

Chemistry at Bradford

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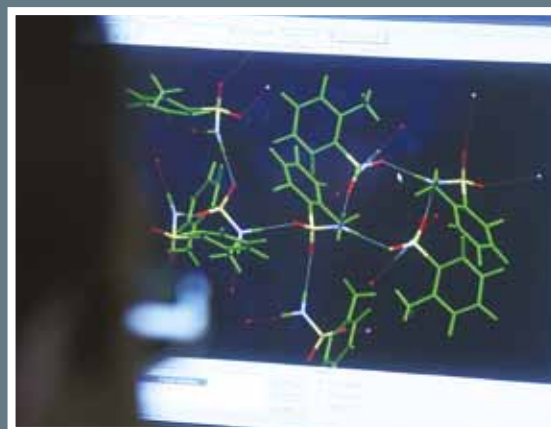
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The University of Bradford - **Confronting Inequality: Celebrating Diversity™**
The University of Bradford is committed to promoting equality, diversity and an inclusive and supportive environment for students, staff and others closely associated with the University in conformity with the provisions of its Charter.

Chemistry was established as an academic subject at the Bradford Technical College, the University's forerunner, in the 19th century, and was a cornerstone of the University of Bradford on its establishment in the 1960s.



Chemistry and Forensic Science at Bradford has a long history of teaching and research, and is reputed for its national leading role in developing undergraduate "forensic" courses grounded in the core sciences to meet the needs of the professions. The innovative incorporation of Forensic Science in the 1990s led to the successful present-day programmes.

Building on the exceptional employability of Bradford's chemistry graduates, and in the context of the University's strapline of 'Making Knowledge Work', a new vision for Chemistry at Bradford, titled Chemistry4, was launched in September 2008.

Several factors have combined to make studying chemistry at the University of Bradford a unique experience:

- The UK Government has identified chemistry as a Strategically Important Vulnerable subject and, with the Royal Society of Chemistry, is actively supporting chemistry at the grass-roots to address the shortage of chemists graduating from university programmes. The University has taken a major role in establishing these initiatives regionally.
- The University has invested substantially in the chemical sciences recently with new undergraduate and research laboratories, and the purchase of major chemical analysis equipment in the £4m University Analytical Centre.
- The University has recently established two major research institutes - the Institute of Pharmaceutical Innovation and the Institute of Cancer Therapeutics – that are developing innovative chemistry for the pharmaceuticals sector through collaborative research programmes.
- The University has taken a lead in embedding knowledge transfer as a fundamental activity for higher education. This provides an environment where applications of science through collaborative interactions with the commercial sector form a fundamental and routine part of the University's culture.



Special Features

Employer advice has encouraged us to establish a sound fundamental base for training in the early years of the programme: the first two years of the courses establish the fundamentals of academic and practical chemistry for students, through a balance of theory and practical modules. In later years of the courses, specialisation follows with dedicated modules relating to the practice of chemistry within the chosen area of development.

High-Quality Learning Experience

The University of Bradford is the ideal choice for studying for a degree in Chemistry with related subjects. Our strategy is to provide for expert delivery with specialists teaching in areas of their research expertise. To achieve this we use specialists from across the University, which includes staff from the Institute of Cancer Therapeutics (ICT) and the Institute of Pharmaceutical Innovation (IPI) whose research involves medicines discovery, development and delivery.

We also draw on practising scientists from outside the University, particularly through our long-standing collaboration with the West Yorkshire Police and the Forensic Science Service at Wetherby. In the latest Teaching Quality Assessments, the Bradford School of Pharmacy, and Archaeological, Geographical and Environmental Sciences and Biomedical Sciences, with whom we collaborate closely in the provision of our courses, were all awarded top grades. This indicates that your learning experience will be of the highest quality.

Focus on Practical and IT Skills

All components of the courses integrate practical training alongside the theoretical subjects. Development of these skills is supported through laboratory demonstrations, pre-laboratory briefings and one-to-one teaching through consultation with staff in the laboratory. You will have the opportunity to gain genuine practical experience of research apparatus through workshop and practical exercises throughout the course. By the end of your degree you will be able to make full use of information technology, both in general areas such as data retrieval, manipulation and presentation and web technologies, and through experience of specialist application software.

A Friendly Atmosphere

With an intake of around 100 undergraduate students per year, you can be sure of a close-knit group and an atmosphere conducive to serious but enjoyable study. Chemical and Forensic Sciences has a justified reputation for friendliness, and we make every effort to establish a comfortable working atmosphere. Forechem, the student society in Chemical and Forensic Sciences, organises a range of social events throughout the year, culminating in the Summer Ball. Should you have any problems, your personal tutor will be on hand to help out, and there are a range of welfare and counselling services available through the University and the Students' Union.



Key Features

- Excellent graduate employability for high-value employment sectors
- Integrated Master's courses
- Modern Chemistry provision developed in the context of their application
- 'End-on' full-year placements (taken in Year 4 of MChem courses) build genuine experience and provide opportunities for seamless transition into employment
- Full-year sandwich placements with industry or research laboratories
- Full-year research placements with internationally renowned groups
- Full-year industrial placements with major multinational employers
- Excellent facilities for teaching and 'hands-on' research
- Modern interactive teaching approaches
- Friendly, supportive learning environment

“Bradford's innovative chemistry provision is designed in response to graduate employer needs in the 21st century. Specialist pathways in the programmes provide specific training for the practice of chemistry in major employment sectors.”



A flexible way to study

The courses offer different patterns of study (see course structure diagram for module choice on pages 6 to 9) and industrial/research experience.

The programmes offer different ways to complete a degree on our courses:

- three years of full-time study
- you may take a sandwich course over four years with the third (placement) year being spent in industry
- four years of full-time study with research experience
- four years of study with industrial experience

Which of these study patterns you initially follow depends on personal preference, but the study patterns are designed to be interchangeable in the early stages, so you will not be committed to the study pattern chosen on entry.

BSc Sandwich Courses

In the four-year sandwich course you leave the University in the third year and take up a placement in industry. Chemistry and Forensic Science has run sandwich programmes with considerable success over many years and, through our contacts, we endeavour to place you in an area of your own choice. Prior to the placement, we facilitate your application by directing you towards opportunities, helping with your application and preparing you for interview. On placement, you are supervised on a day-to-day basis by one or more industrial supervisors and receive academic and pastoral support from us through a nominated tutor, who liaises with the company to ensure that your placement runs smoothly. On successful completion of the placement and some coursework items (principally a report and a poster presentation detailing your

experiences) you will qualify for the University's Diploma of Industrial Studies, which will augment your CV and provide evidence of your experience in industry for future employers. There is no doubt that many employers look very favourably on a completed period of placement in industry when selecting graduate recruits.

The types of experience gained by students on industrial training are very diverse. You may be involved in developing analytical techniques or developing new processes or products in the pharmaceutical industry. You may be undertaking small-scale work at a laboratory bench, synthesising speciality materials, or involved in high-tonnage, on-site synthesis of commodity chemicals. You may be involved in safety and quality assurance or in customer support, and we have had considerable success in recent years in placing students in companies and agencies related to forensic science.

Whatever the experience, it will improve your technical skills, sharpen your management abilities, and give you confidence, maturity and an increased focus to your final year of academic study. In addition, there is also the financial attraction of spending a year in employment, and annual wages for placement students are often in the region of £14,000. Our sandwich placement opportunities are countrywide and on occasions may be overseas.

MChem Industrial/Research Experience

The Chemistry4 courses offer three consecutive academic years, followed by a fourth year, which incorporates Master's-level training and focuses on deploying chemistry skills in real-world settings. The programme offers the choice of undertaking professional practice as a full-year placement, either with a research group at the University or at one of our industrial partners. These placements add genuine graduate experience to a CV and provide real-world experience of chemistry applications.

Our Chemistry Programmes

BSc/MChem/MSci Courses:

Chemistry with Pharmaceutical and Forensic Science

MChem four years*
BSc (Hons) three years
BSc (Hons) four years (three years + one-year sandwich placement in the third year)

Forensic and Medical Sciences

MSci four years*
BSc (Hons) three years
BSc (Hons) four years (three years + one-year sandwich placement in the third year)

Forensic Science

BSc (Hons) three years
BSc (Hons) four years (three years + one-year sandwich placement in the third year)

* *Mechanisms are available to include an industrial placement in an MChem/MSci programme. This will result in a five-year enhanced MChem/MSci programme.*

Chemistry4 Programmes:

(3-year BSc (Hons) exits are optionally available for all MChem courses)

Chemistry

MChem four years (three years + one-year research experience in the fourth year)
MChem four years (three years + one-year industrial experience in the fourth year)
BSc (Hons) three years

Chemistry for Analysis

MChem four years (three years + one-year research experience in the fourth year)
MChem four years (three years + one-year industrial experience in the fourth year)
BSc (Hons) three years

Chemistry for Drug Discovery

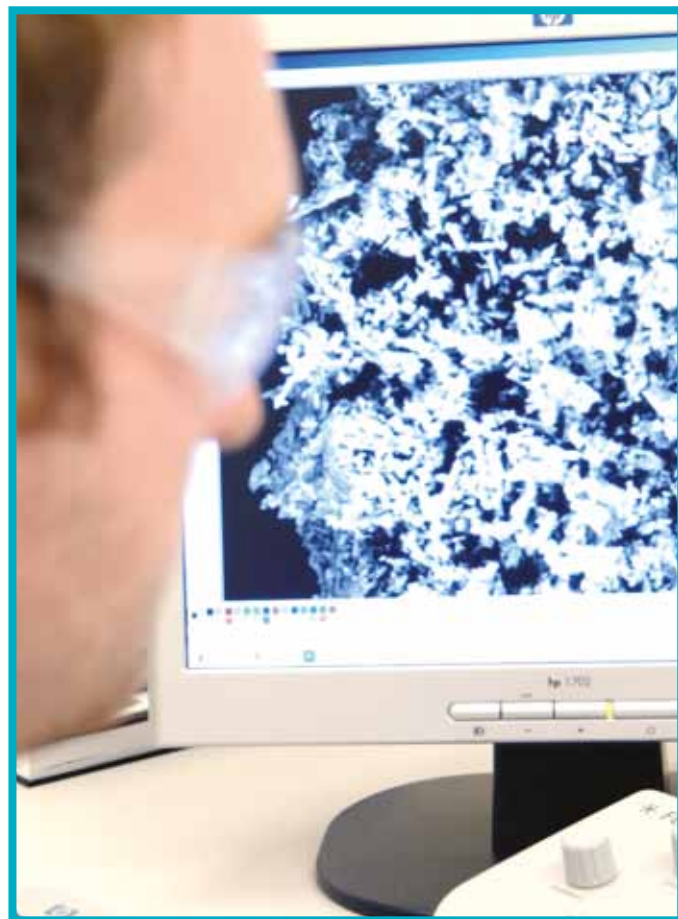
MChem four years (three years + one-year research experience in the fourth year)
MChem four years (three years + one-year industrial experience in the fourth year)
BSc (Hons) three years

Chemistry for Medicines Development

MChem four years (three years + one-year research experience in the fourth year)
MChem four years (three years + one-year industrial experience in the fourth year)
BSc (Hons) three years

Chemistry for Forensic Sciences

MChem four years (three years + one-year research experience in the fourth year)
MChem four years (three years + one-year industrial experience in the fourth year)
BSc (Hons) three years



Modules

Courses are designed on a modular basis with the academic year divided into two semesters. In each semester you study 60 credits (modules are generally 10 or 20 credit modules, although the projects can be 30 or 60 credits), making a total of 120 credits each year. With advice from your personal and year tutors, you can choose your own pathway through the course.

What are the module choices?

In the initial stages of the courses, we provide a fairly prescribed programme to give you a sound basis for specialisation in higher years. As the course progresses, increasing numbers of options become available, allowing you to specialise in a particular area of your degree, be that, for example, drug discovery or forensic science, or maintain a broad-based diet of study. If you require assistance, your personal tutor or the year tutor will be happy to discuss your module choices with you.

Chemistry with Pharmaceutical and Forensic Science (CPFS)

The focus on this interdisciplinary, chemistry-based course is on developing your core skills in chemistry and chemical analysis and their applications in forensic casework. The CPFS course covers the full range of core subjects in chemistry together with specialist training targeting the pharmaceutical and forensic professions. The foundations of forensic examination and of drug analysis are established in the first year together with the underlying physical, structural, synthetic and analytical principles underpinning them. In the second and final years of the course, you develop your knowledge in these core sciences, and an appreciation of the requirements, scope and limitations of forensic investigation of a wide range of physical evidence types. In the Master's course you are further able to develop your research skills in the chemical and forensic sciences, with specialist modules in chemical synthesis and analysis of materials.

Forensic and Medical Sciences (FMS)

The focus of this bioscience-based course is on developing your core skills in the biological sciences, and their application in medical sciences and forensic casework. The foundations of forensic and crime scene examination are established in the first year together with an understanding of the normal structure and function of cells, tissues, organs and organisms, and you are introduced to the techniques and procedures available for their investigation. In the second year the emphasis in the biosciences shifts towards disease processes, and limitations of forensic investigation of a wide range of physical evidence types. The final year allows you to specialise in several of these topics, and to develop your professional skills through a forensic research dissertation on a topic of your choice.

In addition to the pursuit of core sciences, forensic investigation in the areas of anthropology and topics relating to archaeology and the degradation of human remains and physical materials are common options in the final year of the CPFS and FMS courses, where you will extend your appreciation of core scientific issues, and develop your skills in forensic interpretation. Expert practitioners from the *Forensic Science Service* and the scientific support laboratories of the *West Yorkshire Police Force* will contribute to the course from time to time. Both courses also integrate a practical forensic research project in the final year, and an opportunity for you to investigate a particular forensic theme via an extensive practical research project lasting the whole of the second semester in the Master's year.

Forensic Science (FSc)

This course provides a chemistry-based pathway. The FS course is distinguished from the CPFS and FMS courses in providing greater opportunity for development of investigative skills and interpretation of forensic evidence, and pursuit of modules in law. You are also able to develop your research and professional skills through a dissertation on a forensic topic of your choice. The FS course also integrates a practical research project on a forensic topic of your own choice in the final year.

Chemistry4 Programmes

Chemistry (Ch)

This programme will equip you with an understanding of chemical processes and analytical methods. The interdisciplinary nature of this programme gives you flexibility and allows you to combine chemistry with other subjects including forensic science, pharmaceutical science and biomedical science.

Chemistry for Analysis (CA)

The pathway Chemistry for Analysis develops practical experience in analytical sciences and its applications in chemical, pharmaceutical, forensic and environmental sectors. The programme develops extensive experience of modern instrumentation (through 'hands-on' qualification training in chromatography, electron microscopy, mass spectrometry, NMR, vibrational spectroscopy and X-ray diffraction), modern data analysis approaches and quality systems operated in analytical laboratories. Advanced programmes in this pathway draw on the analytical chemistry expertise in Bradford's University Analytical Centre, and link to innovative approaches in analytical method development.

Chemistry for Drug Discovery (CDD)

With a focus on the design and synthesis of new molecular entities for therapeutic applications, this pathway develops experience of synthetic organic/organometallic chemistry including substantial practical experience of advanced laboratory techniques. Advanced programmes in this pathway will draw on medicinal chemistry expertise in Bradford's Institute of Cancer Therapeutics, and link to new cancer medicines initiatives.

Chemistry for Medicines Development (CMD)

The Chemistry for Medicines Development pathway focuses on the development of medicines from active molecule to the pharmaceutical product. The courses develop experience of drug formulation, manufacture and clinical testing within the regulatory context for the pharmaceutical industry. The programme links to Bradford's Institute of Pharmaceutical Innovation where new predictive approaches to drug development are being pioneered.

Chemistry for Forensic Sciences (CFS)

The Chemistry for Forensic Sciences pathway develops the legal and operational application of chemical sciences to the forensic field. This programme draws on the long-standing and successful provision of forensic training at Bradford, providing experience of the analysis of evidential materials, crime scene management and expert witness reporting.

What is the difference between the Forensic Science course and the Chemistry for Forensic Sciences course?

The Forensic Science course allows you to do a sandwich year, which leads to a Diploma of Industrial Studies. The Chemistry for Forensic Sciences course incorporates Master's-level training in Forensic Science.

Course Structure Diagram

First Year

	CPFS	FS	FMS	C	CA	CDD	CFS	CMD
Fundamentals of Chemical Bonding Structure & Reactivity	CC	CC	-	CC	CC	CC	CC	CC
Laboratory Practice and Professional Skills 1 & 2	CCCC	CCCC	-	-	-	-	-	-
Mathematics, Numeracy and Research Skills	C	C	C	-	-	-	-	-
Introduction to the Principles of Forensic Science	C	C	C	O	-	-	C	-
Aliphatic Functional Group and Aromatic Chemistry	C	C	-	-	-	-	-	-
Elementary Reaction Kinetics	C	C	-	-	-	-	-	-
Principles of Drug Action	C	-	C	O	-	-	-	C
Principles of Forensic and Crime Scene Investigation	-	C	C	-	-	-	-	-
Cell Biology	-	-	C	-	-	-	-	-
Introduction to Biological Molecules	-	-	C	-	-	-	-	-
Human Genetics	-	-	C	-	-	-	-	-
Analytical Chemistry and Spectroscopy 1	C	C	-	-	-	-	-	-
Microbiology	-	-	CC	-	-	-	-	-
Biochemistry	-	-	C	O	-	C	-	-
Medical Physiology	-	-	CC	-	-	-	-	-
Matter and Energy 1 & 2	-	-	-	CC	CC	CC	CC	CC
Experimental Applications: Fundamental Techniques	-	-	-	CCC	CCC	CCC	CCC	CCC
Organic Functional Groups and Transformations	-	-	-	C	C	C	C	C
Experimental Applications: Characterisation	-	-	-	CCC	CCC	CCC	CCC	CCC
Electronic Structure and Spectroscopy	-	-	-	O	C	-	-	-

CPFS: Chemistry with Pharmaceutical and Forensic Science

FS: Forensic Science

FMS: Forensic and Medical Sciences

C: Chemistry

CA: Chemistry for Analysis

CDD: Chemistry for Drug Discovery

CFS: Chemistry for Forensic Sciences

CMD: Chemistry for Medicines Development

C: 10-credit core module

O: 10-credit optional module

Students must successfully complete 120 credits in each year

The curriculum may change, subject to the University's course approval, monitoring and review procedures.



Course Structure Diagram

Second Year

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	CPFS	FS	FMS	C	CA	CDD	CFS	CMD
Aromaticity, Stereochemistry and Carbonyl Chemistry	C	C	-	-	-	-	-	-
Analytical Chemistry and Spectroscopy 2	C	C	-	-	-	-	-	-
Elementary Chemical Thermodynamics	C	C	-	-	-	-	-	-
Professional, Personal and Expert Witness Skills	-	C	C	-	-	-	-	-
Forensic Examination and Analysis of Physical Evidence	CC	CC	CC	OO	-	-	CC	-
Co-ordination Chemistry	C	C	-	-	-	-	-	-
Pharmaceutics 1	C	-	-	O	-	-	-	C
Laboratory Practice and Professional Skills 3	CC	CC	-	-	-	-	-	-
Toxicology	C	C	-	O	-	C	-	-
Pharmacognosy – Phytochemistry and Analysis Topics	C	-	-	-	-	-	-	-
Medical Microbiology	-	-	CC	-	-	-	-	-
Immunology	-	-	C	-	-	-	-	-
English Legal Systems 1 & 2	-	CC	-	-	-	-	-	-
Pathology	-	-	OO	-	-	-	-	-
Molecular Genetics and Molecular Cell Biology	-	-	OO	-	-	-	-	-
Analytical Biochemistry	-	-	C	-	-	-	-	-
Clinical Biochemistry	-	-	C	-	-	-	-	-
Human Physiology and Pharmacology	-	-	CC	-	-	-	-	-
Synthesis and Design	-	-	-	C	C	C	C	C
Experimental Applications: Synthesis, Separation and Purification	-	-	-	CCC	CCC	CCC	CCC	CCC
States of Matter	C	-	-	C	C	C	C	C
Data Collection and Analysis 1 & 2	-	-	-	OO	CC	-	-	-
Cell Biology	-	-	-	O	-	C	-	-
Supramolecular Chemistry and Modern Materials	-	-	-	CC	CC	CC	CC	CC
Experimental Applications: Materials Design and Structure Elucidation	-	-	-	CCC	CCC	CCC	CCC	CCC
Product Technology	-	-	-	O	-	-	-	C

CPFS: Chemistry with Pharmaceutical and Forensic Science

FS: Forensic Science

FMS: Forensic and Medical Sciences

C: Chemistry

CA: Chemistry for Analysis

CDD: Chemistry for Drug Discovery

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CMD: Chemistry for Medicines Development

C: 10-credit core module

O: 10-credit optional module

Students must successfully complete 120 credits in each year

The curriculum may change, subject to the University's course approval, monitoring and review procedures.



Course Structure Diagram

Third Year

	CPFS	FS	FMS	C	CA	CDD	CFS	CMD
Synthesis, Heterocycles and Photochemistry	C	O	-	-	-	-	-	-
Electronic Structure and Analysis of Metal Compounds	O	O	-	-	-	-	-	-
Laboratory Practice and Professional Skills 4	CC	-	-	-	-	-	-	-
Interpretation and Presentation of Forensic Evidence for Forensic Science 1 & 2	CC	CC	CC	OO	-	-	CC	-
Biological Organic Chemistry	O	-	-	-	-	-	-	-
Forensic Anthropology	O	O	-	O	-	-	O	-
Forensic Archaeology	O	O	C	-	-	-	O	-
Forensic Analysis of Polymers, Paints and Fibres	O	O	-	O	-	-	O	-
Chemistry of Bio-organic Macromolecules	O	-	-	-	-	-	-	-
Organometallic Chemistry	C	-	-	-	-	-	-	-
Drug Discovery and Design – Optional Studies	O	-	-	-	-	-	-	-
Degradation of Materials in Burial Environments	O	O	C	-	-	-	-	-
Taphonomy and Chemistry of Human Remains	O	O	C	-	-	-	-	-
Research Project	CCC	CCC	CCC	-	-	-	-	-
Professional Development – Forensic Enquiry and Critical Case Study	-	CC	CC	-	-	-	-	-
Biometrics and Human Identification	-	O	O	-	-	-	-	-
Forensic Analysis of Controlled and Trace Substances	-	O	-	-	-	-	-	-
Gene Expression and Cellular Communication	-	-	O	-	-	-	-	-
Law of Evidence 1 & 2	-	OO	-	-	-	-	-	-
Criminal Law 1 & 2	-	OO	-	-	-	-	-	-
Analytical Chemistry and Spectroscopy 3	C	C	-	-	-	-	-	-
Biotechnology and Genomes	-	-	O	-	-	-	-	-
Toxicology and Oncology	-	-	C	-	-	-	-	-
Disorders of the Blood and Immune System	-	-	O	-	-	-	-	-
Molecular and Genetic Basis of Disease 1 & 2	-	-	O	-	-	-	-	-
Diagnostic and Public Health Microbiology	-	-	O	-	-	-	-	-
Scientific Information Technology and Information Management	-	-	-	C	C	C	C	C
Experimental Application: Strategies in Synthetic Chemistry	-	-	-	CCC	OOO	OOO	OOO	OOO
Workshop Applications: Chemical Computation and Prediction	-	-	-	OOO	OOO	OOO	OOO	OOO
Advanced Analytical Chemistry	-	-	-	OO	CC	-	-	-
Principles of Drug Discovery	-	-	-	OO	-	CC	-	-
Advanced Pharmaceutical Technology	-	-	-	OO	-	-	-	CC
Research Project Application	-	-	-	CCCC	CCCC	CCCC	CCCC	CCCC
Instrumental Analysis	-	-	-	OO	CC	-	-	-
Chemical Toolbox for Drug Discovery	-	-	-	OO	-	CC	-	-
Industrial Biotechnology	-	-	-	O	-	-	-	C
Enterprise in Biotechnology	-	-	-	O	-	-	-	C

CPFS: Chemistry with Pharmaceutical and Forensic Science

FS: Forensic Science

FMS: Forensic and Medical Sciences

C: Chemistry

CA: Chemistry for Analysis

CDD: Chemistry for Drug Discovery

CFS: Chemistry for Forensic Sciences

CMD: Chemistry for Medicines Development

C: 10-credit core module

O: 10-credit optional module

Students must successfully complete 120 credits in each year

The curriculum may change, subject to the University's course approval, monitoring and review procedures.

Course Structure Diagram Fourth Year (MChem or MSci)

www.bradford.ac.uk/chemistry

	CPFS	FMS	C	CA	CDD	CFS	CMD
Laboratory Practice and Professional Skills 6	CC	-	-	-	-	-	-
Structural Methods	C	-	-	-	-	-	-
Advanced Organic Synthesis	C	-	-	-	-	-	-
Bio-inorganic Chemistry	C	-	-	-	-	-	-
Forensic Analysis of Controlled and Trace Substances	C	C	-	-	-	-	-
Stage Four Research Project	CCC CCC	CCC CCC	-	-	-	-	-
Diagnostic and Public Health Microbiology	-	CC	-	-	-	-	-
Disorders of the Blood and Immune System	-	CC	-	-	-	-	-
Introduction to Forensic Archaeology	-	C	-	-	-	-	-
Scientific Project Management	-	-	C	C	C	C	C
Professional Development	-	-	CC	CC	CC	CC	CC
Research Project or Placement Project	-	-	CCC CCC	CCC CCC	CCC CCC	CCC CCC	CCC CCC
Instrumental Analysis	-	-	OOO	OOO	OOO	OOO	OOO

CPFS: Chemistry with Pharmaceutical and Forensic Science (MChem)

FMS: Forensic and Medical Sciences (MSci)

C: Chemistry (MChem)

CA: Chemistry for Analysis (MChem)

CDD: Chemistry for Drug Discovery (MChem)

CFS: Chemistry for Forensic Sciences (MChem)

CMD: Chemistry for Medicines Development (MChem)

C: 10-credit core module

O: 10-credit optional module

Students must successfully complete 120 credits in each year

The curriculum may change, subject to the University's course approval, monitoring and review procedures.



A degree with chemistry provides one of the best platforms for graduate employment. Chemists are attractive to employers both for the range of skills that they offer directly related to their specialism, and for the range of professional skills that they have developed through study of the discipline. At Bradford, we have addressed both these aspects in response to the requirements of employers, and our graduates have an excellent record in securing employment.

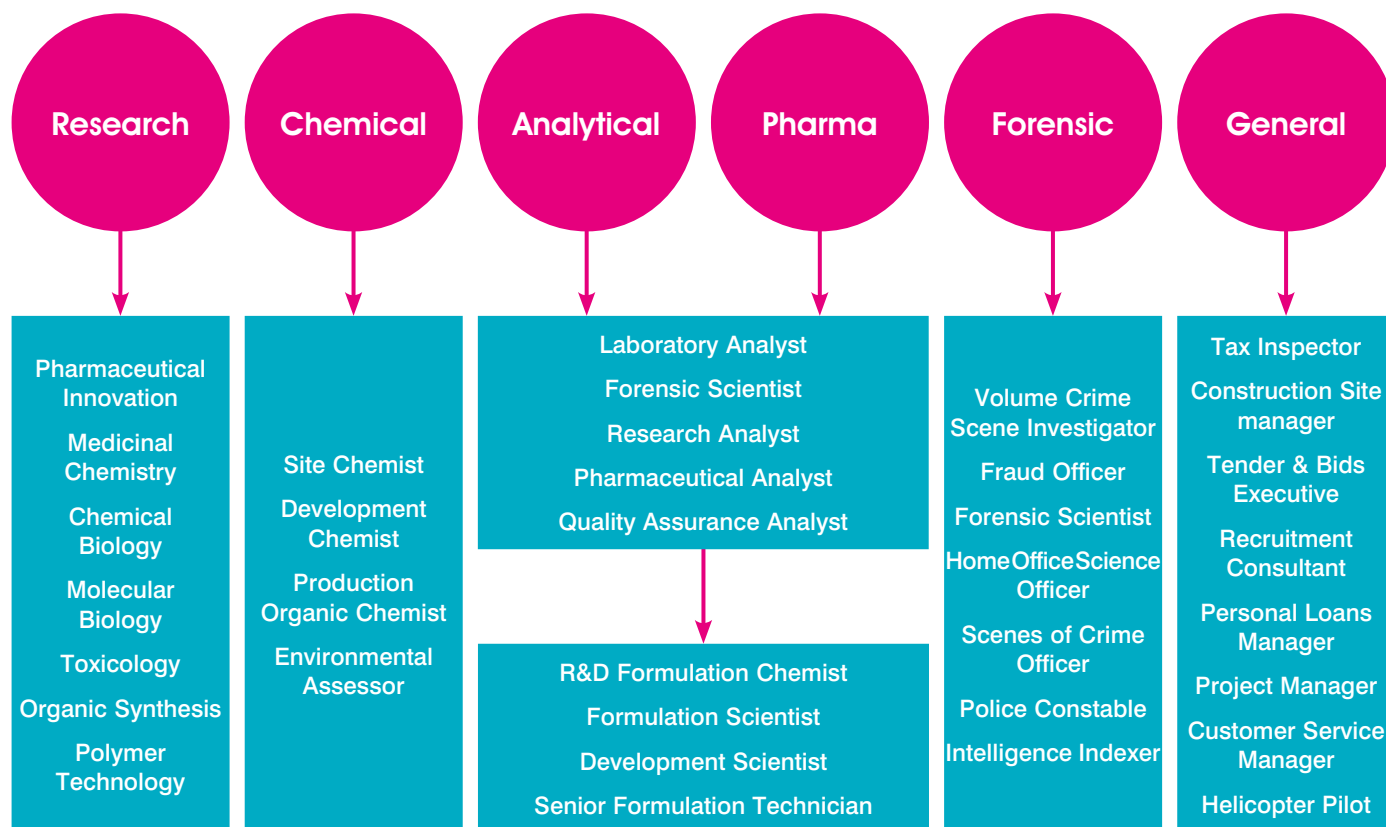
Specialist training in Pharmaceutical, Biomedical and Forensic Sciences as part of the joint degree programmes is designed to help our graduates gain an appreciation of the requirements of working at the interface of traditional degree subjects, and significant numbers have secured employment in these fields. The combined programmes retain the solid core of chemistry and a background of an in-depth study in science that is well regarded by employers in the forensic fields. It is important to point out that there are some concerns that the explosion of forensic-related degree programmes may not

match the current graduate employment opportunities. While we would not wish to discourage students from following their ambitions, the emerging careers advice is for students to combine training in forensic science with a programme that provides realistic career alternatives while still providing a focus for their main subject. Our programmes cater for such eventualities and have a proven track record in graduate employment. A number have gone onto direct employment in the Forensic Science Service and others, with their knowledge of procedure and methods of forensic work, have proved to be attractive to employers in areas related to forensic science, including Police Scientific Support Laboratories and analytical laboratories providing services for the forensic sector.

Completion of BSc degrees in Chemical and Forensic Sciences qualifies you for membership of the Royal Society of Chemistry, the first step to becoming a professional-accredited Chartered Chemist, the equivalent of chartered surveyor or engineer. In addition to the benefits in

employability, chartered status helps establish your bona fides when acting in a professional context, e.g. when acting as an expert witness in court. MChem graduates will have the skills profile for application to chartered status once they have completed a period of working experience either in industry or in academic research.

The Chemistry4 suite of programmes has been designed to provide training in the major employment sectors for chemistry graduates. The programmes build on the exceptional employability of Bradford's Chemistry graduates, and are designed to reflect the University's strapline of 'Making Knowledge Work'. The University of Bradford is consistently ranked highly for graduate employment, and the exceptionally diverse careers available to chemists are reflected in the examples of first jobs for Bradford Chemistry graduates shown below.



Career Destination Statistics for Graduates of Chemistry at Bradford



In addition to careers in the science sector, your university training will fit you for a very wide range of careers where clear thinking, sound reasoning and numeracy are required. Chemists are particularly attractive in these spheres and a number of our graduates have moved into successful careers in finance and management in both public and private sectors. A number of our graduates progress to postgraduate qualifications for teaching either for chemistry or general science at secondary level or general teaching at junior level.

A significant number of our graduates move on to further study each year. The majority of these people utilise their knowledge to move onto Master's and Doctoral research programmes leading to MPhil and PhD qualifications. In many cases, students use the experiences that they gain at Bradford, particularly in the research projects in the final year of BSc and MChem/MSci programmes, to decide on the specialist areas for the major theme of their research. The MChem/MSci programmes are specifically designed to equip graduates with the advanced experimental techniques for research so that graduates are well prepared for moving into research at the forefront of science.

Others enrol on taught Master's degrees leading to MSc qualifications. The areas of interest for our students are wide ranging. In recent years some have built on degree studies in areas as diverse as Funerary Archaeology or Petrochemical Engineering, while others have moved in to new fields such as Computing.



The University of Bradford



Consistently ranked highly for graduate employment, 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™'

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 front entrance to the campus; the vibrant Atrium in the Richmond Building, a magnificent student space

Developing the Campus

The University is constantly investing in the future of its students through world-class teaching and facilities. Recent improvements to the campus include:

- 'Unique', the superb fitness and lifestyle facility on the city campus
- The new build at the School of Management which melds the best of historic Victorian and modern architecture
- A purpose-built extension for the School of Health Studies with state-of-the-art new facilities
- The new £7m Student Central building housing the Students' Union and learning facilities, linking in to the library and IT facilities
- The Green student village which will house its first-ever residents in September 2011

Leading-edge Technology and IT Facilities

Laboratories, study areas, computer clusters and other facilities are being constantly developed. Bradford really excels when it comes to IT, with one of the highest ratios of PCs to students in the country. You can have free internet access wirelessly from all the libraries, foyers and social spaces of all major buildings, and the PCs in the Richmond Building Atrium are available 24/7. You will also have access to the campus network from your bedroom in The Green student accommodation.

The J B Priestley Library at the heart of the city campus links up with the Learning Mall of the Student Central building. The Library is open 24 hours a day from Monday to Friday during term times, and until 9pm at weekends, and provides extensive collections of books and journals as well as access to a wide range of electronic information services. PCs are available throughout the building. Most library services are accessible via the internet.



Accommodation

You will be guaranteed a place at our award-winning eco-friendly new student village, The Green, during your first year. Buildings are arranged as a small village, with rooms available in apartments or townhouses. Every building meets the highest standards of sustainability, meaning it costs very little to heat and light. The Green will have a real community feel. It is set in beautiful landscaped gardens, with places to relax and socialise. For more details about what's available for our students, and for costs, visit www.bradford.ac.uk/accommodation

In subsequent years most students choose to live in privately rented accommodation. 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! Unipol Student Homes (www.unipol.org.uk/bradford) offers a free advice service to students, and is a good way of finding a good-quality, safe place to live at a reasonable cost.



Our City Campus

Most departments are on the city campus, as is the sports centre, the library, the Students' Union, Theatre, Music Centre and Art Gallery, and student accommodation. The new Student Central building houses the bar, entertainment facilities, Students' Union offices, welfare departments, Career Development Services, a print shop, and learning facilities. The Students' Union runs over 60 clubs and societies, and has a shop on campus. You can enjoy café 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 newly refurbished 'Unique: Fitness & Lifestyle' has a 25-metre swimming pool, climbing wall, and a new gym with the very latest in fitness equipment. The Richmond Building Atrium is a popular place to relax, and adjacent to this, student support services can be found in The Hub.



City of Bradford

Friendly and familiar but with a lively 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 and at 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.

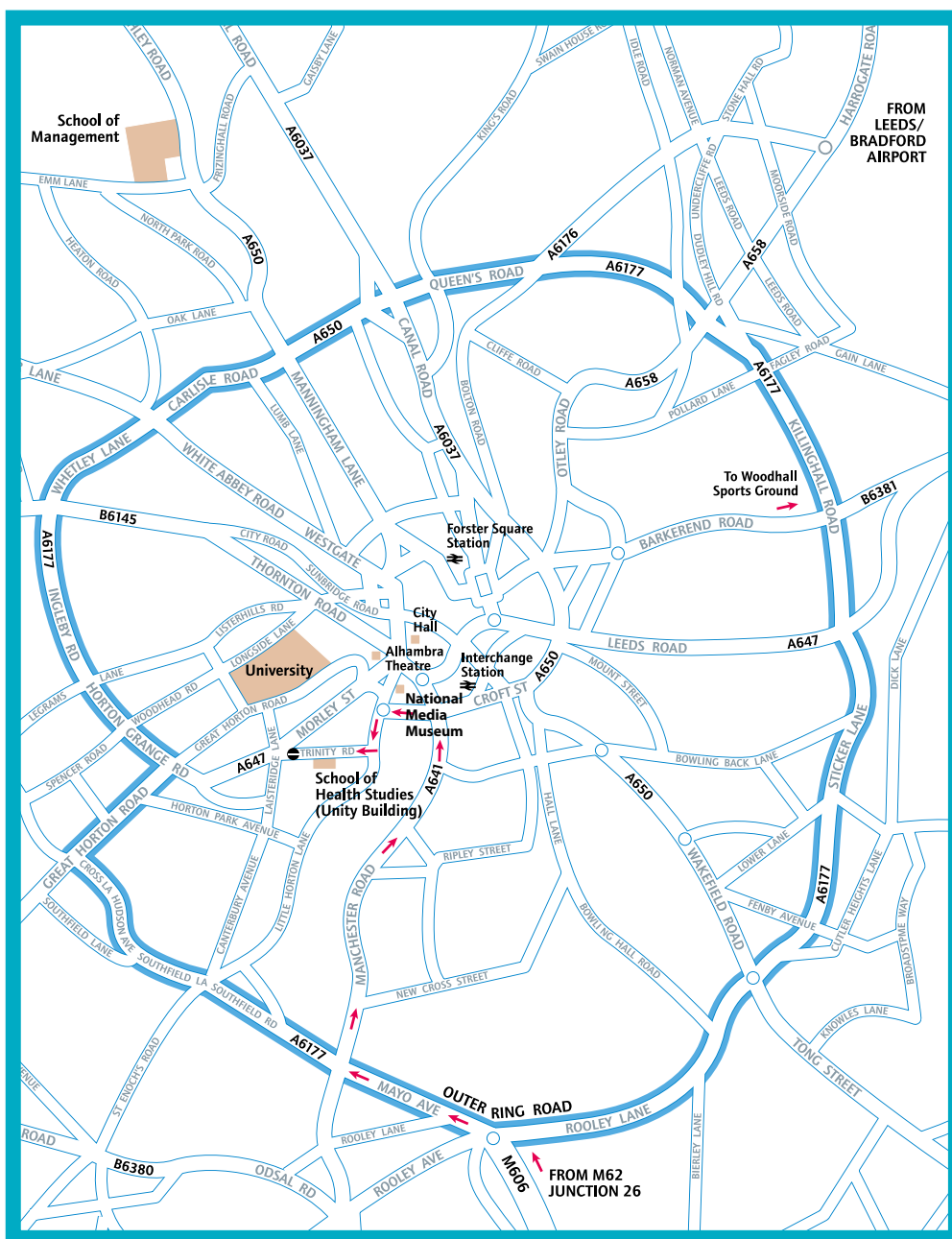
You can take advantage of the host of outdoor sporting activities available in the area or just enjoy the peace and quiet.



Yorkshire Dales and Alhambra Theatre

How to Find us

www.bradford.ac.uk/chemistry



How to Find Us

Coach - services connect most parts of the country to Bradford's Travel Interchange.

Rail - Bradford Travel Interchange and Forster Square stations have extensive rail links, though many involve changing at Leeds. Approximate journey times are:
London, King's Cross 3 hours
Edinburgh 4 hours
Birmingham 3 hours
Manchester 1 hour
York 1 hour
Leeds 20 minutes

There is a **free** city bus connecting Bradford Travel Interchange, Forster Square station and Centenary Square to the University.

Road - Bradford is connected to the national motorway network via the M62 and M606.

Approximate distances are:
London 200 miles (320 km)
Edinburgh 200 miles (320 km)
Birmingham 120 miles (192 km)
Manchester 35 miles (56 km)
York 33 miles (53 km)
Leeds 8 miles (13 km)

Air - There are direct regular air services into Leeds/Bradford International Airport, 7 miles (11 km) from the University, from various cities around the UK and Ireland as well as from Amsterdam and other European locations. You can get from the Airport to the University by bus or taxi. Many internal and international flights can also be made into Manchester Airport, 50 miles (80 km) south-west of Bradford.

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.

More detailed maps of the University campus are available on our website at: www.bradford.ac.uk/maps

Pictures on page 16 courtesy of Bradford Council
Produced by Marketing and Communications, University of Bradford
Print Production: Inprint and Design, University of Bradford

1034/600/05/2011



