



Department of
Computer Science

Undergraduate studies in

Computer Science

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Important information

The programme information published in this brochure was correct at time of going to print (June 2022) and may be subject to change. Prospective students are advised to check the definitive programme information, including entry requirements, that is available on our website before making an application, to ensure that the programme meets their needs.

Welcome

At Aberystwyth, we are proud to be one of the longest established Computer Science departments in the UK, ranked Top in Wales for the subject of Computer Science (The Times & The Sunday Times Good University Guide 2020) and Top 10 in the UK for Teaching Quality for the subject of Computer Science (Good University Guide, The Times and Sunday Times 2022).

From developing cameras for use in space missions to improving ways of screening cancers, our lecturers are making important contributions in the real world. Our areas of research and development include robotics, artificial intelligence, bioinformatics, image processing, internet communications and software engineering.

The majority of our degrees are accredited by British Computing Society (BCS), The Chartered Institute for IT on behalf of the Engineering Council, giving you a head start when you enter the competitive job market on graduation.

We continue to lead in technological research and in the delivery of top quality graduates. With an Athena SWAN Bronze award, we are committed to promoting gender equality across our department and advancing the careers of women in science and technology.

Aberystwyth is a fantastic place to be a student. The town is set amongst some of the most beautiful countryside in the UK, and the University offers excellent sporting, social and support facilities. Come and see for yourself what makes Aberystwyth such an incredible place to study.

Dr Thomas Jensen
Head of Department



Why study Computer Science?

As the world becomes increasingly reliant on technological advancements, the relevancy of Computer Science will continue to grow. Computer Science plays an integral part in engineering, science, travel, media, communication, commerce and more. This means the knowledge and technical skills you will gain as you study with us are widely applicable to a number of vastly different industries.

The Department of Computer Science places great importance on the quality of teaching, learning environment and the cultural experience it offers its students; where you will become part of a close-knit and inclusive community.

Our exciting and workplace relevant degree schemes are highly regarded by both students and employers; with the option of an integrated year in industry which we strongly encourage our students to take. Our graduates are able to find interesting, well-paid work after graduation.

Our degrees will prepare you for a variety of careers that include: Software Design; Communications and Networking; Computer Applications; Web Development; IT Consultancy and Management; Systems Analysis and Development.



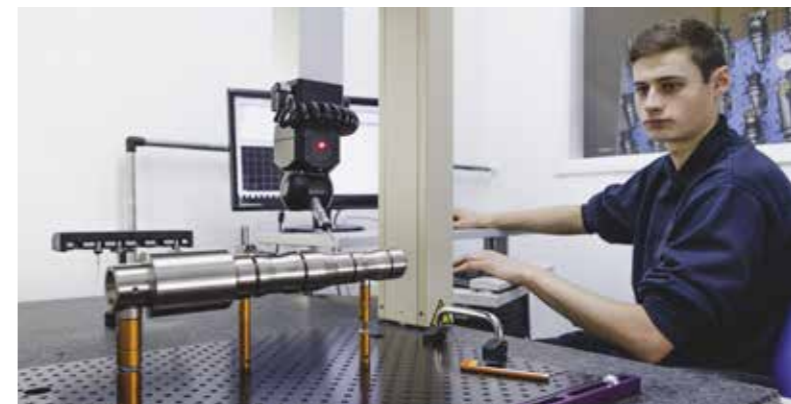
Employability

Our exciting and workplace-relevant degree schemes are highly regarded by both students and employers. All our Bachelors degrees may be taken either as three-year courses or as four-year courses with an integrated year in industry.

We strongly encourage you to take the option of a year in industry, enabling you to put your learning into practice, and enhancing your career prospects. Recently, our students have worked for companies such as Roche, IBM, Mentor Graphics, Vodafone, Airbus, Microsoft, Bosch, Amadeus, Laura Ashley, BSquare, and DCA Design International during their industrial year placements. The year in industry takes place during your third year, after which you will return to Aberystwyth to complete your degree in your fourth year.

If you are looking to graduate with a postgraduate qualification, why not consider our four-year Integrated Masters courses? Some of these also offer the option of an integrated year in industry and may be studied over five years. On graduation, you will be well ahead of your competitors in securing the career of your choice.

Our degrees will prepare you for a variety of careers that include: Software Design; Communications and Networking; Computer Applications; Web Development; IT Consultancy and Management; Systems Analysis and Development. Some of our recent graduates have found employment with Google and MarkLogic, for example, and others have gone on to set up their own companies.



Our courses

Single Honours

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Integrated Masters

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Artificial Intelligence and Robotics

BSc (Hons)

With integrated year in industry

(GH7P)

At Aberystwyth we will help you to develop your knowledge of the underlying technologies and the vocational skills involved with Artificial Intelligence and Robotics.

This degree will give you a firm understanding of computer architecture, programming and software design. You will also specialise in the theory of artificial intelligence and robotics, and the development of practical applications and tools. This opens up many pathways for our graduates and creates a dynamic learning environment.

Opportunities for Artificial Intelligence and Robotics students at Aberystwyth include:

- studying a degree accredited by BCS – The Chartered Institute for IT
- a dedicated robotics laboratory
- a robotics workshop
- a range of specialised research equipment including electric cars, robotic rovers, sailing robots, robotic arms and UAVs.

Employability

This degree provides the appropriate skills for any typical job in the software industry. Its particular emphasis also gives you a head start when applying for jobs in areas like industrial robotics or machine learning, medical robotics, programming of softbot applications for commercial problems, and intelligent robotic design and programming.

Module list

Below is an indicative list of modules that you may study on this course.

First year:

- Introduction to Computer Infrastructure
- Introduction to Programming *
- Problems and Solutions
- Professional and Personal Development *
- Fundamentals of Web Development *
- Information Security *
- Programming Using an Object-Oriented Language *

Second year:

- Algorithm Design and Data Structures *
- Artificial Intelligence
- C and C++
- Modelling Persistent Data *
- Robots and Embedded Systems
- Software Engineering *

Final year:

- Machine Learning
- Major Project *
- Professional Issues in the Computing Industry
- Space Robotics
- Robotics Applications
- Ubiquitous Computing.

See our website for the optional modules you may select to develop your specialist interests.


* also available partially or entirely through the medium of Welsh.


Accredited by:



Key Facts

 Degree type: BSc.

 UCAS code: GH76 (GH7P with integrated year in industry).

 Duration: 3 years (GH7P is 4 years).

Business Information Technology

BSc (Hons)

With integrated year in industry

(G501)

The Business Information Technology degree will enable you to become skilled in the ways in which professionals apply technology to answer business problems.

With exposure to the key building blocks for business efficiency, including systems analysis, database applications, business environment, e-commerce and e-business systems, web programming and web tools, you will learn how to analyse business requirements and translate them into effective business systems.

On successful completion of the Business Information Technology degree you will have amassed the range of core skills and capabilities sought by employers of this discipline.

Opportunities for Business Information Technology students at Aberystwyth include:


- studying a degree accredited by BCS – The Chartered Institute for IT
- access to laboratories providing a full range of computing environments including Windows, Linux and MacOS
- being taught by lecturers who have close links with the industry and software engineering conferences
- modules on business processes, building websites, human-computer interaction (HCI) and e-commerce.


Employability

Our graduates have a good understanding of the demands of the commercial world for computer systems and a professional approach to building those systems from standard database, web and office components. The degree will provide an advantage when applying for jobs involving the creation of commercial systems using different tools and building blocks, using analytical techniques to introduce Information Technology (IT) into business problem-solving, providing database and web-enabled commercial solutions, and supporting IT users.

Key Facts

 Degree type: BSc.

 UCAS code: G500 (G501 with integrated year in industry).

 Duration: 3 years (G501 is 4 years).

Module list

Below is an indicative list of modules that you may study on this course.

First year:

- Introduction to Computer Infrastructure
- Introduction to Programming *
- Professional and Personal Development *
- Programming Using an Object-Oriented Language *
- Information Security *
- Fundamentals of Web Development *.

Second year:

- Business Systems Analysis
- Management Information Systems
- Modelling Persistent Data *
- Programming for the Web
- Applied Graphics
- Software Engineering for the Web
- Web Design and the User Experience.

Final year:

- Management of Organisations
- Web-based Major Project
- Applied Web Development
- E-Commerce: Implementation, Management and Security
- Professional Issues in the Computing Industry.

See our website for the optional modules you may select to develop your specialist interests.

* also available partially or entirely through the medium of Welsh.

Accredited by:



Computer Graphics, Vision and Games

BSc (Hons)

With integrated year in industry

(G451)

On this course you will explore the technical side of understanding how images are created (computer graphics) and how machines can understand and interact with images (vision). You will also study video games, their core algorithms, design and implementation.

Our Computer Graphics, Vision and Games course will give you a firm foundation in programming, software design and computer architecture. You will also develop specialised skills in the areas of computer graphics, machine vision and video games, and practical skills in interactive media, learning how computer-rendered images are created, rendered and displayed from 3D scenes to the final image on your screen. You will also develop skills in artificial intelligence, enabling you to make intelligent-seeming agents that can react to changing conditions, and skills in reasoning, problem-solving and data analysis that are transferable and highly valued by employers.

At Aberystwyth our staff actively research in these crucial areas so they can confidently and passionately give you a sound grounding in the underlying technologies as well as vocational skills that include programming, software design, coding intelligent agents, machine vision, computer graphics and modern video game engines.

Opportunities for Computer Graphics, Vision and Games students at Aberystwyth include:


- studying a degree accredited by BCS – The Chartered Institute for IT
- regularly updated laboratories providing access to a full range of computing environments including Windows, Linux and MacOS
- use of research equipment, including vision and motion tracking systems and an extended reality (XR) laboratory.


Employability

Graduates of this degree will be particularly well suited to jobs in games development, data analysis and classification, visualisation, image and video processing. You will also gain the knowledge needed for other roles in software design, systems analysis and development, communications and networking, web development and IT consultancy.

Key Facts

 Degree type: BSc.

 UCAS Code: G450 (G451 with integrated year in industry).

 Duration: 3 years (G451 is 4 years).

Module list

Below is an indicative list of modules that you may study on this course.

First year:

- Introduction to Computer Infrastructure
- Introduction to Programming *
- Problems and Solutions
- Professional and Personal Development *
- Programming Using an Object-Oriented Language *
- Information Security *
- Fundamentals of Web Development *.

Second year:

- Algorithm Design and Data Structures *
- Applied Graphics
- Artificial Intelligence
- Modelling Persistent Data *
- Software Engineering *.

Final year:

- Computer Graphics and Games
- Computer Vision
- Machine Learning
- Major Project *
- Professional Issues in the Computing Industry.

See our website for the optional modules you may select to develop your specialist interests.

* also available partially or entirely through the medium of Welsh.

Accredited by:



Computer Science

BSc (Hons)

<u>With integrated year in industry</u>	(G401)
<u>With integrated year studying abroad</u>	(G406)

Computer Science covers a vast range of topics including programming, software design, and the engineering of large software systems, meaning it is our department's most flexible degree, providing core modules that are key for a career in computer science.

You will acquire specialist skills that are highly sought after by employers in this industry such as software engineering, graphics and visualisation, artificial intelligence, robotics, telematics, mobile computing, web development and open source computing, that are highly sought after by employers in this industry.

Opportunities for Computer Science students at Aberystwyth include:


- studying a degree accredited by BCS – The Chartered Institute for IT
- access to laboratories providing a full range of computing environments including Windows, Linux and MacOS
- being taught by lecturers who have close links with the industry and software engineering conferences
- use of research equipment, including mobile robots, sailing robots and manipulator arms, vision and motion tracking systems.


Employability

Our graduates and industrial year students are eagerly sought by employers. These include the BBC, Google, Amadeus Germany GmbH, CAP Gemini, Ethos Digital Technology, Fidessa, Logica and Renishaw Plc. Example jobs entered include analyst programmer, graduate software developer, IT officer, programmer, research assistant, software engineer, systems developer and website designer.

Key Facts

 **Degree type:** BSc.

 **UCAS Code:** G400 (G401 with integrated year in industry), (G406 with integrated year studying abroad).

 **Duration:** 3 years (G401 and G406 are 4 years).

Computer Science and Artificial Intelligence

BSc (Hons)

<u>With integrated year in industry</u>	(GG47)
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In recent years, Artificial Intelligence (AI) techniques have become commonplace in industry, and as a result, there is a strong demand for Computer Science graduates who have specialist training in Artificial Intelligence.

You will gain a firm foundation in computing skills such as programming, software design and computer architecture. You will also develop specialised skills in the area of artificial intelligence, and interaction with related areas of study such as intelligent agents in games programming and mobile computing to solve complex problems including analysis, design, solution choice and implementation. These skills are highly sought out by employers, equipping you for future success.

Opportunities for Computer Science and Artificial Intelligence students at Aberystwyth include:


- studying a degree accredited by BCS – The Chartered Institute for IT
- a dedicated robotics laboratory
- modules including artificial intelligence, algorithms and machine learning
- a range of specialised research equipment including electric cars, robotic rovers, sailing robots, robotic arms and flying robotic platforms.


Employability

This degree provides the appropriate skills for any typical job in the software industry. It also gives you a head start when applying for jobs in application areas requiring autonomy or artificial intelligence; medical and/or bioinformatics tasks that require a good background in computational intelligence; programming of softbot applications for commercial/business problems; and design and implementation of intelligent controllers, such as those required in robotics.

Key Facts

 **Degree type:** BSc.

 **UCAS Code:** GG4R (GG47 with integrated year in industry).

 **Duration:** 3 years (GG47 is 4 years).

Module list

Below is an indicative list of modules that you may study on this course.

First year:

- Introduction to Computer Infrastructure
- Introduction to Programming *
- Problems and Solutions
- Professional and Personal Development *
- Programming Using an Object-Oriented Language *
- Information Security *
- Fundamentals of Web Development *.

Second year:

- Algorithm Design and Data Structures *
- Modelling Persistent Data *
- Software Engineering *.

Final year:

- Agile Development and Testing
- Major Project *
- Professional Issues in the Computing Industry.

See our website for the optional modules you may select to develop your specialist interests.

* also available partially or entirely through the medium of Welsh.

Accredited by:



Module list

Below is an indicative list of modules that you may study on this course.

First year:

- Introduction to Computer Infrastructure
- Introduction to Programming *
- Problems and Solutions
- Professional and Personal Development *
- Programming Using an Object-Oriented Language *
- Information Security *
- Fundamentals of Web Development *.

Second year:

- Algorithm Design and Data Structures *
- Artificial Intelligence
- Modelling Persistent Data *
- Software Engineering *.

Final year:

- Agile Development and Testing
- Machine Learning
- Major Project *
- Professional Issues in the Computing Industry.

See our website for the optional modules you may select to develop your specialist interests.

* also available partially or entirely through the medium of Welsh.

Accredited by:



Data Science

BSc (Hons)

With integrated year in industry

(7G74)

Data Science is an exciting new discipline where computing and mathematics meet. Our Data Science degree addresses how we can make sense of the terabytes of information that our computers are collecting every day. It can be used to predict what people will want to buy or where we need to put more money into the NHS to make it more effective, for example.

Taught jointly by research-active academics in the Department of Computer Science and the Department of Mathematics, the Data Science degree gives you a firm grounding in the underlying theory of data science as well as the practical skills to apply that theory in real-world data analytics. You will learn how to design and carry out analysis of large sets of data and draw implications from the results, giving you the skills needed to succeed in this industry.

Opportunities for Data Science students at Aberystwyth include:

- regularly updated laboratories providing access to a full range of computing environments including Windows, Linux and MacOS
- modules from both departments that focus on dealing with patterns in data
- studying a degree accredited by BCS – The Chartered Institute for IT
- being taught by lecturers whose research specialties include statistics, data analysis and mathematical modelling.

Employability

The shortage of skilled data scientists means that graduates in this area are expected to be in great demand over the next few years. Our graduates will have experience of both the statistics and the computer science needed by data scientists. The year in industry option means that you can finish your degree having already had a year's experience of working in data science, making you even more attractive to employers.

Key Facts



Degree type: BSc.



UCAS Code: 7G73 (7G74 with integrated year in industry).



Duration: 3 years (7G74 is 4 years).

Module list

Below is an indicative list of modules that you may study on this course.

First year:

- Algebra *
- Calculus *
- Introduction to Computer Infrastructure
- Introduction to Programming *
- Probability *
- Further Algebra and Calculus *
- Mathematical Analysis *
- Programming Using an Object-Oriented Language *
- Statistics*.

Second year:

- Algorithm Design and Data Structures *
- Applied Statistics
- Distributions and Estimation
- Introduction to Numerical Analysis and its Applications *
- Modelling Persistent Data *
- Linear Algebra *
- Software Engineering*.

Final year:

- Agile Development and Testing
- Linear Statistical Models
- Major Project*.

See our website for the optional modules you may select to develop your specialist interests.

* also available partially or entirely through the medium of Welsh.

Accredited by:



Robotics and Embedded Systems Engineering

BEng (Hons)

With integrated year in industry

(132B)

Our research-active staff provide hands-on support to guide you through building and running intelligent systems while ensuring reliability in unpredictable real-world situations. Work in this area requires not only a deep understanding of software, but also of the operation in the physical world and the underlying mathematics describing it.

As well as gaining a firm foundation in computing skills, you will develop specialised skills in artificial intelligence, robotics and systems engineering. Our optional year in industry is a crucial way for you to gain practical experience of applying the skills you acquired during your first two years of study. It will also help you stand out from your competitors when applying for jobs.

Opportunities for Robotics and Embedded Systems engineering students at Aberystwyth include:

- a dedicated robotics laboratory
- robotics workshop
- access to a range of specialised research equipment including electric cars, robotic rovers, sailing robots, robotic arms and flying robotic platforms.

Employability

Graduates have a strong background in computing that will prepare them for a range of careers in the computing industry. In addition, the specific skills gained on this course are an ideal preparation for working in the aerospace and automotive industries and the emerging area of the Internet of Things.

Key Facts



Degree type: BEng.



UCAS Code: 132A (132B with integrated year in industry).



Duration: 3 years (132B is 4 years).

Module list

Below is an indicative list of modules that you may study on this course.

First year:

- Algebra and Differential Equations *
- Calculus *
- Classical Dynamics *
- Introduction to Programming *
- Forces and Energy *
- Problems and Solutions
- Professional and Personal Development *
- Programming Using an Object-Oriented Language*.

Second year:

- Algorithm Design and Data Structures *
- Artificial Intelligence
- Mathematical Physics *
- Sensors, Electronics and Instrumentation
- Robots and Embedded Systems
- Software Engineering*.

Final year:

- Major Project *
- Professional Issues in the Computing Industry
- Systems Engineering
- Engineering Control Theory
- Robotics Applications
- Space Robotics.

See our website for the optional modules you may select to develop your specialist interests.

* also available partially or entirely through the medium of Welsh.

Software Engineering

BEng (Hons)

Software Engineering is concerned with the production of large, high-quality, and often long-lived, software systems. Work in this area requires not only a deep understanding of software and related technologies, but also an appreciation of the management and professional issues associated with the development of large systems.

The Software Engineering degree emphasises professional engineering as well as computing skills. You will develop a deep understanding of software and related technologies, and appreciate the management and professional issues associated with the development of large systems. You will develop specialised skills in graphics and visualisation, artificial intelligence, robotics, telematics and mobile computing.

This degree includes an integrated year in industry, where you can acquire real-world experience to challenge yourself and create invaluable networking connections. Many of our students return from their industrial year with an offer of employment for when they graduate.

Opportunities for Software Engineering students at Aberystwyth include:

- studying a degree accredited by BCS – The Chartered Institute for IT
- regularly updated laboratories providing access to a full range of computing environments including Windows, Linux and MacOS
- core modules that focus on software engineering scenarios
- being taught by lecturers with close links to the software industry.

Employability

This degree provides appropriate skills for the majority of technical jobs in the software industry. Graduates have obtained positions in companies both large and small and also in government bodies. Our graduates are frequently complimented on their professional approach.

Module list

Below is an indicative list of modules that you may study on this course.

First year:

- Introduction to Computer Infrastructure
- Introduction to Programming *
- Problems and Solutions
- Professional and Personal Development *
- Programming Using an Object-Oriented Language *
- Information Security *
- Fundamentals of Web Development *

Second year:

- Algorithm Design and Data Structures
- C and C++
- Modelling Persistent Data *
- Software Engineering *

Your industrial placement will take place during your third year.

Final year:

- Agile Development and Testing
- Major Project *
- Mobile Development with Android
- Professional Issues in the Computing Industry.

See our website for the optional modules you may select to develop your specialist interests.

* also available partially or entirely through the medium of Welsh.

Accredited by:



Key Facts

Degree type: BEng.

UCAS Code: G600.

Duration: 4 years (with integrated year in industry).

Web Development

BSc (Hons)

With integrated year in industry

(H603)

There is a huge demand for graduates with the skills to construct effective internet applications to meet modern business needs. The Web Development degree combines practical training in building websites to professional standards with study of the commercial, legal and technical context in which the internet operates.

You will be introduced to the fundamental concepts and tools of computer science such as programming, algorithms, problems and solutions. You will also learn about computer infrastructure, mathematics, web programming, e-commerce, systems administration and databases. You will expand your web development and software engineering skills, and in your final year, will be required to develop a piece of software in an area of particular interest for your individual project.

You can also study this course with a year in industry. Many of our students return from their industrial year with an offer of employment upon graduation.

Opportunities for Web Development students at Aberystwyth include:

- studying a degree accredited by BCS – The Chartered Institute for IT
- regularly updated laboratories providing access to a full range of computing environments including MacOS, Linux and Windows
- modules on systems administration, building industrial specification level web applications, and e-commerce.

Employability

A professional approach to website construction and a good understanding of the business processes behind commercial web applications will give graduates an advantage when applying for jobs that entail building modern database-driven websites using appropriate tools and components; using the web and databases to provide interactive real-time solutions for industry, commerce and the public sector; developing network solutions for organisations; and supporting computer and network users.

Key Facts

Degree type: BSc.

UCAS Code: H602 (H603 with integrated year in industry).

Module list

Below is an indicative list of modules that you may study on this course.

First year:

- Introduction to Computer Infrastructure
- Introduction to Programming *
- Problems and Solutions
- Professional and Personal Development *
- Programming Using an Object-Oriented Language *
- Fundamentals of Web Development *
- Information Security *

Second year:

- Modelling Persistent Data *
- Programming for the Web
- System and Network Services Administration
- Software Engineering for the Web
- Web Design and the User Experience.

Final year:

- E-commerce: Implementation, Management and Security
- Web-based Major Project
- Professional Issues in the Computing Industry.

See our website for the optional modules you may select to develop your specialist interests.

* also available partially or entirely through the medium of Welsh.

Accredited by:



Duration: 3 years (H603 is 4 years).

Joint Honours

Subject	Available with...	Joint Honours
Computer Science	Business and Management	NG14
	Mathematics	GG14
	Physical Geography	FG84
	Physics	FG34

Idris is a four-wheel drive and steering electric vehicle. The main use of Idris is for the Department of Computer Science's research in field robotics and in particular, visual navigation.



Business Information Technology

(with integrated foundation year)

BSc (Hons)

Designed for prospective students who do not have a sufficient or relevant academic background, the integrated foundation year course is the perfect option to access this highly sought-after degree scheme. During the foundation year, you will gain a solid base in Business Information Technology to enable you to go on and enjoy the full course in your second year.

With exposure to the key building blocks for business efficiency, including systems analysis, database applications, business environment, e-commerce and e-business systems, web programming and web tools, you will learn how to analyse business requirements and translate them into effective business systems.

On successful completion of the Business Information Technology degree you will have amassed the range of core and essential skills and capabilities sought by employers of this discipline.

Opportunities for Business Information Technology (with integrated foundation year) students at Aberystwyth include:

- access to laboratories providing a full range of computing environments including Windows, Linux and MacOS
- being taught by lecturers who have close links with the industry and software engineering conferences
- modules on business processes, building websites, human-computer interaction (HCI) and e-commerce.

Employability

Our graduates have a good understanding of the demands of the commercial world for computer systems and a professional approach to building those systems from standard database, web and office components. The course will provide an advantage when applying for jobs involving the creation of commercial systems using different tools and building blocks, using analytical techniques to introduce Information Technology into business problem-solving, providing database and web-enabled commercial solutions, and supporting IT users.

Key Facts

 Degree type: BSc.

 UCAS Code: G50F.

 Duration: 4 years.

Module list

Below is an indicative list of modules that you may study on this course.

First year:

- Academic Skills Foundation 1 & 2
- Communication and Technology
- Foundation Mini Projects
- Foundation Programming
- Information Technology for University Students
- Spreadsheets for University Students
- The Mathematics Driving Licence.

Second year:

- Introduction to Computer Infrastructure
- Introduction to Programming *
- Professional and Personal Development *
- Programming using an Object-Oriented Language *
- Information Security *
- Fundamentals of Web Development *.

Third year:

- Business Systems Analysis
- Management Information Systems
- Modelling Persistent Data *
- Programming for the Web
- Applied Graphics
- Software Engineering for the Web
- Web Design and the User Experience.

Final year:

- Management of Organisations
- Web-based Major Project
- Applied Web Development
- E-Commerce: Implementation, Management and Security
- Professional Issues in the Computing Industry.

See our website for the optional modules you may select to develop your specialist interests.

* also available partially or entirely through the medium of Welsh.

Computer Science

(with integrated foundation year)

BSc (Hons)

Designed for prospective students who do not have a sufficient or relevant academic background, the integrated foundation year course is the perfect option to access this highly sought-after degree scheme. The foundation year provides a solid base for you to go on and enjoy the full undergraduate degree in your second year.

You will acquire specialist skills such as software engineering, graphics and visualisation, artificial intelligence, robotics, telematics, mobile computing, web development and open source computing, that are highly sought after by employers in this industry.

Opportunities for Computer Science (with integrated foundation year) students at Aberystwyth include:

- access to laboratories providing a full range of computing environments including MacOS, Linux and Windows
- being taught by lecturers who have close links with the industry and software engineering conferences
- use of research equipment, including mobile robots, sailing robots and manipulator arms, vision and motion tracking systems.

Employability

Our graduates and industrial year students are eagerly sought by employers. These include the BBC, Google, Amadeus Germany GmbH, CAP Gemini, Ethos Digital Technology, Fidessa, Logica and Renishaw Plc. Example jobs entered include analyst programmer, graduate software developer, IT officer, programmer, research assistant, software engineer, systems developer and website designer.

Module list

Below is an indicative list of modules that you may study on this course.

First year:

- Academic Skills Foundation 1 & 2
- Communication and Technology
- Foundation Mini Projects
- Foundation Programming
- Information Technology for University Students
- Spreadsheets for University Students
- The Mathematics Driving Licence.

Second year:

- Introduction to Computer Infrastructure
- Introduction to Programming *
- Problems and Solutions
- Professional and Personal Development *
- Programming Using an Object-Oriented Language *
- Information Security
- Fundamentals of Web Development *.

Third year:

- Algorithm Design and Data Structures *
- Modelling Persistent Data *
- Software Engineering *.

Final year:

- Agile Development and Testing
- Major Project *
- Professional Issues in the Computing Industry.

See our website for the optional modules you may select to develop your specialist interests.

* also available partially or entirely through the medium of Welsh.

Key Facts

 Degree type: BSc.

 UCAS Code: G40F.

 Duration: 4 years.

Integrated Masters schemes

MComp, MEng, MPhys

MComp Computer Science
(with integrated year in industry) (G409, G419)

MEng Robotics and Embedded Systems Engineering
(with integrated year in industry) (132C, 132D)

MEng Software Engineering (G601)

MPhys Space Science and Robotics (FH5P)

Our prestigious MEng and MComp courses are similar to their equivalent bachelor degrees but provide an extra year of instruction at postgraduate level in the form of an Integrated Masters.

Software Engineering (MEng) includes an integrated year in industry, while for the other schemes you may opt to take an integrated year in industry, taking courses to 5 years in length. The integrated year in industry forms the third year of your course, followed by a further two years of study to develop your skills and employability with our supportive teaching. During this time, you will undertake team and individual projects as well as modules at Masters level. Open-ended challenges are a chance for you to explore and test your knowledge, and success demands an independent-minded but nonetheless strictly professional and well-organised approach to study.


Opportunities for Integrated Masters students at Aberystwyth include:

- studying a degree accredited by BCS – The Chartered Institute for IT
- regularly updated laboratories providing access to a full range of computing environments including MacOS, Linux and Windows
- being taught by lecturers with close links to the software industry and cutting-edge research
- access to research equipment, including mobile robots, manipulator arms, and vision and motion tracking systems.

Employability

Our graduates, particularly with a Masters-level qualification, are eagerly sought by employers. The year in industry means that you can finish your degree having already had a year's experience of working in computing, making you even more attractive to employers.

Key Facts

 Degree type: MEng or MComp.

 Duration: 5 years (132C and G409 are 4 years).

Module list

MComp Computer Science:

- Developing Advanced Internet-Based Applications
- MEng Robotics and Embedded Systems Engineering:
- Fundamentals of Intelligent Systems
- Machine Learning for Intelligent Systems.

MEng Software Engineering:

- Developing Advanced Internet-Based Applications
- Machine Learning for Intelligent Systems
- Research Topics in Computing

See our website for the optional modules you may select to develop your specialist interests.

Accredited by:



Research

Many of our lecturers are research-active in their respective fields and enjoy helping our students to develop in their knowledge, understanding and application. There are four research groups, all of which investigate techniques and applications of intelligent systems. Students who share the same interests are encouraged to get involved.

Advanced Reasoning Group

The Advanced Reasoning Group is well known for its ground-breaking research in knowledge representation and modelling using fuzzy-rough techniques, theory and applications of randomised search heuristics and other computational intelligence methods, as well as applications of artificial intelligence in manufacturing systems.

Bioinformatics and Health Informatics Group

The Bioinformatics and Computational Biology Group conducts research in areas such as data analysis of large-scale biological data, formalisation of biological data, biomedical informatics, genetics, pharmacogenomics and systems biology.

Intelligent Robotics

The Intelligent Robotics Group is a well-known robotics group in the UK, and part of the UK-Robotics and Autonomous Systems network. The group is involved in both national and international research consortia covering a wide range of domains from land, sea, air and space as well as indoor robotics. It focuses on both software and hardware issues that are key to 'unconstrained environments'.

Vision, Graphics and Visualisation Group

The Vision, Graphics and Visualisation Group has diverse interests covering many aspects of visual data creation and processing, including medical image analysis and understanding; computer vision for robotics; virtual reality for Mars exploration; vision models for understanding human perception; and applications of computer vision in marine and plant biology.



Departmental Scholarship

We are committed to encouraging high-calibre and enthusiastic applicants to pursue studies in Computer Science. That is why we offer a Departmental Scholarship for applicants who achieve excellent (A*) grades on their A levels, or other relevant qualifications.

The level of the award is £500 per year for the duration of your degree scheme (three or four years giving a total award of up to £6,800 (if a University Entrance Scholarship is included on top). The award is retained providing that an exam average of 70% or above is achieved each year. Joint honours students are eligible for £250 per year.

Additional awards may also be made at the discretion of the Department.

For further information, please visit our website.



Global opportunities



Aberystwyth's Global Opportunities team offer an exciting range of options for you to go overseas as part of your degree: from short courses and volunteering opportunities in the summer, to a full semester or year abroad studying your chosen subject at one of our partner universities.

The University also offers a number of courses which include an integrated year studying abroad, enabling you to study at one of our European or international partner universities for one or two semesters during your third year, returning to Aberystwyth for your final year and graduation.

Reports have shown that students who study abroad are more attractive to employers and earn more than their peers. Take advantage of the opportunity of a lifetime while improving your critical skills by choosing to study abroad.



Sydney



Romania



Montana



St. Petersburg



Hong Kong



Washington, DC



Malaysia



Taiwan



Ottawa

Student life

within the Department of Computer Science

Aberystwyth is a vibrant and cosmopolitan seaside town, with lots to offer our students. Situated in a stunning landscape including sea, beach, valleys and hills it is a unique place to live and study.

Alongside your studies in Computer Science we encourage all our students to explore the various clubs and societies that the University offers. There are several societies and clubs that are related to the Computer Science, such as:

AberCompSoc

Our student computer science society organises regular events and trips, as well as weekly socials.

Aberystwyth Community Of Gamers (ACOG)

Devoted to providing a social and competitive platform for the gamers of Aberystwyth. ACOG frequently holds gaming events in the student union, runs weekly socials around town and competes nationally with other universities. Over the last few years, ACOG has continued to grow and is now one of the largest and most successful societies in Aberystwyth.

Aberystwyth Robotics Club

Supported by the Infinity Exhibition and Aberystwyth Robotics Club (outreach), this society meets every Wednesday afternoon to work together as groups or as individuals to create the hardware and software for all things robotics related. No experience is required, just enthusiasm!



Student Profiles

Samantha Pendleton

**BSc Business Information Technology (G500)
then MSc Data Science (G490)**



I love data, and this Masters degree showed me how to combine programming and statistical analysis to study the science of data!

I was worried that my previous lack of programming skills might have held me back, but the innovative methods of teaching made my transition into a data scientist an enjoyable experience.

In particular, I enjoyed the live-coding Python module lectures, and also the dissertation process allowed me to branch out and explore different aspects of data science.

The computer science department was my home for the duration of my Masters! There were plenty of comfortable spaces to work and I had all the resources I needed. I loved working in the IMPACS library as the view is so nice!

Studying Data Science has opened so many doors for me, but ultimately this course inspired me to study further, so I am currently pursuing a PhD in Clinical Informatics. I work with clinical patient data: seeking out patterns, trends, and groups of patients for further analysis. Hopefully my work will help to improve medical research by linking together large collections of textual data to make them more usable.

Natalia Miller

**BSc Computer Science (G400),
now the Software Engineering Team
Lead for the Search team in BBC**



One of the first draws for me to even attend the Open Day was the idea of being able to live on the seafront! But the real reason I chose Aber as my first choice was because when I attended the Computer Science Open Day, the lecturers deliberately made time to speak to me and learn about me as an individual. This was a stark contrast to some universities I visited which were purely sales pitches from an arm-distance away and when I tried to talk to them about my A level grades they were only focused on dictating what was in the prospectus, this wasn't the case in Aber. I felt like I would be looked after well and get the support I needed from Aber and the Department.

In terms of the University itself, I loved the fact that the town is so close and you could walk everywhere; you were no more than a twenty-minute walk away from anything or anyone. Also in terms of a night out I could easily walk home without the need to travel a long distance.

My experience was much the same as what I had experienced on my Open Day. I felt like the Department was a great community and we always received the support that was needed. Everyone who worked in the Department was very approachable and happy to help when needed. The Department also excelled in ensuring we as students were ready for working in industry, by hosting many events aimed at practising applications, assessment centres and picking up skills needed. Also pushing students to do a placement year in industry (I worked at the Walt Disney Company Europe HQ in London). I found that the Department were ahead of a lot of other universities in terms of teaching about new ways of working within the software industry. All these practices gave me a huge advantage over other candidates when it ultimately came to looking for roles after graduating. Now when I read through CVs or interview those who graduated from Aberystwyth I can see a big difference.

How to apply

Once you've decided what course you want to study and where, you'll be able to start the university application process. Here's a brief overview of the process and our procedures here at Aberystwyth.

1 Apply through UCAS.com

Deadline 15 January. Aberystwyth University institution code: A40.

Top tip: You'll be given a 10-digit UCAS ID number. Keep this to hand as you'll be asked for it many times.

2 The University will consider your offer

Top tip: Use UCAS Track to keep an eye on your application. At Aberystwyth we aim to make a decision within four weeks.

3 The offer will show on UCAS track

4 Decide where to go

Once you've received all your offers, you'll need to decide which university you want to go to, within a set time. This is when you'll need to note which universities will be your firm and insurance choices.

5 Accommodation

Once you've chosen your firm/insurance choice you'll be able to apply for your accommodation (April onwards).

6 Results day

UCAS Track will confirm your offer of a place. If you're not clear what the offer is, contact the university directly. Make sure you're not on holiday on results day. If you don't get the grades you've hoped for, you may want to consider entering Clearing.

7 Start packing!





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