

### DISTANCES TO SUNDERLAND

FROM	RAIL	COACH	CAR	AIR
BERWICK	1 hr 20 mins	3 hrs 50 mins	1 hr 50 mins	•
BIRMINGHAM	3 hrs	4 hrs	3 hrs 25 mins	1 hr
DARLINGTON	1 hr 10 mins	1 hr 10 mins	40 mins	•
EDINBURGH	1 hr 30 mins	3 hrs 20 mins	2 hrs 15 mins	•
LONDON	3 hr 30 mins	5 hrs 20 mins	4 hrs 50 mins	1 hr
MANCHESTER	3 hrs	4 hrs	2 hrs 40 mins	•
MIDDLESBROUGH	55 mins	50 mins	45 mins	•
NEWCASTLE	20 mins	1 hr 15 mins	23 mins	•
YORK	1 hr 30 mins	2 hrs	1 hr 50 mins	•

### FOR FURTHER INFORMATION

<b>Marketing and Recruitment</b> Priestman Building City Campus Green Terrace Sunderland SR1 3PZ UK	<b>Student Helpline</b> The Gateway City Campus Chester Road Sunderland SR1 3SD
<b>t:</b> +44 0 (191) 515 2731 <b>e:</b> <a href="mailto:hness.enquiry@sunderland.ac.uk">hness.enquiry@sunderland.ac.uk</a>	<b>t:</b> +44 0 (191) 515 3000 <b>e:</b> <a href="mailto:student.helpline@sunderland.ac.uk">student.helpline@sunderland.ac.uk</a>
or browse the website: <a href="http://www.sunderland.ac.uk">www.sunderland.ac.uk</a>	

# Pharmacy, Chemistry and Biomedical Sciences

Sunderland School of Pharmacy a tradition of excellence

lifechanging



University of Sunderland

# Welcome to the University of Sunderland's School of Pharmacy



## Tradition of excellence

A degree from the Sunderland Pharmacy School is a passport to a first class career. We offer an extensive range of science based degrees in:

- Master of Pharmacy
- Biomedical Sciences
- Chemical and Pharmaceutical Sciences
- Forensic and Pharmaceutical Sciences
- Pharmacology

Sunderland's School of Pharmacy was established in 1921 and the Master of Pharmacy degree is accredited by the Royal Pharmaceutical Society of Great Britain (RPSGB). We have a rich heritage in scientific studies and our degree courses are extremely well respected in the industry with 99% of our graduates achieving quality jobs shortly after completing their degree.

Our programmes are developed through consultation with a forum of leading pharmacists and scientists from industry, primary care, hospital and government. Courses are designed to educate graduates in all aspects of medicines and to integrate scientific knowledge with practical, clinical and professional skills so equipping them to be the healthcare scientists of the future.

Our degrees are taught by dedicated academic staff including a high proportion of qualified pharmacists and research scientists in a range of disciplines including biomedical science, pharmacology, forensics and chemistry. Professor Jim Smith recently left his role as the Government Chief Pharmaceutical Officer for England to lead the Pharmacy Practice team at the University of Sunderland. The President of The Royal Pharmaceutical Society of Great Britain in 2007/08 - pharmacy's governing body - is Sunderland graduate Hemant Patel and four of our other graduates are members of the Society's council.

Teaching on our scientific programmes is informed by up-to-date research of international reputation, some of which achieves media attention, keeping our students up-to-date with current scientific advances in medicine and related disciplines.

We offer additional expertise through visiting lecturers from local hospitals, community and industry, which ensures students receive current knowledge from experienced practitioners and industrial or research scientists.

## Formulate your career prospects

Your career prospects are foremost in the delivery of our degree programmes. We will help you to appreciate how new and amazing developments in science are leading to a greater understanding of health and disease and how the introduction of life-changing medicines and treatments are improving the prognosis for all kinds of illnesses and diseases. You will learn how medicines have become increasingly complex as advances are made in protein therapy, genomics and drug delivery systems.

Equipped with the appropriate knowledge and skills, you will be prepared for the challenges of your future employment and can expect to excel in your chosen career.

Studying a science based degree holds the key to a vast array of career pathways where medicines expertise is vital, so if your career aspirations are in hospital, community, primary care, industrial pharmacy, teaching or research we have the staff expertise and programmes to develop your talents and direct you towards an exciting career.

## Career opportunities

We host a number of career events throughout the year and invite leading pharmaceutical companies and science related industries to meet our students, give career advice and discuss graduate opportunities within their organisations. For example, you can attend a pharmacy roadshow at the University of Sunderland, given by the hospitals and community pharmacies in the North East of England.

It's a great time to embark on a career that is fast-moving and involves making a real difference to the health of the nation.

# What do we look for in a student?

As well as holding suitable academic qualifications, the ideal student should be enthusiastic about science, with the drive and determination to pursue a career in a science based environment.

We expect students to demonstrate honesty and integrity and be capable of self-directed learning as this is fundamental to their future role as a healthcare scientist. Keeping up-to-date with the latest developments in medicines is vital and all health professionals need to engage in this through Continuing Professional Development.



# Don't take our word for it...



## Charity Moraka

**MPharm Graduate and Hope Winch Scholar 2007**

Studying pharmacy at the University of Sunderland has formed a strong foundation to my future career within the field of pharmacy. The challenges met throughout the course have made me understand the central role of a pharmacist within a team of health professionals, and equipped me to work in such capacity. One of the best things about studying at Sunderland has been the academic input. The lecturers have been outstanding, and have shown a great passion for pharmacy, throughout the course. The knowledge they have imparted is absolutely priceless!

Resources are very good with state-of-the-art equipment in labs and the library is well stocked. A variety of lecturing styles have been presented, making learning enjoyable.

The work experience opportunity which I was provided with gave a unique opportunity to work with an urology doctor, and experience real life lab work, helping me to put the theory into practice. Additionally, students are given opportunities to take part in hospital placements. The university also has good employer links and students regularly have the opportunity to meet employers and discuss graduate careers. Such opportunities have given me a different view of pharmacy regarding the opportunities available and a vast knowledge of different career paths.

A very important part of my life at Sunderland has been the opportunity to meet people from all over the world and experience cultural diversity, making lifelong friendships. Social events organised for the students have brought another aspect of fun to the course.



# Our state-of-the-art facilities



We have invested substantially in our state-of-the-art facilities to ensure students will have the experience of using the latest modern equipment.

## Pharmaceutics

Equipment to carry out capsule filling, tableting, wet granulation, mixing, inhalation and film coating are available in the department.

This is in addition to spray drying and freeze drying technology. Standard pharmacopoeial test methods such as dissolution testing, friability and disintegration are accessible. Also, sophisticated physical test methods such as rheometry, thermal analysis (Differential scanning calorimetry and Hot Stage Microscopy), tests for powder flow, laser diffraction, photon correlation spectroscopy, image analysis and laser confocal microscopy are available.

## Medicinal Chemistry

Our state-of-the-art spectroscopic facility houses low and high resolution mass spectrometry (MS), Nuclear Magnetic Resonance (NMR), and elemental analysis equipment, which is used for example to confirm the structures of new molecules we synthesize as potential pharmaceutical products and to aid in the elucidation of the structures of substances with medicinal activity isolated from plants.

We are also equipped with Liquid Chromatography – Nuclear Magnetic Resonance and Mass Spectrometry (LC-NMR/MS) platforms; an exceptional facility for a University. Such equipment enables the identification of medicinal metabolites from biological fluids and supports research into new medicines and other projects.

Students will also learn about 3D molecular modelling and *in silico* screening as part of rational drug design. You will have hands-on experience of a wide range of analytical techniques appropriate to your chosen discipline, such as atomic absorption spectroscopy and state-of-the-art infra-red spectroscopy, which

are of great importance in determining both ionic/metal content of pharmaceuticals and simple chemical structures, and High Performance Liquid Chromatography and Gas Chromatography to demonstrate the importance of methods involved in separating unknown chemical mixtures. Protein and DNA separation techniques have revolutionised proteomics and genomics; another set of techniques you will study.

## Pharmacology

Our Pharmacology department is well equipped with highly technical apparatus which will give you first-hand experience of the principles of drug action. You will be instructed and assisted in developing your knowledge of drug action through hands-on practical experience of the effects of drugs on pharmacological and cellular models. You will be encouraged to develop your understanding of the effects of drugs on specific receptors located throughout the human body and related physiological effects.

## Pharmacy Practice

A purpose-built model community pharmacy with consultation suite is used for both undergraduate and postgraduate pharmacy teaching, allowing students to develop their communication skills. Our hi-tech audio-visual facilities record the stages involved in the pharmaceutical care process and can be used to analyse patient/student interaction, helping you develop your interpersonal skills.

Students need to relate to patients and explain simply how to take medicines correctly and the importance of this. Similarly, you need to explain to patients how medicines work and so develop a good relationship between patient and pharmacist. Students undertake placement visits both to hospital and community pharmacies to help to develop these skills.

# Master of Pharmacy (MPharm) UCAS code B230

## What is MPharm?

The MPharm degree focuses on developing you as a practising pharmacist who can make a real difference to patients well-being and helping you to gain an excellent well paid career. Your knowledge of drugs will progress from the study of how drugs are made and analysed for purity, to how they are formulated into dosage forms acceptable to patients plus the pharmacological testing background to these products.

In parallel you will learn to understand the therapeutic effects drugs can have on the body and how to choose the best medicine for a patient while gaining the interpersonal skills to ensure that the patient knows how to take their medicine in the correct way.

Throughout the programme, we will help you to develop your professional knowledge and skills through interaction with pharmacists, pharmacy teams, other health care professionals and patients whilst on placement in hospital and community pharmacies. You will also learn about the processes of reflection, planning, action, and analysis; key aspects of a pharmacist's professional development.

All these skills will enable you to confidently communicate with patients and other health care professionals in the delivery of pharmaceutical care with respect to clinical, legal and ethical issues.

## Programme content

The MPharm programme was recently redesigned to reflect the recent changes to pharmacy and the expected future developments; we offer a dynamic, exciting and challenging programme of study across a wide range of Pharmaceutical and Clinical Pharmacy giving you the skills and expertise required to become a fully qualified pharmacist.

Pharmaceutics is the science of dosage form design and involves the research and development of medicines. It draws on knowledge from the physical, chemical and biological sciences and occupies a unique position in pharmacy with respect to formulation and testing of pharmaceutical products.

Pharmaceutical formulation and pre-formulation research involves the study of the physico-chemical and biopharmaceutical characteristics of both active drugs and excipients.

## Pharmaceutical/Medicinal Chemistry

Pharmaceutical and medicinal chemistry are scientific disciplines relating to the design, synthesis and development of new drugs. Research in this area at Sunderland includes the design of new medicines through molecular modelling and synthesis, the development of novel analytical methods, and the identification

and isolation of potential drugs from natural sources, such as plants and marine animals, the synthesis of these products and their analogues, leading to new chemical entities that may become suitable for therapeutic use. You will learn about the processes involved in pharmaceutical and medicinal chemistry and will study examples of successful medicines used in the clinic, as well as future medicines and their actions.

## Clinical Pharmacy/Therapeutics

Therapeutics introduces the student to physiology (how the body works) and develops an understanding of pharmacology (how drugs interact with living tissue and living organisms to produce a response or a change in function).

Clinical Pharmacy is used to describe the services of a clinical pharmacist, which can include choosing the appropriate medicine for your patient, counselling them on how to take this medicine and also prescribing suitable treatments. Clinical Pharmacy involves all those services provided by pharmacists in hospitals, community pharmacies, nursing homes, home-visits, prisons and any other setting where medicines are prescribed and used. The aims of clinical pharmacy are to maximise drug effect, minimise risks to the patient and minimise drug expenditure.

## Pharmacy Practice

From the day you start, you will learn about the profession of pharmacy and the roles and responsibilities of pharmacists, focusing on the optimisation of patient care. Legal and ethical issues are also discussed; prescriptions interpreted and clinical checks made, while highlighting the need for continual professional development. Government interventions, wider public health issues, and the awareness of guidelines are also studied to reflect the changes which occur in drug development and disease management.

## Course structure

### Level 1

- Introduction to Pharmacy Practice
- Cell Science
- Human Physiology
- Formulation of Medicines
- Pharmaceutical Chemistry

### Level 2

- Pharmacy Practice and Law
- Pathology and Therapeutics
- Industrial Manufacture of Medicines
- Pharmaceutical Analysis
- Biological Macromolecules



### Level 3

- Pharmacy and the Patient
- Clinical therapeutics
- Advanced Drug Delivery
- Drug Design and Discovery

### Level M

- Preparing for Practice as a Pharmacist
- Current Issues in Pharmacy
- Advanced Clinical Pharmacy
- Research Project

## What it takes to register as a Pharmacist

Successful completion of the MPharm undergraduate degree course entitles you to undertake pre-registration training in a community or hospital pharmacy; it is also possible to spend six months of the pre-registration year in the pharmaceutical industry.

During this year graduates can expect competency assessments and final examination set by the RPSGB. On successful completion students are then eligible for registration as a pharmacist in the UK. Registration can only be granted by the RPSGB. Graduates are expected to be fit to practice - if you think there may be personal issues regarding suitability to register, contact the RPSGB for advice before applying for the MPharm programme.



# Foundation Year in Pharmaceutical Sciences UCAS code FBC2

This unique course allows students to prepare for undergraduate study with a particular emphasis on pharmaceutical sciences. If you do not have the formal entry requirements for a degree, you have other options. Complete our Foundation Year in Pharmaceutical Sciences programme with passes in all modules and proceed to the BSc (Hons) degree in either Chemical and Pharmaceutical Science or Forensic and Pharmaceutical Sciences or, if you gain 60% across all the modules, you can be considered for the MPharm degree. This course is designed for those students who would like a career in the pharmaceutical industry or wish to become a qualified pharmacist but do not have the direct entry requirements.

## The course consists of:

- Basic chemistry with respect to pharmaceutical science, to ensure that students can confidently start an undergraduate programme. Practical laboratory classes complement the theory. You will learn an appreciation of safe laboratory practice; how to conduct and report experiments; process and interpretation of experimental data, all key skills for pharmaceutical scientists.
- Biology, highlighting the importance of biological systems, and also Human Physiology, with regard to the main organs of the body.

- Mathematical skills, which are essential for all scientists, are developed using relevant examples in the context of pharmaceutical science to promote confidence in how to manipulate and apply appropriate mathematical skills.

In addition you will develop a range of generic transferable skills including teamwork, oral and written communication, computer literacy and IT skills.

The course encourages integration of knowledge across the subject areas and provides a relevant programme to enable students (including mature and overseas students) to access higher education in the pharmaceutical sciences.

Those students who successfully pass this Foundation Year will automatically transfer to the BSc (Hons) Chemical and Pharmaceutical Science degree programme at the University of Sunderland.

Applicants should have at least 3 GCSEs and a minimum of one 6 unit award/AS level (or equivalent) in chemistry. Those for whom English is not their first language will require IELTS 6.0 or equivalent. Due to the placements and patient contact, MPharm applicants require IELTS 6.5 or equivalent, City of Sunderland College, who operate the Foundation Year in Pharmaceutical Science, are an IELTS certificated college.

Contact Recruitment 0191 5152731

# Chemical and Pharmaceutical Science (CPS) UCAS code FB12

## What is CPS?

The CPS Programme develops the broad range of knowledge and skills for a career in the chemical and pharmaceutical industries, the largest and most profitable manufacturing industries in the UK. You'll gain a broad knowledge of the major branches of chemistry, combined with advanced pharmaceutical, clinical and chemical analysis. The core modules in chemistry, physiology, new drug design and analysis will give you the knowledge and practical skills highly valued by pharmaceutical and clinical scientists. CPS graduates have an excellent understanding of each stage of the research and development of pharmaceutical products, detailed knowledge of the essential principles of chemistry and the ability to apply these to predict and explain behaviour in a wide range of chemical systems. Industrially-based specialists often visit and contribute their expertise to the advanced modules of the CPS Programme.

'The curriculum is well designed and covers an excellent range of topics - this broad subject range constitutes a well-balanced, industrially relevant course.' Dr. Andrew Hutt, King's College London. (External examiner, 2004-2008).

We encourage our students to experience the chemical or pharmaceutical industry first-hand by taking an optional, fully paid industrial placement with our industrial contacts between Level 2 and 3. In particular, this placement will help you appreciate the content and particular relevance of the CPS programme to the industry. This will provide invaluable practical experience and enhance your career prospects when you graduate. In addition, you will be eligible for a City and Guilds Licentiateship, to recognise personal achievement and the application of professional knowledge in the workplace.

## Career opportunities

The chemical and pharmaceutical industry has been one of the top three most profitable UK industries for the last 20 years and is one of the major employers in the UK with more than 75,000 people employed directly and over 100,000 employed by ancillary companies. There will always be a need for well qualified chemical, pharmaceutical and clinical scientists. Through our strong links with the chemical and pharmaceutical industry we ensure the CPS Programme provides the broad practical skill-base, combined with a thorough understanding of essential chemical concepts and a wide range of key skills. Sunderland CPS graduates enjoy a high reputation within the industry and are always in demand.

A CPS degree opens doors to a wide range of rewarding careers in diverse fields, giving graduates superb progression opportunities. Recent graduates from the CPS Programme are now employed in a number of varied areas including:

- Pharmaceutical research and development
- Manufacturing and production management
- Pharmaceutical analysis and quality assurance
- Medical sales
- Environmental control and waste-management
- Education and marketing

'I feel that the students from the CPS course have a better chance of finding jobs within the industry due to the 'hands-on' approach which is so fundamental to the course. They have an excellent grounding in pharmaceutical chemistry and, more importantly, a genuine interest in the subject.'

Prof. Brian Law, AstraZeneca Pharmaceuticals UK.

## Course structure

### Level 1

- Introduction to Therapeutics and Microbiology
- Fundamentals for Analysis
- Fundamentals of Pharmaceutical Science
- Human Physiology
- Cell Science
- Mathematics and Statistics

### Level 2

- Inorganic and Physical Chemistry
- Pharmaceutical Discovery and Development
- Analytical Techniques; Theory and Applications
- Organic Chemistry and Spectroscopy
- Physical and Inorganic Chemistry
- Biochemistry and Drug Metabolism
- Instrumental Methods of Analysis
- Chemistry of Biological Macromolecules
- Genetics and Biotechnology

Highly Recommended Placement Year between Level 2 and 3

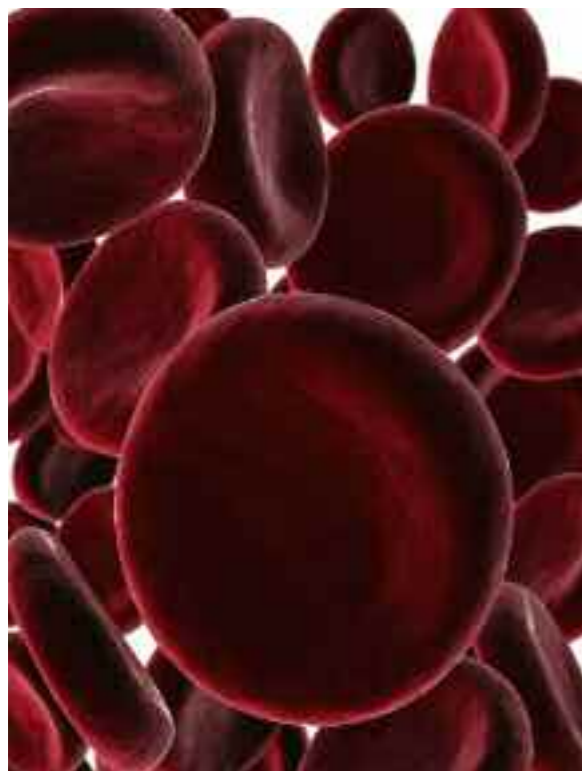
### Level 3

- Advanced Pharmaceutical Analysis
- Drug Discovery and Development
- Advanced Organic Chemistry
- Advanced Analytical Techniques, Theory and Applications
- Synthetic Organic Chemistry - Advanced Spectroscopy
- Advanced Aspects of Physical and Inorganic Chemistry
- Individual Research Project
- Options from: Chemotherapy - Forensic Analysis - Environmental Analysis



University of  
Sunderland

# Chemical and Pharmaceutical Science, Foundation Degree code CID629



The Foundation degree in Chemical and Pharmaceutical Science is a web based course especially designed for Internet delivery directly into the workplace or home for 24-hour access by analytical technicians employed in the chemical, pharmaceutical or biotechnology sectors. This allows a flexible approach to learning whilst remaining in full-time employment.

Web based, interactive activities and virtual experiments help to illustrate the theory and simulate laboratory experience in basic science, and work-based projects provide real hands-on experience in a live setting.

As the CPS Foundation Degree mirrors the first two years of the on-campus CPS Programme, successful graduates may opt to top-up to an honours degree with an additional full-time year at university.

## Entry requirements

You will require GCSE English and Mathematics at Grade C, plus a science based qualification, for example an Access course, A levels, City and Guilds, ONC.

Successful graduates may opt to top-up to an honours degree with a full-time year at university.

Programme Leader Dr. Jonathan Harburn. Tel: 0191 515 2514  
Email: jonathan.harburn@sunderland.ac.uk

# Foundation in Science code CID110

If you do not have the formal entry requirements for a degree, you still have other options. Successful completion of our Foundation in Science (level 0) will help to bring you up to the required standard and you are guaranteed a place on the first year of the following degrees:

- BSc (Hons) Biomedical Sciences
- BSc (Hons) Pharmacology

The programme provides a solid grounding in science and the study skills needed to tackle a degree.

Contact Recruitment 0191 5152731



# Biomedical Sciences UCAS code B940

## What is Biomedical Sciences?

Biomedical sciences is the integration of a wide range of scientific subjects which address how diseases develop and affect the normal functioning of the body. It involves the investigation of disease, the development of methods for monitoring, diagnosing, treating and prevention, ultimately to understand the biology of disease.

Biomedical sciences are at the forefront of modern science and therefore at the leading edge of research activity. It is a rapidly evolving subject, seeking to understand major health problems such as cancer, infectious and other diseases (eg AIDs, transplantation) and cutting edge technology such as cloning and genetic engineering. A biomedical scientist plays a crucial role in the diagnosis and treatment of diseases.

## Career opportunities

The size and diversity of the health care industry offers fantastic employment prospects. Over the last 4 years, 95% of our graduates gained employment or went on to further study within 6 months.

Career opportunities for biomedical sciences graduates include;

- NHS laboratories (pathology services including clinical immunology, haematology and blood transfusion, transplantation, clinical biochemistry, medical microbiology)
- Research laboratories (PhD)
- Commerce (sales and marketing) related to health care products;
- Education service (university, college and school teaching)

## Why study Biomedical Sciences at Sunderland University

Our biomedical sciences degree has a long and successful 20 year history and is professionally accredited by the Institute of Biomedical Sciences (IBMS) and approved by the Health Professions Council (HPC).

We pride ourselves on the excellent practical and theoretical education we provide and the high level of academic support.

## Degree programme content

In your first year you will be provided with a foundation in life sciences. Second year focuses on the professional requirements of a biomedical scientist and you will be exposed to the principles and practices of biomedical disciplines. The final year will provide the opportunity to specialise and to undertake a laboratory based research project.

## Clinical placement

We encourage students to experience a real working environment and offer an optional clinical placement between Levels 2 and 3. Those students opting for a clinical placement will complete their pre-registration training and be eligible to register as a Biomedical Scientist with the HPC following graduation (subject to appropriate health checks/vaccinations and CRB checks). You will also be eligible for a City and Guilds Licentiateship (LCGI), to recognise personal achievement and the application of professional knowledge in the workplace.

The one-year placement opportunity provides excellent experience including:

- Greater academic maturity
- Job opportunities when you graduate
- Informed choices about your future career
- Enhanced transferable skills

## Course structure

### Level 1

- Laboratory Skills
- Human Physiology
- Biological Chemistry
- Fundamentals of Pharmacology
- Molecular Biology and Microbiology
- Cell Biology

### Level 2

- Pathophysiology and Therapeutics 1
- Pathophysiology and Therapeutics 2
- Professional Practice
- Analytical Biochemistry
- Molecular Microbiology
- Disease Processes

### Level 3

- Biomedical Project
- Pathophysiology and Therapeutics 3
- Haematology and Blood Transfusion
- Clinical Biochemistry
- Medical Microbiology
- Immunology
- Advanced Molecular Methods

# Forensic and Pharmaceutical Sciences (FPS) UCAS code FF41

## What is FPS?

The Forensic and Pharmaceutical Sciences programme (FPS) is an exciting new programme aimed at students who wish to develop an analysis focused career. Forensic and Pharmaceutical Sciences are growing in importance - at Sunderland, our research covers high-profile areas such as explosives, fingerprinting, horse racing investigations, and analytical nanotechnologies, all providing exciting career opportunities for well-trained graduates.

You will study a number of modules related to forensic methods in tackling crime; these include toxicology, evidence-based criminology, personal identification and analysis of DNA.

Not only is the FPS programme analysis focused but it also has a fully integrated programme encompassing a variety of analytical strategies in both the forensic and pharmaceutical fields. This will give you a well rounded degree opening up a wide range of career opportunities both in the forensic arena and in a variety of pharmaceutical areas.

Graduates will have knowledge of the principles of both forensic and pharmaceutical analytical strategies and the development of pharmaceutical products from initial observation of activity, formulation of new products, drug development and synthesis. The FPS programme emphasises the application and practice of analytical chemistry, with students gaining hands-on experience in all the major analytical technologies - a key skill in students' career aspirations and employability. This is backed up by theoretical support and includes a strong element of 'hands-on' problem solving using modern instrumental techniques.



## Career opportunities

Students who have completed the FPS degree will have the opportunity to become forensic analysts and scientists in the private or public sectors or become pharmaceutical scientists in a variety of pharmaceutical industries. Additionally the scientific underpinning provided by the FPS degree can also be a useful basis for a career in pathology laboratories, teaching, drug registration, technical and scientific writing or research.

## Course structure

### Level 1

- Introductory Forensic Examination Physiology and Pharmacology
- Fundamentals for Analysis
- Pharmaceutical Science

### Level 2

- Personal Identification (dead or alive) with Introductory Toxicology
- Synthetic Methodology, Heterocyclic Chemistry and Spectroscopy
- Pharmaceutical Discovery and Development
- Analytical Techniques Theory and Applications

### Level 3

- Evidence based Criminology
- Forensic Toxicology
- Advanced Pharmaceutical Analysis
- Drug Discovery and Development
- Forensic and Pharmaceutical Project
- Forensic Chemical Analysis

Plus a choice of either Advanced Organic Chemistry or Environmental Analysis

# Pharmacology UCAS code B210

## What is Pharmacology?

Our Pharmacology degree is a very successful and well-established course offering an excellent coverage of specialist subjects delivered in a modern scientific environment.

Pharmacology is the study of drugs and their effects on living systems, providing graduates with the up-to-date knowledge and skills to pursue a challenging, varied and a very well paid careers in the pharmaceutical industry, clinical research and academia.

## What the course has to offer

Pharmacology provides an optional three-year or four-year sandwich degree offering a period of industrial training in the pharmaceutical industry or related areas. The sandwich year takes place between the second and third years giving students an excellent opportunity to further improve their scientific knowledge, practical skills and subsequent employability.

The programme places considerable emphasis on the development of laboratory and transferable skills, hence there is a large component of practical work, culminating in a final year research project. The course consists of a series of core and optional modules at each level, which ensures that you study sufficient pharmacology to become a competent pharmacologist, whilst at the same time allowing for a degree of flexibility in your studies.

## Our range of specialist subjects

We offer specialist subject study in the following key areas: molecular pharmacology, experimental pharmacology, neuropharmacology, molecular biology, principles of drug action, human physiology, cell science, genetics and microbiology, numeracy and skills, therapeutics, biochemistry and drug metabolism, genetics and biotechnology, drug development and mammalian toxicology, infectious and neoplastic diseases, research/laboratory or non-laboratory-based project.

## First class teaching

The National Quality Assurance Agency (QAA) assessed the teaching of Sunderland's Pharmacology course as excellent, which represents the highest grade of teaching quality. Visiting professors based in multi-national pharmaceutical companies also contribute towards the delivery of the programme.

## Career opportunities

Our graduates have an outstanding employment record as a degree in Pharmacology opens the door to many career opportunities such as industrial (pharmaceutical industry departmental divisional heads) or university researchers, medical sales representatives, clinical trials executives, toxicology, forensic sciences or scientific recruitment.

Pharmacology also provides a perfect basis for a continued training in medicine, dentistry and veterinary medicine.

## Real world experience

We have good employer relationships with the pharmaceutical industry through our placements programme, project and research work. Placements are associated with prestigious companies such as AstraZeneca, GlaxoSmithKline, Merck Sharpe Dohme, Bayer A.G. and Pfizer. All placement students are given responsibility for projects and return to their final year with increased confidence and essential industrial skills.

## Course structure

### Level 1

- Fundamentals of Pharmacology
- Laboratory Skills
- Human Physiology
- Biological Chemistry
- Molecular Biology and Microbiology
- Cell Biology

### Level 2

- Experimental Pharmacology
- Pathophysiology and Therapeutics I and II
- Molecular Microbiology
- Drug Availability and Action

### Level 3

- Pharmacology Research Project
- Molecular Pharmacology
- Neuropharmacology
- Drug Development and Mammalian Toxicology
- Drug Action and Neoplastic Diseases
- Medical Microbiology
- Pathophysiology and Therapeutics III



# Student Support



You will be based on the City Campus, right in the heart of Sunderland city centre. The main benefits to students are the convenience of lecture theatres, practical labs, the library and student services are never more than a five minute walk away.

## The Gateway

The Gateway is our new 'one stop shop' for student support giving you everything from expert financial advice, access to welfare and accommodation support all available under one roof.

One Stop Shop for student support:

- **Financial Advice**
- **Counselling**
- **Disability Support**
- **Health and Welfare**
- **Accommodation**
- **Admissions**
- **Payments Desk**

## Careers and Employability Service

Also on offer at the City Campus is our Careers and Employability Service. A stone's throw from The Gateway, based in The Murray Library, our team of professionals can help with careers advice, CVs, interviews, work experience, student jobs and graduate opportunities.

## Getting around

We have fantastic transport links by air, road and rail. Sunderland's local metro system links directly to Newcastle International Airport, the A1 motorway links directly with Durham Tees Valley International Airport and Sunderland central railway station has a direct link to London.

In addition you can take advantage of:

- **Discounted Metro Travel within Sunderland**
- **Free Campus minibus**
- **Regional Bus Links**
- **National Rail Services**
- **London Kings X - Sunderland**

## Learning resources

- **3 Libraries**
- **600 computer work stations**
- **24 hour opening**
- **Web-based teaching**
- **Resources "WebCT"**

## Sport at the University of Sunderland

The £11m new sports and recreation facility will have a six-badminton court sports hall, 70 station fitness suite, sports massage and injuries centre, multi-purpose room, indoor climbing wall, retail, social, catering, leisure and exhibition spaces.

University of Sunderland Sport will be based in the new building, increasing its ability to help provide expertise to the University's own elite athletes, Olympians and the region's professional sports people.

The new centre will also be a strong addition to the University's offer to world athletes after being chosen as a Pre-Olympic Training Provider for the 2012 London Games.

Equally important is that staff and students use the facility daily – whether for serious sport, social sport, recreation or social gathering. The local community will also be encouraged to use the centre and other facilities on the "new" City Campus.

We also have an Olympic-sized swimming pool, located a short distance from the city campus at Stadium Park next to the Stadium of Light. The 50m pool, built to Olympic standards, will be the only one of its kind between Leeds and Edinburgh and will provide fantastic facilities for students.



# Be a Sunderland VIP - get the red carpet treatment



The fact you are considering to study at the University of Sunderland makes you a very important person to us. That is why we are treating you like one.

Signing up as a University of Sunderland VIP leads to your own personalised web page, filled with information that is important to you.

Your personalised VIP web page will provide up-to-date information on the following topics:

- **What's happening in your area of interest (Design or Sport Sciences for instance)**
- **Exciting new courses**
- **Where to live**
- **What the Students' Union can do for you**

Get VIP status - sign up online at [www.sunderland.ac.uk](http://www.sunderland.ac.uk) wherever you see the VIP sign:

Becoming a University of Sunderland VIP is straightforward! Simply complete a short online form, outlining your areas of interest. We will then email you to tell you how you can access your personalised VIP page.

You can change your interest details any time. After updating details on your interest page you will be able to view revised information instantly, giving you immediate access to the latest information that is available from the University of Sunderland.

Throughout the year we will also post details of other news that you might be interested in, including open day dates, UCAS deadlines, new programmes and news about Sunderland.

# Don't take our word for it...



## Gary Ramshaw

**Project Manager, Liquid Products - HyClone UK Ltd**  
**MSc Enterprise in Biosciences and BA (Hons)**  
**Biomedical Science**

Former Sunderland student Gary Ramshaw managed to combine business and science studies to help him rise up the career ladder.

Gary now project manages custom liquid media products for HyClone UK, which specialises in the manufacturing of bio-process containers, liquid media and reagents as used in the chemical research and medical sectors.

"While my degree gave me the academic background in science, it was my masters that really unlocked my potential," he said. "The relationship between science and business is an important one and the masters definitely helped me career-wise. Rather than delaying going into full-time employment I feel the masters gives students a chance to move upwards quicker once they find a job."





# Life begins at Sunderland



Many of the courses and facilities at the University of Sunderland have been shaped by the needs of international and UK students. Sunderland has a long tradition of attracting thousands of students from all over the world who go on to exciting careers armed with a first-class qualification.

The City of Sunderland offers a fabulous range of entertainment, sports, arts and shopping with a great many top name high street stores and smaller boutiques. Being at university is all about experiencing life to the full and knowing how to enjoy yourself! With a host of restaurants, cafés and bars, as well as several newclubs offering student discounts and a multi-screen cinema, there is no shortage of places to have a great time.

The Union Entertainment team make sure there's plenty to entertain you, attracting big names such as Girls Aloud, Arctic Monkeys, Maximo Park, and some of the hottest new bands in the UK along with top DJs, such as Radio One's Trevor Nelson and Judge Jules. The City has a varied and exciting music scene catering for all tastes. So much so, it was voted best underground music scene in the UK by the

NME thanks to the work of bands like The Futureheads and Field Music.

Sunderland is also one of those places where your money goes further because food, drink and rent is roughly 30% cheaper than in London and the South East (source: Hotcourses.com comparison).

If you're into sport, then between the city and the university you'll find all the facilities you need. The £11m new sports and recreation facility will offer a huge range of sporting facilities and we can also boast the North East's only Olympic size 50 metre pool – making Sunderland a must for swimmers.

The local area also offers outdoor sporting activities. At the marina you can try your hand at sailing or kayaking and as Sunderland has long stretches of beautiful sandy beaches, surfing, windsurfing and rowing are also an option.

The Stadium of Light is also home to Premiership football club Sunderland AFC and welcomes top teams like Manchester United, Chelsea and Arsenal.

So whatever your hobbies or interests there's always something to do in Sunderland.



## How to Apply

### UK and EU

Applications for entry must be submitted through UCAS (the Universities and Colleges Admissions Service).

For further details go to [www.ucas.ac.uk](http://www.ucas.ac.uk) or call **0870 1122211**

Applications should be sent by January via your academic referee, together with a postal order/cheque to the appropriate value made payable to UCAS. Applications received by UCAS after the deadline in January and prior to June will be considered as a late application. In general, candidates applying late may be more constrained by the number of available programme choices.

Applications received by UCAS after the end of June will be considered under the Clearing System but the number of available programmes may be further reduced by this time.

**When completing your UCAS form please use the following code for the University of Sunderland - S84.**

**MPharm programme UCAS code B230**

**BSc (Hons) Biomedical Sciences UCAS code B940**

**BSc (Hons) Chemical and Pharmaceutical Science UCAS code FB12**

**BSc (Hons) Pharmacology UCAS Code B210**

**BSc (Hons) Forensic and Pharmaceutical Sciences UCAS code FF41**

### International

An application form can be downloaded from our website, or you can apply on line at [www.sunderland.ac.uk/international](http://www.sunderland.ac.uk/international)

The University also has an admissions team who can assist you. They can be contacted by telephone on

**+44(0) 191 515 3000** or by email: [international.enquiries@sunderland.ac.uk](mailto:international.enquiries@sunderland.ac.uk)



**University of Sunderland**