OUR UNDERGRADUATE COURSES

Informatics

UNIVERSITY OF SUSSEX

Informatics – the discipline of information – can be described as the art, science, technology and human dimension of computational systems, both natural and man-made. Its fundamental role is gathering, representing, processing and communicating information in the widest sense of the terms.

Informatics is an essential part of 21st-century life, and is an exceptionally fast-moving subject that gives rise to a wide range of exciting and challenging problems. The complexity of today's computing systems requires the skills of knowledgeable and versatile scientists who have a firm grasp of the fundamental concepts as well as in-depth knowledge of specific areas. These range from digital media, distributed systems, networks, web services, and mobile apps – each with their individual technologies – to business models and problem-solving inspired by natural systems.

Our degrees reflect the breadth of the discipline and its applications, and draw on a diverse set of modules. These provide a firm foundation in the core topics and, in addition, allow you to take options that reflect your particular interests (for example, computer graphics and animation, intelligent systems, robotics, or web technologies).

Our graduates work in a variety of fields, some linked directly to their subject of study in computing, and some where their transferable skills are valued. Entrepreneurial graduates often go on to start up their own businesses, while others choose to stay on for further study or research.

We are in regular contact with a wide range of employers and cultivate personal links with relevant organisations to help you find jobs. Throughout your time at Sussex you will be presented with many opportunities for enhancing your career prospects.

GLOBAL DESIGN CHALLENGE

During the first year, you will take part in the exciting, school-wide Global Design Challenge: this gives all our students the opportunity to engage with a real-world design project in multidisciplinary teams.

Computer Science

OVERVIEW

Our computer science courses provide an all-round professional education in computing. In your first year you learn core skills concentrating on programming, the design of algorithms and the scientific principles and technology behind computer software.

The second year builds on these skills, focussing additionally on the engineering of larger systems and on working in a team. You will learn how the main software systems of modern computing platforms work (ie operating systems, networks, databases and programming language compilers).

The final year of the BSc includes advanced topics such as alternative programming paradigms and the theory underlying computation. You will have the opportunity to specialise in a topic such as web computing, multimedia applications, neural computing, or intelligent systems.

High-achieving students may study for a further year for the MComp award. In this year, you undertake a group project based on advanced study in software engineering. You broaden and deepen your knowledge and skills through a wide choice of options in the areas of artificial intelligence, computer security, digital media, IT management, and mobile and pervasive systems.

OPTIONAL INDUSTRIAL PLACEMENTS

Students are aided in their pursuit of an industrial placement year; placements are recognised by a change of degree title to 'Computer Science with an Industrial Placement Year'.

ACCREDITATION

BSc (Hons) Computer Science is accredited to the highest possible level by BCS – The Chartered Institute for IT, as contributing to the requirements for registration as Chartered IT Professional (CITP), Chartered Engineer (CEng) and Chartered Scientist (CSci).

CAREER OPPORTUNITIES

Computer Science graduates are in high demand in all sectors of the IT industry, as well as in non-IT roles that require analytical, problem solving and technical skills.

Our recent graduates are now employed by, among others:

- BAE Systems
- Bauer Media
- BT
- Cerner Corporation
- Google
- Oracle
- Shell

BSc (Hons) Computer Science
(UCAS code: G400; or with an industrial placement year: G40F)

MComp (Hons) Computer Science
(UCAS code: G401; or with an industrial placement year: G41F)

AUTUMN TERM		SPRING TERM	
YEAR 1			
Introduction to Multimedia (or The Ghost in the Machine? – MComp only)		Data Structures and Algorithms	
Introduction to Programming		Further Programming	
Mathematical Concepts		Introduction to Computer Systems	
Programming Concepts		Professional Skills	
		Global Design Challenge	
YEAR 2			
Compilers and Computer Architecture		Computer Networks	
Databases		Fundamentals of Machine Learning	
Natural Language Engineering		Operating Systems	
Program Analysis		Software Engineering	
OPTIONAL YEAR			
One year industrial placement (optional)			
YEAR 3			
Comparative Programming		Limits of Computation	
Human-Computer Interaction		Option*	
Web Computing			
Individual Project			
YEAR 4 MComp (Hons) only			
Topics in Computer Science		Managing Complex Projects, Products and Systems	
Option*		Web Applications and Services	
Option*		Option*	
Engineering Scalable and Reliable Software			

*For full list of **options** go to: www.sussex.ac.uk/ei/internal/infcourses

Computer Science and Artificial Intelligence

OVERVIEW

Sussex has a worldwide reputation for research in Artificial Intelligence (AI). Our Computer Science and Artificial Intelligence degree explores the scientific basis of intelligence in animals and machines.

AI covers an amazingly wide range of topics, from modelling how social insects navigate between food source and home to creating computer games with evolving characters.

This degree explores the scientific basis of intelligence in animals and machines and combines the fundamentals of computer science with modules specialising in the principles of adaptive behaviour, machine learning and intelligent systems, and application areas such as computer vision, language engineering, autonomous robotics and creative systems.

You can decide how you want to specialise: by choosing options in software engineering and mainstream computing you can focus on technology. Alternatively, you can explore some of the fascinating philosophical and psychological questions surrounding intelligence in animals and machines.

OPTIONAL INDUSTRIAL PLACEMENTS

Students are aided in their pursuit of an industrial placement year; placements are recognised by a change of degree title to 'Computer Science and Artificial Intelligence with an Industrial Placement Year'.

ACCREDITATION

BSc (Hons) Computer Science and Artificial Intelligence is accredited to the highest possible level by BCS – The Chartered Institute for IT, as contributing to the requirements for registration as Chartered IT Professional (CITP), Chartered Engineer (CEng) and Chartered Scientist (CSci).

CAREER OPPORTUNITIES

Graduates with computing and artificial intelligence skills are employed across the IT industry, but are particularly well qualified for specialised roles in data science, digital marketing, knowledge management and web search.

Our recent graduates are now employed by, among others:

- Affectv
- Brandwatch
- EDF Energy
- Fidessa
- QinetiQ
- Semantico

BSc (Hons) Computer Science and Artificial Intelligence (UCAS code: GG47)

BSc (Hons) Computer Science and Artificial Intelligence with an Industrial Placement Year (UCAS code: G42F)

AUTUMN TERM		SPRING TERM	
YEAR 1			
The Ghost in the Machine?		Data Structures and Algorithms	
Introduction to Programming		Further Programming	
Mathematical Concepts		Professional Skills	
Programming Concepts		Option*	
		Global Design Challenge	
YEAR 2			
Databases		Acquired Intelligence and Adaptive Behaviour	
Natural Language Engineering		Computer Vision	
Program Analysis		Fundamentals of Machine Learning	
Option*		Option*	
OPTIONAL YEAR			
One year industrial placement (optional)			
YEAR 3			
Knowledge and Reasoning		Option*	
Option*		Option*	
Option*			
Individual Project			

*Options range across computer science, intelligent systems, neural computing, neuroscience, philosophy, and psychology. For full list of options go to: www.sussex.ac.uk/ei/internal/infcourses

Computing for Business and Management

OVERVIEW

This degree introduces you to the fundamentals of computer science – including programming, software engineering and software systems – as well as the aspects of computing relating to commerce – including business application architectures, e-business models and strategies, distributed software applications and services, and web-based content delivery.

The course blends modules in computing and software development with business, marketing and management to address business needs that generate economic wealth. You will gain skills in software design and development, web computing and multimedia, as well as in communication, marketing, e-business and management. You will also learn about business and project management, innovation and marketing, business ethics and strategy formulation.

By giving you the skills that are highly valued in industry – teamwork and leadership, presentation and communication skills, together with project planning and problem-solving techniques – this degree prepares you for a successful career in computing and IT.

OPTIONAL INDUSTRIAL PLACEMENTS

Students are aided in their pursuit of an industrial placement year; placements are recognised by a change of degree title to 'Computing for Business and Management with an Industrial Placement Year'.

ACCREDITATION

BSc (Hons) Computing for Business and Management is accredited by BCS – The Chartered Institute for IT, as contributing to the requirements for registration as Chartered IT Professional (CITP) and Chartered Engineer (CEng).

CAREER OPPORTUNITIES

Computing graduates with good awareness of business and management are in demand in all sectors of the IT industry. They are especially suited to roles such as information architect, analyst and project manager. Many find employment in financial services companies.

Our recent graduates are now employed by, among others:

- American Express
- Arab National Bank
- Capgemini
- IBM
- Kineo
- UniCredit

BSc (Hons) Computing for Business and Management (UCAS code: GN42)
BSc (Hons) Computing for Business and Management with an Industrial Placement Year (UCAS code: G44F)

AUTUMN TERM		SPRING TERM	
YEAR 1			
Introduction to Multimedia		Data Structures and Algorithms	
Introduction to Programming		Further Programming	
Mathematical Concepts		Introduction to Computer Systems	
Programming Concepts		Professional Skills	
		Global Design Challenge	
YEAR 2			
Databases		Computer Networks	
Information Systems		Operations Management	
Natural Language Engineering		Professional and Managerial Skills	
Program Analysis		Software Engineering	
OPTIONAL YEAR			
One year industrial placement (optional)			
YEAR 3			
Business and Project Management		Web Applications and Services	
E-Business and E-Commerce Systems		Option*	
Web Computing			
Individual Project			

* For full list of options go to: www.sussex.ac.uk/ei/internal/infcourses

Computing for Digital Media

OVERVIEW

The creation and communication of digital content – video, animated 3D graphics, audio, or web pages – is an important part of everyday modern living. With this degree, you can become part of this new world, working with up-to-date digital systems facilities, software development and multimedia content creation tools, as well as cutting-edge studio facilities, non-linear video editing systems and sound recording facilities.

Modules on multimedia systems will give you a firm grounding in the fundamentals required to understand and manage this technology, enabling you to get to grips with sampling digital sound and video, and showing you how to communicate this digital information over the internet. Video production techniques modules will teach you the technology required to record digital media in a real television studio, and the technical aspects of both producing live broadcasts and post-production editing for DVD and internet streaming.

OPTIONAL INDUSTRIAL PLACEMENTS

Students are aided in their pursuit of an industrial placement year; placements are recognised by a change of degree title to 'Computing for Digital Media with an Industrial Placement Year'.

ACCREDITATION

BSc (Hons) Computing for Digital Media is accredited by BCS – The Chartered Institute for IT, as contributing to the requirements for registration as Chartered IT Professional (CITP) and Chartered Engineer (CEng).

CAREER OPPORTUNITIES

Graduates with strong technical digital media skills enter sectors ranging from broadcasting and computer animation to web design and visual effects. Graduates from this degree have gone on to careers in the film and TV industries around the world.

Our recent graduates are now employed by, among others:

- Digital Domain
- eBay
- Immediate Media Co
- Investis
- MPC
- Sony Pictures Imageworks

BSc (Hons) Computing for Digital Media (UCAS code: G460)

BSc (Hons) Computing for Digital Media with an Industrial Placement Year (UCAS code: G45F)

AUTUMN TERM		SPRING TERM	
YEAR 1			
Introduction to Multimedia		Data Structures and Algorithms	
Introduction to Programming		Further Programming	
Mathematical Concepts		Introduction to Computer Systems	
Programming Concepts		Professional Skills	
		Global Design Challenge	
YEAR 2			
3D Modelling and Rendering		Live Video Production	
Databases		Operating Systems	
Natural Language Engineering		Programming for 3D	
Video Production Techniques		Software Engineering	
OPTIONAL YEAR			
One year industrial placement (optional)			
YEAR 3			
3D Animation		Multimedia Design and Applications	
Video Effects and Compositing Techniques		Web 3D Applications	
Web Computing			
Individual Project			

Games and Multimedia Environments (GAME)

OVERVIEW

Computer game development is one of the fastest growing sectors in the computing industry. In this degree you will learn about and acquire technical skills in areas including 3D graphics, game software development, artificial intelligence, multimedia and video systems, multimedia content creation and web design, computer architecture and networks. You will also undertake games-based individual and group projects.

You will make use of our state-of-the-art facilities, providing tools for 3D modelling and rendering, software development and digital content creation. You will have access to a professional broadcast studio, sound-recording facilities and video-editing systems. The extensive Media Technology Laboratory enables you to undertake practical assignments with the same software applications as are used in the modern gaming and digital media industries.

You will be at the forefront of advances in game production, multimedia, audio technology, artificial intelligence, advanced computer graphics and visual effects. The degree covers the fundamentals of game systems and software development, together with creation of the media content necessary for the implementation of games.

OPTIONAL INDUSTRIAL PLACEMENTS

Students are aided in their pursuit of an industrial placement year; placements are recognised by a change of degree title to 'Games and Multimedia Environments with an Industrial Placement Year'.

ACCREDITATION

BSc (Hons) Games and Multimedia Environments is accredited by BCS – The Chartered Institute for IT, as contributing to the requirements for registration as Chartered IT Professional (CITP) and Chartered Engineer (CEng).

CAREER OPPORTUNITIES

Graduates of this degree are suited to many roles in the computer games sector, including game developer, quality assurance engineer and user experience designer. Graduates are also well suited to roles in mobile and web application development.

Our recent graduates are now employed by, among others:

- Animazoo
- Epic
- Ericsson
- Gamesys
- Sharp Telecommunications
- Sony Network Entertainment Europe

BSc (Hons) Games and Multimedia Environments (GAME) (UCAS code: GG46)

BSc (Hons) Games and Multimedia Environments (GAME) with an Industrial Placement Year (UCAS code: G46F)

AUTUMN TERM		SPRING TERM	
YEAR 1			
Introduction to Multimedia		Data Structures and Algorithms	
Introduction to Programming		Further Programming	
Mathematical Concepts		Introduction to Computer Systems	
Programming Concepts		Professional Skills	
		Global Design Challenge	
YEAR 2			
3D Modelling and Rendering		Fundamentals of Machine Learning	
Compilers and Computer Architecture		Operating Systems	
Natural Language Engineering		Programming for 3D	
Program Analysis		Software Engineering	
OPTIONAL YEAR			
One year industrial placement (optional)			
YEAR 3			
3D Animation		Multimedia Design and Applications	
Human-Computer Interaction		Web 3D Applications	
Video Production Techniques			
Individual Project			

Computer Engineering

OVERVIEW

Computers are embedded in a whole range of systems; everything from mobile phones to vehicles and consumer products.

Our courses cover hardware and software and include digital systems, microprocessor design, embedded systems, compilers, computer architecture, web applications and services, operating systems, programming and computer networks. Students work with industry-standard software and embedded systems hardware for the design, simulation and prototyping of electronic systems.

Examples of previous student projects include:

- A Microbot System
- External Peripherals for Smartphones
- Hexapod Robot Control
- Wavelet Face Detection: Finding Faces in Images

In Year 4 of the MEng (Hons), students are formed into multidisciplinary teams to undertake a substantial group project. Recent examples include the Formula Student Racing Car, an Aerial Vehicle for Video Reconnaissance and an autonomous search and rescue robotic vehicle.

OPTIONAL INDUSTRIAL PLACEMENTS

Students are aided in their pursuit of an industrial placement year; placements are recognised by a change of degree title to 'Computer Engineering with an Industrial Placement Year'.

ACCREDITATION

Our Computer Engineering degrees are currently accredited by the Institution of Engineering and Technology (IET) and meet in full (MEng) or in part (BEng) the exemplifying benchmark required for registration as a Chartered Engineer.

CAREER OPPORTUNITIES

Computer Engineers have a wide range of opportunities with careers available in every sector including satellite development, transport, security and defence, agriculture, medicine and building management. Engineers also flourish in areas including finance, law and international development.

Our recent graduates are now employed by, among others:

- BAE Systems
- Elekta
- Hanover Displays
- JT Electrical
- Lighthouse Systems
- Smiths Detection
- Thales

BEng (Hons) Computer Engineering (UCAS code: HG66, with an industrial placement year: H63F)

MEng (Hons) Computer Engineering (UCAS code: GH4P, with an industrial placement year: H64F)

AUTUMN TERM	SPRING TERM
YEAR 1	
Electrical Circuits and Devices	Electronic Devices and Circuit Prototyping
Programming for Engineers	Electromechanics
Engineering Maths 1A	Engineering Maths 1B
Introduction to Programming	Further Programming
	Global Design Challenge
YEAR 2	
Digital Systems and Microprocessor Design	Embedded Systems
Engineering Mathematics 2	Professional and Managerial Skills
Databases	Operating Systems
Compilers and Computer Architecture	Software Engineering
OPTIONAL YEAR	
One year industrial placement (optional)	
YEAR 3	
Business and Project Management	Option*
Option*	Option*
Option*	Option*
Individual Project	
YEAR 4 MEng (Hons) only	
Marketing Analysis and Financial Strategic Planning	Reconfigurable System on Chip
Real Time Embedded Systems	Option*
Option*	
MEng (Hons) Group Project	

*For full list of **options** go to: www.sussex.ac.uk/ei/internal/engcourses

Creative Technologies and Design Foundation Year

OVERVIEW

The Foundation Year develops creativity in a range of ways enabling the realisation of concepts in physical, digital and multisensory forms.

Topics covered include creative practice, visual communications, portfolio development, sketching and prototyping, blended physical digital interaction, creativity and independent creative project work – as well as study skills. There is a strong practical content enabling students to experience the application of theory.

Successful completion of this course leads on to one of the following degrees offered at the University of Sussex within the Department of Informatics:

- BSc (Hons) Computing for Digital Media
- BSc (Hons) Games and Multimedia Environments (GAME)

And within the Department of Engineering and Design:

- BSc (Hons) Product Design

The course is particularly suitable for mature candidates with appropriate experience or evidence of personal development and an interest in the field of study, but who lack the formal qualifications for entry directly into Year 1.

ENTRY REQUIREMENTS

Applicants are considered on an individual basis. If you are unsure about your suitability for the Foundation Year please ask; we are happy to advise. We welcome applications from students of any age who demonstrate academic maturity and have a background that suggests readiness to study at degree level.

For recent school leavers we would normally expect A level grades of at least CCC standard (or equivalent).

Successful applicants will need to provide evidence of mathematical ability (at least GCSE grade B standard).

Applicants whose first language is not English should have IELTS 6.5 overall, with not less than 6.0 in each section.

Further information on entry requirements can be found at: **www.sussex.ac.uk/study/foundation/**

Creative Technologies and Design (with a foundation year) (UCAS code: HWGP)

Computing Foundation Year

OVERVIEW

The Foundation Year includes introductory modules on topics including object-oriented programming, program design, mathematics for computing, and database and application development – as well as study skills.

Successful completion of this course leads on to one of the following computing degrees offered within the Department of Informatics at the University of Sussex:

- BSc (Hons) Computer Science
- MComp (Hons) Computer Science
- BSc (Hons) Computer Science and Artificial Intelligence
- BSc (Hons) Computing for Business and Management
- BSc (Hons) Computing for Digital Media
- BSc (Hons) Games and Multimedia Environments (GAME)

The course is particularly suitable for mature candidates with appropriate experience or evidence of personal development and an interest in the field of study, but who lack the formal qualifications for entry directly into Year 1.

The foundation year is also suitable for recent school leavers who have the ambition to undertake a BSc but are unable to meet the entry requirements for one of our named courses. However, to be successful, school-leavers will still need to demonstrate evidence of academic ability and the potential to succeed.

ENTRY REQUIREMENTS

Applicants are considered on an individual basis. If you are unsure about your suitability for the Foundation Year please ask; we are happy to advise. We welcome applications from students of any age who demonstrate academic maturity and have a background that suggests readiness to study at degree level.

For recent school leavers we would normally expect A level grades of at least CCC standard (or equivalent). Successful applicants will need to provide evidence of mathematical ability (at least GCSE grade B standard).

Applicants whose first language is not English should have IELTS 6.5 overall, with not less than 6.0 in each section.

Further information on entry requirements can be found at: **www.sussex.ac.uk/informatics/ugstudy**

Computing Sciences (with a Foundation Year) (UCAS code: G402)




Development

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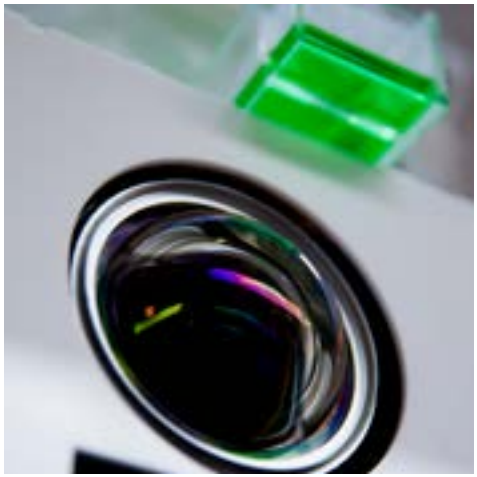



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How to apply

ENTRY REQUIREMENTS FOR OUR DEGREE COURSES

For our BSc (Hons) courses typical A level offer range is AAB–ABB (or equivalent). Successful applicants will also need GCSE (or equivalent) Mathematics, with at least grade B.

For our BEng (Hons) ABB-BBB (or equivalent) including mathematics
MEng (Hons) AAB including mathematics

An alternative entry route is through the successful completion of one of our **Foundation Years**. See pages 16 and 17 for entry requirements.

Applicants whose first language is not English should have IELTS 6.5 overall, with not less than 6.0 in each section.

For entry to our degree courses, you must apply through the Universities and Colleges Admissions Service (UCAS). The easiest way to apply is online through the UCAS Apply service with help from your school or by visiting **www.ucas.ac.uk.**

Full information about the application and selection process is included in the small print section of the University of Sussex Undergraduate Prospectus (obtainable online from **www.sussex.ac.uk/study/ug** or by phoning +44 (0)1273 876787).

The UCAS code for the University of Sussex is SUSX S90. UCAS course codes are listed on each degree page in this booklet.

APPLICANT VISIT DAYS

All applicants who receive an offer and meet the advisory UCAS applications deadline are invited to attend an Applicant Visit Day. You'll get a first-hand impression of what it's like to study here, a fuller picture of your chosen degree course and an idea of life as an undergraduate.
There will be general and departmental talks, tours and demonstrations plus plenty of opportunities to meet lecturers and current students.

OPEN DAYS

To help you decide whether to apply, you can attend one of our Open Days in the summer or autumn, or arrange for a campus tour at any other time.

To book a place, go to **www.sussex.ac.uk/study/visitus** or phone +44 (0)1273 876787.

CONTACT US

We welcome general or course enquiries. Our contact details are on the back cover of this booklet.

Disclaimer: The information presented in this booklet is correct at the time of going to print (September 2016) but modules running in future academic years may be subject to change. The reason for this is that Informatics is a constantly developing area and so we regularly review and update our modules and options to reflect this and give you the best student experience. Please refer to our web pages for the most up to date information on courses and modules: www.sussex.ac.uk/informatics/ugstudy

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