ACADEMIC EXCELLENCE AND INSPIRATIONAL TEACHING

With its dynamic research and excellent teaching, the Medway School of Pharmacy is a unique collaboration between the University of Greenwich and the University of Kent.

Pharmacology is an important biomedical science that allows us to understand how drugs produce their effects on the body – from the cellular level (how drugs interact with molecules in individual cells) to an entire organism (how drugs alter physiological and behavioural responses). You also gain an understanding of the technical approaches and research strategies used to develop new drugs.

Superb rankings
In the National Student Survey 2013, the School of Pharmacy was ranked 1st in the UK for overall programme satisfaction. This outstanding result is testimony to our excellent teaching and academic support. The School is also ranked 8th for Pharmacology and Physiology in The Guardian University Guide 2014.

World-leading research
The scientific disciplines of pharmacology and physiology are integral to the discovery and development of new drugs and many of the School’s lecturers are pursuing their own research in pharmacology, physiology and related scientific disciplines. The School has been awarded grants from research councils such as the Medical Research Council (MRC), the Biotechnology and Biological Sciences Research Council (BBSRC) and various charities.

This active research culture allows you to benefit from the latest developments in the field. Within the programme, all students have the chance to develop their own research skills by taking on a final-year project in an academic or industrial laboratory (see p9).

“Research is critical to the success of the School and takes place alongside teaching under the guidance of our Director of Research. The School has made a significant investment in facilities and equipment and continues to evolve a strong collaborative and interdisciplinary approach to research.”

Professor Iain Cumming
Head of School
In addition, to help you consolidate your new knowledge, you have access to innovative learning resources including computer aided learning (CAL) and managed student-centred learning (MSCL).

Supportive community
The School provides flexible academic support and you receive regular feedback on your work. In addition, you are allocated a personal tutor who maintains contact with you throughout your studies and provides support if you have any problems.

Excellent teaching
The scope of the degree calls for a range of practical, theoretical and professional skills. You attend lectures and seminars with question-and-answer sessions that are designed to develop your understanding. This degree places a strong emphasis on research, so you also have regular laboratory sessions.

Teaching is from internationally-recognised research-active scientists, including those with first-hand experience of working in drug discovery and the pharmaceutical industry.

Industry links
The University has excellent links with the pharmaceutical industry including companies such as Pfizer. This can open up opportunities when you are looking for a work placement and can also help you to find employment after you graduate. For more on career prospects, see p5.

“In Medway School of Pharmacy we are committed to offering degree programmes, designed in partnership with employers, that meet the ever-changing needs of science-based industries.”

Dr Scott Wildman
Director of Learning and Teaching
SUPERB STUDENT EXPERIENCE

Our modern campus at Medway provides a stunning location for your studies and offers first-class academic and leisure facilities.

Historic setting
Our campus adjoins Chatham Historic Dockyard and combines beautiful old buildings with modern interiors, offering outstanding study facilities. There are also cafés, a shop and a student pub on campus, all of which helps to create a vibrant student community. The impressive Rochester Cathedral is the venue for the degree congregations.

Excellent resources
The University’s study resources are excellent with well-equipped teaching rooms and study spaces, IT equipment such as public PCs and printers and a £8 million Drill Hall Library which is well-stocked with books, journals and electronic information. In addition to these traditional resources, the School provides the latest technology, Student Centred Learning (MSCL) and computer-aided learning (CAL), both highly effective ways to consolidate your knowledge. You also have access to one-to-one support from expert librarians in the Drill Hall Library, and from the Student Learning Advisory Service.

Live by the riverside
If you join as a full-time student, you could be living in Kent’s attractive ‘waterside village’ on the banks of the River Medway. Our student flats have modern fully fitted kitchens and en-suite study bedrooms with internet access if you wish to bring your own personal computer. (Students also have the option to choose accommodation offered by the University of Greenwich. See www.gre.ac.uk for details.)

Good location
The Medway campus is ideally located with easy access to London. The high-speed train service from Ebbsfleet International to London St Pancras takes under 20 minutes; the service from Chatham station to London Victoria or London Charing Cross takes 45 minutes. If you wish to visit Paris, trains from Ebbsfleet International take around two hours.

Sport and leisure
Kent students can use Medway Park, a state-of-the-art sports centre, at discounted rates. It offers an 25m swimming pool and many other excellent facilities. See www.medwaypark.org.uk for details. Other active pursuits in Medway include rowing, snowboarding, ice-skating and tenpin bowling. Football is very popular and the local Gillingham Football Club has a loyal following.

The area surrounding the Medway campus includes the shops within the Dockside Outlet Centre, hotels, restaurants, bars, a multi-screen cinema and more recently Dickens World, an exhibition of the life and works of the writer Charles Dickens. The riverside location of the campus means that many local bars overlook the River Medway.

In nearby Chatham town centre, you can find shopping centres and high street stores. Rochester, a couple of miles away, stages numerous events throughout the year, including music concerts and Dickens festivals and offers a range of quirky shops along its cobbled high street.

More information
For more on the Medway campus, see www.kent.ac.uk/medway
A SUCCESSFUL FUTURE

As well as providing a first-rate academic experience, we want you to be in a good position to flourish in a changing economic environment.

Most of our students are highly successful after graduation: according to The Guardian University Guide 2014, 100% of students from the School of Pharmacy were in employment six months after graduation.

We pride ourselves on helping students to develop a high level of numerical, analytical and communication skills during their studies. These transferable skills make our graduates attractive to a wide range of employers.

Popular career paths
A degree in Pharmacology and Physiology is an excellent preparation for a job within the pharmaceutical and drug discovery industries, or in other bioscience industries. Outside of the academic or industrial lab, other potential career paths include teaching, drug regulation, pharmaceutical marketing, scientific writing and journalism.

Year in Industry
If you decide to take a Year in Industry (also known as a sandwich year), you develop new skills that make you attractive to potential employers. If your placement is a success, you could be offered a job with the same employer after graduation. See p9 for more details.

Further study
Some graduates choose to enhance their career prospects by continuing to study at postgraduate level (MSc, MRes or PhD). The Pharmacology and Physiology degree may also be eligible as a graduate-entry qualification for some medicine or dentistry degrees.

Please note: the pharmacology degree is not a qualification to practise as a registered pharmacist. For this, you would require a pharmacy degree (MPharm): see p6 for more details.
CHOOSING YOUR PROGRAMME

Not sure which programme to choose? Here’s a guide to the degrees on offer within the School.

Pharmacology and Physiology (BSc)
If you have an enthusiasm for scientific discovery, this three-year degree allows you to develop both your laboratory skills and your intellectual abilities. It provides you with the practical training relevant to pharmacology and you have the chance to complete a research project or go on placement in a pharmaceutical laboratory.

This degree can also be taken as a four-year programme with a year in industry (sandwich year). For more details, see p9.

Pharmacy (MPharm)
If you wish to practice as a registered pharmacist, you need to take the four-year MPharm programme in Pharmacy. After graduation from your degree and successfully completing a pre-registration year and examination, you become qualified to practice as a pharmacist in Great Britain. See www.kent.ac.uk/ug for details or go to www.msp.ac.uk

International students
If you are applying from outside the UK without the necessary English language qualifications, you may be able to take the Kent International Foundation Programme (IFP). It is then possible to progress from the IFP to the Pharmacology and Physiology programme. For more information, see www.kent.ac.uk/internationalpathways/ifp

“The ethos at the Medway School of Pharmacy is that research should be driven by a realistic bench to bedside theme and by industrial collaborations.”

Dr Claire Peppiatt-Wildman
Head of the Urinary Systems Physiology Unit
STUDYING AT STAGE 1

Stage 1 is the first year of a full-time degree programme.

At Stage 1, you immerse yourself in the basic sciences that contribute to pharmacology. You develop a firm grounding in anatomy and physiology and the principles that underlie the biological sciences. You also study those principles of chemistry that contribute to pharmacology and drug development and the laboratory skills and analytical techniques used in pharmacological research.

All students take the following modules:
- Analytical Techniques in Pharmacology
- Basic Laboratory Skills
- Introduction to Biosciences
- Introduction to Physiology and Pharmacology
- Medicines Design and Manufacture.

The modules are assessed by written examination and coursework. The course assessments could include written assignments, problem solving, presentations, laboratory participation and performance.

Modules: Stage 1

Analytical Techniques in Pharmacology
This module introduces you to the principal techniques used in pharmacology and drug discovery. Topics include ligand-binding experiments, recombinant expression systems, in vitro and in vivo techniques and an understanding of concentration-effect relationships.

Basic Laboratory Skills
Certain key skills are needed to undertake safe and effective laboratory work. Concepts covered include laboratory health and safety, good laboratory practice, record keeping and a range of general skills that are required as you progress through the degree programme.

Introduction to Biosciences
In order to give you the necessary foundation for understanding drug action at the cellular level, this module covers aspects of basic biology at the cellular and sub-cellular level.

Introduction to Physiology and Pharmacology
This module provides you with a detailed knowledge and understanding of the anatomy and physiology of the major body systems. You are also given an introduction to the pharmacological basis of drug action.

Medicines Design and Manufacture
This module provides you with a detailed knowledge and understanding of certain aspects of pharmaceutical chemistry and pharmaceutics that relate to the synthesis, pharmacological activity and formulation of drugs.
Stage 2 is the second year of a full-time degree programme.

During Stage 2, you look at some more specialised topics in pharmacology, focusing on drugs and drug effects relevant to various body systems. You also have the option to study subjects of particular interest to you, such as gene therapy.

All students take the following core modules:
- Pharmacokinetics
- Cardiovascular Respiratory and Renal Pharmacology
- Immunopharmacology and Microbiology
- Endocrine and Gastrointestinal Pharmacology
- Research Methods in Pharmacology
- Neuropharmacology.

You can choose two more optional modules from a range on offer, including:
- Introduction to Toxicology
- Introduction to Biopharmaceuticals and Gene Therapy.

Modules: Stage 2

Pharmacokinetics
In this module, you learn about the uptake of drugs by the body, how drugs are biotransformed, and how drugs and their metabolites are eliminated from the body over a period of time.

Cardiovascular Respiratory and Renal Pharmacology
This module specialises in the physiology and pharmacology of the cardiovascular, respiratory and renal systems. You learn about the drugs that affect these body systems as well as specific pathologies and diseases.

Immunopharmacology and Microbiology
In this module, you learn about the immune system and drugs that interact with the immune response. You also study infection, bacteria and viruses and the drugs used to control and treat infection.

Endocrine and Gastrointestinal Pharmacology
In this module, you study the action of hormones and the drugs that influence the endocrine system. You also learn about the physiology and function of the gastrointestinal system and drugs that affect the stomach and intestines.

Research Methods in Pharmacology
This module specialises in how to appropriately design experiments to test drug effects and how to apply the correct statistical tests.

Neuropharmacology
In this module, you study the central and peripheral nervous system, diseases that affect the nervous system, and how drugs interact with the nervous system to produce physiological and behavioural effects.

Introduction to Toxicology
This optional module focuses on how drugs and other substances produce toxic effects and how to measure and control or reduce toxicity.

Introduction to Biopharmaceuticals and Gene Therapy
In this optional module, you learn about cutting-edge approaches to gene therapy and how proteins, DNA and living microorganisms like viruses and bacteria can be used to produce beneficial effects.
If you choose to do the Year in Industry, it takes place between Stages 2 and 3.

In general, the Year in Industry (sandwich year) is very popular with employers because of the skills you gain in the workplace. Most students gain placements in industrial laboratories in the UK but it is also possible to do your placement abroad – a good option for overseas students.

Finding a placement
The School has excellent links with employers and this can help you to find the most suitable placement. You are guided through the process of application, getting feedback on the placements that are most likely to enhance your career prospects, how to write a winning CV and how to hone your interview skills.

Salary and benefits
Students usually work on placement for the entire calendar year. Salary and holiday entitlements vary according to the employer you work for. However, many students find that they earn enough to be able to save some of their income, and this often helps them in their final year of studying at Kent.

Study and career benefits
A work placement provides practical experience that can be put to good use in your final year of study. It gives you a sense of how the theory works in practice and improves your skills in many areas. It also allows you to evaluate a particular career path and gain knowledge of the working environment.

Keeping in touch
Your tutor maintains contact with you during your year away from the University. At the end of the Year in Industry, your work is assessed and these marks contribute to your overall degree.
Stage 3 is the final year of a full-time degree programme.

During Stage 3, you study advanced topics in pharmacology. Optional modules allow you to tailor your skills and training to your specific career goals and explore topics that are of particular interest to you.

Your final-year research project gives you the opportunity to put into practice many of the skills you have gained during your studies, learn new techniques and interact with active researchers. The field of research will be matched to your interests.

All students take the following modules:

- Clinical Pharmacology
- Drug Discovery and Development
- Pharmacology Physiology Project
- Professional Skills in Pharmacology
- Receptor Mechanisms and Molecular Pharmacology.

You can choose optional modules from a range on offer, including:

- Advanced Cell and Molecular Biology
- Advanced Neuropharmacology.

**Modules: Stage 3**

**Advanced Cell and Molecular Biology**

In this optional module, you focus on current research and advanced scholarship in key areas of cell and molecular biology. Topics include anticancer pro-drugs, gene therapy, immunology and microbiology, allergic inflammation and translational virology.

**Advanced Neuropharmacology**

This optional module focuses on current developments in neuropharmacology. Topics include ion channels as drug targets, neuronal excitability, systems neuroscience and drug therapy in psychiatry.

**Clinical Pharmacology**

You learn how drug effects are clinically evaluated in humans, including unwanted drug effects and adverse drug reactions. This module also delves into the clinical use and application of drugs that have an effect on a variety of physiological responses in humans.

**Drug Discovery and Development**

This module focuses on current developments in the pharmaceutical and drug discovery industry. Topics include the role of bioinformatics and genomics, high throughput screening and the role of pharmacology in drug discovery. You also learn how drug safety is evaluated, how clinical trials are designed, and about regulatory affairs and the drug approval process.

**Pharmacology Physiology Project**

The laboratory research project should focus on an area of particular interest to you. Following completion of the research, you analyse and interpret your results to provide a report. Your supervisor is a member of staff who is conducting research in the field.

**Professional Skills in Pharmacology**

This module focuses on developing professional skills to enhance your employability and help you advance in your future career. Topics include good laboratory practice, health and safety regulations, and communication and team-working skills. You also learn how to obtain internships and work placements, how to write an effective CV and cover letter, and how to handle a job interview.

**Receptor Mechanisms and Molecular Pharmacology**

In this specialised module, you study the structure, function and pharmacology of ligand-gated ion channels, G-protein coupled receptors and receptor tyrosine kinases. You also learn about the various cutting-edge experimental approaches and techniques used to study these receptors, such as X-ray crystallography, homology modelling, and patch-clamp electrophysiology.
VISIT THE CAMPUS

Come along for an Open Day or a UCAS Visit Day and see for yourself what it is like to study at the School of Pharmacy.

Open Days
Open Days are held so that potential students, and their families and friends, can have a look round the campus. The day includes a wide range of subject displays, demonstrations and informal lectures and seminars, and the chance to tour the campus with current students to view accommodation and facilities. For more information, see www.kent.ac.uk/opendays

UCAS Visit Days
UCAS Visit Days include a tour of the campus and talks about your course and student life. You also have an interview with an academic from the School and the chance to discuss any queries about the course. For more details please contact the School of Pharmacy.

Informal visits
You are welcome to visit the campus at any time. We produce a leaflet that can take you on a self-guided tour and you may be able to meet up with an academic member of staff, although we cannot guarantee this. For more details, or to download a tour leaflet, please see www.kent.ac.uk/informal

Scholarships and bursaries
For details of scholarships and bursaries from the University of Kent, see www.kent.ac.uk/ugfunding

For more details of scholarships and bursaries offered by the University of Greenwich, see www2.gre.ac.uk/study/finance

More information
For the latest information on studying Pharmacology and Physiology at Kent, please see www.msp.ac.uk or contact Dr Stephen Kelley, Programme Leader:
T: +44 (0)1634 202 957
E: s.p.kelley@kent.ac.uk

Location
Medway.

Award
BSc (Hons).

Degree programme
Single honours
• Pharmacology and Physiology (2W3R)

You should apply to Medway School of Pharmacy (UCAS code M62). Do not use the Kent or Greenwich institution codes.

Offer levels
BBB at A level, IB Diploma 26-30 points. We welcome applicants with one of the following:
Access course in science with level 3 credits in Biology and preferably Chemistry with average merit grades; BTEC Extended Diploma in Applied Science at Distinction, Distinction, Merit; OCR National Extended Diploma in Applied Science at D2; vocational qualifications or work experience.

International students only:
Kent International Foundation Programme. See p6 for details.

Required subjects
A level Biology at B and preferably Chemistry at B; IB Biology HL 5 or SL 6 and, if taken, Chemistry HL 5 or SL 6. Plus GCSE Maths at C.

Year in industry
See p9 for details.

Offer levels and entry requirements are subject to change. For the latest information, see www.kent.ac.uk/ug

Terms and conditions: the University reserves the right to make variations to the content and delivery of courses and other services, or to discontinue courses and other services, if such action is reasonably considered to be necessary. If the University discontinues any course, it will endeavour to provide a suitable alternative. To register for a programme of study, all students must agree to abide by the University Regulations (available online at: www.kent.ac.uk/regulations).

Data protection: for administrative, academic and health and safety reasons, the University needs to process information about its students. Full registration as a student of the University is subject to your consent to process such information.
COME AND VISIT US

We hold Open Days at our Canterbury and Medway campuses.
For more information, see: www.kent.ac.uk/opendays