



Course Handbook

BSc (Hons) Mathematics

2015-16

Contents

	Section	Page
	Sources of Additional Information	1
	Faculty Welcome	2
1.	Welcome to your course	3
2.	Your course team	3
3.	An introduction to your course – aims and intended learning outcomes	7
4.	The structure of your course	8
5.	The Staffordshire Graduate and Employability	11
6.	Professional recognition	11
7.	Learning, teaching and assessment on your course	12
	7.1 Learning and Teaching	12
	7.2 Placements and work-based learning	13
	7.3 Assessment	13
	7.4 How to submit assessments	14
	7.5 Feedback on your work	14
	7.6 External examiners appointed to your course	15
8.	Extra Costs	15
9.	Communication	16
10.	Support and Guidance (Including Personal Tutoring)	16
11.	The Student Voice	17
12.	Rules and Regulations	19
	Appendices	20

Sources of Additional Information

This handbook provides useful information about your course, how it will be delivered and how you will be assessed. It does not try to give you all the information you will need during your time at the University. More information can be found in the following places:

On-Line Student Guide

The on-line student guide (<http://www.staffs.ac.uk/student/guide>) provides important information about the university and the services available to students, including:

- Welcome Week
- Student Cards
- e:VisionStaffs Portal
- Our Student Charter
- The Staffordshire Graduate
- Term Dates
- Timetabling
- Student accommodation
- Campus and travel information
- Finance, fees and support
- Disclosure and Barring Service applications
- Visas
- Course and module enrolment
- Recognition of Prior Learning
- University rules and regulations
- Disciplinary matters including academic misconduct
- Appeals and complaints
- Changing your award or modules
- Withdrawing or intermitting from your course
- What to do if you can't hand in work due to circumstances beyond your control
- Referencing and study skills (including guidance on completing assessments)
- Examinations
- Getting feedback on your work
- The student voice
- Employability and careers
- IT services and support
- Disability and dyslexia
- Counselling
- The Nursery
- The Multi-Faith Chaplaincy
- Graduation
- Certificates, Transcripts and Verification Letters

Module Handbooks

Your course is made up from a number of individual modules. Detailed information on each module is provided in separate module handbooks. Your module tutor will tell you how to access the handbook for their module.

The Blackboard On-Line Learning Environment

Information and learning materials for your modules and your course will be provided on the Blackboard on-line Learning Environment. Blackboard will form an important part of your learning experience. Please let your module or course tutor know if you encounter any problems accessing this material.

You can access Blackboard at <https://blackboard.staffs.ac.uk> using your university username and password. If you have not done so already, please change your Blackboard default password (date of birth) to ensure others cannot access your account.

Welcome to the Faculty of Computing, Engineering and Sciences

The Faculty is home to three subject based Schools located on the Stoke-on-Trent campus. As well as our on-campus students we have many students who are learning away from our University campuses in Staffordshire – with many learners studying in educational partners both in and outside of the UK, work-based learners studying in their workplace and also distance learners from across the globe using the internet



to interact with their tutors and peers. Consequently, you are now a student in one of the largest such faculty in UK universities, and we are delighted that you are one of our students. The Faculty is host to one of the first UK university computing departments, to science programmes which are some of the highly rated by students in the UK, and to an engineering scheme founded upon the needs of engineering employers. Your course of study will therefore be up to date and relevant, will be serviced by well qualified staff, and will also be geared to preparing you for life and employment after university. Our Staffordshire Graduate Pledge aims to help all of our students achieve what they want to in life.

As one of our students we expect you to work hard, to set high standards for yourself. To help you to succeed you will have access to excellent staff and facilities, and also to a range of student support services to help deal with your particular needs. Of course, to do this academic, administration and technical staff that you come across as part of your studies will readily advise and support you. Your part is to take your study seriously, to ensure that you set-aside appropriate time for your study, and to make full use of the diverse range of learning opportunities – both in class and outside of classes – provided by your course. It is important to us that you are successful and that you go on to be a good ambassador for the university.

Inevitably at the start of term you will be bombarded with a host of well-intentioned information. Some of that information is immediately important to start your studies to make sure that you are in the right place at the right time. Some information you will need later in your course e.g. about assessments, changing modules, extenuating claims etc. Whilst other information is about the services the University offers generally which you may need to utilise in the future. We suggest that you download this handbook and keep it for reference and familiarise yourself with the range of information it contains. This should be the first document of your own digital-archive - get into the habit of downloading essential documents like module descriptors and module handbooks when the course starts.

You are now part of the 'family' of Computing, Engineering and Sciences and we look forward to working with you to help you to succeed as a Staffordshire Graduate.

Very best wishes,

Professor Hastings McKenzie – Dean, Faculty of Computing, Engineering and Sciences

1. Welcome to your Course

On behalf of the Mathematics Course team I would like to welcome you to the Mathematics and Statistics group (within the School of Engineering). I am sure you will find all the staff to be helpful and professional in everything they do and we will do our best to make you feel very welcome here. Having a good work ethic both in class and in your personal studies will help you to flourish on this course and be ready to embark on a successful career. Make sure that you get involved in extracurricular activities too - there are many clubs and societies that you can join which I'm sure you will enjoy. I hope that your time at Staffordshire University will be challenging but enjoyable and rewarding.



This handbook is a reference guide to help you and should be kept alongside the University Handbook. It will provide you with information concerning the Mathematics course and attempts to answer many of the questions you may ask throughout your study at Staffordshire University.

There is also a wealth of information on the Mathematics Course blackboard site which is always kept up-to-date and you will be introduced to this during Welcome Week.

Emily Raeburn (Mathematics Course leader)

2. Your Course Team

There are many people available to help and support you during your time with us. The following staff are the key academic members of the Course team but there are also administrative/student guidance staff who are here to help and they will be mentioned later in this handbook.



**The Course Leader
(plus level 4 & 5 Tutor):** Dr Emily Raeburn

Room: S216, Mellor Building

Telephone: (01782) 294276

Email: e.raeburn@staffs.ac.uk

I was awarded a PhD in Statistics from Aberystwyth University in 1993 and spent a few years working in research, modelling share prices and stock market crashes. I took up a lectureship within the Mathematics and Statistics group at Staffordshire University in 1997 and now have over 20 years' experience of teaching mathematics and statistics. During this time I have published papers and been involved in a variety of statistical consultancy projects. I teach on a number of

statistical modules including Introductory Statistics and Probability, Survey Design and Statistical Inference, Experimental Design and Statistical Modelling.



Level 6 Tutor: Dr Patricia Lewis

Room: S220, Mellor Building

Telephone: (01785) 353549

Email: p.a.Lewis@staffs.ac.uk

I obtained my degree in Mathematics from the University of Bristol in 1985 and I was awarded a PhD in Mathematics from the University of Manchester in 1991. I worked as a Post-Doctoral Research Associate at Manchester University and Ames Laboratory, before becoming a lecturer at Bolton Institute. I started lecturing at Staffordshire University in 1995. I teach mainly mathematics courses including Mathematical Foundations for Engineers, Engineering Mathematics with Applications, Mathematical Techniques, Mathematical Applications for Engineering, Mathematical Methods and Fluid Mechanics.



Project Co-ordinator: Dr Md Asaduzzaman

Room: S216, Mellor Building

Telephone: (01782) 294707

Email: Md.Asaduzzaman@staffs.ac.uk

I obtained my first degree in Applied Statistics, then an MSc in Bioinformatics and a PhD in Operational Research. I worked as a Lecturer of Applied Statistics from 2001-05 and from 2010-13 as an Assistant Professor at the University of Dhaka, Bangladesh. I started my lectureship with Staffordshire University in 2014. I have published a number of articles in operational research and statistics journals. I teach mainly statistics and OR courses including Operational Research, Simulation Modelling, Probability Modelling, Experimental Design and Statistical Modelling, Survey Design and Statistical Inference, Survey Design and Analysis/Questionnaire and Data Analysis.



Academic Group Leader: Dr Sarah Easton

Room: S231, Mellor Building

Telephone: (01782) 294279

Email: s.j.easton@staffs.ac.uk

I obtained my degree in 1989 and my PhD in 1997, both in Mathematics and from Keele University. I joined the Maths and Stats team at Staffordshire University in 1992 and have taught on a variety of Awards and Courses since then. On the

Mathematics course I teach mainly mathematics, Excel, and OR courses including Mathematical Software, Operational Research, Simulation Modelling, and the option module Spreadsheet Automation with VBA.

You will also meet other members of the Mathematics and Statistics staff in your classes. All teaching staff are here to support your learning and share their expertise and experience to help you grow and fulfil your potential.



Dr Martin Paisley

Room: S220, Mellor Building

Telephone: (01785) 353510

Email: m.f.paisley@staffs.ac.uk

After graduating from the University of Birmingham in 1983 I undertook research at Reading/Oxford Universities in conjunction with the Royal Aerospace Establishment, Farnborough, and was awarded a DPhil in 1987. Following a brief period at Farnborough I spent 3 years lecturing Mathematics at the University of Malawi 1988-1991 and a further 2 years at the University of Surrey as a researcher before starting at Staffordshire University in 1993. Since then I have taught mathematics and undertaken research in computational fluids and, more recently, tools for analysing ecological data. I teach mainly mathematics courses including Foundations for Engineers, Mathematical Software with Applications, Engineering Mathematics with Applications, Mathematical Modelling, Mathematical Methods and Fluid Mechanics, Aerodynamics and Advanced Vehicle Aerodynamics.



Mrs Joy Harding

Room: S222, Mellor Building

Telephone: (01785) 353510

Email: j.e.harding@staffs.ac.uk

After graduating from the University of York in Maths and Computer Science, I worked as a trainee actuary for the Co-operative Insurance Society but decided that this was not the direction for me. I pursued a career in teaching and gained a PGCE at Manchester University with my main subject being Mathematics and Biology as my subsidiary. I taught in a comprehensive school for 2 years teaching Mathematics but also Computer Science. In 1982 I took up a lecturing post at Staffordshire University (or Polytechnic as it was then) and studied for an MSc in Statistics at Salford University by part time study whilst working. I currently teach mainly statistics and computing courses.



Mr Chris Mann

Room: S218, Mellor Building

Telephone: (01785) 294275

Email: c.m.mann@staffs.ac.uk

Having graduated from Oxford University in 1978 with a BA Hons degree in Mathematics, I went on to gain a PGCE and taught at Nottingham High School for 12 years. I started at Staffordshire University in 1991 as a senior lecturer in Mathematics and also studied with the Open University to gain an MSc in Mathematics in 1992. I have taught mathematics courses at the Open University for a number of years and I am currently an associate lecturer, teaching Mathematical Methods and Fluid Mechanics. At Staffordshire University I teach mainly mathematics and statistics courses including Applied Mathematics, Mathematical Principles, Fundamentals of Computing and Mathematics, Further Mathematics and Algorithmics, Mathematical Software, Quantitative Methods (Distance Learning).

If you have any queries please do not hesitate to contact any of the Course team. If we are unable to answer your question then we will find someone who can. We will do our best to make your time at University enjoyable and rewarding.



3. An Introduction to your Course

The aim of the programme is to provide you with an undergraduate education in the field of mathematics, including Operational Research (the use of analytical techniques to improve decision making) and Statistics. The focus is on the application of these mathematical techniques and throughout the course you will work with applied examples and make use of a range of specialist software. We believe that this will prepare you for a range of interesting and fulfilling careers.

The Mathematics Course aims to provide you with the following attributes:

- A broadly based and well-integrated education in the application of mathematical and statistical tools and techniques to the analysis of a wide range of problems
- An ability to use mathematical, statistical and computer models
- Increased knowledge and well-developed intellectual and imaginative reasoning
- Developed skills in written, verbal, and visual communication
- A commitment to lifelong learning
- Preparation for a successful career in any area requiring the practical application of mathematics and statistics

Your award has a set of learning outcomes that describe what you should be able to do by the end of each level of your course. These statements are designed to help you understand what you need to do to pass your course and receive your award. The outcomes of your course can be found in Appendix A towards the back of this handbook. These are expressed in the form of eight University wide outcome statements relating to:

- Knowledge and Understanding
- Learning
- Enquiry
- Analysis
- Problem Solving
- Communication
- Application
- Reflection

These standard statements describe the abilities and skills all Staffordshire University students should demonstrate in order to pass their course. The statements have been designed to meet national expectations contained within the [Framework for Higher Education Qualifications](#). This ensure that's that the learning outcomes for your course are equivalent to similar courses at other UK universities and a colleges.

Each module that you study will have its own set of learning outcomes and they are progressively developed from one level to the next. A table showing how your module learning outcomes have been aligned with the eight university learning outcome statements can be found in Appendix B.

The design of your course has been guided by the [QAA's national subject benchmark for Mathematics, Statistics and Operational Research](#). Written by a national panel of subject academics, the benchmark describes the defining characteristics of the subject area and the abilities and skills you should be able to demonstrate by the end of the course. The table in Appendix B shows how our course reflects the subject benchmark.

4. The Structure of your Course

This BSc Honours Award usually takes 3 years to complete if you are full time (or 4 years if a placement is taken) and typically 6 years if studied part-time. The course consists of 3 levels (level 4, 5 and 6) and for each level you are required to study and pass 120 credits (full-time students study one level / 120 credits per year, part-time students typically study half a level / 60 credits per year). The maximum number of years you can be registered on a course is 8 years and the maximum amount of time you can take to complete any given level is 3 years.

The academic year is split into two semesters running from September through to June. The length of each teaching block is twelve weeks plus independent study, revision and assessment weeks. The [academic calendar for 2016-17](#) specifies the start and end dates of semesters. Full-time students typically study 60 credits per semester whilst part-time students typically study 30 credits per semester.

Each level / 120 credits is divided into smaller credit modules. You will study both 15 credit modules (lasting one semester and equivalent to 150 hours of learning time) and 30 credit modules (spanning both semesters and equivalent to 300 hours of learning time).

You will study two types of modules:

- **Core** modules are ones that you **must** pass and cannot be replaced
- **Option** modules are chosen from a restricted list of modules relevant to your course and may, if failed, be replaced with alternative option modules (up to a maximum of 30 credits per level may be replaced).

Level 4

During your first year you will study 5 core modules.

LEVEL 4	Personal and Academic Development (15 credits) MATH40298	Introductory Statistics and Probability (30 credits) MATH40398	Mathematical Software (30 credits) MATH40295	Applied Mathematical Methods (30 credits) MATH40294
	Mathematical Principles (15 credits) MATH40309			

Level 5

During your second year you will study 4 core modules and one option module

LEVEL 5	Option (15 credits)	Modelling and Planning in Business (30 credits) MATH50299	Survey Design and Statistical Inference (30 credits) MATH50400	Mathematical Modelling and Operational Research (30 credits) MATH50300
	Project Proposal and Professional Development (15 credits) COIS51078			

Level 5 Options (subject to availability and demand):

Teaching route: [EDUC50245](#) Teaching Pedagogy and Practice/

[EDUC50463](#) Preparation for Teacher Training

Technology route: [COIS51058](#) Database Administration and Management

Optional Placement Year

Between Level 5 and Level 6 you may choose to undertake a placement year. See the placement section for further details.

Level 6

During your final year you will study 4 core modules, including a 30 credit project and one option module.

LEVEL 6	Experimental Design and Statistical Modelling (30 credits) MATH60310	Mathematical Methods and Fluid Mechanics (30 credits) MATH60311	Mathematics and Statistics Project (30 credits) MATH60304	Option (15 credits)
				Simulation Modelling MATH60320

Level 6 Options (subject to availability and demand):

Teaching route: [EDUC60245](#) Teaching Pedagogy and Practice/
[EDUC60230](#) Preparation for Teacher Training
Technology route: [MATH60323](#) Spreadsheet Automation with VBA
Personal Development route: [COIS61080](#) Entrepreneurship

The Teaching, Technology and Personal Development routes (at Levels 5 and 6) allow you to follow a particular route dependent on your chosen career path. The modules on each route are independent and so you can switch between the routes. Note that the choice of route does not impact on your Award title.

Timetable

A link to your timetable, on a week-by-week basis, can be found on the Course Blackboard site (under the timetable tab).

We try to ensure prior to your arrival that your timetable works effectively for you but inevitably changes may be required. **You should check your timetables and emails regularly, particularly during the first two weeks of the semester for amendments and cancellations.**



5. The Staffordshire Graduate and Employability

The Staffordshire Graduate represents a set of qualities that the University passionately believes is necessary for success in the 21st century. Our aim is to make you a reflective and critical learner with a global perspective, prepared to contribute in the world of work.

Specifically we will develop your skills in the following areas:

- Discipline Expertise
- Professionalism
- Global Citizenship
- Communication and Teamwork
- Reflective and Critical Learner
- Lifelong Learning

*At Staffordshire University
we grow people
who think and act for
themselves.*

At all levels of your study we provide opportunities to develop and achieve these attributes. We prepare you for the workplace by enhancing your organisation and time management skills. Group work opportunities are provided to develop your team working skills whilst other modules you study will improve your communication skills or enhance your use of technology so that you can hit the ground running when you start your career. Also, there are modules specifically designed to improve your career planning and assist in your professional development. Your final year project will bring all of these aspects together and allow you to demonstrate your readiness for the work place.

Our past graduates have gone on to a wide variety of careers: many go on to teach mathematics, but we have graduates now working in the financial sector, logistics, the government statistical service, analyst roles within a variety of business areas as well as some moving on to postgraduate study.

Appendix C contains a breakdown of the Staffordshire Graduate characteristics and where, within your course, these characteristics are addressed.

More information on the Staffordshire Graduate can be found at:

<http://www.staffs.ac.uk/study/staffordshiregraduate/>

6. Professional Recognition

Our mathematics award is accredited by the [Institute of Mathematics and its Applications](#) (IMA). Once you graduate you may join the IMA as an associate member, with subsequent training and experience you could become a Chartered Mathematician.



7. Learning, Teaching and Assessment on your Course

7.1 Learning and Teaching

We use a combination of teaching methods on the course including lectures, tutorials and computer practical sessions. These are given by specialist tutors in the appropriate academic field and often involve a team of tutors. An essential part of this learning process is seen to be the development of your interpersonal and communication skills. To this end project work and teamwork are central to the learning experience. All modules have an element of student centred learning associated with them - this learning is undertaken by you outside normal class contact time. It is essential that you take this aspect of learning seriously, and dedicate a sufficient amount of your time to it, if you are to succeed on the course and meet your full potential.

You will develop in three main areas - mathematical modelling, decision making through operational research, and statistical analysis making you suitable for employment in a wide range of careers.

At level 4 you will cover the foundations required in each of these areas along with an introduction to the technical skills necessary to put them into practice. Key mathematical and statistical concepts are covered in the modules Maths Principles and Introductory Statistics and Probability. The practical application is enhanced in Applied Mathematical Methods and Mathematical Software. Statistical software is used in the module Introductory Statistics and Probability.

At level 5 you develop your knowledge and skills to allow for greater understanding and wider application; Survey Design and Statistical Inference takes your statistical knowledge further and focusses on the statistical methods that are used all around us, in many disciplines, where solid statistical reasoning is required to provide supporting evidence to research in these areas. Modelling and Planning in Business explores the use of mathematics and statistics in the areas of finance and economics. The module Mathematical Modelling and Operational Research starts to focus your learning in the area of modelling and develops your skills in using mathematics for decision making purposes.

At level 6 you are ready to explore the use of mathematics and statistics in more complex situations rather than just the routine. Experimental Design and Statistical Modelling covers the statistical methods used in many scientific areas but predominantly in medical statistics, it also expands your knowledge of statistical modelling techniques, allowing for much wider application. In Mathematical Methods and Fluid Mechanics you will meet advanced calculus and numerical methods for solving equations that can be used in many areas. Your decision making capabilities are further enhanced in the Simulation Modelling module where modern simulation techniques are used to critically analyse the effect of changing parameters that affect the decision making process. At level 6 you are also expected to be capable of independent learning and this is demonstrated through the final year project module. Here you will develop your skills in research, applying tools and techniques to analyse or solve a problem (chosen by you) within the subject area.

7.2 Placements and work-based learning

As part of your award you have the opportunity of undertaking an optional 48-week placement, relevant to your course, between Levels 5 and 6. You will be required to prepare a CV and attend interviews, which will provide you with invaluable experience for when you graduate and are applying for jobs. The year spent on placement greatly enhances your employability. Your performance on the placement is assessed by a placement visiting tutor from the university, a supervisor at the place of work, and by a report written by you. Having successfully completed a placement and your course you would be awarded a degree in Mathematics with a sandwich year. There will be an introduction to the placement during the Welcome Week at the beginning of level 4 with a much more detailed information session running during the Welcome Week at the start of level 5 where your efforts towards securing a placement, for those interested, will start in earnest. Further details of the placement year can be found at http://www.staffs.ac.uk/support_depts/careers/placements/.

Your course does not include any work-based learning

7.3 Assessment

During your course you will meet a variety of assessment types tailored to your module requirements and ensuring that the learning outcomes of your course can be achieved. Typically, technical content may be tested or examined whereas practical skills are often better assessed through assignments; software packages are used throughout where appropriate. As part of our commitment to developing your employability skills, you will also deliver presentations, create posters and produce written reports, all of which will enhance your communication skills and develop your confidence in presenting yourself professionally and effectively. Your final year project requires you to undertake research and consequently you are required to complete the University's ethical review procedure, for which you will be provided with help and guidance as part of your project module.

Summative assessments – assessments that contribute to your overall module grades, level averages and in turn to your award classification (Level 5 and Level 6 modules only) – will be marked using percentages. All summative assessments are marked anonymously unless this is not possible or practical, for example an oral presentation.

To help you to understand how you are performing you will also be given formative learning tasks which will not contribute to your course grades but will provide you with feedback on your learning.

The University's Undergraduate [Regulations](#) require you to achieve at least 40% to pass a module. If you marginally fail a module with a mark of 30-39% the end of year award board may, compensate the marginal failure if you have passed at least 90 credits in the same level. The regulations also require you to get at least 20% for each specific element of assessment (see the module descriptor which identifies the elements of assessment) to demonstrate a minimum engagement with the module's

assessment. If this minimum percentage threshold for an assessment is not achieved then the overall module grade will be down-graded to 19% requiring you to reattempt the assessment. Some modules may specify that a higher minimum percentage is required in each element of assessment in order for a module to be passed overall. Where this is the case, it will be stated on the module descriptor.

7.4 How to Submit Assessments

Written assignments will be submitted online through Blackboard unless exceptionally stated otherwise by the module leader. Each individual assessment will make it clear how you will be expected to submit your work. It is vital that you are clear on the submission method, date and time of each assessment as failure to submit on time via the correct method will result in a mark of zero for that assessment WITHOUT EXCEPTION.

It is important that you attempt all your assessments so that you can self-evaluate your own performance from the feedback you receive and to demonstrate to us that you are engaging with the studies and the assessment process. Failure to do so is likely to result in failure of the module overall. The award board at the end of the year will review your level performance and if modules have been failed due to non-submission / non-participation then the board may not offer referral opportunities to retrieve failed modules.

We understand that there may be occasions when you are unable to submit or undertake a piece of assessment due to circumstances beyond your control. The University has put in place a procedure for dealing with such extenuating circumstances. This process requires to provide appropriate evidence to support any claim for mitigation. You can find more information on the university's extenuating circumstances procedure at: <http://www.staffs.ac.uk/extenuating/>

7.5 Feedback on your Work

On many occasions feedback will be provided by a member of staff annotating your submitted assessment but this is not the only form of feedback. Feedback is also provided during tutorials and practical sessions as you work through formative exercises. It may also be provided by your peers in class discussions or through peer assessment during group work. Feedback on examinations and tests is also provided but may be generic or personalised depending on the module.

The University hopes that you will also play your part by ensuring that you collect feedback from the relevant sources as soon as it is available. The feedback is also designed to feedforward, i.e. to help you improve your performance on your next assessment either in the same module, on the next module in the same level or in the following level. So it is important that you use your feedback – for you to review it, understand it, reflect on it and apply it. To help you maximise the benefit

of your feedback you can discuss specific feedback with module tutors and your personal tutor.

You will normally receive feedback on all your assessments within 20 working days following the date of submission of your assessment or actual date of the assessment (in the case of class tests). However, it may be the case that the 20 day rule for some assessments cannot be met for justified reasons (for example, modules on which a large number of students are enrolled). However, it is anticipated that this will apply to only a small number of modules on your course and, in those cases, the feedback return period will not exceed 25 days. The anticipated feedback return times for all assessments will be published in your module handbooks.

In order to ensure that feedback is provided within 20 days, in most cases, the marks for your work will be provisional and will be subject to second marking and final ratification by the external examiner and the appropriate Assessment Board at the end of the year.

7.6 External Examiners Appointed to your Course

External Examiners help the university to ensure that the standards of your course are comparable to those provided by other universities or colleges in the UK. An External Examiner, a subject academic from another UK University or College is allocated to each module and they sample verify the marking on modules at the end of the year. More information on the role performed by External Examiners can be found at: www.staffs.ac.uk/externalexaminers/

The External Examiner for your course is:

Name: Dr Martyn Parker

Position: Teaching Fellow in Mathematics, School of Computing and Mathematics

Institution: Keele University

It is not appropriate for you to make direct contact with your External Examiner. External Examiners will not respond to any direct communication from a student.

8. Extra Costs

All students are expected to provide their own stationary and may purchase recommended textbooks (our library does have relevant hard-copy and digital learning materials that can be accessed to support your learning on the course). Beyond this, your Mathematics course does not require you to purchase any specialist equipment, clothing, consumables nor attend visits which might cause you to incur additional costs.

9. Communication

In most cases, if a member of the course team needs to contact you they will do so via email using your *University email account*. It is important that you check your university email account regularly as important information is sent to this account.

Course/Module specific information may also be communicated via Blackboard and again it is important that you regularly log in to check for updated information.

If you have a query about **anything** then the first point of contact should be the relevant member of the course. The mathematics and statistics staff have an open door policy and you can approach them face-to-face at any time within usual working hours, or alternatively use email to arrange an appointment if this is your preferred method.

10. Support and Guidance

On enrolment you will be allocated a Personal Tutor and you will meet them during Welcome Week or in the first teaching week. You will keep the same Personal Tutor in Levels 4 and 5. The School of Engineering Personal Tutoring Scheme requires a number of group and individual meetings during the course of the year. However, if you have any problems or queries, you should contact your Personal Tutor to discuss them, as soon as possible – don't wait for a scheduled meeting. If you undertake a placement then your visiting tutor will be your Personal Tutor for that year and at Level 6 your project supervisor is your Personal Tutor.

Your personal tutor will:

- be your first point of contact to give you advice or direct you to further support on academic and pastoral matters and University services;
- help you develop your academic skills;
- oversee your academic progress on your award including providing general feedback on your overall academic performance and help you enhance your learning by you reflecting on your feedback;
- encourage you to engage with all the opportunities the University has to offer to enhance your Staffordshire Graduate Attributes and employability;
- encourage you to give feedback to the University on your modules and in course surveys;
- be prepared, if requested, to provide written references for you.

To ensure that you get the most from your personal tutorials your course team expect you to:

- maintain regular communication with your personal tutor, attending all meetings/making contact as arranged;
- proactively contact with your personal tutor when you need help or guidance which may impact on their academic performance or pose any risk to their withdrawal or progression;
- prepare for and engage in personal tutor-related activities;

- positively respond to advice provided to resolve any issues that you have with your studies.

Throughout your course you will meet the Module Tutors at the taught sessions. If you require additional advice and guidance, please do not hesitate to contact the Module Tutors, Personal Tutor, or Course Leader.

If you have any general concerns, the Faculty Student Guidance Advisor can help you with a wide range of educational issues as well as offering specialist information and support. A drop-in service is available, but to discuss an issue in depth you can then book an appointment. Further details can be found at http://www.staffs.ac.uk/support_depts/studentguidance/advisors/.

The University offers help and support in many areas including counselling, disability, learning support agreements, equality & diversity, international students, mature students etc. Information on university support services can be found in the on-line student guide (available at: <http://www.staffs.ac.uk/student/guide>)

The Student Advice Centre run by the Student's Union provides independent, impartial and confidential advice to students free of charge. More information on the Student's Union can be found at: <https://www.staffsunion.com/>.



11. The Student Voice

During the course you will have the opportunity to share your views and opinions on your modules, Mathematics course and the university. Your feedback is key to ensuring that we get an accurate picture of what it is like to be a student at Staffordshire University and enables us to enhance the learning experience for current and future students.

In each module that you study you will have the opportunity to complete a module evaluation questionnaire and provide some feedback to help us continuously improve the classes that we deliver to you.

At levels 4 and 5 you are invited to complete the SVS (Student Viewfinder Survey) and at level 6 you will complete the NSS (National Student Survey). The SVS is conducted internally by the University, whilst the NSS is an external survey conducted across the whole of the UK. Both the SVS and the NSS measure student satisfaction.

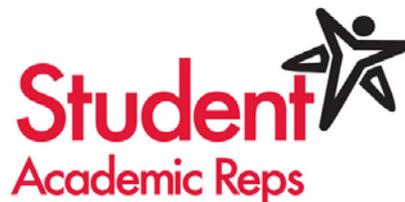
Six months after graduating you will be asked to complete the DLHE (a survey about the Destinations of Leavers from Higher Education); another external survey to collect information about graduate employment.

National Student Survey



The NSS and DLHE feed into University league tables and can be used to compare across courses and universities.

Student liaison committee meetings are held once each semester. The scheduled meetings are announced on Blackboard and students are invited to raise any points for discussion with their student representative (either in person or via a discussion board). Meeting notes are also posted on Blackboard in a dedicated course committee area. Each level is usually represented by one student who is responsible for raising your views and any issues about the course.



Your course leader will, during Welcome Week, outline how Student Representatives are arranged – if you want to volunteer to be a rep please let your course leader know.

Examples of issues raised and how we addressed them:

You said . . .	We did . . .
In some cases assessment feedback was too slow.	Improved the turnaround time for assessment feedback and on every assessment description you will be given a date by which you can expect to receive feedback.
The timetable was unclear and difficult to understand.	A clearer week-by-week timetable is now available for you to view on the Maths Course Blackboard site.
You lacked confidence and felt unprepared for presenting and producing a poster as part of the final year project.	Introduced skills sessions earlier on in the course and incorporated them into lower level modules so that you can build up your confidence in giving presentations & posters.



12. Rules and Regulations

Your course is delivered and assessed according to the University's Academic Award Regulations. These can be accessed at: <http://www.staffs.ac.uk/regulations>

Further to this, the School of Engineering awards require students to gain at least 30% in each component of assessment, and get an aggregate module mark of over 40% in order to pass a module. Module handbooks will make clear what the component of assessments are for that module. In order to qualify for an honours degree the final project module must be passed and is not able to be compensated.

Appendix A – Award Learning Outcomes

BSc (Hons) Mathematics - Learning Outcomes per Level			
Learning Outcomes	Level 4	Level 5	Level 6
Knowledge and understanding	Demonstrate knowledge and understanding of basic theories, principles and concepts relating to technology and scientific principles and their application to mathematics and statistics.	Demonstrate knowledge and most importantly <u>critical</u> understanding of scientific concepts and their application to mathematics and statistics.	Demonstrate knowledge and understanding of a broad range of topics, methods and techniques in the areas of mathematics, statistics and operational research.
Learning	Develop lines of argument and make sound judgements in accordance with basic theories and concepts.	Understand the limits of their knowledge, and how this influences analyses and interpretations based on that knowledge.	Demonstrate an understanding of assumptions and limitations of mathematical and statistical models; understand the development of a general theory and its application to specific instances.
Enquiry	Present, evaluate and interpret qualitative and quantitative data using appropriate technologies and basic techniques.	Demonstrate knowledge of the main methods of inquiry in problem solving in the field of mathematics and statistics.	Identify, research, formulate, and deploy mathematical techniques and statistical analysis to initiate and carry out quantitative investigations including projects and surveys.
Analysis	Evaluate and interpret the applicability of concepts and principles used in mathematics and statistics.	Use several established techniques to initiate and undertake critical analysis of some of the techniques required for data analysis and mathematical modelling.	Develop and critically evaluate logical arguments and assumptions, use appropriate statistical techniques to analyse data, develop mathematical models and to make judgements.
Problem solving	Evaluate the appropriateness of different approaches to solving mathematical and	Evaluate the appropriateness of different approaches to problem solving and propose solutions to problems arising from analysis.	Develop skills in abstracting the essentials of a problem, formulating them mathematically and obtaining

	statistical problems.		solutions by appropriate methods, both analytical and numerical as necessary.
Communication	Communicate results, ideas and solutions accurately and reliably.	Communicate effectively information and arguments in a variety of forms to technical and non-technical audiences alike and deploy key techniques effectively.	Present arguments, solutions, conclusions and interpret software output accurately and effectively to both technical and non-technical audiences where appropriate using mathematical notation.
Application	Apply basic knowledge of the principles and techniques required for the effective application of mathematics and statistics.	Apply underlying concepts and principles to a variety of mathematical and statistical problems. Use appropriate tools and undertake development tasks in a variety of contexts.	Apply a range of mathematical and statistical concepts and methods, showing effective judgement in the selection and application of the tools and techniques, and the use software to develop solutions where appropriate.
Reflection	Demonstrate an ability to review the processes undertaken and to see if improvements can be made.	Demonstrate transferable skills necessary for employment or further training / development of existing skills and acquisition of new competencies that will require the exercise of personal responsibility and decision-making and will enable assumption of significant responsibility within organisations.	Learn independently, exercise analytical and reasoning skills, critically evaluate solutions and demonstrate the learning ability, qualities and transferable skills necessary for employment or further study of a professional or equivalent nature.

Appendix B – Curriculum Maps

This table shows the award structure in detail, and how the 8 Learning outcomes are associated with modules.

●= Learning Outcome Assessed in this module

Code			Knowledge & Understanding	Learning	Enquiry	Analysis	Problem Solving	Communication	Application	Reflection
Level 4										
MATH40298	Personal and Academic Development	C			●	●		●		●
MATH40398	Introductory Statistics and Probability	C	●	●		●	●	●	●	
MATH40295	Mathematical Software	C	●	●		●	●	●	●	
MATH40294	Applied Mathematical Methods	C	●	●		●	●		●	
MATH40309	Mathematical Principles	C	●	●		●	●		●	
Level 5										
MATH50299	Modelling & Planning in Business	C	●	●	●	●	●	●	●	●
MATH50400	Survey Design and Statistical Inference	C	●		●	●	●	●	●	
COIS51078	Project Proposal and Professional Development	C	●					●	●	●
MATH50300	Mathematical Modelling and Operational Research	C	●	●	●	●	●	●	●	
Level 6										
MATH60310	Experimental Design and Statistical Modelling	C	●	●	●	●	●	●	●	●
MATH60311	Mathematical Methods and Fluid Mechanics	C	●	●		●	●		●	
MATH60304	Project	C	●	●	●	●	●	●	●	●
MATH60320	Simulation Modelling	C	●			●	●		●	

QAA Benchmarks

This table shows where QAA Mathematics, statistics and operational research benchmarks are achieved.

● = Benchmark achieved in this module

Code	Level 4		Understanding	Manipulation	Application	Logical argument	Formulating	Present	General Skills	Independence
MATH40298	Personal and Academic Development	C			●	●		●	●	●
MATH40398	Introductory Statistics and Probability	C	●	●	●	●	●	●	●	●
MATH40295	Mathematical Software	C	●	●	●	●	●	●	●	
MATH40294	Applied Mathematical Methods	C	●	●	●	●	●		●	
MATH40309	Mathematical Principles	C	●	●	●	●	●		●	
Level 5										
MATH50299	Modelling & Planning in Business	C	●	●	●	●	●	●	●	●
MATH50400	Survey Design and Statistical Inference	C	●	●	●	●	●	●	●	●
COIS51078	Project Proposal and Professional Development	C	●		●		●	●	●	●
MATH50300	Mathematical Modelling and Operational Research	C	●	●	●	●	●	●	●	
Level 6										
MATH60310	Experimental Design and Statistical Modelling	C	●	●	●	●	●	●	●	●
MATH60311	Mathematical Methods and Fluid Mechanics	C	●	●	●	●	●		●	
MATH60304	Project	C	●	●	●	●	●	●	●	●
MATH60320	Simulation Modelling	C	●	●	●	●	●	●	●	●

The QAA Benchmarks in full are:

- demonstrate a reasonable **understanding** of the main body of knowledge for the programme of study
- demonstrate a good level of skill in calculation and **manipulation** of the material within this body of knowledge
- apply a range of concepts and principles in loosely-defined contexts, showing effective judgement in the selection and **application** of tools and techniques
- develop and evaluate **logical arguments**
- demonstrate skill in abstracting the essentials of problems, **formulating** them mathematically and obtaining solutions by appropriate methods
- **present** arguments and conclusions effectively and accurately
- demonstrate appropriate **general skills**
- demonstrate the ability to work professionally with a degree of **independence**, seeking assistance when needed.

Further information concerning the QAA for Mathematics, Statistics and Operational Research can be found at

<http://www.qaa.ac.uk/en/Publications/Documents/Subject-benchmark-statement-Mathematics-statistics-and-operational-research.pdf>

Appendix C – The Staffordshire Graduate Characteristics

The Staffordshire Graduate represents a set of qualities that the University passionately believes is necessary for success in the 21st century. The Staffordshire Graduate is a reflective and critical learner with a global perspective, prepared to contribute in the world of work.

The table below indicates where, within your award, these characteristics are addressed:

AWARD TITLE:	Mathematics and Statistics	
Characteristic	Award Module(s) including level and number of credits	Method of Assessment
Work-ready and employable	Level 4 - Mathematical Software (30 credits)	Develops skills in analysis, computer literacy, and group working – assessed via group work preparation of spreadsheet model to fit a given case study, spreadsheet model adaptation/enhancement under test conditions and an individual report
	Level 5 –Project Proposal and Professional Development (15 credits)	Develops knowledge and skills in career planning and development – portfolio of work
	Level 6 – Project (30 credits)	Requires students to demonstrate organisation, awareness of ethics, risk assessment, time management, problem formulation, problem solving, structured writing and oral presentation - Individual project plan, log book, project report, and oral presentation
Understanding of enterprise and entrepreneurship	Level 5 – Project Proposal and Professional Development (15 credits)	Portfolio of work covering professional and ethical issues; communication and teamwork theory; enterprise and entrepreneurship
	Level 5 - Modelling and Planning in Business (30 credits)	Students will meet financial calculations including net present value, as well as decision making and forecasting techniques – class test
	Level 6 – Project (30 credits)	Requires students to demonstrate organisation, awareness of ethics, risk assessment, time management, problem formulation, problem solving, structured writing and oral presentation - Individual project plan, log book, project report, and oral presentation
Understanding of global issues and their place in the global economy	Level 5 - Modelling and Planning in Business (30 credits)	Virtual share trading assignment requires an appraisal of the global market conditions prevailing throughout the duration of the project and a reflection of how these impacted on the student's trading decisions – assignment
	Level 5 – Project Proposal and Professional Development (15 credits)	Portfolio of work covering professional and ethical issues; communication and teamwork theory; enterprise and entrepreneurship
Communication skills	Level 4 – Personal and Academic Development (15 credits)	Group presentation and Individual report <u>Group work</u> requires students to work with people they do not initially know, understand the team roles and how to deal with conflict within teams, work with their group to effectively perform a presentation. Effective communication skills are

		<p>developed.</p> <p>The <u>Individual</u> written section of the assessment involves researching, referencing, academic writing and reflection- all essential skills for the Staffordshire graduate.</p>
	<p>Level 5 - Survey Design and Statistical Inference</p> <p>(30 credits)</p>	<p>Students are required to analysing a sample of data and write a report detailing the analysis, results & conclusions, communicating them in a way that non-statisticians will understand.</p>
	<p>Level 6 – Project</p> <p>(30 credits)</p>	<p>Requires students to demonstrate skills in structured writing and oral presentation Individual project plan, log book, project report, and oral presentation</p>
Presentation skills	<p>Level 4 – Personal and Academic Development</p> <p>(15 credits)</p>	<p>Group presentation – involves undertaking a formal presentation. Each student to participate and be able to articulately answer questions posed. Assessed on quality of researched information, quality of slides and presentation skills such as audience engagement.</p>
	<p>Level 5 - Mathematical Modelling and Operational Research</p> <p>(30 credits)</p>	<p>Peer-assessed group presentation</p>
	<p>Level 6 – Project</p> <p>(30 credits)</p>	<p>Presentation</p>
The ability to interact confidently with colleagues	<p>Level 4 – Personal and Academic Development</p> <p>(15 credits)</p>	<p>Students are required to work and give presentations in groups. Groups are randomly generated so students will be working with people they do not know, they have to organise meetings, organise content of the presentation and solve problems involved with group working. The life-cycle of the group needs to be understood. Also why Conflict arises and methods to overcome the conflict. Team work is needed to succeed in this assessment.</p>
	<p>Level 5 - Mathematical Modelling and Operational Research</p> <p>(30 credits)</p>	<p>Develops skills in team working – peer-assessed group presentation</p>
	<p>Level 5 – Project Proposal and Professional Development</p> <p>(15 credits)</p>	<p>Group discussions and development to inform coursework.</p>
Independence of thought	<p>Level 4 - Personal and Academic Development</p> <p>(15 credits)</p>	<p>Students are required to investigate their individual learning styles/strengths and weaknesses and create an action plan for self-improvement. Students are asked to reflect on their learning styles and how they can use the information gained to their best advantage.</p>
	<p>Level 5 – Survey Design and Statistical Inference</p> <p>(30 credits)</p>	<p>Research is required in order to plan to conduct a survey on a large scale to measure attitude or opinion. The students must make informed decisions as to which sampling strategy is most</p>

		appropriate and devise a questionnaire that will allow for use of a suitable scaling method.
	Level 6 – Project (30 credits)	Demonstrate planning and investigative skills assessed via project plan; log book; project report and oral presentation
Skills of teamworking	Level 4 - Introductory Statistics and Probability (30 credits)	A group presentation involving the collection, presentation, analysis of data and communication of results in the presentation. Each member of the team making a contribution to the oral presentation. Powerpoint slides produced would be submitted for assessment.
	Level 5 – Mathematical Modelling and Operational Research (30 credits)	Peer-assessed group presentation
	Level 5 - Professional and Enterprise Development (15 credits)	Group discussions and development to inform coursework; Group presentation
Ability to carry out inquiry-based learning and critical analysis	Level 4 – Introductory Statistics and Probability (30 credits)	This is an individual assignment consisting of several short tasks analysing data based on a quality control scenario. Students will need to determine and generate appropriate control charts, comment on what the charts reveal and give recommendations to a fictitious company in the form of a written report.
	Level 5 – Survey Design and Statistical Inference (30 credits)	Research is required in order to plan to conduct a survey on a large scale to measure attitude or opinion. The students must make informed decisions as to which sampling strategy is most appropriate and devise a questionnaire that will allow for use of a suitable scaling method.
	Level 6 – Project (30 credits)	Requires students to demonstrate problem formulation, problem solving, and critically reflect on the project process - project report and oral presentation
Skills of problem solving and creation of opportunities	Level 4 – Applied Mathematical Methods (30 credits)	Develops skills in a range of concepts; use of software for problem solving – individual assignment work and traditional test/examination
	Level 5 – Mathematical Modelling and Operational Research (30 credits)	Develop generic skills in data gathering, model formulation – group & individual report; application and analysis using OR models under test conditions
	Level 6 – Project (30 credits)	Requires students to demonstrate problem formulation and problem solving- project report and oral presentation
Technologically, digitally and information	Level 4 - Mathematical Software (30 credits)	Preparation of a spreadsheet model to fit a given case study, adaptation/enhancement under test conditions

literate	Level 5 - Mathematical Modelling and Operational Research (30 credits)	Develops generic skills in data gathering, model formulation and use of software for problem solving. Group and individual reports, oral presentation
	Level 6 - Differential Equations and Fluid Mechanics (30 credits)	Use of software to develop skills in a range of advanced concepts in a specialised area Individual assignment work as well as traditional test/exam
Able to apply Staffordshire Graduate attributes to a range of life experiences to facilitate life-long learning	Level 4 - Personal and Academic Development (15 credits)	The students is required to write a report which documents the different tests or exercises available to assess their individual skills and learning type, including skills mapping, skills audits, learning styles and goal setting. The students use the information gathered about their skills to produce development plans. The content of this module is about self-assessment, working with others, and continuous individual development.
	Level 5 – Project Proposal and Professional Development (15 credits)	Discusses career planning and development, professional issues and reflects on personal development – portfolio of works.
	Level 6 – Project (30 credits)	Encourages life-long transferable skills in organisation, awareness of ethics, risk assessment, time management, problem formulation, and problem solving - Individual project plan, log book, project report, and oral presentation