

Programme Specification

Ocean Science (2020-21)

This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if s/he takes full advantage of the learning opportunities that are provided.

Awarding Institution	University of Southampton
Teaching Institution	University of Southampton
Mode of Study	Full-time
Duration in years	1
Accreditation details	None
Final award	Master of Research (MRes)
Name of Award	Ocean Science Pathway A and Pathway B
Interim Exit awards	Postgraduate Certificate in Higher Education Postgraduate Diploma in Higher Education
FHEQ level of final award	Level 7
UCAS code	N/A
Programme Code	4927 4943
QAA Subject Benchmark or other external reference	Earth Sciences, Environmental Sciences And Environmental Studies 2019, Masters Degree Characteristics, 2016.
Programme Lead	Anna Hickman (ah2r11)

Programme Overview

Brief outline of the programme

This programme provides the opportunity to conduct research alongside world-class academics in marine science. Our course will allow you to focus on a particular area of oceanography (which may be influenced by the subject area of your first degree) to develop your knowledge and skills in areas determined by the modules you select and the nature of the research you undertake. There are pathways for students with strong or more limited oceanography backgrounds

As an MRes student, you will spend around two thirds of your year on your research project and the rest of your time taking taught modules. Depending on your background knowledge, these will be a mix of core and optional subjects. You will be able to develop specific knowledge and skills through your selection of modules and choice of subject for your substantial research project.

Your contact hours will vary depending on your module/option choices. Full information about contact hours is provided in individual module profiles.

Learning and teaching

To assist the development of your knowledge and understanding of the marine geosciences/ocean sciences we use a wide range of teaching methods. You will develop core knowledge and understanding via compulsory modules and specialised option module lectures, tutor-led and student-led tutorials, student-led seminars and presentations, laboratory and practical classes, case studies, fieldwork, boat-work, guided independent study, group study and your own research. A wide range of support is available for those students who have further or specific learning and teaching needs.

Assessment

To test your knowledge and understanding of material presented in the lectures and associated practicals, you will be assessed via a combination of written examinations, oral presentations, essays, poster presentations, laboratory experiment write-ups, and fieldwork/boat-work reports. In addition, during Semester 1, you will complete a research proposal based on the topic selected for your individual research project, which will be assessed by the project tutor. Material in Semester 2 will be assessed only by coursework (essays, literature reviews, practical reports) and through short tests. You will also present seminars during Semester 2 and these will be assessed by tutors.

Special Features of the programme

The programme is taught by staff from across NOCS who draw on their cutting edge research to create a challenging and stimulating degree programme. You will also be encouraged to attend our research seminars, some delivered by leading visiting scientists.

All students carry out a major individual research project, culminating in a dissertation manuscript (prepared as for journal submission) and a 20-minute oral presentation that are assessed by both the project supervisor and an internal examiner. Additional support can be provided for those students who have further or specific needs.

Summative assessment contributes to your marks and usually involves a combination of unseen written examinations (at the end of the study module) and coursework (which includes essays, project reports, and computing practicals, etc.). Assessment of your knowledge and understanding is undertaken primarily via these summative assessment methods; in addition you will receive feedback on all formally assessed work.

Please note: As a research-led University, we undertake a continuous review of our programmes to ensure quality enhancement and to manage our resources. As a result, this programme may be revised during a student's period of registration; however, any revision will be balanced against the requirement that the student should receive the educational service expected. Please read our [Disclaimer](#) to see why, when and how changes may be made to a student's programme.

Programmes and major changes to programmes are approved through the University's [programme validation process](#) which is described in the University's [Quality handbook](#).

Educational Aims of the Programme

The Master of Research is a minimum of one and maximum of five year programme comprising mainly of research, but also containing taught modules.

The MRes in Ocean Science is designed for graduates of oceanography, marine sciences, environmental science and other relevant numerate disciplines, and offers you the chance to build on the background of your undergraduate degree, while allowing advanced specialisation in ocean science.

Ocean and Earth Science (OES) is housed in the prestigious National Oceanography Centre, Southampton (NOCS). A joint venture between the University of Southampton and the Natural Environment Research Council (NERC), the Centre is one of the world's largest institutions devoted to research, teaching and technology development in ocean and Earth science.

The programme is taught by staff from the OES and the NOCS. Cutting edge research carried out by academic staff provides direct and enthusiastic input into a challenging and stimulating teaching programme. There are unique opportunities for you to undertake research projects with OES and NERC scientists.

Ocean and Earth Science is strongly committed to providing the very best learning experience to all our students in a friendly and stimulating environment. We are known nationally and internationally for our excellence in teaching, and are continually improving the scope and delivery of our activities.

For students studying the MRes in Ocean Sciences, the spectrum of programmes are all scientifically exciting and challenging, as well as highly relevant to the modern world. Within this particular programme of study we aim to develop and enhance your knowledge of and enthusiasm for the marine sciences.

By the end of your MRes programme you will have extended your subject-specific and more generic skills beyond the level of your undergraduate degree. This will be partially the result of further instruction during the programme, but also will be a direct result of the application and practice of your skills during your research project and the practical elements of your studies. Additionally you will have developed research skills of

sufficient depth to produce work which is publishable in refereed scientific literature.
The specific aims of our MRes programmes are to provide you with:

- In-depth training through advanced coursework and an individual research project, which may be multi-disciplinary or directed towards a specific disciplinary branch;
- A sound and suitable qualification that would enable you to proceed to a more specialist higher degree at the PhD level;
- A training in practical research methods and application of advanced techniques both through fieldwork/boatwork and laboratory work;
- A high-quality and intellectually stimulating experience of learning in a supportive environment.
- A postgraduate degree with a strong research element, at an internationally recognised training centre for ocean science;
- An extensive and in-depth knowledge of the marine sciences and their relationship to other disciplines within ocean and Earth science;
- A sound theoretical knowledge and understanding of marine processes.
- Direct experience of original and individual work on a sustained research project at the forefront of marine environment knowledge;
- Opportunities to train alongside world class scientists in a research-led environment;
- Vocational training for a professional career in industries related to the marine sciences;
- Opportunities to develop critical and analytical problem-solving powers and the ability to communicate results to non-specialists;
- Opportunities to develop a range of generic skills including: critical and reflective thinking, articulate communication and the skills of literacy and numeracy developed through group boatwork, seminar presentations and production of a literature review and project dissertation.

A Master of Research programme differs from a conventional MSc programme in the balance between teaching and research. As an MRes student you will spend more time on the research project and correspondingly less time will be devoted to formal teaching.

Programme Learning Outcomes

Knowledge and Understanding

On successful completion of this programme you will have knowledge and understanding of:

- A1. The value and need for multi-disciplinary approaches in advancing knowledge
- A2. A wide selection of topics currently at the frontiers of research and many of the specialist techniques used to investigate them.
- A3. A range of independent research methods
- A4. The scientific principles underlying the study of ocean sciences.
- A5. The ocean processes in the main disciplines of oceanography (e.g. biological, chemical, geological and physical) at an advanced level.
- A6. Current issues, paradigms and approaches within a specialist subject area of ocean science.
- A7. The ocean processes which shape the marine world at different temporal and spatial scales.
- A8. The terminology, nomenclature and classification systems used in describing and understanding the ocean sciences.
- A9. The theory, practice, acquisition, analysis and interpretation of oceanographic data across a range of applications and scales.

Subject Specific Intellectual and Research Skills

On successful completion of this programme you will be able to:

- B1. Recognise and use subject specific theories, paradigms, concepts and principles in the context of research;
- B2. Critically analyse, synthesise, interpret and summarise complex scientific information.
- B3. Demonstrate familiarity with the techniques of collecting, recording and analysing data in the field and laboratory, using state-of-the-art techniques and equipment;
- B4. Read, use and reference the work of others in an appropriate manner;
- B5. The scientific process and its role in the ocean sciences.
- B6. Undertake field and laboratory investigations in a responsible and safe manner, paying due attention to risk assessment, rights of access, relevant health and safety regulations, and sensitivity to the impact of investigations on the environment and stakeholders.

Transferable and Generic Skills

On successful completion of this programme you will be able to:

- C1. Synthesise, apply and develop further the computing, statistical and mathematical skills that you brought to the MRes programme from your undergraduate programme.
- C2. Appreciate statistical issues of sample selection, accuracy, precision and uncertainty during collection, recording and analysis of data in the field and in the laboratory.
- C3. Prepare, process and present data, using appropriate qualitative and quantitative techniques and computer software packages and solving numerical problems using computer and non-computer-based techniques.
- C4. Develop where appropriate, advanced skills in computer programming.
- C5. Collect and integrate several lines of evidence to formulate and test hypotheses.
- C6. Apply your knowledge and understanding to address familiar and unfamiliar problems.
- C7. Design, implement and report on scientific research projects, including a major research project at the forefront of marine science/marine geoscience knowledge.
- C8. Critically use the Internet as a means of communication and data dissemination, and as a source of information.
- C9. Identify individual and collective goals and responsibilities and performing in an appropriate manner.
- C10. Recognise and respect the views of other team members.
- C11. Evaluate performance as an individual and as a team member.
- C12. Understand the roles of individuals in teams and how individuals learn in team groups.
- C13. Continue to develop the skills necessary for self-managed and life-long learning (such as working independently and within groups, time management and organisation).
- C14. Identify and work towards targets for personal, academic and career development.
- C15. Develop an adaptable and flexible approach to study and work

Programme Structure

Depending on background knowledge, students will follow either Pathway A or Pathway B.

The programme structure table is below:

Information about pre and co-requisites is included in individual module profiles.

Where optional modules have been specified, the following is an indicative list of available optional modules, which are subject to change each academic year. Please note in some instances modules have limited spaces available.

Depending on background knowledge, students will follow either Pathway A or Pathway B. All students will complete 30 ECTS of taught modules, and 60 ECTS related to a significant research component.

In terms of the Research Component, you will be registered for the MRes Research Project module (60 ECTS). In addition to enabling you to complete a substantial piece of independent research, this module will provide you with training in research methodology including assessment of some elements. The module provides opportunities for training in scientific computing, team building exercises, science communication workshops, communication skills, safety training and a professional skills workshop.

You will also prepare a detailed Research Proposal to prepare for your proposed research project, in conjunction with the various parties involved in your project. The Research Proposal is expected to evaluate any published literature about your chosen topic, set out the project aims and give an estimate of the resources required.

It is anticipated that the quality of the research and its novelty will lead to results that are suitable for publication in the peer-reviewed scientific literature. University of Southampton Graduates should not take any module already taken as an undergraduate – advice from tutors should be sought.

Please note that where a list of options has been given, this is an indicative list and we cannot guarantee to offer every option each year.

NB: University of Southampton Graduates should not take any module already taken as an undergraduate – advice from tutors should be sought.

Pathway A

This pathway is for students with limited oceanographic background.

Part I

Details of the modules can be downloaded from the website www.southampton.ac.uk/soes

Taught Component: 30 ECTS

Part I Compulsory

Code	Module Title	ECTS	Type
SOES6074	Contemporary Topics in Oceanography and Marine Biology 2020-21	7.5	Compulsory
SOES6042	MRes Research Project 2020-21	60	Compulsory

Part I Optional

Three optional modules from the following list

Code	Module Title	ECTS	Type
SOES6007	Biogeochemical Cycles in the Earth System 2020-21	7.5	Optional
SOES6006	Climate Dynamics 2020-21	7.5	Optional
SOES3014	Coastal Sediment Dynamics 2020-21	7.5	Optional
SOES6025	Computational Data Analysis for Geophysicists and Ocean Scientists 2020-21	7.5	Optional
SOES6008	Deep Sea Ecology 2020-21	7.5	Optional
SOES6021	Ecological Modelling 2020-21	7.5	Optional
SOES6023	Environmental Radioactivity and Radiochemistry 2020-21	7.5	Optional
SOES6047	Global Climate Cycles 2020-21	7.5	Optional
SOES6073	Global Ocean Carbon Cycle, Ocean Acidification and Climate 2020-21	7.5	Optional
SOES6056	International Maritime and Environmental Law 2020-21	7.5	Optional
SOES6013	Introduction to Biological Oceanography 2020-21	3.75	Optional
SOES6015	Introduction to Chemical Oceanography 2020-21	3.75	Optional
SOES6016	Introduction to Marine Geology 2020-21	3.75	Optional
SOES6014	Introduction to Physical Oceanography 2020-21	3.75	Optional
SOES6017	Introductory Remote Sensing of the Ocean 2020-21	7.5	Optional
SOES6005	Large Scale Ocean Processes and Climate 2020-21	7.5	Optional
SOES6076	Marine Conservation and Policy 2020-21	7.5	Optional
SOES6011	Modelling Coastal Processes 2020-21	7.5	Optional
SOES6051	Reproduction in Marine Invertebrates 2020-21	7.5	Optional
SOES6024	Seafloor Exploration and Surveying 2 2020-21	7.5	Optional
SOES6009	Zooplankton Ecology and Processes 2020-21	7.5	Optional

Pathway B

This pathway is for students with a strong oceanographic background.

Part I

Details of the modules can be downloaded from the website www.southampton.ac.uk/soes

Taught Component: 30 ECTS

Part I Compulsory

Code	Module Title	ECTS	Type
SOES6074	Contemporary Topics in Oceanography and Marine Biology 2020-21	7.5	Compulsory
SOES6042	MRes Research Project 2020-21	60	Compulsory

Part I Optional

Three optional modules from the following list:

Code	Module Title	ECTS	Type
SOES6007	Biogeochemical Cycles in the Earth System 2020-21	7.5	Optional
SOES6006	Climate Dynamics 2020-21	7.5	Optional
SOES3014	Coastal Sediment Dynamics 2020-21	7.5	Optional
SOES6025	Computational Data Analysis for Geophysicists and Ocean Scientists 2020-21	7.5	Optional
SOES6008	Deep Sea Ecology 2020-21	7.5	Optional
SOES6021	Ecological Modelling 2020-21	7.5	Optional
SOES6023	Environmental Radioactivity and Radiochemistry 2020-21	7.5	Optional
SOES6047	Global Climate Cycles 2020-21	7.5	Optional
SOES6073	Global Ocean Carbon Cycle, Ocean Acidification and Climate 2020-21	7.5	Optional
SOES6056	International Maritime and Environmental Law 2020-21	7.5	Optional
SOES6017	Introductory Remote Sensing of the Ocean 2020-21	7.5	Optional
SOES6005	Large Scale Ocean Processes and Climate 2020-21	7.5	Optional
SOES6076	Marine Conservation and Policy 2020-21	7.5	Optional
SOES6011	Modelling Coastal Processes 2020-21	7.5	Optional
SOES6051	Reproduction in Marine Invertebrates 2020-21	7.5	Optional
SOES6024	Seafloor Exploration and Surveying 2 2020-21	7.5	Optional
SOES6009	Zooplankton Ecology and Processes 2020-21	7.5	Optional

Progression Requirements

The programme will follow the University's regulations for [Progression, Determination and Classification of Results: Standalone Masters Programmes](#) as set out in the General Academic Regulations in the University Calendar: <http://www.calendar.soton.ac.uk/sectionIV/sectIV-index.html>

Support for student learning

There are facilities and services to support your learning some of which are accessible to students across the University and some of which will be geared more particularly to students in your particular Faculty or discipline area.

The University provides:

- library resources, including e-books, on-line journals and databases, which are comprehensive and up-to-date; together with assistance from Library staff to enable you to make the best use of these resources
- high speed access to online electronic learning resources on the Internet from dedicated PC Workstations onsite and from your own devices; laptops, smartphones and tablet PCs via the Eduroam wireless network. There is a wide range of application software available from the Student Public Workstations.
- computer accounts which will connect you to a number of learning technologies for example, the Blackboard virtual learning environment (which facilitates online learning and access to specific learning resources)
- standard ICT tools such as Email, secure filestore and calendars.
- access to key information through the MySouthampton Student Mobile Portal which delivers timetables, Module information, Locations, Tutor details, Library account, bus timetables etc. while you are on the move.
- IT support through a comprehensive website, telephone and online ticketed support and a dedicated helpdesk in the Hartley Library.
- Enabling Services offering support services and resources via a triage model to access crisis management, mental health support and counselling. Support includes daily Drop In at Highfield campus at 13.00 – 15.00 (Monday, Wednesday and Friday out of term-time) or via on-line chat on weekdays from 14.00 – 16.00. Arrangements can also be made for meetings via Skype.
- assessment and support (including specialist IT support) facilities if you have a disability, long term health problem or Specific Learning Difficulty (e.g. dyslexia)
- the Student Services Centre (SSC) to assist you with a range of general enquiries including financial matters, accommodation, exams, graduation, student visas, ID cards
- Career and Employability services, advising on job search, applications, interviews, paid work, volunteering and internship opportunities and getting the most out of your extra-curricular activities alongside your degree programme when writing your CV.
- Other support that includes health services (GPs), chaplaincy (for all faiths) and 'out of hours' support for students in Halls and in the local community (18.00-08.00).
- A Centre for Language Study, providing assistance in the development of English language and study skills for non-native speakers.

The Students' Union provides

- an academic student representation system, consisting of Course Representatives, Academic Presidents, Faculty Officers and the Vice-President Education; SUSU provides training and support for all these representatives, whose role is to represent students' views to the University.
- opportunities for extracurricular activities and volunteering
- an Advice Centre offering free and confidential advice including support if you need to make an academic appeal
- Support for student peer-to-peer groups, such as Nightline.

Associated with your programme you will be able to access:

- Programme and module guides/information. Hard copies are available but are mainly published on the web: <http://www.southampton.ac.uk/oes/postgraduate/index.page?> and www.blackboard.soton.ac.uk
- A number of well-resourced lecture/meeting rooms and a suite of modern, first class, specialist laboratories and analysis facilities.
- A dedicated masters room with computer and high speed Internet access.
- Three additional computer clusters which are available at the NOCS for your use shared with undergraduate students. Additional computer clusters are available for your use on the other University campuses.
- Training on Ocean and Earth Science's research launch, RV Callista, which is fully equipped for boat-work practicals and project work in the local estuary and coastal waters and in our shore-side laboratory and aquarium facilities.
- Equipment to support your field work, including laptop computers, GPS, specialised shipboard data acquisition systems deployed from the 19m research catamaran RV Callista.
- A research-led environment, which provides a high quality learning environment for students.
- A dedicated Student Office whose role is to support both staff and students in the administration of postgraduate teaching.
- A personal supervisor system which aims to provide personalised pastoral and academic care for all students. You will be allocated a member of the academic staff as your personal supervisor on arrival at University, and he/she will be charged with your guidance throughout your postgraduate career.

- Access via email which is freely available at all times and personal contact with all teaching staff.

Methods for evaluating the quality of teaching and learning

You will have the opportunity to have your say on the quality of the programme in the following ways:

- Completing student evaluation questionnaires for each module of the programme
- Acting as a student representative on various committees, e.g. Staff: Student Liaison Committees, Faculty Programmes Committee OR providing comments to your student representative to feedback on your behalf
- Serving as a student representative on Faculty Scrutiny Groups for programme validation
- Taking part in programme validation meetings by joining a panel of students to meet with the Faculty Scrutiny Group

The ways in which the quality of your programme is checked, both inside and outside the University, are:

- Regular module and programme reports which are monitored by the Faculty.
- Programme validation, normally every five years.
- External examiners, who produce an annual report.
- A national Research Assessment Exercise (our research activity contributes directly to the quality of your learning experience).
- Institutional Review by the Quality Assurance Agency.

Further details on the University's quality assurance processes are given in the [Quality handbook](#).

Career Opportunities

Career destinations and advice can be found at: <http://www.soton.ac.uk/careers/> and <http://www.southampton.ac.uk/postgraduate/careerprospects/>

The strength and prestige of our degrees are recognised by a wide spectrum of employers who view our graduates as well-qualified scientists who possess excellent personal and transferable skills profiles such as numeracy, communication and teamworking. Furthermore, our graduates are seen as having a greater degree of independence and self-reliance than any comparable graduates.

We pride ourselves in the quality of the scientists that we produce and given our national standing, it is our experience that all our well qualified postgraduates are able to progress into a career of direct relevance to their training, should they wish.

Students from the National Oceanography Centre Southampton enter a broad range of careers, ranging from industrial, commercial and governmental positions, to academic and research posts.

External Examiner(s) for the programme

Name: Dr James Hammond - University of London

Students must not contact External Examiner(s) directly, and external examiners have been advised to refer any such communications back to the University. Students should raise any general queries about the assessment and examination process for the programme with their Course Representative, for consideration through Staff: Student Liaison Committee in the first instance, and Student representatives on Staff: Student Liaison Committees will have the opportunity to consider external examiners' reports as part of the University's quality assurance process.

External examiners do not have a direct role in determining results for individual students, and students wishing to discuss their own performance in assessment should contact their Personal Academic Tutor in the first instance.

Please note: This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if s/he takes full advantage of the learning opportunities that are provided. More detailed information can be found in the programme handbook.

Appendix 1:

Students are responsible for meeting the cost of essential textbooks, and of producing such essays, assignments, laboratory reports and dissertations as are required to fulfil the academic requirements for each programme of study. In addition to this, students registered for this programme also have to pay for:

Additional Costs

Type	Details
Software Licenses	Will be provided by the University where appropriate
Clothing	You will need to purchase a suitable wet suit and associated snorkelling equipment if participating on SOES6052
IT	Students are expected to provide their own data storage device
Hardware	It is advisable that students provide their own laptop or personal computer, although shared facilities are available across the University campus.
Stationery	You will be expected to provide your own day-to-day stationary items, e.g. pens, pencils, notebooks, etc). Any specialist stationery items will be specified under the Additional Costs tab of the relevant module profile.
Textbooks	<p>Where a module specifies core texts these should generally be available on the reserve list in the library. However due to demand, students may prefer to buy their own copies. These can be purchased from any source.</p> <p>Some modules suggest reading texts as optional background reading. The library may hold copies of such texts, or alternatively you may wish to purchase your own copies. Although not essential reading, you may benefit from the additional reading materials for the module.</p>
Laboratory Equipment and Materials	Laboratory equipment and consumables will be provided where appropriate.
Approved Calculators	Candidates may use calculators in the examination room only as specified by the University and as permitted by the rubric of individual examination papers. These may be purchased from any source and no longer need to carry the University logo.
Fieldwork: logistical costs	<p>For compulsory residential fieldcourses accommodation and travel are normally provided. You are usually expected to cover the costs of food and drink, although some courses may include meals. For optional fieldcourses, you may be asked to make a contribution to the travel and/or accommodation costs.</p> <p>Additionally, if travelling abroad you may incur costs for travel and health insurance; visa costs; vaccinations/immunisation.</p> <p>Specific details on what additional costs there will be are detailed in the individual module profiles which can be found under the modules tab of the programmes details of the relevant academic unit.</p> <p>In addition, some modules may offer a "one-day" fieldcourse. Normally transport to the location is provided, but you will be expected to cover your food and drink costs for that day.</p>
Field Equipment and Materials	<p>A number of essential items will be provided to you if they are required on your programme e.g.: field notebook(s); compass-clinometer; geological hammer; steel tape measure; map case; pocket lens (x 10); safety helmet; safety goggles; bottle of dilute hydrochloric acid. If items provided are lost replacements will need to be purchased.</p> <p>However, you will need provide yourselves with a ruler; a pair of compasses; set squares; protractor; pencils (including coloured); eraser; calculator, penknife. These can be purchased from any source.</p>
Lab Coats	Marine Biology students will receive a lab coat, dissection kit and waterproof notebook during Induction. If these are lost the student must replace them at their own expense.
Field course clothing	You will need to wear suitable clothing when attending fieldcourses, e.g. waterproofs, walking boots. You can purchase these from any source.
Printing and Photocopying Costs	<p>Where possible, coursework such as essays; projects; dissertations is likely to be submitted on line. However, there are some items where it is not possible to submit on line and students will be asked to provide a printed copy.</p> <p>A list of the University printing costs can be found here: http://www.southampton.ac.uk/isolutions/students/printing-for-students.page</p>

	<p>Please remember that we are unable to refund any credit that has not been used by the end of your course, so please consider this when topping up your printing/copy account</p> <p>The University Print Centre also offer a printing and copying service as well as a dissertation/binding service. Current printing and copying costs can be found here. They also provide a large format printing service, e.g. Academic posters.</p>
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In some cases you'll be able to choose modules (which may have different costs associated with that module) which will change the overall cost of a programme to you. Details of such costs will be listed in the Module Profile. Please also ensure you read the section on additional costs in the University's Fees, Charges and Expenses Regulations in the University Calendar available at www.calendar.soton.ac.uk.