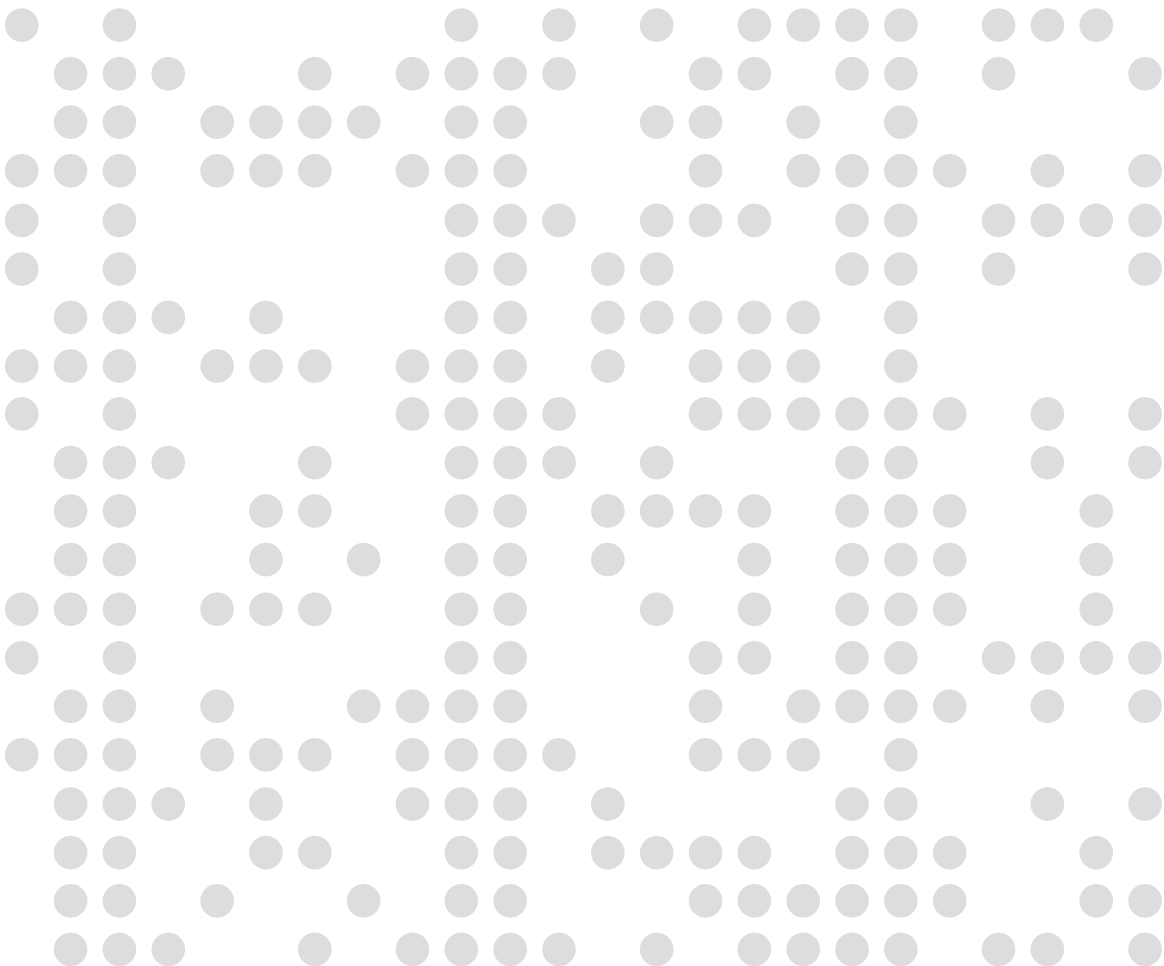




THE UNIVERSITY *of* EDINBURGH
informatics



Artificial Intelligence | Computer Science | Cognitive Science | Informatics | Software Engineering



Undergraduate Prospectus 2018

Cover: spot pattern adapted from an illuminated display in the atrium of the Informatics Forum, celebrating the organisations and individuals who sponsored the development of the building. The lower display consists of a slowly changing sequence of characters, each in 7 bit ASCII with 1 parity bit, which allows observers to decode the names of sponsors. The interactive display was created by Richard Brown of mimetics.com when he was Research Artist in Residence at Informatics, 2005-2008.

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The School of Informatics has produced more world-leading and internationally excellent research in computer science and informatics than any other university in the UK (rated 4* and 3* in the latest Research Excellence Framework – REF – assessment).

What is Informatics?

Informatics is the study of how natural and artificial systems store, process and communicate information.

Combining insights from Computer Science, Artificial Intelligence and Cognitive Science, Informatics is the study of information, computation and communication in both computer systems and natural systems such as the brain, our genes and human language. An Edinburgh degree offers you a sound foundation in the traditional subjects together with a new perspective of how to bring ‘computational thinking’ to a host of novel settings.

In the School of Informatics we start with a view that our subject is central to a new enlightenment in scholarship and learning. For us, informatics is critical to the development of science, technology and society. In the information age, computing technology changes how we work and play. Informatics changes the way we think.

Our school

The School of Informatics at the University of Edinburgh is one of the best in the world. We have more leading and internationally excellent research in computer science and informatics than any other UK university, according to the latest Research Excellence Framework (REF) assessment. Our students rate us highly too. Members of staff are proud to have received EUSA Teaching Awards on the basis of student nominations and votes.

We provide outstanding facilities. Computer laboratories are available to all Informatics students 24 hours a day. Our city centre premises include both teaching and research centres.

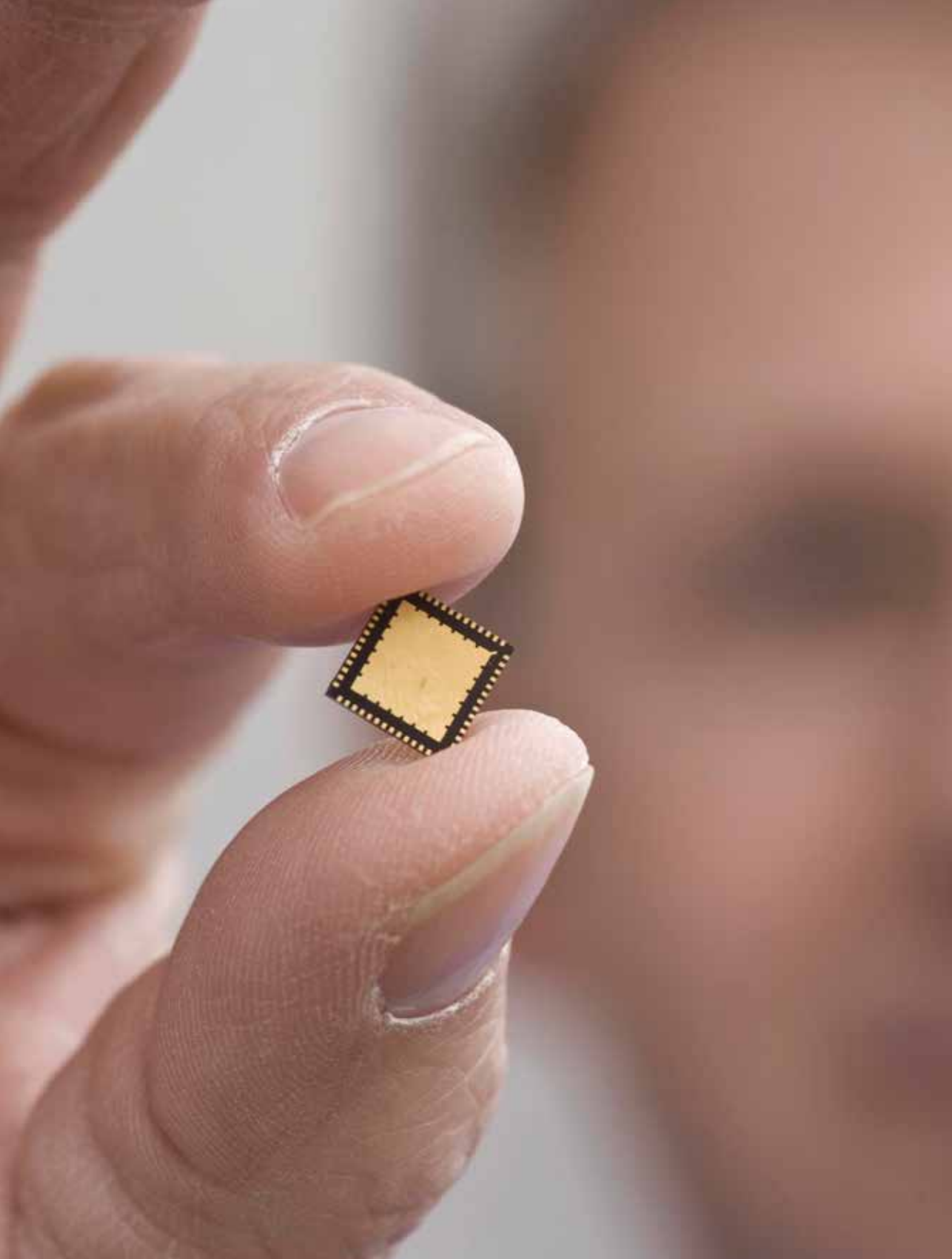
Our degrees

We teach the fundamental science of computation, the practical skills needed to build hardware and software, and the cutting edge of research and applications in Informatics.

You will receive a strong grounding in the basics: computation and logic, programming, algorithms, data manipulation, systems and mathematics for informatics. You can also choose from a wide range of specialisations, from computer reasoning to robotics, from the theory of computability to computer graphics. See pages 16-20 for more detail of our course content and options.

Informatics is interdisciplinary by nature so you also have the choice to combine mathematics, physics, electronics, philosophy, linguistics, psychology or management studies with your degree in computer science, cognitive science, software engineering or artificial intelligence. See pages 8-10 for more information on our single and joint degrees.

Our course materials and student projects are based on our world-class research, so you will graduate with knowledge and skills in the forefront of the field.



Studying in Edinburgh

Scotland's historic capital city is thriving, vibrant, beautiful – and regularly voted one of the best places to live in the UK.

Steeped in history and tradition, Edinburgh combines stunning Georgian architecture with airy modern buildings. There are winding cobbled streets and green open spaces, excellent shops, theatres, libraries, galleries, cinemas and sporting facilities, all within easy reach of the coast, mountains and scenic Scottish countryside.

Ancient monuments overlook centres of cutting-edge research and technological enterprise. Famous landmarks include the Castle, Scottish Parliament, Holyrood Palace, Forth Bridges and Arthur's Seat. Together the Old and New Towns are classified as a World Heritage Site.

Entertainment and culture

Edinburgh's nightlife has something for everyone. Pubs, cafes, concerts, plays, comedy, musical theatre, opera, dance. If you enjoy music, many venues offer live acts all year round – from stadium bands to budding singer-songwriters. The city has more restaurants per head than in any other in the UK, catering for all budgets and tastes, from traditional Scottish fare to a feast of international cuisines. Haggis is not obligatory, but you might acquire a taste for it!

Edinburgh's national art galleries attract big-name exhibitions, while its many museums provide fascinating insights into Scotland's colourful history and far-flung cultures, past and present.

Not least, Edinburgh is truly the Festival City, celebrating science, magic, film, jazz and blues, books, history, storytelling and cultural diversity, as well as the month-long extravaganza of the Arts that is the Edinburgh International Festival and Fringe.

If all that isn't enough, the University has over 240 student societies, 16 volunteering schemes and 64 sports clubs.

Sport

The University's sports facilities are superb – ranked among the best in the UK. Users range from occasional exercisers to international athletes. Facilities include the Pleasance gym, with its two climbing walls, Peffermill playing fields, Firbush outdoor centre and a 25 metre, six lane swimming pool.

The city itself boasts the Royal Commonwealth Pool, newly refurbished for the 2014 Commonwealth Games, Europe's longest dry ski slope, Murrayfield international rugby stadium, an ice rink and golf courses galore. Not to mention the football. For those who love walking, running, cycling and adventure sports, there is spectacular scenery on your doorstep.

Explore the city at:
www.ed.ac.uk/about/city



The University of Edinburgh

Consistently ranked among the best universities in the world, the University of Edinburgh is one of the largest and most successful research universities in the UK, ranking 1st in Scotland and 4th across the UK in the most recent Research Assessment Framework.

A member of the Russell Group of universities – the UK ‘Ivy League’ – Edinburgh’s eminent staff and graduates have changed the world. Nobel Prize Laureate Professor Peter Higgs’ discovery of the Higgs-Boson particle may solve some of the biggest puzzles of particle physics. Professor Ian Wilmut famously led the team who cloned Dolly the Sheep. Professor Tom Devine is a leading voice on Scottish history. Astronaut Piers Sellers, Olympians Chris Hoy and Katherine Grainger, former Prime Minister Gordon Brown and former MI5 director Stella Rimington all studied at Edinburgh.

Not forgetting Bill Laing, who took his MPhil in Computer Science and went on to become a corporate vice president with Microsoft – and Artificial Intelligence alumnus Professor Andrew Blake, who recently became the first Director of the Alan Turing Institute, the UK’s national institute for data science.

The student experience

With more than 35,000 students from 120 countries, the university has a vibrant, cosmopolitan campus community. Edinburgh offers more than 600 degree programmes, including at least 200 joint degree combinations.

Our degree courses are flexible. Students can develop a range of academic interests. The structure of our programmes enables and encourages students to study a broad range of subjects in the first two years, taking a more specialised approach in the final two years.

Student services and facilities

The university offers a wide range of student services and support to cater for all your academic, practical or personal needs while you study here.

IT facilities

You will have access to large, well-equipped, 24-hour computer labs within the School of Informatics, as well as the computing facilities of the University’s central services, such as the Main Library. We also provide high speed internet and telephone services to the vast majority of students staying in University accommodation.

Library

The Main Library at George Square is one of 14 libraries within the University and is also one of the largest copyright libraries in the UK.

Accommodation

You can choose between self-catered or catered residences, self-contained flats or halls. The main residential area, at Pollock Halls, is at the foot of Arthur’s Seat, offering some stunning views.

Making friends

Many of our students are not just new to Edinburgh but new to the UK. Edinburgh University Students’ Association offers a vast array of services and more than 300 clubs and societies. Our Centre for Sports and Exercise offers top-rate facilities. All of our students are welcome!



Degrees in the School of Informatics

Our broad approach to informatics, our world-class research and the fact that Edinburgh Informatics is the UK's largest IT department, means that we offer students a broad range of flexible degree courses.

Join us in Edinburgh Informatics and you can study for a degree in:

- Computer science (BSc Hons/BEng Hons)
- Software engineering (BEng Hons)
- Artificial intelligence (BSc Hons)
- Cognitive science (BSc Hons)
- Informatics (MInf)

Our degree courses provide a firm grounding in the underlying knowledge that informatics graduates will need throughout their careers, enabling them to stay at the forefront of this ever changing field.

Computer Science (BSc and BEng)

If you want to know everything about computers, this is the degree for you. The four-year BSc or BEng degree in Computer Science gives students a firm basis in the understanding, design, implementation and use of computing systems – from the components of a single processor to networks as vast as the World Wide Web. Our courses cover topics that range from programming languages and software to distributed, parallel and quantum computing.

You can study for a BSc or a BEng Computer Science on its own or in combination with artificial intelligence, management science, mathematics or physics.

Software Engineering (BEng)

A degree course for professional programmers.

Edinburgh's degree in software engineering takes four years to complete. It gives students the engineering skills they need to write good software, to understand what programs have to do, and how to test, validate and implement software.

You can study software engineering as a single-honours BEng degree or in combination with management or artificial intelligence.

Artificial Intelligence (BSc)

A degree in a subject that we pioneered. Our four-year degree in Artificial Intelligence (AI) combines the areas of science you need to understand how computers can emulate human intelligence by performing tasks that usually require the sophistication of a human brain. Edinburgh Informatics is a world leader in research in AI. In their degree projects, our students have a chance to contribute to real scientific advance in this field.

You can study for a BSc in Artificial Intelligence on its own or in combination with computer science, software engineering, mathematics or management science.



Degrees in the School of Informatics *continued*

Cognitive Science (BSc)

A degree designed for understanding brains and behaviour - human and otherwise. An undergraduate degree in an exciting area of science, Cognitive Science analyses and synthesises human and animal behaviour and mental processes, at many levels. The degree programme blends challenging theoretical ideas and hands-on practical projects. A core theme underpinning this programme is the computational modelling of mental abilities at many levels, from neurons to social groups. Options within the Cognitive Science degree include Philosophy, Psychology and Language Sciences. An MA version of the programme is also offered by the School of Philosophy, Psychology and Language Sciences.

Informatics (MInf)

Our premier degree takes in everything that matters. Our Masters of Informatics (MInf) degree is an integrated programme taking you to a Masters level qualification over five years of study. The first three years of the MInf are similar to our BSc and BEng degrees providing a firm foundation for advanced study in Informatics and covering a diverse range of topics including computer science, artificial intelligence, linguistics, cognitive science, neuroscience, psychology and biology. The final two years of study include a personal project and access to a wide range of Masters level courses given by leaders in their chosen fields.

Joint degrees

We offer the following joint degrees:

- Artificial Intelligence & Computer Science (BSc Hons)
- Artificial Intelligence & Mathematics (BSc Hons)
- Artificial Intelligence & Software Engineering (BEng Hons)

- Artificial Intelligence with Management (BEng Hons)
- Computer Science & Management Science (BSc Hons)
- Computer Science & Mathematics (BSc Hons)
- Computer Science & Physics (BSc Hons)
- Computer Science with Management (BEng Hons)
- Software Engineering with Management (BEng Hons)

For most joint degrees you choose courses evenly between subjects. This includes Computer Science and Management Science (BSc Hons), taught jointly with the Business School.

However, we also have programmes which include a smaller number of management courses from the School of Engineering: Artificial Intelligence with Management (BEng Hons), Computer Science with Management (BEng Hons), and Software Engineering with Management (BEng Hons).

The School of Physics also offers a joint degree in Electronics and Computer Science

Professional recognition

A degree from Edinburgh's School of Informatics is highly regarded by employers. Most of our graduates also fulfil the educational requirement to become a member of the British Computer Society, the UK's leading professional body for people working in IT. You can also obtain the status of Chartered Engineer (CEng) with the Engineering Council UK if you complete work equivalent to an additional undergraduate year of study, within industry for example.



Entry requirements

The University's entry requirements reflect its long-standing commitment to broadening access to higher education but they also ensure that we attract entrants who will be well-equipped to handle our challenging courses.

Standard entry

Typical to minimum grades required

- SQA Highers: AAAA to AABB to include Mathematics at grade A. For Computer Science and Physics (BSc), GF43 you must also have Higher Physics

We strongly recommend that you also study Advanced Higher Mathematics for all our programmes.

- A Levels: AAA to ABB to include Mathematics at grade A and for Computer Science and Physics (BSc), GF43, you must also have an A-Level in Physics
- IB: 37 to 32 points (grades 655 at HL) to include Mathematics HL at Grade 6 and Physics for Computer Science and Physics (BSc), GF43

You must also provide evidence that your written and spoken English is at a level that will enable you to succeed in your studies.

The School may offer direct entry into second year for outstanding candidates provided specific entry requirements are met.

For detailed information on entry requirements see:

www.ed.ac.uk/studying/undergraduate/degrees

Overseas applicants

A large number of European and international qualifications are also accepted. These include the International Baccalaureate, European Baccalaureate or the Irish Leaving Certificate, as well as many national qualifications.

More information for overseas applicants can be found at:

www.ed.ac.uk/science-engineering/studying/international

Mature applicants

For applicants aged 21 or over by 1 September in the year of entry, entrance may be gained in a variety of ways including recent SQA Highers or A-levels, an Open Studies Credit for Entry Certificate which is awarded by the University of Edinburgh's Office of Lifelong Learning, Open University credits or satisfactory completion of a validated access course.

The School also offers direct entry into second year provided specific entry requirements are met.

Entry requirements for joint degrees may differ.

For more information on entry requirements for mature students please see:

www.ed.ac.uk/studying/undergraduate/entry-requirements/mature

If you receive an offer

Given the reputation of the School, entry to courses is competitive. However if you receive an offer you will be notified well in advance of the start of your first term.

Depending on the timing, you may be invited to attend one of our post application visit days, held in the early part of each calendar year. Here you will have the opportunity to speak to Informatics staff and students in more depth about your course and what it's like to be a student at the University of Edinburgh.

If you have received an offer to study at the School of Informatics and would like further information you can contact us at ito@inf.ed.ac.uk

For more information about the student experience and living in Edinburgh, go to:

www.ed.ac.uk/informatics/undergraduate/why-study-here

Our graduates fulfil the educational requirement to become a member of the **British Computer Society**, the UK's leading professional body for people working in IT.

What you will study

In line with the Scottish University system, honours degrees in Edinburgh Informatics last four years and masters degrees five years. Outstanding candidates may be considered for direct entry into the second year. Please contact us if you want to pursue this possibility.

Each year of undergraduate study involves taking a series of courses. Each course offers a unit of formal learning and teaching, and earns students a number of credit points, depending upon its level. A typical workload for each year of full-time study is a set of courses worth a total of 120 credits but please note that courses are subject to regular review and change.

The table (right) outlines the typical structure of one of our degrees.

See also the *Overview of Course Content* sections on pages 16–20.

For detailed course information see the *Degree Regulations and Programmes of Study (DRPS)* website:

www.drps.ed.ac.uk

Degree course	Credits
1st Year	
Informatics 1	40
Introduction to Linear Algebra	20
Calculus and its Applications	20
Other courses*	40
2nd Year	
Informatics 2A	20
Informatics 2B	20
Informatics 2C or 2D	20
Probability with Applications	20
Discrete Mathematics and Mathematical Reasoning	20
Other courses*	20
3rd Year	
System Design Project	20
Practical or project in CS, AI or SE**	10
Professional Issues	10
Further courses in CS, AI or SE	70
Other courses*	10/20
4th Year	
Honours Project	40
Further courses in CS, AI or SE	70
Other courses*	10
5th Year	
<i>For the degrees of MInf and MEng only</i>	
Masters Project	60
Masters level courses in Informatics	60

*Other courses can be chosen from any offered across the University, formally known as 'outside courses'.

**CS, AI or SE = Computer Science, Artificial Intelligence or Software Engineering.

Mathematics for Informatics

Most Informatics students will study mathematics during the first two years. Informatics students take selected mathematics courses and will study alongside Mathematics students. We believe this is the best way to expose our students to skills in proof and problem solving that are key both to Mathematics and Informatics. Your mathematics courses reinforce and extend topics you have previously studied, and will introduce you to new topics that are particularly relevant to information processing.

Students on our Cognitive Science programme take 20 points of Mathematics courses in each of the first and second years in order to accommodate the breadth of courses required for the programme.

Students on combined-honours degrees with Physics or Electronics take similar courses to single-honours students in Physics or Electronics.

In both first and second year, courses consist of four lectures and one tutorial per week.

Mathematics Courses in Year one

Course content

Calculus and its Applications: This course includes functions (types/composition), limits (including precise definition) and continuity. Differentiation (chain rule/implicit/differentials) and applications (max/min/mean value theorem/Newton's method). Integration (fundamental theorem of calculus/substitution rule) and applications (areas/volumes). Inverse functions, definition of logarithm/exponential, and L'Hopital's rule. Further integration (by parts/rational functions/approximate), and further applications (arc length/surface of revolution).

Differential equations (modelling/direction fields/separable/linear first order). Curves, polar coordinates, Taylor series.

Introduction to Linear Algebra: Complex numbers. Vectors and geometry. Systems of linear equations, echelon form, Gaussian elimination, intro to span and linear independence. Matrices, multiplication, transpose, inverses, linear maps. Intro to subspaces and bases. Rank. Eigenvalues and eigenvectors. Determinants. Orthogonality, Gram-Schmidt, orthogonal diagonalisation. Introduction to abstract vector spaces and subspaces. Selected applications (taught in sequence where appropriate).

Mathematics courses in Year two

Course content

Probability with Applications: Sample spaces, events, probabilities, counting/combinatorics, inclusion-exclusion principle; conditioning and independence; discrete random variables; continuous random variables; jointly distributed random variables; covariance; inequalities; discrete Markov chains and birth and death processes.

Discrete Mathematics and Mathematical Reasoning: Fundamental concepts of mathematics; the structure of a well-reasoned mathematical proof; discrete structures; basic number systems and algebra; limits and asymptotics; recurrence relations; counting (more advanced counting); rudimentary discrete probability theory.

Course content

Year one

Informatics 1 overview

You will study these courses for all Informatics degrees

Credit required: 40

Course Content Informatics 1:

- Informatics 1: Computation and Logic
- Informatics 1: Functional Programming
- Informatics 1: Object-oriented Programming
- Informatics 1: Data and Analysis

Degrees:

Required for all Informatics degrees.

Teaching Method/Style:

- 3 lectures per week
- 1 tutorial per week in a small group
- 1 laboratory session per week

For more information on this course go to:

<http://web.inf.ed.ac.uk/infweb/student-services/ito/students/year1/>

Informatics 1

Computation and Logic, Functional Programming, Object-oriented Programming, Data and Analysis

In the first semester, you will study the fundamental notions of computation, using finite state systems and propositional logic. These computational ideas are applied across the whole of Informatics, for example in design, testing and verification of programs, problem solving, processing language, pattern matching in web search, and in controllers for robots.

You will be introduced to the general principles of computer programming using the compact and powerful functional programming language, Haskell. The teaching and practical work is designed to suit students who are new to programming and students with previous experience.

In the second semester, you will study the collection, representation, storage, manipulation and querying of data and information. You will investigate diverse forms of information, ranging from structured relational databases to natural language. You will also further develop your programming skills using the popular object-oriented programming language, Java.

Informatics 1 *Cognitive Science*

This course provides Cognitive Science students with mathematical tools for modelling cognitive processes. Participants will study basic linear algebra and an introduction to probability and information theory. All mathematical and computational content is supported by putting it in the context of a cognitive science application. Computational tools, such as Matlab, will play an important role in the presentation of the course.

This course is compulsory for students taking BSc Cognitive Science. It is also available as an optional course for students on other Informatics degree programmes.

Study support

When you enrol you will be allocated a Personal Tutor, a member of academic staff who will advise you on the choice of courses and will help you to find your way through the University's regulations and practices for the duration of your degree.

The lectures are interactive. Student feedback may be used to gauge students' understanding of key concepts. Materials for each course are provided through course web pages. Some lectures are recorded and made available online for future reference.

Tutorials are weekly practice sessions in small groups of 12 to 14 students.

In addition to this, tutors are available for consultation at scheduled drop-in labs. INFBase provides additional opportunity for students to seek help either in person at a staffed help session or via the wiki service.

These services are available throughout your period of study with us, not just in the first year.

A dedicated administrative team, the Informatics Teaching Organisation (ITO) provides course materials and information about where to go when you need support and advice.

Year two...

Course content

Year two

Informatics 2 overview

You will study these courses for all Informatics degrees

Credit required: 60

Course Content Informatics 2:

- Informatics 2A: Processing Formal & Natural Languages
- Informatics 2B: Algorithms, Data Structures, Learning
- Informatics 2C: Introduction to Computer Systems
- Informatics 2C: Introduction to Software Engineering
- Informatics 2D: Reasoning & Agents

Degrees:

Required for all Informatics degrees.

Teaching Method/Style:

- 3 lectures per week for each course
- 1 tutorial per week in a small group
- Practical laboratory sessions

*For more information on this course go to
<http://web.inf.ed.ac.uk/infweb/student-services/ito/students/year2/>*

Informatics 2

The theme of Informatics 2A is language processing. This covers issues of formal languages – such as finite automata, pattern matching, formal grammars and parsing – that are essential to understanding computer languages. It also addresses the analysis of complex phenomena, including natural languages and music.

Informatics 2B looks at algorithms and learning from data. It introduces general techniques in machine learning, search, decision trees, various forms of non-algorithmic computation, and dealing with incomplete data. It also covers the analysis of algorithms and data structures.

In Informatics 2C: Introduction to Computer Systems you will study computer architectures: atomic data and how it is represented and operated on; the structure of instruction sets; the environment in which a program executes; the concepts of a process and virtual memory; the implementation of computing devices; and processor architectures.

You will also look at issues in software engineering in Informatics 2C: Introduction to Software Engineering, including requirements analysis, methodologies for development, quality management, project estimation, and verification and validation.

Informatics 2D covers reasoning and planning. It will include material on symbolic reasoning and analysis, reasoning with inference rules, solving problems using constraints, and stochastic search methods. It will also address issues in planning and agents, such as coping with a changing world and communicating with other agents. You will be introduced to current technologies such as XML and SQL for database management.

Course content

The honours years

Informatics – Year 3

In your third year you enter the honours stream and will focus on your chosen degree specialisation. At the University of Edinburgh you will have access to a unique range of honours courses and specialisations. With the help of your Personal Tutor, you will build an honours course portfolio to suit your interests. If you are on a combined degree, approximately half of your courses will be in Informatics. You can choose the remainder from a range of options in your other subject.

The focus will also shift towards more independent work, such as designing and evaluating systems, investigating research areas, and undertaking experimental projects. You will often work in groups, developing vital skills in management, communication and team-working – all highly valued by employers. You will also have the opportunity to further your presentation skills and abilities in delivering both oral and written reports.

A major part of the third year is the systems design group project, where students work in small teams to develop a large scale system. In recent years our students have faced the task of developing football playing robots, competing against each other in a local RoboCup.

Informatics – Year 4 (and Year 5 for MInf)

The final part of your honours degree offers a further range of specialist courses. At this stage, we expect our students to grapple in depth with the central issues in this field, to understand recent research developments and to gain experience in advanced techniques.

During this phase students also undertake an individual research project, and write a dissertation under the supervision of a member of academic staff. You can propose your own topic, or you can take up a proposal in one of our many active research areas.

Here are just some examples of the subjects we offer:

- Advanced databases
- Automated reasoning
- Bioinformatics
- Cognitive modelling
- Compiling techniques
- Computational complexity
- Computer architecture
- Computer graphics
- Computer networking
- Computer security
- Computational cognitive neuroscience
- Database systems
- Data mining and exploration
- Design and analysis of parallel algorithms
- Decision making in robots and autonomous agents
- Human-computer interaction
- Intelligent autonomous robotics
- Language semantics and implementation
- Machine learning and pattern recognition
- Machine translation
- Multi-agent semantic web systems
- Neural computation
- Operating systems
- Parallel architectures

Informatics – Year 4 (and Year 5 for MInf) cont.

- Parallel programming languages and systems
- Performance modelling
- Probabilistic modelling and reasoning
- Querying and storing XML
- Robotics: science and systems
- Software engineering with objects and components
- Text technologies

As a student, what you do in these subjects is decided in discussions with your Personal Tutor. Some of the projects that fourth-year students have worked on include:

- A motorised motion tracking system
- Agent based model of household energy use
- Application of wasp's navigation techniques to aerial robotics
- Basketball game video analysis
- Capturing 3D objects by KINECT
- Cloud computing on heterogeneous cores
- CycloPath: A cycling geo-wiki for Edinburgh
- Dense stereo images and object recognition
- Interactive tutoring system for software testing
- Detecting errors in human translation
- Just in time auto-parallelism for LLVM
- Learning to count objects in images
- Match fixing for amateurs
- Predicting personality from Twitter
- People tracking in built environments
- Restaurant review summariser
- Robot model of fiddler crabs
- Sentence alignment for machine translation
- Skin cancer surface shape based clarification
- Topic modelling with blogs
- Two hardware designs for an autonomous blimp
- Voice-driven programming

Case studies

Alex Healing *BSc Artificial Intelligence and Computer Science*

Alex is an alumnus of the School of Informatics and was recently awarded the title of 'Young IT Professional of the Year' at the UK IT Industry Awards. After graduating Alex joined BT and is now a Principal Technology Researcher with the company.

"The high level of practical, hands-on group working at Edinburgh was both great fun and incredibly useful. I instantly wanted to be part of the community, both academically and culturally in what seemed like an exciting city to live in."

Catalina Predoi *MInf (Hon) Informatics*

Catalina is a final year MInf student originally from Romania and specialising in Data Models. During her time at the School of Informatics, Catalina has been an active member of the Edinburgh University Hoppers, an outreach group which encourages women into science and engineering. Catalina has also interned at Google in Munich and the start-up company Peekabu Studios Ltd.

"As soon as I found out that it is the best in the UK for informatics, I knew that this was where I wanted to be. We are taught by leaders in the field – in some cases they're not just following the book, they wrote the book. It's inspiring to know your lecturers are world-leading."

Dimple Gulrajani *BEng (Hons) Computer Science with Management*

Originally from Bangalore, Dimple is in the third year of her degree. What does she think about it so far?

"It has been incredible! Firstly the extra year which I thought was a con actually turned out to be a blessing – there's been so much flexibility with what modules I get to take.

"Apart from that, there's so many extra-curricular opportunities through which I've met some incredible people. I've had the opportunity to talk to lecturers and Heads of School casually at Informatics events, which is really helpful.

"As for the future, I plan on trying to take what I've learnt here at Edinburgh back to India and use it to help the education sector, especially amongst people from rural areas and less privileged backgrounds."

Darius Scerbavicius *MInf Informatics*

Originally from Lithuania, Darius chose to study for an MInf at the University of Edinburgh primarily because of the reputation of the School. By studying for an MInf degree, Darius has also been able to continue his studies at a more advanced level. During his summer vacation, Darius worked as an intern at Google in Dublin and is keen to join a tech company in the Silicon Valley upon graduation.

"I really enjoy studying in Edinburgh, the School has a fantastic reputation which has lived up to my expectations".

Sponsorship

Placements, prizes and scholarships

The School of Informatics prides itself on teaching graduates who will be desirable candidates for employment with the best companies. We are involved in schemes that help our students to stand out in the competitive job market.

The School has long-standing relationships with local and global companies, many of which use technology stemming from our research. These companies understand the value of our students and are keen to recruit them. As a result they offer financial incentives in the form of work placements and prizes.

Scholarships

Our undergraduate scholarships offset some of the cost of your studies, while also providing opportunities for work experience.

Scholarships provide £1,000 a year and may include a placement during the summer between your third and fourth years of study. Sponsors may offer students further work placements or employment at the end of their degree, but they are not obliged to take them.

Scholarships are normally awarded at the end of the first year of study. Selection is based on academic results.

Work placements

Work placements may be offered by companies with which the School has built a relationship. Placements last up to a year working in industry and are typically open to students who have just completed their third year of study.

School internships

The School sponsors some of the best students to take part in research projects. This provides an excellent opportunity to engage in cutting-edge science and to gain valuable experience of working in a research environment. These internships usually take place during the summer, between the third and fourth years.

Prizes

Our Student Prize Scheme rewards and recognises outstanding student performance. The sponsors of these prizes include the School of Informatics along with professional organisations, such as the British Computer Society, and major companies, including Accenture, Morgan Stanley, JP Morgan, Google, Netcraft and Microsoft.

Spinouts

Our commercialisation team builds on our strong research base to support and inspire globally ambitious software companies in Scotland.

Examples of companies founded by informatics graduates:

- CereProc, www.cereproc.com, creates text-to-speech solutions for any type of application. Their core product, CereVoice, is available on any platform, from mobile and embedded devices to desktops and servers. Their voices sound engaging when reading long documents and web pages, and add realistic, emotional, voices to animated characters.
- Actual Analytics use cutting-edge video analysis to analyse behaviour, a crucial step in the development of drugs treating diseases such as Alzheimer's and Parkinson's. Their customers cut costs by automating a time-consuming and error-prone manual step in the \$80bn drug discovery pipeline.

Careers

Computers are everywhere in modern life. Some of the most interesting – and best-paid – opportunities in the future are open to people who really know about computing, software and information systems. The advent of pervasive ‘big data’ is changing the way every company works and Informatics is at the heart of this revolution.

Upon graduation, you are a qualified professional, a computer scientist or software engineer. You will leave the School of Informatics with the practical skills required for your profession, for example, you can build a computing system. More importantly, you are not just a programmer: you understand the underlying concepts of computer science.

Our degrees will also provide you with a set of transferable skills such as time management, team work, communication, self-directed learning, networking and decision making. These are just the sorts of skills that employers look for in their recruits!

Most of our graduates make direct vocational use of their degree and work in the IT industry. We are proud to say that nearly a fifth of our graduates are such passionate computer scientists that they go into further training and study either with us or elsewhere.

Some of our graduates have started multi-million pound businesses with help and advice from the School’s commercialisation team and from institutions such as Scottish Enterprise.

IT entrepreneurs often start young. If you have a business idea, one of our Business Development Managers can help you to raise funds and find advice.

Our graduates are well placed to seek careers in one of the many industries that rely heavily on computer systems.

Media and entertainment industry:

If you have seen the inside of a television, radio or music recording studio you will appreciate the extensive interdependence of media and information technology. Applications of informatics in media and entertainment include advanced CGI for films, creative web access to museum collections, tools for music composition, and new media, such as virtual reality and social media.

Mobile systems: From mobile phones to iPods, there has been an explosion in the amount of information we can carry with us, or access on the move. Advances in computation and information processing are at the root of this technology – from compression algorithms for pictures and sounds, to faster and more reliable communication networks.

User-friendly technology: New technology often brings new problems. Improving the interface, for example, by building computer systems that can understand everyday language, will make technology more accessible to all. Complex systems, such as coordinating emergency services or security monitoring, require advanced information processing that uses intelligent algorithms.

Environment: Understanding the effects of human actions on the environment – local and global – is an enormously complex problem. Accurate prediction requires three-dimensional time-varying simulations that need optimised code running on high-performance parallel computing systems.

Making your application

How to apply

The Universities and Colleges Admissions Service (UCAS) coordinates admissions to universities in the UK. You can access an online database of all courses offered in the UK, and make an application online, at: www.ucas.ac.uk.

You can apply directly to your chosen programme using one of the codes below. This will not limit your final choice of specialisation: you don't have to do that until your third year. Codes for joint degrees are included in the University prospectus and on the University website.

Computer Science – G400

Software Engineering – G600

Artificial Intelligence – G700

Cognitive Science – G859

Informatics – G500

If you plan to register for any of the joint honours degrees with Computer Science or Software Engineering, subject to satisfactory performance, you may still be able to transfer to single Honours in Computer Science or Software Engineering at any time during your first two years of study.

If you intend to register for any joint degrees with Humanities disciplines you are also eligible for transfer to single honours in Artificial Intelligence or Computer Science, subject to satisfactory performance in the first-year Informatics course. (Please note that second year entry is not available to these degrees.)

Our UCAS institution code is E56. For more information please see www.ed.ac.uk/studying/undergraduate/applying/ucas

Visit us

Choosing a university is an important part of your education. We know that people like to check out new places before they choose where to study. There are opportunities to visit the School of Informatics throughout the year, before or after you apply. The University of Edinburgh holds open days, usually in June and September/October.

The University's Student Recruitment and Admissions Service also coordinates visits by groups and individuals.

If you cannot visit, you can take an online 'virtual tour' of our teaching facilities at www.ed.ac.uk/informatics/undergraduate/visit/

Contact

We hope you will consider studying at the University of Edinburgh's School of Informatics, with our exciting degree courses, and that the information in this booklet helps you to decide. If you have any queries, don't hesitate to contact us at:

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