



**UNDERGRADUATE
HANDBOOK
SUPPLEMENT**

For Students entering Year 4 of courses in

2022/2023

**Department of
Mathematics and Statistics**

Department of Mathematics and Statistics Pre-registration for 3rd Year Students intending entering 4th Year in 2022/23

March 2022

This document is for 3rd year students registered for BSc/MMath degrees in Mathematics and Statistics or BA joint degrees with Mathematics/Statistics as the second principal subject.

You should have received (or will receive soon) from Student Experience and Enhancement Services (SEES) an announcement via Pegasus asking you to pre-register for Honours classes on-line via Pegasus.

Attached is a list of final honours (fourth) year classes and details of how many credits you must choose. You may want to arrange a meeting with your Personal Development Adviser (PDA) to discuss your choice of classes for next year.

Please note that pre-registering for Honours classes is distinct from, and unrelated to, being allowed to progress to Honours. Decisions about the latter process are taken by the Board of Examiners after the third year exam results are known. See Progress section on pages 6 - 7.

Pre-registering does not commit you to a set of classes, changes can be made up to the end of the second week of the relevant semester.

To pre-register for Year 4 of a joint degree via Pegasus you must select a project code before you have selected or been allocated a project. Please select from the appropriate lists below the project code that reflects your personal preference and then select your other class codes and enter all these codes into Pegasus for processing.

Projects

All students in 4th year of the BSc or MMath Mathematics-based degrees must undertake an element of project work. In the Department of Mathematics and Statistics, this is the 20-credit class MM401 Communicating Mathematics and Statistics.

- This class is compulsory for all students registered on 4th year of the BSc/MMath courses in Mathematics and Statistics.
- Students registered on 4th year of the joint BSc degrees (i.e. Mathematics and Physics, Mathematics and Computer Science or Mathematics, Statistics and a Business Subject) can either take MM401 or elect to do project work in the external department (see individual degree regulations for details).
- MM401 will run in both semesters: students should attend the class in the semester which balances their overall credit loading.

- Information about how project topics are allocated will be provided in due course. Please note that the assessment of this class includes a presentation. A provisional assessment mark will be provided when available but will not be released on Pegasus until May/June.
- Other details of the class can be found in the University Class Catalogue: <http://but.mis.strath.ac.uk/classcatalogue/>

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The contents of this booklet are, as far as possible, up to date and accurate at the date of publication.

Changes and restrictions are, however, made from time to time and the University reserves the right to add to, amend, or withdraw classes, courses and facilities, to restrict student numbers and to make any other alterations as it may deem desirable and necessary. Changes are published by incorporation in the next edition of the University Regulations.

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CALENDAR OF DATES 2022/2023

Welcome and Development Week	Monday 12 September — Friday 16 September 2022
Semester 1 Teaching	Monday 19 September – Friday 2 December 2022 PLEASE NOTE THAT MONDAY 26 SEPTEMBER IS A LOCAL HOLIDAY AND THE UNIVERSITY IS CLOSED)
Semester 1 Examinations	Monday 5 December – Friday 16 December 2022
Consolidation and Development Week	Monday 9 January – Friday 13 January 2023
Semester 2 Teaching	Monday 16 January – Friday 31 March 2023
Semester_2 Examinations	Monday 17 April – Friday 19 May 2023 PLEASE NOTE THAT THE UNIVERSITY IS CLOSED ON FRIDAY 7 APRIL, MONDAY 10 APRIL AND MONDAY 1 MAY 2022
Honours Examination Board	June 2023 (DATE TO BE CONFIRMED)

See: <https://www.strath.ac.uk/keydates/2022-23/>

This Undergraduate Handbook Supplement for Year 4 has two aims:

- (1) to give you the information you need about our degree courses;
- (2) to offer advice on who to contact in the Department of Mathematics and Statistics and in associated departments.

It covers the structure of Year 4 of the degree courses. For general information about how we teach and how you should learn, examinations and assessment, how to express your views to us and to ask us for help see the Undergraduate Handbook.

THE DEPARTMENT'S WEB SITE

For the Department of Mathematics and Statistics the home page is at:

<http://www.strath.ac.uk/science/mathematicsstatistics/>

Information on individual classes and other useful information can be found on the Course Page, Mathematics and Statistics: Information for current students on MyPlace.

<http://classes.myplace.strath.ac.uk/course/view.php?id=20348>

The Fourth Year Adviser of Studies for the BSc and MMath degrees in Mathematics, Mathematics and Statistics, Mathematics and Computer Science, Mathematics and Physics, Mathematics with Teaching, Mathematics Statistics and Accounting, Mathematics Statistics and Economics, Mathematics Statistics and Finance, and Mathematics Statistics and Management Science, and Data Analytics

David Young [LT826, extension 3806, email david.young@strath.ac.uk];

For BA Joint degrees the Fourth Year Adviser is

Alison Gray [LT830, extension 4335, email a.j.gray@strath.ac.uk].

Final Year Arrangements

The co-ordination of the final year of the various degrees is in two parts:

David Young oversees Group A degrees and Alison Gray oversees Group B degrees, as listed below:

Group A: BSc in

Mathematics
Mathematics and Statistics
Mathematics and Computer Science
Mathematics and Physics
Mathematics with Teaching
Mathematics/Statistics/Accounting
Mathematics/Statistics/Economics
Mathematics/Statistics/Finance
Mathematics/Statistics/Management Science
Data Analytics
MMath in Mathematics
MMath in Mathematics and Statistics

Group B: BA joint degrees in

Accounting/Mathematics/Statistics
Economics/Mathematics/Statistics
Finance/Mathematics/Statistics
Management Science/Mathematics/Statistics
Psychology/Mathematics/Statistics

Progress to Fourth Year BSc/MMath degrees and BA joint degrees with Mathematics/Statistics

In order to proceed to the fourth year of a degree course involving Mathematics or Statistics a student must normally have accumulated no fewer than 360 credits from the course curriculum and must have achieved a level of performance gained at the first attempt that is acceptable to the Head of Department. Joint BA students, in addition, must have permission to proceed from both their department and Alison Gray.

The level of performance required for progressing into Year 4 is for a Honours student: a credit weighted average of at least 40% in Level 3 classes obtained at the first attempt; for a MMath student: a credit weighted average of at least 60% in Level 3 classes obtained at the first attempt.

A student who fails to achieve the standard indicated above shall be transferred by the examination Board to a lower degree course and either awarded a degree or placed in Academic Suspension.

Fourth Year Curriculum: Classes selected from approved lists, together with a project. Generally, the classes will amount to 100 credits and the project will have a value of 20 credits. (There are exceptions as some projects are 40 credits – see note on selection of classes).

Please note that students wanting to follow a Mathematics and Statistics degree need to formally request a transfer via the Fourth Year Adviser and this should be done as soon as possible after the end of Third Year. Students who do not transfer or who request transfer late, may have difficulty being accepted onto the degree because of staffing and timetabling constraints.

Assessment for BSc with Honours will be based on performance in level 3 and level 4 classes at their first attempt (including any final year project or dissertation). The Final Honours Classification mark is $(m \times L3 + 3n \times L4) / (m + 3n)$ where m and n are the number of Level 3 and Level 4 credits, respectively, L3 is your Level 3 credit weighted average mark and L4 is your overall Level 4 average (including your project mark). For many BSc degrees this simplifies to $(L3 + 3 \times L4) / 4$.

BA joint degree students should consult their Business/HaSS Adviser.

The Departmental Examination Co-ordinator is:

Sandra Miller (LT914, extension 3598)

Students with approved Special Examination Needs should speak to the Departmental Disability Contact: Sandra Miller.

Undergraduate Joint Degree Liaison:

CIS & Physics – Dr David Bevan

Business School – Dr Alex Wray

Education – Dr Matthias Langer

Personal Mitigating Circumstances Affecting Performance

Students whose performance has been, or will be, affected by circumstances that are acute, severe and outside their control should inform the University as soon as they are aware of these circumstances, by recording them on PEGASUS under 'Personal Circumstances' and submitting supporting evidence as soon as such evidence is available. Where it is felt that further detail is required or clarity can be added, students may also complete and submit a Personal Circumstances Form <http://www.strath.ac.uk/staff/policies/academic/>

When a student's performance in examination(s) or other assessment(s) is affected, Personal Circumstances should be notified to Student Business within five working days of the latest affected examination/assessment or date of submission of affected assessment.

Information that you submit is kept confidential to the examiners; in most cases the details are made available only to the External Examiners and the Chair of the Examination Board. If you have any concerns about the confidentiality of the information that you wish to submit, please come and discuss this with the Head of Department or your Year Co-ordinator.

Where an entire semester or examination diet is affected a Personal Circumstances Form should be submitted as soon as possible and at least one working day before the relevant meeting of the Personal Circumstances Board. In no case can a notification of Personal Circumstances be accepted after the Personal Circumstances Board has met.

Further information can be found on the [Academic Policies & Procedures](#) web page and at the following link: <http://www.strath.ac.uk/staff/policies/academic/>

Final Honours – Selection of Classes: BSc involving Mathematics

Group A degrees

Codes for projects and credits

To pre-register for Year 4 of a joint degree on Pegasus you must select a project code before you have been allocated a project. Please select the project code that reflects your personal preference and then select your other class codes.

Any subsequent change in code for your project will be made in October.

BSc Mathematics and MMath in Mathematics

Curriculum consists of 120 credits including 20 credits from the compulsory class

MM401 Project (Communicating Mathematics and Statistics)

and classes amounting to at least 100 credits from the list of Mathematics and Statistics classes.

BSc Mathematics and Statistics and MMath in Mathematics and Statistics

Curriculum consists of 120 credits including 20 credits from the compulsory class

MM401 Project (Communicating Mathematics and Statistics)

and at least 100 credits from the list of Mathematics and Statistics classes. Students must include at least 120 credits of Statistics classes from third and fourth years and at least 40 credits from Level 4 Mathematics classes.

BSc Mathematics and Computer Science

Curriculum consists of 120 credits including one of the following projects/dissertations

MM401 Project (Communicating Mathematics and Statistics) 20

Or

CS408 Project (Computer Science) 40

and no fewer than 40 credits in each subject chosen from the approved class lists.

Computer and Information Sciences Department contact: Dr Sotirios Terzis
(sotirios.terzis@strath.ac.uk)

BSc in Mathematics and Physics

Curriculum consists of 120 credits including one of the following projects/dissertations

MM401 Project (Communicating Mathematics and Statistics) 20

Or

PH450 Project (Physics) 40

and no fewer than 40 credits in each subject chosen from the approved class lists.

Physics Department contact: Dr Ben Hourahine (Benjamin.hourahine@strath.ac.uk)

BSc in Mathematics, Statistics and Accounting/Economics/Finance/Business Analysis

Curriculum consists of 120 credits including one of the following projects/dissertations

MM401 (Mathematics and Statistics) (20 credits)

AG435 (Accounting) (40 credits)

EC419 (Economics) (20 credits)

AG436 (Finance) (40 credits)

MS424 (Business Analysis) (40 credits)

In addition at least 100 credits from the Maths/Stats/Business classes which must include at least 40 credits in the appropriate Business subject, and 20 credits in each of Mathematics and Statistics classes.

Departmental contacts:

Dr Julia Smith (julia.smith@strath.ac.uk)	(Accounting)
Dr Marco Fongoni (marco.fongoni@strath.ac.uk)	(Economics)
Dr Chandra Thapa (chanda.thapa@strath.ac.uk)	(Finance)
Dr Fahim Ahmed (fahim.ahmed@strath.ac.uk)	(Management Science)

Group B degrees

BA Joint Honours degrees involving Mathematics/Statistics

The curriculum consists of 120 credits including a project/dissertation in either Mathematics/Statistics or the appropriate Business/HaSS subject, together with at least 40 (60 for HaSS joint degrees) credits in Mathematics/Statistics classes (see list on following page) and the credit requirements as specified for the appropriate Business/HaSS subject.

Department of Mathematics and Statistics

Final honours degrees involving Mathematics and Statistics

PLEASE NOTE THAT PEGASUS MAY HAVE THE WRONG SEMESTER INFORMATION - ONLY USE THIS DOCUMENT WHEN SELECTING YOUR CLASSES.

Final Year Classes in Mathematics and Statistics

Semester 1

MM401	Communicating Mathematics and Statistics (project)
MM402	Modelling and Simulation with Applications to Financial Derivatives
MM403	Applicable Analysis 3
MM404	Statistical Modelling and Analysis
MM405	Fluids and Waves
MM406	Finite Element Methods for Boundary Value Problems and Approximation

Semester 2

MM401	Communicating Mathematics and Statistics (project)
MM407	Applied Statistics in Society
MM408	Mathematical Biology and Marine Population Modelling
MM409	Mathematical Introduction to Networks
MM415	Medical Statistics

Outlines of Fourth Year Classes in Mathematics and Statistics

For further information on the content of the classes listed below, please refer to the document **Third and Fourth Year Mathematics and Statistics Classes – Additional Information on Class Content**. This can be found on the **Course Page, Mathematics and Statistics: Information for current students on MyPlace**.

<http://classes.myplace.strath.ac.uk/course/view.php?id=20348>

MM401 Communicating Mathematics and Statistics

Summary: To provide students with experience of the skills required to undertake project work, and to communicate the findings in written and oral form using a variety of sources, such as books, journals and the internet.

Prerequisites: None. .

Timetable: 8 lectures, 192 hours of self study in the relevant semester.

Assessment: Report (70%), presentation (30%).

Reading List:

Higham N.J., Handbook of Writing for the Mathematical Sciences (SIAM 1998 Second edition). ISBN 0-89871-420-6).

Rozakis, L.E., Presentation Skills (Alpha books (part of Macmillan). ISBN 0-02-861038-5)

Treacy, D., Successful Time Management (Hodder & Stoughton). ISBN 0-340-70547-7).

MM402 Modelling and Simulation with Applications to Financial Derivatives

Summary: An introduction to ideas in mathematics and statistics that can be used to model real systems, with an emphasis on the valuation of financial derivatives. The class places equal emphasis on deterministic analysis (calculus, differential equations) and stochastic analysis (Brownian motion, birth and death processes). In both cases, in addition to theoretical analysis, appropriate computational algorithms are introduced. The first half of the class introduces general modelling and simulation tools, and the second half focuses on the specific application of valuing financial derivatives, including the celebrated Black-Scholes theory.

Prerequisites: MM302. Background material in calculus and in statistics will be introduced where necessary.

Timetable: 44 lectures, 10 tutorials in Semester 1.

Assessment: 3 hour examination (100%).

Reading List:

Renshaw, E., *Stochastic Population Processes: Analysis, Approximations, Simulations*, Oxford University Press, 2011. ISBN: 978-0-19-957531-2.

Higham, D.J., *An Introduction to Financial Option Valuation*, Cambridge University Press, 2004. ISBN: 0521547571.

MM403 Applicable Analysis 3

Summary: To present the main results in Functional Analysis, give an introduction to linear operators on Banach and Hilbert spaces and study applications to integral and differential equations.

Prerequisites: MM303.

Timetable: 40 lectures and 10 tutorials in Semester 1.

Assessment: 3 hour examination (100%).

Reading List:

Rynne, B.P. & Youngson, M.A., *Linear Functional Analysis*" (2nd Edition) (Springer).

MM404 Statistical Modelling and Analysis

Summary: To provide students with a range of applied statistical general linear modelling techniques that can be used in professional life for the analysis of univariate and multivariate data.

Prerequisites: Essential: MM204. Desirable: MM304.

Timetable: 36 lectures and 24 computer laboratory sessions in Semester 1.

Assessment: Each topic will be assessed at the end of the teaching block. Assessments will consist of written exams, projects or computer lab exams with a minimum of 50% of the course assessed under exam conditions.

Reading List:

Gardiner, W. & Gettinby, G. *Experimental Design Techniques in Statistical Practice: A Practical Software Approach*, Horwood. ISBN: 1898563357.

Hicks, C.R. *Fundamental Concepts in the Design of Experiments*, Oxford University Press. ISBN: 0195105818.

Ledolter, J. *Data Mining and Business Analytics with R* (2013), Wiley-Blackwell. ISBN-10: 111844714X, ISBN-13: 978-1118447147;
<http://www.biz.uiowa.edu/faculty/jledolter/DataMining/>.

Cox, T. F. *An Introduction to Multivariate Data Analysis* (2009), 2nd Edition, John Wiley & Sons. ISBN-10: 0470689188, ISBN-13: 978-0470689189.

Everitt, B.S. and Dunn, G. *Applied Multivariate Data Analysis* (2010), 2nd Edition, Wiley. ISBN-10: 0470711175, ISBN-13: 978-0470711170.

MM405 Fluids and Waves

Summary: To introduce the theory of Newtonian fluids and its application to flow problems. To introduce the dynamics of waves on water and in other contexts.

Prerequisites: Essential: MM302; MM305.

Timetable: 44 lectures and 11 tutorials in Semester 1.

Assessment: 3 hour examination (100%).

Reading List:

Acheson, D.J., *Elementary Fluid Mechanics* (Oxford University Press, 1990). ISBN: 0198596790. Library location: D532.05 ACH.

Billingham, J. & King, A.C., *Wave Motion* (Cambridge University Press, 2000). ISBN: 0521634504. Library location: D531.1133 BIL.

Whitham, G.B., *Linear and Nonlinear Waves*, Wiley-Interscience, 1974. ISBN: 0-471-94090-9. Library location: D531.1133 WHI.

MM406 Finite Element Methods for Boundary Value Problems and Approximation

Summary: This class aims to present the student with the basic theory and practice (as in computational implementation) of finite element methods and polynomial and piecewise polynomial approximation theory.

Prerequisites: MM201; MM202; MM302.

Timetable: 44 lectures, 10 tutorials in Semester 1.

Assessment: 3 hour examination (100%).

Reading List:

Johnson, C., Numerical Solution of Partial differential equations by the finite element method. Dover, 2009. ISBN: 0486469003.

Ern, A. & Guermond, J.L., Theory and practice of finite element methods, Springer, 2004. ISBN: 144191918X.

Rivlin, T.J., An Introduction to the Approximation of Functions, Dover, 2010. ISBN: 0486640698. Library Location: D515.7 RIV.

MM407 Applied Statistics in Society

Summary: To introduce students to a range of modern statistical methods and practices used in industry, commerce and research, and to develop skills in their application and presentation.

Prerequisites: MM204. **Desirable:** MM206, MM304.

Timetable: 32 lectures and 23 computer laboratories in Semester 2.

Assessment: Each topic will be assessed at the end of the teaching block. Assessments will consist of written exams, projects or computer lab exams with a minimum of 50% of the course assessed under exam conditions.

Reading List:

** Vose, D., *Risk Analysis: A Quantitative Guide*, John Wiley & Sons; 3rd Edition. ISBN: 0470512849/978-0470512845.

* Scheaffer, W., Mendenhall, & Ott, L. *Elementary Survey Sampling*, Brooks Cole, 6th Edition. ISBN 0495018627/978-0495018629.

* Barnett, V., *Sample Survey Principles and Methods*, Edward Arnold, 3rd Edition. ISBN 0470685905/978-0470685907.

* de Leeuw, E.D., Hox, J.J. & Dillman, D.A., *International Handbook of Survey Methodology*, Taylor and Francis, 2008. ISBN 0-8058-5753-2.

MM408 Mathematical Biology and Marine Population Modelling

Summary: This course will teach the application of mathematical models to a variety of problems in biology, medicine, and ecology. It will show the application of ordinary differential equations to simple biological and medical problems, the use of mathematical modelling in biochemical reactions, the application of partial differential

equations in describing spatial processes such as cancer growth and pattern formation in embryonic development, and the use of delay-differential equations in physiological processes. The marine population modelling element will introduce the use of difference models to represent population processes through applications to fisheries, and the use of coupled ODE system to represent ecosystems. Practical work will include example class case studies that will explore a real-world application of an ecosystem model.

Prerequisites: MM302.

Timetable: 40 lectures and 10 tutorials in Semester 2.

Assessment: 3 hour examination (100%).

Reading List:

Murray, J.D., *Mathematical Biology 1: An Introduction* (Springer). D574.074 MUR. ISBN: 0387952233.

Murray, J.D., *Mathematical Biology. II Spatial Models and Biomedical Applications* (Springer). D574.0724MUR. ISBN: 0387952284.

Britton, N.F., *Essential Mathematical Biology* (Springer). D574.0724 BRI. ISBN: 185233536X.

Edelstein-Keshet, L., *Mathematical Models in Biology* (Birkhauser). 0574.0724 EDE. ISBN: 0394355075.

Gurney, W.S.C. & Nisbet, R.M., *Ecological Dynamics* (OUP). 0628 GUR. ISBN: 0195104439.

MM409 Mathematical Introduction to Networks

Summary: To demonstrate the central role network theory plays in mathematical modelling. To show the intimate connection between linear algebra and graph theory and to use this connection to develop a sound theoretical understanding of network theory. To apply the theory as a tool for revealing structure in networks.

Prerequisites: MM201.

Timetable: 40 lectures, 6 tutorials and 8 computer laboratory sessions in Semester 2.

Assessment: 2 hour examination (75%) and continuous assessment (25%).

Reading List:

Estrada, E., *The Structure of Complex Networks*. Oxford University Press, 2011. ISBN: 978-0-19-959175-6.

MM415 Medical Statistics

Summary: The course is taught as a mix of lectures and computer labs using the statistical analysis packages Minitab, R Studio and SPSS. Topics covered include survival analysis, experimental design (including clinical trials, cross-over designs and placebo controlled trials), sampling and observational studies (including cohort, cross-sectional and case/control studies), categorical data analysis, power and sample size computations, non-parametric hypothesis tests, control charts and methods for analysing clinical measurements e.g. ROC curves for diagnostic testing and the construction of reference ranges. Many of the statistical methods build on ideas from MM204 but tailor the methods to suit medical type data which can be less robust than data generated from more controlled scientific studies.

Pre-requisites: MM204 (Essential); MM304 (Desirable).

Timetable: 30 lectures and 20 computer laboratory sessions in Semester 2.

Assessment: The class is assessed by a computer lab test.

Reading List:

Bland, M.J. *An Introduction to Medical Statistics*, Oxford Medical Publications, 3rd Edition. ISBN: 0192632698/978-0192632692.

Kirkwood, B. & Sterne, J. *Essential Medical Statistics*, Wiley-Blackwell, 2nd Edition. ISBN: 0865428719/978-0865428713.

Altman, D.G. *Practical Statistics for Medical Research*, Chapman and Hall/CRC. ISBN: 0412276305/978-0412276309.

Department of Computer and Information Sciences

Final Year Options: 2021-2022

Class Code	Class Title	Semester	Credits
CS409	Software Architecture and Design	1 & 2	20
CS410	Advanced Functional Programming	1 & 2	20
CS411	Theory of Computation	1 & 2	20
CS412	Information Access and Mining	1 & 2	20

Most of the teaching for above classes occurs in Semester 1 and they are examined in Semester 2.

Up to date details can be found at:

<https://local.cis.strath.ac.uk/wp/teaching/undergraduate/>

Department of Physics

Final Year Options: 2021–2022

Class Code	Class Title	Semester	Credits
PH452	Topics in Physics	2	20
PH453	Topics in Solid State Physics	1	20
PH454	Topics in Nanoscience	1	20
PH455	Topics in Photonics	1	20
PH456	Topics in Complex Systems in Physics	2	20
PH457	Topics in Theoretical Physics	2	20
PH458	Topics in Quantum Physics	1	20
PH459	Topics in Atomic, Molecular and Nuclear Physics	2	20
PH462	Topics in Quantum Optics	1	20

Up to date details can be found at:

<http://www.strath.ac.uk/science/physics/currentstudents/curriculum/>

Department of Accounting and Finance

Final Year Classes in Accounting: 2021-2022

Class Code	Class Title	Semester	Credits
AG415	Contemporary Issues in International Financial Reporting	1	20
AG419	Accounting and Risk	1	20
AG424	Accounting Theories	1	20
AG409	Sustainability Accounting: Theory and Practice	2	20
AG416	Management Accounting Theory and Practice	2	20
AG420	Auditing Theory and Practice	2	20

Please note that all classes may not operate every year and semesters may vary.

Up to date details can be obtained from the Department of Accounting and Finance

Department of Accounting and Finance

Final Year Classes in Finance: 2021-2022

Class Code	Class Title	Semester	Credits
AG429	Behavioural Finance	1	20
AG430	Corporate Financing	1	20
AG432	Financial Quantitative Methods	1	20
AG426	Advanced Derivatives	2	20
AG428	Asset Pricing	2	20
AG431	Corporate Investment	2	20
AG434	International Financial Management	2	20

Please note that all classes may not operate every year and semesters may vary.

Up to date details can be obtained from the Department of Accounting and Finance

Department of Economics

Final Year Classes in Economics: 2021-2022

Class Code	Class Title	Semester	Credits
EC412	Industrial Economics	2	20
EC413	Applied Econometrics	2	20
EC415	Behavioural Economics	2	20
EC416	Natural Resource, Environmental and Energy Economics	2	20
EC420	Labour Economics	2	20
EC421	Advanced Microeconomics	1	20
EC422	Advanced Macroeconomics	1	20

Up to date details can be obtained from the Department of Economics.

Department of Business Analysis

Final Year Classes in Business Analysis: 2021-2022

Class Code	Class Title	Semester	Credits
MS415	Business Process Integration with ERP	1	20
MS416	Business Analytics Using Data Mining	1	20
MS420	Management Science 4	2	20
MS422	Risk Analysis and Management	2	20
MS426	Contemporary Business Technology	1	20

Please note that all classes may not operate every year and semesters may vary.

Up to date details can be obtained from the Department of Business Analysis

Prizes

Astronomical Society of Glasgow Prize

Awarded to the most distinguished student in the final year of a BSc Honours course in Mathematics. Alternates with Physics. Awarded by the Department of Mathematics and Statistics in even years (and the Department of Physics in odd numbered years).

Sir Hermann Bondi Prize

Awarded to a student of Mathematics who displays originality or excellence and skill in presentation of a sufficiently high order in the Final Honours project.

Walter Brown Prize

Founded in 1957 by the Trustees of the late Professor Walter Brown. Awarded annually to a meritorious student in the final year of a BSc Honours course in Mathematics.

Kelvin Prize

Awarded to a meritorious student in the final year of a BSc Honours course in Mathematics.

Frank Leslie Prize

Founded in 2000 in memory of the late Professor Frank Leslie, FRS. Awarded annually to a meritorious student in the final year of the BSc Honours course in Mathematics and Physics.

Two IMA Prizes (Note that these are not official University Prizes listed in the University Calendar)

Membership of the IMA for one year for two distinguished students in the final year in the Department of Mathematics and Statistics. Note that the prize is restricted to students on IMA accredited degrees, i.e. BSc/MMath Mathematics, BSc Mathematics and Statistics, BSc Mathematics with Teaching.

Gary Roach Prize

Founded in 2012 in memory of the late Professor Gary Roach. Awarded annually to a meritorious student in the final year of a BSc Honours course who has demonstrated excellence in Mathematical Analysis.

Royal Statistical Society Prize

Each year, the Society awards a prize to the best student on an accredited degree course, as nominated by the university. The prize is a year's free membership of the Society and a formal certificate of achievement.