

BIOMEDICAL SCIENCES  
RESEARCH LABORATORIES

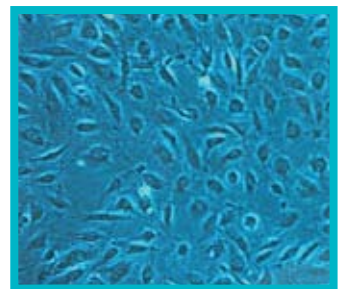


1st floor



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### Dean of the School of Life Sciences

Professor David Coates BSc PhD CBIol FIBiol

### Division of Biomedical Sciences

#### Head of Division

Dr Sue Parkin BSc PhD

#### Admissions Tutor

Dr Michael J Porter BSc MSc PhD

### Please address all enquiries to:

The Admissions Secretary  
Division of Biomedical Sciences  
University of Bradford  
Bradford  
West Yorkshire  
BD7 1DP

Tel: 01274 233562

Fax: 01274 309742

Email: [bms-admissions@bradford.ac.uk](mailto:bms-admissions@bradford.ac.uk)

Website: [www.bradford.ac.uk/acad/biomed](http://www.bradford.ac.uk/acad/biomed)

If you are dialling from outside the UK, please use the code +44 1274 before the final six-figure number

### General Course Enquiries:

Course Enquiries Office

Tel: 0800 073 1225

Minicom: 01274 233685

Fax: 01274 235585

Email: [course-enquiries@bradford.ac.uk](mailto:course-enquiries@bradford.ac.uk)



This booklet can be made available in other formats, for example, Braille, large print or digital audio. Please contact the Division of Biomedical Sciences. Tel: 01274 233562

The University of Bradford - **Confronting Inequality: Celebrating**

### Diversity™

The University has a comprehensive policy on equal opportunities, and is committed to promoting and supporting it across all aspects of University activity.



# The Division of Biomedical Sciences

Are you interested in human disease? Would you like to know more about the causes of disease, the effects of disease on the cells and tissues of the body, the methods used to diagnose disease and current strategies for disease prevention and treatment? If you enjoy the biological sciences and are interested in their practical application, particularly in health care and related research, a degree course in the Division of Biomedical Sciences could be just what you are looking for.

**The University of Bradford has a strong reputation in the education of healthcare professionals.**

Bradford was the first university in the UK - and one of the first in the world - to introduce an undergraduate degree course in Biomedical Science. The Division of Biomedical Sciences has continued to pioneer high-quality new developments in biomedical sciences education, and it is recognised both nationally and internationally for the excellence of its courses and graduates. The Division and its associated Medical Biosciences and Cancer Research Focus Groups have a strong international research base (RAE grade 5) that contributes to the quality of its provision and the student experience.

The Division of Biomedical Sciences at Bradford is large and friendly and is committed to both high-quality teaching and research. As an undergraduate on one of our BSc Honours degree courses, you will be part of a community dedicated to understanding disease processes and developing techniques on which lives - certainly the quality of life - may depend. You'll have the opportunity to develop your interests in a way that will enable you to secure a satisfying career in medical research, in health care, in the pharmaceutical, biotechnology or food industries, and many other areas.



- Our BSc in Biomedical Science is an externally accredited course
- New specialisation in cancer biology
- BSc in Biomedical Science offers transfer to Pharmacy or Optometry
- Flexible broad base with opportunities to specialise
- Practical laboratory focus
- Research project and work placement opportunities
- Excellent graduate employment record
- Further study
- Internationally recognised research

### **Our BSc in Biomedical Science is an externally accredited course**

The Biomedical Science course is accredited by the Institute of Biomedical Science, and can lead to Registration by the Health Professions Council.

### **New Specialisation in Cancer Biology**

The Division introduced this new specialisation to the Biomedical Science course in 2004/5.

### **BSc in Biomedical Science offers transfer to Pharmacy or Optometry**

The School of Life Sciences provides the opportunity to transfer between courses at the end of Year 1. Transfer is conditional upon academic achievements at A level and performance throughout Year 1.

### **Flexible Broad Base with Opportunities to Specialise**

The Biomedical Science course is broadly based, but final-year options allow you to develop a specialism in a particular field.

### **Practical Laboratory Focus**

Our courses introduce you to modern laboratory techniques, including DNA technology. They take a fresh approach to biomedical studies, and prepare you for a wide range of employment opportunities.

Our facilities are excellent and you will learn the latest techniques from enthusiastic and experienced staff.

### **Research Project and Work Placement Opportunities**

In the final year you will undertake a research project on an area of current research. You will also have the opportunity to work for a year in a hospital, research or industrial laboratory between the second and final years. We strongly encourage you to take advantage of this opportunity - for further details see page 13.

### **Excellent Graduate Employment Record**

Our graduate employment record is excellent, with 88% of our 2007 graduates in employment or further study just six months after graduating.\* Some graduates find work in laboratory-based careers while others opt for scientific but non-laboratory-based employment.

*\*These statistics are derived from annually published data based on those UK domiciled graduates who are available for employment and further study and whose destinations are known.*

### **Further Study**

Others go on to undertake research or seek a more vocational or specialist qualification such as medicine, forensic science, optometry or dentistry.

### **Internationally Recognised Research**

The Division and its associated Research Focus Groups received a score of 5 (the highest possible score is 5\*) in the latest Research Assessment Exercise. This means the teaching you receive will be up to date and include a focus on the latest research findings, techniques and cutting-edge practice.

# Degree Programmes and Study Patterns

## Study Patterns

You may pursue three years of full-time study or you may study for four years with a year being spent in an NHS, industrial, forensic or research laboratory.

The Division will help you to organise your placement, and there is also the financial attraction of receiving a full salary while working. For more information on the year out, please see page 13.

## Course Content

**Biomedical Science** involves the study of normal life processes in humans and provide an understanding of the causes and consequences of human disease. The methods used in the investigation and diagnosis of human disease are also explored.

This interdisciplinary course brings together expertise designed to give you an extensive knowledge of normal life processes and disease during your first two years. You may then choose to spend a year outside the University gaining valuable and relevant experience in a working laboratory.

## BSc (Hons) in Biomedical Science

*(accredited course)*

In the final year there are a number of common modules, but you spend at least half your time specialising in one of the major options described below. You will also complete a substantial research project.

**Cancer Biology** examines the molecular and genetic basis of cancer, and explores current and developing anti-cancer treatments.

**Cellular and Molecular Pathology** examines the cellular and molecular basis of normal and disease systems. There is a critical appraisal of the cellular and the molecular pathogenesis, diagnosis and treatment of human disease conditions in the areas of haematology, immunology, cancer biology and toxicology.

**Medical Biochemistry** examines the molecular mechanisms that alter the biochemical functioning of cells and lead directly to disease.

**Medical Microbiology** examines the basis of microbial pathogenicity. It also covers the ways in which pathogens can be identified and isolated, public health issues and the means used to treat infectious disease.

**Pharmacology** investigates how drugs and toxic substances interact with cells and tissues, both healthy and diseased, and examines critically the techniques available for the qualitative and quantitative assessment of such responses.

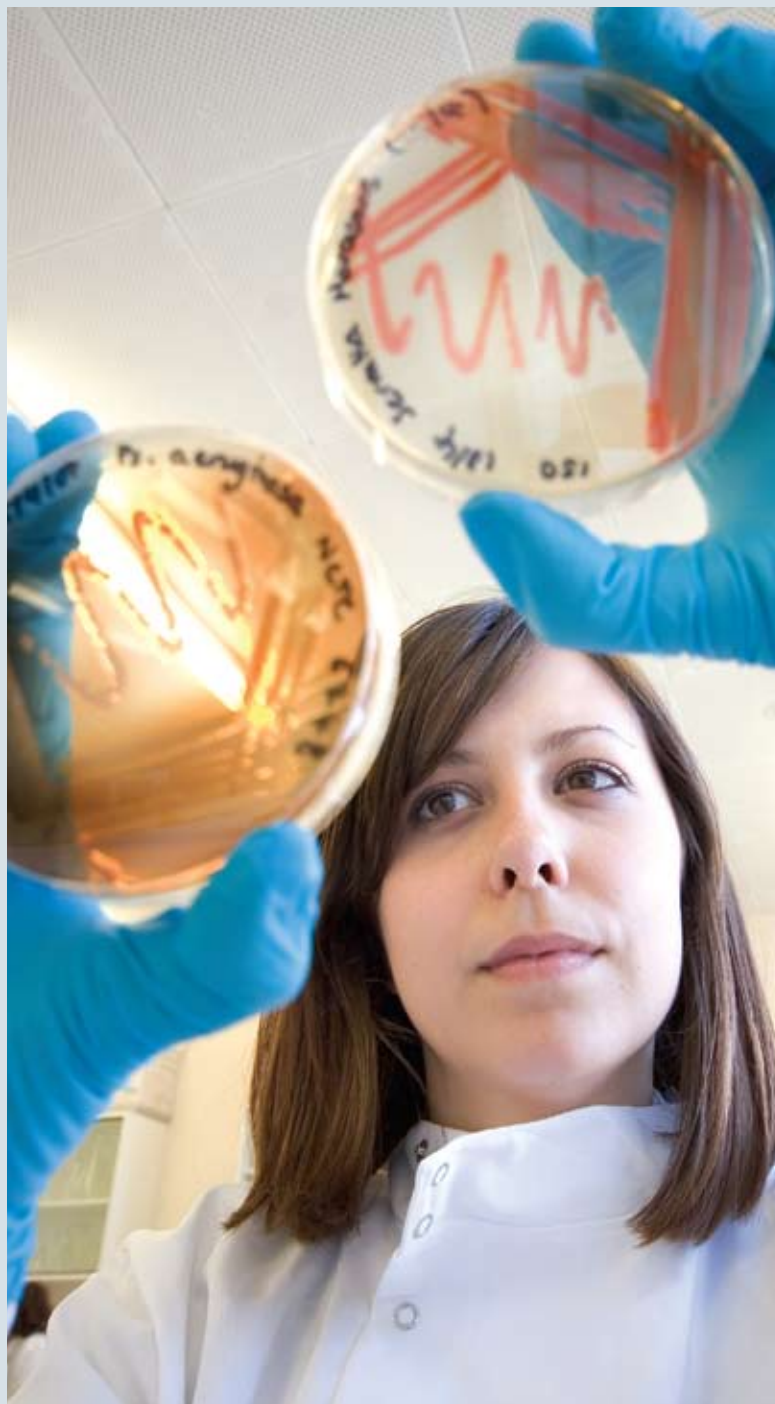
Students may undertake NHS-funded work experience placements in an approved hospital laboratory (see page 13).

## BSc (Hons) in Applied Biomedical Science

**(Accredited course)**

This is an extended four-year course, resulting from the mandatory inclusion of a one-year funded 'sandwich' placement, in an approved hospital laboratory.

Students registered on the new Applied Biomedical Science degree should be able to complete the Institute of Biomedical Science (IBMS) Certificate of Competence Registration Portfolio during their sandwich placement, and at graduation be eligible immediately to apply for Health Professions Council (HPC) Registration. Subsequent to graduation they will also be able to apply for Licentiatehip of the IBMS (LIBMS).





## You can contact the HPC at the address below:

Park House  
184 Kennington Park Road  
London SE11 4BU  
Tel: 020 7582 0866  
Fax: 020 7820 9684  
Email: [info@hpc-uk.org](mailto:info@hpc-uk.org)  
Web: [www.hpc-uk.org](http://www.hpc-uk.org)

## The Institute of Biomedical Science

(IBMS) is the professional body for Biomedical Scientists in the United Kingdom. It aims to promote and develop Biomedical Science and its practitioners.

The Institute was founded in 1912 and represents approximately 16,000 members employed mainly in National Health Service and private laboratories, veterinary laboratories, the National Blood Authority, Health Protection Agency, Medical Research Council and Department for Environment, Food and Rural Affairs. Other members also work in related commercial fields and in teaching. Most members live and work in the United Kingdom and Ireland but many are employed overseas.

The Institute has many roles, and some of the more important ones are listed below:

- Accreditation of Biomedical Science degree courses
- Issuing the IBMS (certificate of competence registration) portfolio
- Conducting assessments of completed portfolios
- Approving laboratories for registration training
- Awarding the certificates of competence required for registration by the Health Professions Council.

The Institute of Biomedical Science has been granted a licence by The Science Council to award the designation Chartered Scientist to qualifying IBMS members. The designation Chartered Scientist is a mark of excellence awarded to scientists practising at their full professional level and who stay up to date in their scientific field. The designation was conferred to The Science Council by Royal Charter in October 2003 and adds Science to the now-familiar list of chartered professions such as biologist, accountant or surveyor.

## You can contact the Institute of Biomedical Science at the address below:

12 Coldbath Square  
London EC1R 5HL  
Tel: 020 7713 0214  
Email: [mail@ibms.org](mailto:mail@ibms.org)  
Web: [www.ibms.org](http://www.ibms.org)

Only a small number of courses are accredited by the IBMS and are listed on their website.

**The Health Professions Council** is an independent, UK-wide, regulatory body which was established by the Health Professions Order 2001. Their job is to protect the health and wellbeing of people who use the services of the health professionals registered with them. At the moment they register members of 13 professions, some of which are listed below:

- Biomedical Scientists
- Clinical Scientists
- Dietitians
- Paramedics
- Physiotherapists
- Radiographers

Each of the professions above has at least one professional title which is protected by law. It is a criminal offence to claim to be registered with the HPC if you are not, or to use a protected title that you are not entitled to use.

The HPC will only register people who meet their standards for training, professional skills, behaviour and health. Regulation means that patients and the public, as well as employers and potential employers, know that registered professionals are safe to practise. It makes sure that the public is protected and also that we maintain standards.



# BSc (Hons) in Biomedical Science



# BSc (Hons) in Biomedical Science

[www.bradford.ac.uk/acad/biomed](http://www.bradford.ac.uk/acad/biomed)

**In Biomedical Science you study normal life processes in humans and gain an understanding of disease processes, the methods used in their investigation, and the identification and development of therapeutic intervention strategies. Although the subjects you cover are broadly similar to the pre-clinical components of a medical degree course, our course aims to produce graduates who understand disease from a scientific perspective. We produce highly educated and yet flexible Biomedical Scientists, with excellent career prospects.**

The BSc Honours courses cover three years, but you have the option of taking a year out between the second and third years, in order to gain additional practical laboratory experience (see page 13). Biomedical Science at Bradford is unique in giving you this opportunity, as well as in offering a range of specialist options in the final year.

The course has been designed on a modular basis, with two semesters within the academic year. Each semester consists of twelve weeks of teaching and a period of assessment. You study twelve modules a year (six in each semester), and need to complete 36 modules in total before you can be awarded a degree.

In the first two years all students take the same modules, but in your final year you choose to specialise in one of five options. Each final-year option contains four core modules, plus four specialist modules and a research project worth the equivalent of four modules.

One of the many advantages of the course is its accreditation by the Institute of Biomedical Science (IBMS). This means that students with the degree qualification who have also completed an IBMS portfolio will be issued with a Certificate of Competence by the IBMS. The Certificate is recognised by the Health Professions Council and will allow the holder to become a registered Biomedical Science Practitioner.

In the final year you study topics at the forefront of disease research, and specialise in one of five major subject areas. This enables you to graduate with sound advanced and specialist knowledge, supported by a broadly based, thorough grounding in general Biomedical Science, and enhanced by practical experience gained in modern and well-equipped laboratories.

The course is also designed to enable you to enhance other skills that employers value very highly; for example, written and oral communication, teamworking, problem solving and IT skills.

# BSc (Hons) in Biomedical Science

## The First-year Syllabus

The modules you take in the first year are designed to give you an understanding of the normal structure and function of mammalian systems, and to introduce you to the techniques and procedures for their qualitative and quantitative investigation. You will also study microbiology.

### Cell Biology (*one module*)

This module provides a basic understanding of the structure and function of a variety of differentiated and non-differentiated eukaryotic cells. It also covers specialist techniques used to study cells.

### Biological Molecules and Biochemistry (*two modules*)

In the first module you examine the major classes of biomolecules, their physical and chemical make-up, and how this affects the reactions in which they are concerned. In the second module you look at how biomolecules function in living processes, and some of the major biochemical pathways in which they are involved.

### Cells and Tissues (*one module*)

You examine the structure and function of the human body at both macroscopic (gross) and microscopic (histological/cytological) levels. You will gain experience of histological techniques used to recognise cells, tissues and organs.

### Human Genetics (*one module*)

You will study the structure of chromosomes and their genes, and the replication of genetic material during cell division. This module also includes the genetic basis of human disease, and descriptions of the more common genetically related diseases.

### Microbiology (*double module*)

This module introduces the nature of microbes and their world, including their growth, ecology, taxonomy, safe handling and control. It also covers their impact on our lives and the environment in which we live.

### Medical Physiology (*double module*)

In the first module you examine a selection of organs, with the emphasis on control mechanisms. In the second you concentrate entirely on the central nervous system, allowing time to consider this complex system in depth. You are also introduced to pharmacology, considering the use of drugs to treat diseases.

### Reproductive Biology and Embryology (*one module*)

You consider male and female reproductive systems; the production of gametes; fertilisation; the development of the embryo and foetus; and the formation of the placenta.

### Developing Professional Skills I (*double module*)

This provides you with a range of skills to help you throughout your course and in future employment, including keyboard skills used in word processing, and the use of databases and spreadsheets. You will also be introduced to statistics and experimental design. The laboratory skills element introduces you to some of the equipment and techniques used by Biomedical Scientists, and shows you how to use them safely and with precision.

## The Second-year Syllabus

In the second year the emphasis changes to the study of disease. By the end of the year you will have gained considerable general knowledge of human health and disease; the underlying causes of disease, the effects of disease on cells and tissues, methods used in the diagnosis of disease, and therapeutic intervention using drugs.

### Clinical and Analytical Biochemistry (*two modules*)

The first module covers clinical biochemistry, where you investigate the biochemical causes and consequences of disease. In the second part, covering analytical techniques, you explore the variety of practical methods (and their interpretation) used in modern laboratories.

### Human Physiology and Pharmacology (*double module*)

You observe normal and abnormal physiology, and the mechanisms of drugs on cardiovascular, endocrine and nervous systems.

### Immunology (*one module*)

You are introduced to the immune system. You study the tissues and cells of the immune system, and immune responses to infection including the production of antibodies. You will also gain practical experience of immunological techniques.

### Medical Microbiology (*double module*)

You study the role of microbes in health and in the pathogenesis of disease, and gain practical experience in the culture and identification of microbes for diagnosis.

### Molecular Genetics and Molecular Cell Biology (*double module*)

This topic includes the study of molecular genetics and introduces the theoretical and practical aspects of genetic engineering and biotechnology. You will also expand your knowledge of cell function at the molecular level.

### Pathology (*double module*)

You investigate the mechanisms by which diseased states occur, progress and cause complications in patients. You observe the range of human diseases, and the changes they produce in cells and tissues.

### Developing Professional Skills II (*one module*)

You will further develop skills relevant to the world of work and enhance your awareness of professional issues. Topics will include intermediate-level statistics, CV writing, interview techniques, and health and safety in the workplace.

# BSc (Hons) in Biomedical Science

[www.bradford.ac.uk/acad/biomed](http://www.bradford.ac.uk/acad/biomed)

## The Final Year

The final year includes four core modules taken by all students. In addition, the course is unique in offering you the opportunity to specialise in one of five major options concerned with the origin, development, transmission, monitoring, prevention and treatment of disease. Each option consists of four specialist modules.

You also undertake a research project, usually in the area of your specialism, which is equivalent to four modules and worth just over 20% of your final grading. You undertake your research project and write up a report based on it during the first part of the second semester. You will be encouraged to present the results of your research work at meetings of learned societies, as well as in poster displays within the Division of Biomedical Sciences.

You do not need to decide on your final-year option until towards the end of your second year. When filling in your UCAS form, you should indicate your most likely preference at that stage, but this is not binding, and will not affect your chances of being made an offer. Whichever you choose, the degree you will receive will be a BSc Honours in Biomedical Science.



## Final-year Syllabuses

### Core Modules

#### Biotechnology and the Human Genome (*double module*)

You study modern DNA technology and bioanalytical techniques used for the analysis of diseased tissues and fluids. You investigate the role of biotechnology in biomedical science, and examine bioanalytical techniques used in industry, hospital and contract laboratories.

#### Gene Expression and Cellular Communication (*double module*)

You study advanced concepts in molecular genetics including the regulation of gene expression. You will also study the genetic basis of disease, exploring the molecular basis of genetic predisposition to disease, how gene defects give rise to disease states, and how genetic conditions can be identified in the laboratory. You also explore the molecular basis of cell communication in normal and diseased states. You will gain an insight into how an understanding of disease at the molecular level can allow the development of targeted therapeutic intervention strategies.

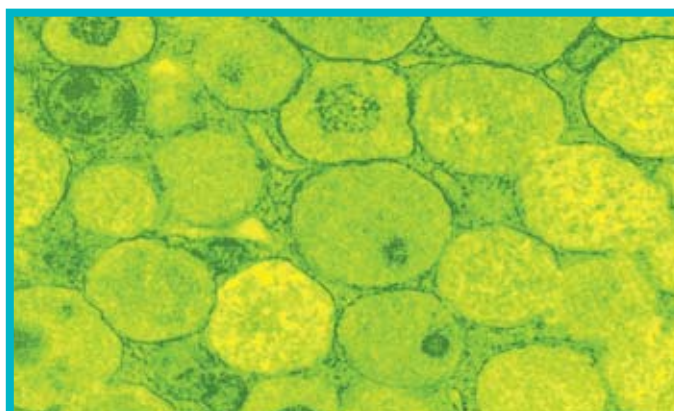
### Research Project

A list of suggested projects is produced which covers areas related to current research in progress in the Division. In consultation with the academic staff, you choose from the list the project which is most relevant and interesting to you.

The project is a substantial piece of research worth the equivalent of four modules including a module on research methods.

Some recent research projects have included:

- Work on the effects of anti-cancer drugs
- The characterisation of autoantibodies in patients with autoimmune disease
- The regulation of enzymes involved in skin pigmentation
- The mechanisms involved in the binding of pathogenic bacteria to human cells





“

I thoroughly enjoyed my time at the University of Bradford. Biomedical Science is a very good course. I found it engaging, varied and the staff were always helpful and enthusiastic. The degree is also very well respected by employers. From my time at University I have learned valuable life skills and made lifelong friends. I have found the whole experience to be one of the best of my life.

Jacqueline Key  
BSc (Hons) Biomedical Science graduate

”

## Specialist Options

### Cancer Biology *(four modules)*

In this option you will study the molecular and genetic basis of cancer, and the treatment of cancer. You will study DNA damage, DNA repair mechanisms, and the roles of proto-oncogenes, oncogenes and tumour suppressors in the cell cycle, and the cellular responses to genotoxic and hypoxic stress. The option will also discuss current anti-cancer treatments and the development of novel target-based approaches. Practicals in this option embrace the modern laboratory techniques of cellular pathology, molecular biology and medical biochemistry that are used to study cancer.

### Cellular and Molecular Pathology *(four modules)*

This option includes double modules in immune pathology/haematology and oncology (cancer biology)/toxicology. You study normal states and the mechanisms that give rise to a variety of diseases. You study the cellular and molecular basis of diseases of the immune system (autoimmune disease/transplantation), the blood (haemoglobinopathies/anaemia) and cancer (endocrine tumours/lymphomas/leukaemias). You will also study cancer epidemiology and toxicology. You also explore how these diseases can be diagnosed with modern techniques, and how targeted therapeutic intervention strategies are developed, including current methods for cancer control, and you gain practical experience of modern laboratory techniques in cellular pathology.

### Medical Microbiology *(four modules)*

This option includes double modules in diagnostic and public health microbiology and the pathogenesis of microbial diseases. You examine in breadth the main activities of public health, environmental health and clinical diagnostic microbiology laboratories. You develop an appreciation of the principles and practice of environmental and food microbiology, particularly in the surveillance of communicable disease, and in their contribution to prevention and control, including diagnosis and treatment of patients with infectious syndromes. You also examine the natural history of microbial interactions with man and other animals, with special reference to the molecular basis of microbial pathogenicity and the changing patterns in the epidemiology of infectious diseases. You will gain theoretical and practical experience of microbial identification and how it can be achieved, and be able to explain the role of anti-microbial chemotherapy in patient care and management.

### Pharmacology *(four modules)*

This option includes biochemical and behavioural pharmacology, and cardiovascular and endocrine pharmacology. You investigate how drugs interact with cells and tissues, both healthy and diseased. You appreciate the key role of receptors and neurotransmitter systems as targets for study in the development of new and selective therapeutic agents, particularly those agents which are psychopharmacologically active. You also study the cardiovascular and endocrine systems as targets for therapeutic intervention, and consider the excitation of vascular and cardiac muscle and the mechanisms which control and integrate cardiovascular function. You explore how we currently manipulate hormones by drugs, and are encouraged to think about how these manipulations may be extended in the future to combat disease. You critically examine the techniques available for the quantitative assessment of cell and tissue responses to pharmacological agents such as therapeutic or toxic substances.

### Medical Biochemistry *(four modules)*

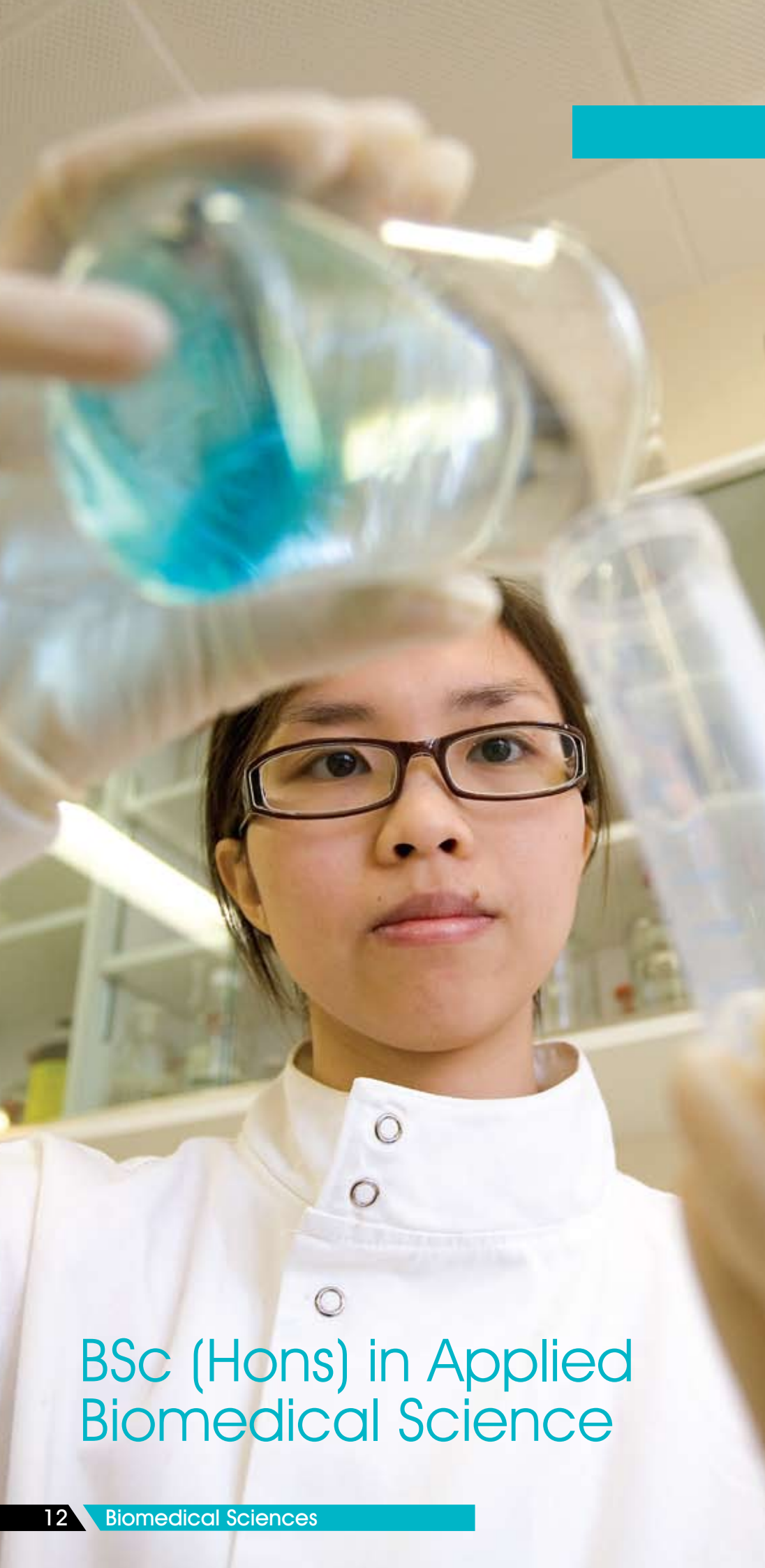
In this option you will study the molecular and genetic basis of disease, and how this alters the body's biochemical pathways. You study the body's biochemical responses to various injurious factors and inborn errors of metabolism. You also study selected normal and disease states. You investigate the biochemistry of obesity and diabetes, cardiovascular disease including atherosclerosis, and cancer. The module also explores how these diseases can be diagnosed with modern techniques, and how targeted therapeutic intervention strategies are developed; and you gain practical experience of modern practical laboratory techniques in biochemistry.

### IBMS Portfolio

During the course of study it will be possible for students to partially complete the IBMS portfolio. This will be facilitated for all students who wish to eventually achieve Registration. Full completion of the portfolio will depend on a further period of training in an appropriate NHS laboratory either during a placement year (see page 13) or after graduation.

“Overall, I made the best friends and had the best experience from studying at the University of Bradford, and I wouldn't change it for the world!”

Hero Nikdin  
BSc (Hons) Biomedical Science graduate



## BSc (Hons) in Applied Biomedical Science

**This course is designed for those who intend working within the NHS, and other similar diagnostic laboratories, and includes a mandatory one-year funded 'sandwich' placement, in an approved hospital laboratory.**

While the degree course provides the foundation for a wide range of scientific careers, the course is specifically designed to permit you to complete all the Standards of Proficiency required by the Health Professions Council (HPC) as evidenced by the successful completion of the IBMS Certificate of Competence Portfolio, allowing you to apply for registration as a Biomedical Scientist.

Accreditation and approval are very important for students who would eventually wish to work as a Biomedical Scientist in National Health Service laboratories, and some other related laboratories, where registration with the HPC is required.

To be eligible to apply for registration, students must have completed an IBMS-accredited Honours Biomedical Science or Applied Biomedical Science degree course, have undertaken a period of training in an approved hospital laboratory, and successfully completed the IBMS Certificate of Competence Registration Portfolio.

Students on the Biomedical Science degree would normally complete the IBMS Certificate of Competence Registration Portfolio as part of their first Trainee Biomedical Scientist post after graduation. Students registered on the new Applied Biomedical Science degree should be able to complete the IBMS Certificate of Competence Registration Portfolio during their sandwich placement, and then at graduation be eligible immediately to apply for HPC Registration. Subsequent to graduation they will also be able to apply for Licentiate status of the IBMS (LIBMS).

All new students will be eligible to apply for transfer to the Applied Biomedical Science degree course (full-time) at the end of the first year of study on the full-time Biomedical Science degree course.

# BSc (Hons) in Applied Biomedical Science

# BSc (Hons) in Biomedical Science The Year Out (Intercalation)

[www.bradford.ac.uk/acad/biomed](http://www.bradford.ac.uk/acad/biomed)

## BSc in Biomedical Science – An optional year of experience in an approved laboratory

Many students choose to use the experience gained in the first and second years of the course to work in an NHS, industrial, forensic or research laboratory, chosen from those which are recognised for the quality of their scientific work.

This optional year of paid employment outside the University gives you the opportunity to explore a potential career and gain valuable laboratory experience. In some cases you can use the experience towards gaining the Registration offered by the Health Professions Council.

You do not pay fees for this period (often referred to as an intercalated year) as it does not form part of the course. Neither is it assessed, although many employers like you to submit a written report at the end of your time with them. As this is an extramural year, not a sandwich course, you will not be formally visited by a member of the Division of Biomedical Sciences, but we are always at the end of the telephone, and you are welcome to contact us if you have any problems.

You may find that taking this optional year out gives a maturity which helps you tackle your final year with a greater motivation, giving you more confidence in your studies. This may improve your chances of obtaining a good degree. Furthermore, employers look for the qualities which a year of laboratory experience provides, and you may find that choosing this option makes it easier for you to enter your preferred career.



There is considerable variety in the placements available. Apart from hospital departments, and other public sector laboratories (including the Blood Transfusion Service), many industrial laboratories are involved in the intercalation programme.

The Yorkshire and Humber Strategic Health Authority provides some fully funded work experience placements (8 in 2006/2007) which allow students to complete their IBMS portfolio with a view to gaining Registration by the Health Professions Council. Students who take up these placements will be those who demonstrate a firm commitment to a career as a Biomedical Science Practitioner in the NHS and who demonstrate the appropriate academic potential.

Recently, students have been placed with companies including Astra Zeneca, Covance, Fisons, Johnson & Johnson, SmithKline Beecham, Glaxo/Wellcome (now GlaxoSmithKline), Mast Laboratories, Nestlé, and the Sanger Centre in Cambridge.

We strongly recommend you take advantage of this opportunity. The Intercalation Tutor will advise and help you organise your placement. We fully expect you will find the whole experience of great benefit to you, both as an individual and in your career.

“You have some very good young people in your University!”

Phil Learoyd  
Leeds Blood Centre

# Admission



## Admissions Tutor

Dr Michael J Porter

## Admissions Secretary

Mrs Eileen Mountain

Division of Biomedical Sciences  
University of Bradford  
Bradford  
West Yorkshire  
BD7 1DP

Tel: 01274 233562

Fax: 01274 309742

Email: [bms-admissions@bradford.ac.uk](mailto:bms-admissions@bradford.ac.uk)

## GCE A Levels

The majority of our students enter on the basis of GCE Advanced levels. All study patterns have common entry requirements and our typical offer is **260 points** (equivalent to B, C, C at A level) with at least 100 points (grade B) in either Biology or Chemistry. Offers are made subject to interview. If you are only taking the equivalent of two GCE A levels, you may be set a higher offer. AS qualifications are welcomed and count as half an A level. If you can indicate genuine breadth of study (for example, at least two contrasting AS examinations), then we will count all your qualifications, including Key Skills, when adding up your points score. General Studies may be included, but is not in itself evidence of breadth of study. If you have a GCE A level in Biology but not Chemistry or an A level in Chemistry but not Biology, then Biology or Chemistry (or dual award science) are required at GCSE (minimum grade C). English and Mathematics GCSE are required at minimum grade C. Please note that these levels of qualification are flexible, particularly during Clearing, and therefore you are advised to contact the Admissions Tutor for advice and clarification.

## Other Qualifications

We welcome applications from candidates offering alternative qualifications, for example Irish Highers, Scottish Highers/Advanced Highers, BTEC, the International (or European) Baccalaureate, or an Access course. In all cases, the critical consideration will be your ability and achievement in biology or chemistry. Details of levels of entry for a wide range of qualifications may be found on our website ([www.bradford.ac.uk/acad/biomed](http://www.bradford.ac.uk/acad/biomed)).

### Edexcel BTEC National Qualifications (Level 3)

The University has traditionally accepted a significant number of BTEC qualified applicants. We welcome applications from candidates pursuing the level 3 BTEC National Awards, Certificates and Diplomas. A combination of these qualifications (6 and 12-unit) with other 3, 6 or 12-unit vocational or general awards (GCE) is similarly welcomed.

### VCA A Level In Science

The University will accept AVCE usually alongside other qualifications such as AS levels and/or Key Skills to attain the required 260 points. If you are unsure if your combination of units would be acceptable please contact the Admissions Tutor for clarification.

If you are taking a VCE A level in other subjects (for example, Health and Social Care), please contact the Admissions Tutor **before** making a formal application.

### Scottish Highers / Advanced Highers

260 points with at least 60 points in both biology and chemistry, and at least 40 in mathematics.

### Irish Higher Leaving Certificate

B, B, C, C, C; with biology and chemistry at grade B, and mathematics; all passed at one sitting.

### NCEA Certificate or Diploma

Overall merit in a relevant science.

### Other Qualifications

Please contact our admissions staff for advice before you make a formal application.

- Science-based Access certificate
- The International Baccalaureate with 28 points including relevant science subjects
- Recognised nursing or medical laboratory qualifications
- Recognised overseas Diplomas/Certificates in Medical Laboratory Technology or Science
- Open University Foundation course in Science

Course	Study Pattern	UCAS Code
<b>Biomedical Science</b>	Three/four-year BSc	<b>C900 BSc/BS</b>
Cancer Biology	Three/four-year BSc	<b>B133 BSc/CBiol</b>
Cellular and Molecular Pathology	Three/four-year BSc	<b>B131 BSc/CMP</b>
Medical Biochemistry	Three/four-year BSc	<b>C740 BSc/MB</b>
Medical Microbiology	Three/four-year BSc	<b>C500 BSc/MM</b>
Pharmacology	Three/four-year BSc	<b>B210 BSc/P</b>

*Please ensure that you use only ONE course code on your UCAS form*

## Foundation Year in Science

(UCAS Code: F008 BSc/Scf)

Applicants with inappropriate qualifications for direct entry to Year 1 may obtain entry to the Division's degree courses through the Science Foundation Year. This is a full-time, one-year course designed around individual learning programmes that provide sufficient grounding in key subjects for progression to the degree courses. On application, you indicate the course code for your preferred degree course and, on successful completion of the Foundation Year, you will be guaranteed entry to the first year of that course. Please contact the Admissions Tutor for further details of Foundation Programmes that provide suitable preparation for study on our degree courses.

## Students with Disabilities

The Division of Biomedical Sciences has always encouraged applications from students with disabilities, whose applications are considered on the same academic grounds as are applied to all candidates. We make special provisions to provide a suitable learning environment wherever possible. When you enquire we will try to arrange an interview for you with a specialist from our Disability Service to discuss your particular requirements. You will receive information about our facilities, and on the Disabled Students' Allowance (DSA). For more information, help and advice, please contact the Disability Service.

Tel: 01274 233739  
 Minicom: 01274 235094  
 Fax: 01274 235340  
 Email: disabilities@bradford.ac.uk

## Admissions Policy

### Direct entry to the second year of the course

It may be possible to enter directly on to the second year of the course; for example, if you hold a relevant HND, or have appropriate professional experience, or a recognised overseas qualification. Please contact our admissions staff before making an application.

## International Students

We welcome enquiries from international students, who should make sure that their English is good enough to understand lectures and tutorials. You can show this by passing English at GCSE level (minimum grade C) or by having a recognised international qualification such as IELTS (6.0) or TOEFL (550 paper-based test, 220 computer-based test, or 83 Internet-based test). Please write to our admissions staff for further details.

## Applicant Visit Days

After we have made you an offer, we will invite UK-based students to a formal interview and their families/friends to attend an Applicant Visit Day in the Division of Biomedical Sciences on a Wednesday or Saturday between December and March. This will provide you with relevant information to help you choose the right course and the right University for you. You will be given a warm welcome and opportunities to meet teaching staff and current students. You can tour the Division and the teaching laboratories, and find out about our current research activities. There will also be tours of the campus facilities, and a chance to see a room in a Hall of Residence.

## Admissions Procedure

When completing your form, you should enter the code for your preferred specialism. However, your choice is not binding at this stage, and will not limit your choice of options later. Nor will it affect your chances of being made an offer. If you do not have a preference now, then use the **B940 Biomedical Science** group code instead.

## Please address all enquiries to:

Admissions Secretary  
 Eileen Mountain  
 Tel: 01274 233562  
 Fax: 01274 309742  
 Email: bms-admissions@bradford.ac.uk

Applications for our courses must be made through UCAS. The UCAS code for Bradford is **BRADF B56** and the course codes for courses in the Division of Biomedical Sciences are listed at the top of the page.

# Your Career Prospects

Our students have an excellent record of fulfilling their ambitions when they graduate, with around 88%\* of our 2007 graduates entering full-time employment or going on to further study. Some graduates choose laboratory-based careers while others opt for scientific but non-laboratory-based employment.

## Laboratory-based careers

These include medical research either in hospitals, universities or research institutes. Research opportunities also exist in the pharmaceutical companies such as Astra Zeneca, Fisons, Johnson & Johnson, SmithKline Beecham and Glaxo/Wellcome (now GlaxoSmithKline), Merck Sharp and Dohme, or Smith & Nephew. Some graduates enter the public sector working as Clinical Scientists or medical laboratory scientific officers in hospital laboratories, or work as scientists in public health laboratories or forensic science laboratories. The food industry also employs a number of our graduates, particularly those specialising in microbiology.

## Non-laboratory-based careers

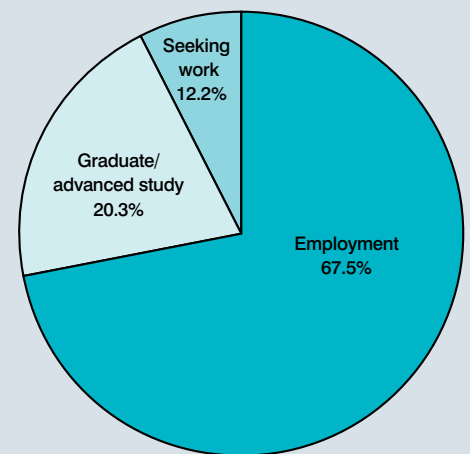
The opportunities here are very wide. Within the pharmaceutical and biotechnology industry, there are careers as clinical trials co-ordinators, and as regulatory affairs executives (involving drug registration and patents). In addition there are opportunities in medical information services, medical sales and medical writing and publishing. The Health and Safety Executive and the Forces also provide career openings. Some of our graduates have also found careers in banking and management, or as computer programmers, distribution trainees, trading standards officers and even a leprosy worker in Nepal.

## Further study

Approximately 20% chose to continue their studies, either at Bradford or at another university. The majority of these are graduates who undertake research for the degrees of PhD or MPhil (Doctor or Master of Philosophy). Others seek a more vocational qualification in dietetics, health service management, a taught Master's degree in a specialist discipline (for example, immunology, forensic science, biochemistry, genetics), or by studying for a Postgraduate Certificate of Education to qualify for a teaching career. Several of our students have also progressed to the new specialist graduate medical programmes.



## Destination of Biomedical Science graduates in 2007



\* These statistics are derived from annually published data based on those UK domiciled graduates who are available for employment and further study and whose destinations are known.

“ For many years I have employed Biomedical Science graduates from Bradford University. The University produces high-quality graduates who meet the needs of my department. Many Bradford graduates who have been employed here have subsequently progressed to fill senior positions in this department and other laboratories within the NHS.

Iain Banks

Laboratory Manager, Department of Histopathology & Molecular Pathology, Leeds Teaching Hospitals NHS Trust

# Your Career Prospects

[www.bradford.ac.uk/acad/biomed](http://www.bradford.ac.uk/acad/biomed)



## Typical Recent Jobs Include:

<b>A1 Control Laboratories</b>	Laboratory analyst	<b>North Staffordshire Nuffield Hospital</b>	Embryologist
<b>Ashford PHLS</b>	Trainee microbiologist	<b>Northumbria Healthcare NHS Trust</b>	Trainee Biomedical Scientist (Microbiology)
<b>Ashley Publications</b>	Production editor	<b>Novartis</b>	Research associate
<b>AstraZeneca</b>	Dispensary co-ordinator	<b>Organon Pharmaceuticals</b>	Pharmaceutical sales representative
<b>Baines and Ernst</b>	Marketing adviser	<b>Orion Medical Sales</b>	Medical sales trainee
<b>Barts &amp; the London NHS Trust</b>	Trainee Biomedical Scientist	<b>Pagget Medical</b>	GP/Hospital representative
<b>Birmingham University</b>	Research technician	<b>Pinderfields Hospital</b>	Clinical scientific officer
<b>Boots the Chemist</b>	Pharmacy assistant	<b>Q Laboratories</b>	Laboratory technician
<b>Bradford Royal Infirmary</b>	Trainee Biomedical Scientist	<b>Quest Diagnostics</b>	Clinical studies co-ordinator
<b>Calderdale &amp; Huddersfield NHS Trust</b>	Trainee Biomedical Scientist	<b>Quintiles Transnational Ltd</b>	Associate medical writer
<b>Cambridge Antibody Technology</b>	Research assistant	<b>Royal Devon &amp; Exeter NHS Trust</b>	Quality control laboratory manager
<b>Centre for Applied Microbiology Research</b>	Technologist	<b>Royal Hallamshire Hospital, Sheffield</b>	Trainee Biomedical Scientist
<b>Covance</b>	Clinical data associate	<b>South East Water</b>	Analyst
<b>Forensic Science Service</b>	Assistant forensic scientist	<b>St Bede's School</b>	Science technician
<b>Icon Clinical Research</b>	Clinical trials administrator	<b>Tameside General Hospital</b>	Trainee Biomedical Scientist (Histopathology)
<b>Leeds Education Department</b>	Science technician	<b>Thornton &amp; Ross</b>	Senior laboratory assistant
<b>Leeds NHS Trust Hospital</b>	Medical technical officer	<b>Veterinary Service</b>	Researcher – Biomedical Scientist
<b>Leeds Public Health Laboratory</b>	Trainee Biomedical Scientist	<b>Whiston Hospital</b>	Trainee Biomedical Scientist
<b>Leeds University Trust</b>	Biomedical Scientist		
<b>Medical Specialists Co</b>	Clinical director		

# Student View



## **Samera Mahmood**

### **3rd-year BSc (Hons) Biomedical Science**

Before starting my degree I was really apprehensive as this was not my first choice. However, I was totally wrong. Studying Biomedical Science at the University of Bradford has been amazing and the best decision I have ever made!

The University in itself is remarkable with all the facilities required present, and it is a friendly place to be. The first and second year of the course were interesting and brought to life aspects of science that had never crossed my mind.

The course is modular based which made it a lot more accessible and understandable throughout all the three years. Still, nothing can compare to the final year, which was superb! The highlight of this was my research project.

Specialising in an option of your choice, designing experiments, and working in the laboratory gaining insight into what the “real world” involves was excellent! I loved every single day!

The Division of Biomedical Sciences has a very helpful, organised, and approachable team of lecturers who are very passionate about the areas they specialise in, which is demonstrated in the modules they provide and the valuable information they pass on to students. The pleasant atmosphere and student-lecturer interactions have made my time at the University of Bradford memorable. Studying Biomedical Science has been a challenging, fascinating and enjoyable course and I would not mind doing everything again, just here!



## **Aisha Meskiri**

**BSc (Hons) Biomedical Science graduate, currently studying for a PhD**

When I started University I was not sure what to expect of student life or of the BSc Biomedical Science, and I ended up continuing my studies as a postgraduate! Bradford itself is a multicultural and 'student-friendly' city. I got to meet and make many friends with people from various ethnic backgrounds, which improved my communication skills. The staff are very friendly and supportive and the tutors are always ready to discuss any problems that you face. The University's careers service is very helpful and friendly as they gave me good advice as to what I wanted to do with my future.

My degree at the University of Bradford not only provided me with scientific knowledge, it also supplied me with the skills and self-confidence that will be useful to succeed in my life. I really enjoyed my years at the University of Bradford and it certainly will be a memory I will never forget.

***Aisha is currently studying for a PhD here, in the field of skin and hair follicle research.***

# The University of Bradford



Ranked No1 for Graduate Employment in Yorkshire and 3rd in the North of England\*, with a history spanning the last century, the University of Bradford's values are built on firm foundations with the strong ethos of 'Making Knowledge Work™'

\* Times Good University Guide 2009

The University is constantly investing in the future of its students through world-class teaching and facilities.

## Strong roots

Back in 1966, when England were winning the World Cup, Bradford Institute of Technology became the University of Bradford and Harold Wilson, the long-serving British Prime Minister, became our first Chancellor. Over 40 years on and the University has moved from strength to strength.

**1882:** The University started out as Bradford Technical College. Bradford was the textile capital of the world, its renowned products reaching the four corners of the globe

**1966:** The University was granted its Royal Charter which makes it one of the 'old' universities

**2005:** In April 2005, Imran Khan was appointed as Chancellor of the University of Bradford succeeding Baroness Betty Lockwood on her retirement

**2006:** The University celebrated its 40th anniversary and the opening of a grand new entrance to the campus: the vibrant Atrium in the Richmond Building, a magnificent student space

## Library and Computer Centre

The Library and Computer Centre are both based in the J B Priestley building, just a few minutes' walk from all the city campus buildings. The Library houses around 600,000 volumes, around 1,000 printed periodical titles and over 7,000 electronic journals. The library system is accessible online 365 days a year, 24 hours a day.

The Computer Centre offers a range of IT facilities and has been highly praised for the internet access it offers: the *Student Book Universities Guide* found the University of Bradford one of the best in the UK at getting students online.

The University has recently extended wireless access to all its major buildings. There is an attractive laptop rental scheme for students, with plenty of cheap and useful software.

The University's high-speed Broadband network extends to every bedroom in University-owned halls of residence, giving students **free** access to the internet as well as campus and library services.

## Accommodation

A place in University accommodation is available for all first-year students who need it. This will mean your own single

study-bedroom, in a self-catering hall with internet connection. You can download further information about accommodation from [www.bradford.ac.uk/accommodation](http://www.bradford.ac.uk/accommodation)

In subsequent years most students choose to live in furnished houses, flats or bedsits in the city. Student accommodation is cheaper, easier to find and more conveniently located in Bradford than in most other university cities. Many students live within five minutes of their lectures! For details of privately-rented accommodation contact the Unipol Accommodation Bureau (visit [www.unipol.org.uk/bradford](http://www.unipol.org.uk/bradford)).

## Facilities

Most departments are on the city campus, as is the Sports Centre, Students' Union, Theatre, Music Centre and Art Gallery, and student accommodation. The Students' Union runs over 80 clubs and societies, and has a shop on campus, and a print shop. The Sports Centre has a 25-metre swimming pool, climbing wall, numerous halls and a Nautilus fitness suite. You can enjoy cafe bars around the campus, offering a range of facilities including food, hot and cold drinks, pool tables, video games, and a big screen TV. The University has recently brought the full range of student support services together into one area in the Richmond Building, known as The Hub.

# City of Bradford

Friendly and familiar but with a thriving urban centre, Bradford is the city that has it all. The cosmopolitan mix, booming social scene and host of thriving cultural venues create a vibrant modern atmosphere that sits perfectly alongside the imposing architecture of the nineteenth century. Bradford is set amongst some of the most beautiful countryside in England. At the same time it is one of the most affordable places to live. Bradford lies right in the middle of the country, with easy links by road, rail and air north to Scotland, west to Manchester and Liverpool, east to Leeds and York and south to London.

The University campus is situated in the heart of the city's 'west end' – with many new pubs, clubs and restaurants within a few minutes' walk from the halls of residence. Bradford can also offer a thriving cultural scene, including the National Media Museum, with its huge IMAX screen, as well as galleries, theatres and museums of art, crafts and technology. Further information of all that is on offer in Bradford can be found at [www.visitbradford.com](http://www.visitbradford.com) and at [www.bradford.ac.uk/bradford](http://www.bradford.ac.uk/bradford)



## Eating Out

As every student will soon discover Bradford has earned the right to be famous for its curries. There are over 20 curry houses within five minutes' walk of the campus, where you can find a good meal for around £5. There are many other inexpensive restaurants, shops and supermarkets nearby, as well as the excellent value markets, specialist shops and chain stores in the city centre.

## Sport

Local sporting clubs are always keen to welcome student members, not forgetting the University's own range of sporting teams and activities. If you enjoy watching rather than participating, there's football at Bradford City and Super League rugby with Bradford Bulls.

## Spectacular Surroundings

Bradford is surrounded by some of the most spectacular and picturesque countryside anywhere in the country. The Pennines, Yorkshire Moors, Yorkshire Dales, Lake District and Derbyshire Peak District are all within easy travelling distance.

You can take advantage of the host of outdoor sporting activities available in the area or just enjoy the peace and quiet.

*The contents of this publication are correct at the time of printing. The University reserves the right to alter or withdraw courses, services and facilities as described in this booklet without notice and to amend Ordinances, Regulations, fees and charges at any time. Students should enquire as to the up-to-date position when applying for their course of study. Admittance to the University is subject to the requirement that the student complies with the University's admissions procedures and observes the Charter and Statutes and the Ordinances and Regulations of the University.*

Detailed maps of the University campus are available on our website at: [www.bradford.ac.uk/maps](http://www.bradford.ac.uk/maps)

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