture. Our fourth campus in Harrow is a hub for the study of media, arts and design, with its own on-site student village.

The Faculty of Science and Technology courses are based at our Cavendish and Regent campuses. Both sites have been the focus of major refurbishment in recent years, including significant investment in laboratories and social areas; the campuses are also based in the heart of London's exciting and vibrant West End.

The University of Westminster has more than 900 teaching staff supported by over 900 visiting subject specialists, delivering high-quality learning and research. Our libraries provide access to more than 380,000 titles, 30,000 e-journals, 20,000 e-books and 230 databases; the libraries at all four of our campuses are open 24 hours a day, seven days a week, during the majority of term time. Based in the heart of one of the world's greatest cities, our close links with industry and professional organisations in London, across the UK and internationally enable us to attract the highest quality guest speakers and lecturers, and provide you with extensive networking opportunities and introductions to many of the world's leading companies. More than 50 separate professional bodies offer accreditation, approval or recognition of our courses, or membership for our graduates. Whatever career path you choose, our Career Development Centre can help to develop your employability and offer advice on your route after graduation. Our extensive network of tutors, administrators, counsellors, health service professionals, financial advisers and faith advisers is there to support you in every aspect of your life at Westminster.

Studying for a postgraduate degree is a challenging but extremely rewarding experience. You will develop specialist knowledge, hone your professional skills, and enhance your career prospects. To help you achieve your aims, we offer a mature study environment, dedicated postgraduate facilities and a broad range of courses that respond to and anticipate developments in professional life. We aim to help you develop both the knowledge and the life skills you will need to succeed in an increasingly international workplace.







## LIVING AND STUDYING IN LONDON

London is one of the world's most exciting cities. From business and finance to fashion, art, music, cinema and sport, London is where things tend to happen first. And as one of the city's 400,000 students, much of what happens in the capital is within your reach.

Importantly, making the most of London doesn't have to be expensive. With substantial student discounts and many of the city's attractions being free, you'll always find ways to make your money go further. Despite the size of the city, travel is usually straightforward with good underground, bus (including night buses) and train networks, and student discounts are available on Transport for London (TfL) travelcards. London is well connected by rail

and road to the rest of the UK and Europe, and there are global air links through the city's five major airports. The University of Westminster's central London campuses are within easy reach of many famous landmarks and institutions including the Houses of Parliament, the BBC, the London Stock Exchange and the British Museum.

Alternatively, if you choose to study in Harrow, you can combine the advantage of a residential green site with easy accessibility to all that London has to offer.

The University is also ideally located to network with the city's business leaders and employers, so we can offer great placements and work opportunities for our students. Career opportunities in the capital are exceptional, with more than one million private sector businesses and public sector organisations operating within 20 miles of the University of



Westminster. And with the British Library, the University of London Library and the archives of many institutions and professional bodies all close at hand, there is a huge variety of reference books and information to help you with your studies.

### Culture and entertainment

London is home to more than 250 art and design galleries, over 600 cinema screens, and 200-plus theatres. The city also boasts a particularly vibrant music scene, ranging from rock, dance and pop, to world and classical music, a level of variety matched by London's exciting nightlife. And there is no shortage of places for socialising and dining out – with world cuisines represented at prices to suit everyone you can eat out for as little as £5.

If your passion is for fashion and shopping rather than traditional culture, London is home to designers such as Vivienne Westwood, Stella McCartney and Burberry, and the city is famous for its markets.

Football, rugby, cricket and tennis are among the sports that feature high on London's leisure scene, at legendary venues such as Wembley, Twickenham, Lords and Wimbledon. But if you prefer your leisure activities to be more relaxed, London is a city of more than 140 parks; 39 per cent of the city is green space.





## AN INTERNATIONAL EXPERIENCE

With one of the UK's largest international student populations, the University of Westminster has plenty of experience in giving you the help and support you need to make the most of your time with us. Before you arrive, you will receive a full information pack with details of your enrolment, healthcare and other information. You will be regarded as a priority for accommodation, but it is still important to apply early. We also provide a 'meet and greet' service for students landing at Heathrow Airport on specific days towards the end of September. Our team will meet you at the Airport, and arrange transport for you to travel with other international students to your halls of residence or private accommodation.

Once you are here, we can give you comprehensive help and assistance including a whole range of services and activities to help you settle in. The International Students' Welcome Programme gives you the chance to meet fellow new students and Westminster staff, find your way around the University and London, learn about our facilities and services, and meet current international students. For more information visit [westminster.ac.uk/international](http://westminster.ac.uk/international)

### Meet us in your country

Members of the University frequently travel overseas to meet and interview potential students at exhibitions, partner institutions, alumni receptions and other events. We also work with representatives around the world who can help you with your application to Westminster. Visit [westminster.ac.uk/international](http://westminster.ac.uk/international) to see our calendar of visits and a full list of the overseas representatives we work with.

### Student visas

If you are a non-EU EEA passport holder you will need to check your visa requirements for study in the UK, by visiting [ukba.homeoffice.gov.uk](http://ukba.homeoffice.gov.uk)



### English language support during your studies

We run a number of English language courses, from stand-alone short courses (including IELTS preparation) to pre-sessional courses and courses on English for Academic Purposes (EAP) during your studies with us. For more information visit [westminster.ac.uk/efl](http://westminster.ac.uk/efl)

### Pre-sessional English for Masters

Our pre-sessional English course will help you to develop the language and study skills you need to join a full-time postgraduate degree at Westminster. The course is designed for students with an IELTS score of 5.5 or 6.0, and who have a conditional offer for a course that requires IELTS 6.5. The course lasts 11 weeks (IELTS 5.5 entry) or six weeks (IELTS 6.0 entry); successful completion allows you to progress to your Masters course, and also experience student life through our social and welcome programmes. You can find more information online at [westminster.ac.uk/courses/english-as-a-foreign-language/pre-sessional](http://westminster.ac.uk/courses/english-as-a-foreign-language/pre-sessional)

# STUDYING AT WESTMINSTER

## HOW TO APPLY AND ENTRY REQUIREMENTS

### Taught Masters

The University of Westminster accepts applications through the national, online UK Postgraduate Application and Statistical Service (UKPASS) system. Once you have registered you can apply free of charge, and there is no application deadline for UKPASS, so you can make your course choices one at a time or all together; for more information and to apply, visit [ukpass.ac.uk](http://ukpass.ac.uk)

Alternatively you can contact our Course Enquiries Team, T: +44 (0)20 7915 5511, E: [course-enquiries@westminster.ac.uk](mailto:course-enquiries@westminster.ac.uk).

International students can get advice and support with applications from one of our partners around the world; to find out more, visit [westminster.ac.uk/international/countries/visits](http://westminster.ac.uk/international/countries/visits)

### Entry requirements

Most courses have the following minimum standard entry requirements:

- a good first Honours degree from a recognised university, or qualification or experience deemed to be equivalent, and
- English language competency judged sufficient to undertake advanced level study, equivalent to an IELTS score of at least 6.5 (or as specified in the course criteria).

If your first qualification is from outside the UK please look at [westminster.ac.uk/international](http://westminster.ac.uk/international) for information on our requirements from your country. Any specific entry requirements for a course are given in the course description.

### Research degrees

Separate application and admissions procedures apply for MPhil/PhD research degrees. See p128 for details.

### Gaining credit for what you have learned

Your previous study or experience, whether through paid work or in a voluntary capacity, may mean you can gain exemption from some modules. The Assessment of Prior Certificated Learning (APCL) accredits certificated learning such as Open University modules or in-company training. The Assessment of Prior Experiential Learning (APEL) recognises knowledge or skills acquired through life, work experience or study – such as computer programming or organisational skills – which have not been formally recognised by any academic or professional certification.

However, it is up to you to make a claim if you think you may be eligible. The process is rigorous, but guidance is available from the admissions tutor or course leader of your preferred course of study. Credit will only be awarded for learning that is current and that relates to the aims and content of the course for which you are applying.



## COURSE STRUCTURE

### MASTER OF SCIENCE (MSc)

#### Full-time study

Courses last for one calendar year (48 weeks). You will probably attend the University for seminars or lectures at least two days a week during the teaching year (31 weeks). The delivery and assessment of taught modules will normally be carried out between September and June, but it's likely that you will need to study over the summer months for your independent research – usually a project or dissertation.

#### Part-time study

There are part-time routes in most subjects, and you can study during the day or the evening, or a mixture of both. Achieving a postgraduate qualification part-time normally takes at least a year (usually two), studying on average two days each week of the academic year, with a further six to 12 hours each week of personal study. Some employers will enable you to study by day release from work.

#### Modular scheme

Our Masters degree courses are modular study schemes based on a system of accumulating credits, and offer the most flexibility and choice in your course programme. You can transfer credits you have gained to other courses or institutions, and every course combines core and option modules which, as you complete them, bring you closer to gaining your higher degree.

#### Intensive block study

Some Masters courses are offered in short, intensive, block study periods of one to four weeks. They are full-time and may include weekend and weekday study; they are often followed by 12 weeks of personal study using an Independent Learning Package (ILP) approach. Single postgraduate modules can sometimes be studied in this way.

#### MPhil/PhD courses

See the research section on p128.





## ACCOMMODATION, FEES AND FUNDING

### ACCOMMODATION

After choosing your course, one of your biggest decisions will be where to live, and we aim to make that choice as easy as possible. Whether you decide to live in our halls of residence or in private housing, we can help you to find the right accommodation. For more information visit [westminster.ac.uk/housing](http://westminster.ac.uk/housing)

#### Halls of Residence

Full-time postgraduate students can apply to live at Depot Point near King's Cross, or Wigram House in Victoria, our two exclusively postgraduate halls in the centre of London. The majority of rooms in these halls are single study bedrooms with shared kitchens; rooms at Depot Point also have an en suite bathroom.

All of our halls are a short distance away from the teaching sites and give students a great base to study and to explore London. Rents vary from £128-£220 per week depending on the room type, and the price includes bills. Applications can be made following the instructions on our website.

#### Private accommodation

If you prefer a more independent lifestyle, we can help you to find your ideal student home. There is a huge supply of rented housing in London at a wide range of prices. Rents depend on where you live but, as an example, the majority of students studying in central London commute from travel zones 2 or 3 (just outside the central area), where you can expect to pay from £120 per week for a room in a shared flat or house. We can offer all students comprehensive advice on finding suitable private accommodation, and a good starting point is to attend one of our housing meetings in August and September. Here you can get a range of housing information and tips on successful flat hunting, as well as meeting other students to form groups to flat hunt together.



#### Fees, funding and scholarships

Studying at university is a long-term investment in your future, and one which can make a significant difference to career prospects and your earning power. But to be able to make the most of your time at Westminster, it's also important to work out how you will pay your fees, accommodation and day-to-day expenses while you are here.

Fees increase each year, normally in line with the rate of inflation. To find out the latest fee levels for your particular course, visit the course page on our website at [westminster.ac.uk/courses/postgraduate](http://westminster.ac.uk/courses/postgraduate)

The University of Westminster has one of the most generous scholarship schemes of any British university, and we are able to offer a wide range of scholarships for UK, EU and international postgraduates, and for those studying on either full-time or part-time routes. You can find our latest scholarship funding levels online, at [westminster.ac.uk/scholarships](http://westminster.ac.uk/scholarships); please check the site regularly for updates.

Once you have been offered a place (conditional or unconditional) on a postgraduate or PhD course you can apply for a scholarship. Scholarships are competitive and have strict deadlines. Details of the application process, and deadlines for full-time UK, EU and international students, can be found by visiting [westminster.ac.uk/scholarships](http://westminster.ac.uk/scholarships)

## LOCATION

If you study at the University of Westminster, everything that London has to offer is on your doorstep. Our central London campuses are ideally located for shopping, eating out, enjoying London's nightlife or just simply relaxing. As a University of Westminster student you will have access to all the facilities the University has to offer on all four campuses.

**Cavendish Campus** is situated in the artistic and bohemian area of Fitzrovia, with Oxford Street, Regent's Park and the British Museum only a ten-minute walk away and the peaceful Fitzroy Square just around the corner.

**Marylebone Campus** is opposite Madame Tussauds and just off Baker Street. We are close to the elegant shopping available on Marylebone High Street and just five minutes away is one of London's finest green spaces, Regent's Park.

**Regent Campus** is situated on and around one of the busiest streets in London, home to a wide range of bustling shops, cafés and restaurants and just a couple of minutes walk from Oxford Street.

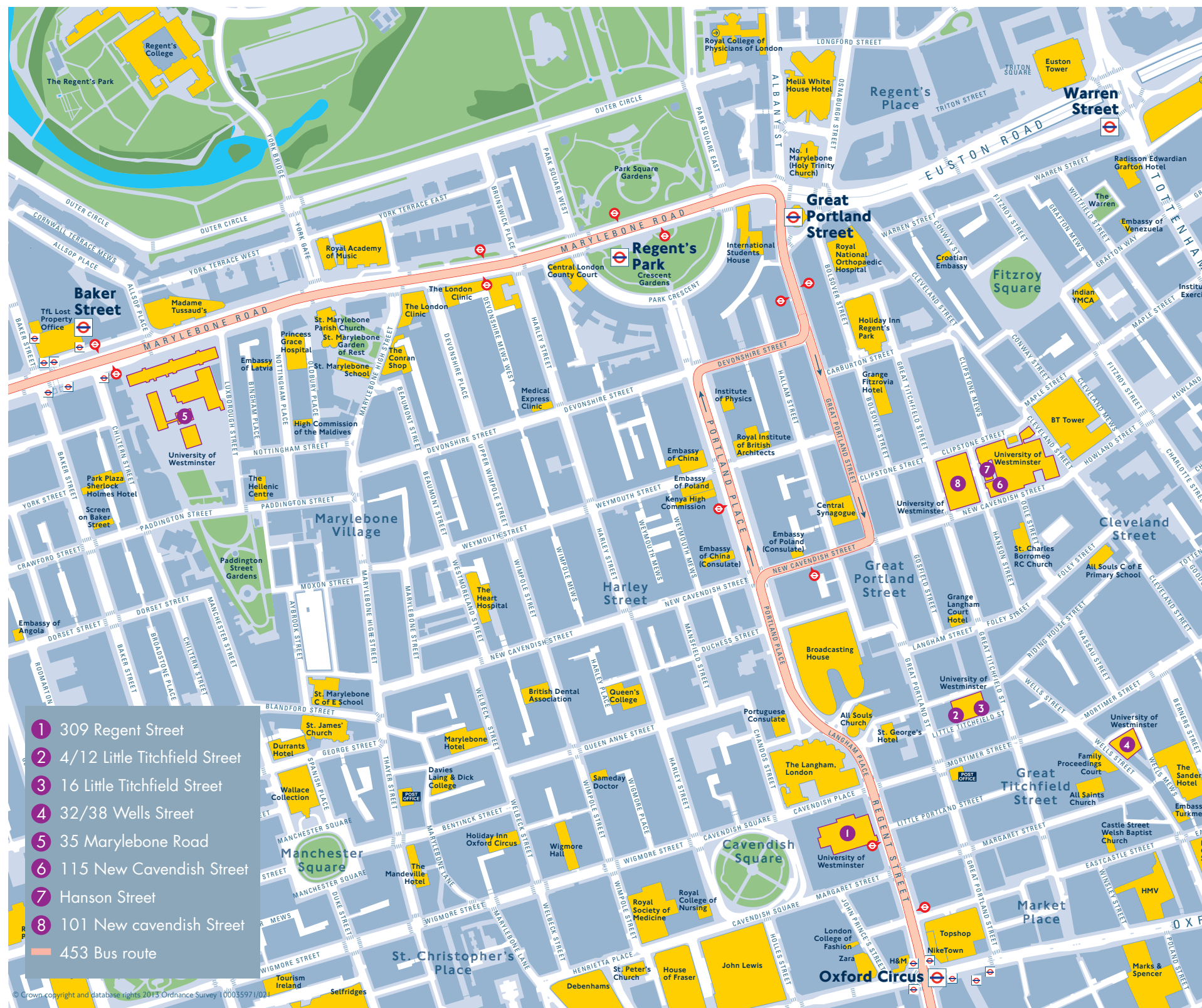
In north west London, **Harrow Campus** is just 20 minutes by Tube from central London, and close to Harrow town centre. Here you will find major retail stores, a civic centre, an arts centre and a multiplex cinema. Nearby Harrow-on-the-Hill is a historic village offering a richly contrasting atmosphere.

The Faculty of Science and Technology is based at our Cavendish Campus, and our Regent Campus.

### Faculty locations

Cavendish Campus  
115 New Cavendish Street  
London W1W 6XH  
United Kingdom

Regent Campus  
309 Regent Street  
London W1B 2UW  
United Kingdom



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## CONTACT US

### COURSE ENQUIRIES

Our Course Enquiries Team can provide you with information and advice on a range of issues, including:

- associated careers
- contact details for Admissions Offices and Admissions Tutors
- course information and course outlines
- entry requirements
- how to apply for a course
- non-UK qualifications equivalencies
- Postgraduate Information Evenings and Undergraduate Open Days – dates, times and locations
- prospectus – how to order a printed copy
- tuition fees

Call our dedicated Course Enquiries Team from 9am-5pm, Monday-Friday.  
T: +44 (0)20 7915 5511

E: [course-enquiries@westminster.ac.uk](mailto:course-enquiries@westminster.ac.uk)

#### Course Enquiries Team

University of Westminster  
First Floor, Cavendish House  
101 New Cavendish Street  
London W1W 6XH

### MEET US IN YOUR COUNTRY

Members of the University frequently travel overseas to meet and interview potential students at exhibitions, partner institutions, alumni receptions and other events. We also work with representatives around the world who can help you with your application to Westminster. Visit [westminster.ac.uk/international](http://westminster.ac.uk/international) to see our calendar of visits and local representatives.



Information in this brochure is correct at the time of going to press but amendments may have to be made subsequently.

Published in July 2014. Produced by Recruitment, Admissions and Marketing Services.

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FOR COURSES IN:

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CHINESE AND HERBAL MEDICINE

COMPUTER SCIENCE AND SOFTWARE ENGINEERING

ELECTRONICS, NETWORK AND COMPUTER ENGINEERING

MULTIMEDIA

NUTRITION

PSYCHOLOGY

Find out more about the University of  
Westminster's mobile app for students:

[westminster.ac.uk/iwestminster](http://westminster.ac.uk/iwestminster)

## CONNECT WITH WESTMINSTER ONLINE

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[instagram.com/  
uniwestminster](https://instagram.com/uniwestminster)

See our University  
page on LinkedIn

## COURSE ENQUIRIES

T: +44 (0)20 7915 5511

E: [course-enquiries@westminster.ac.uk](mailto:course-enquiries@westminster.ac.uk)

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Registered office: 309 Regent Street, London W1B 2HW

6741/07.14/HG/BP