ROINN NA MATAMAITICE AGUS NA STAITISTICE

DEPARTMENT OF MATHEMATICS & STATISTICS

STUDENT HANDBOOK

2021/2022

Ollscoil Mhá Nuad, Má Nuad, Co. Chill Dara, Éire.

CONTENTS

INTRODUCTION

Welcome to the Maynooth University Department of Mathematics and Statistics. We are normally located in Logic House at the southern end of the South (old) Campus. We hope you find this handbook of some help to you. If you have any further enquiries, please email mathsstats@mu.ie. Please note that, given the ever-evolving COVID restrictions and Government guidelines, the department staff may at times be working remotely.

A degree in Mathematics and/or Statistics can be very enjoyable. The reasons why people opt to study Mathematics and Statistics vary widely but include the desire to study something interesting, stimulating and challenging. You may also want to develop your problem solving and logical reasoning skills. It can provide you with the opportunity to understand real world problems and help to make the world a better place through mathematical and statistical modelling and reasoning.

OFFICE HOURS:

10.00 a.m. - 11.00 a.m.
12.00 noon - 1.00 p.m.
2.00 p.m. - 4.00 p.m.

e-mail: **mathsstats@mu.ie**

Website: **https://www.maynoothuniversity.ie/mathematics-and-statistics**

The information in this handbook is as accurate as we can make it at the time of going to press, but it may be in error. In the event of difference, the official University rules and procedures take precedence over anything in this handbook, and nothing in this handbook should be understood as official.

TERM DATES: 2021-2022

https://www.maynoothuniversity.ie/registrar/key-term-dates

FIRST SEMESTER

First-Year Registration	**16th September 2021**	**16th September 2021**
First-Year Orientation	**20th September 2021**	**24th September 2021**
First Semester	**20th September 2021**	**17th December 2021**
Study Week	**25th October 2021**	**29th October 2021**
Christmas Break	**20th December 2021**	**31st December 2021**
Study Period	**3rd January 2022**	**6th January 2022**

SECOND SEMESTER

Second Semester	**31st January 2022**	**6th May 2022**
Study Week	**14th March 2022**	**18th March 2022**
Easter Vacation	**18th April 2022**	**22nd April 2022**
Study Period	**9th May 2022**	**12th May 2022**

MATHEMATICS & STATISTICS DEPARTMENT STAFF

Professor Stephen Buckley, Head of Department
https://www.maynoothuniversity.ie/mathematics-and-statistics/our-people/stephen-buckley

****

Dr Stefan Bechtluft-Sachs, Lecturer
https://www.maynoothuniversity.ie/mathematics-and-statistics/our-people/stefan-bechtluft-sachs

Dr Isaac Burke, Lecturer
https://www.maynoothuniversity.ie/people/isaac-burke

Dr Niamh Cahill, Lecturer
https://www.maynoothuniversity.ie/mathematics-and-statistics/our-people/niamh-cahill

Dr Galatia Cleanthous, Lecturer
https://www.maynoothuniversity.ie/mathematics-and-statistics/our-people/galatia-cleanthous

Dr Rafael de Andrade Moral, Lecturer
https://www.maynoothuniversity.ie/mathematics-and-statistics/our-people/rafael-de-andrade-moral

Dr Detta Dickinson, Senior Lecturer
https://www.maynoothuniversity.ie/mathematics-and-statistics/our-people/detta-dickinson

Dr Katarina Domijan, Lecturer
https://www.maynoothuniversity.ie/mathematics-and-statistics/our-people/katarina-domijan

Dr Catherine Hurley, Senior Lecturer
https://www.maynoothuniversity.ie/mathematics-and-statistics/our-people/catherine-hurley

Professor George Huxley
Adjunct Professor
Department of Mathematics & Department of Ancient Classics

Dr Ciarán Mac an Bhaird, Lecturer
Director, Mathematics Support Centre
https://www.maynoothuniversity.ie/mathematics-and-statistics/our-people/ciar-n-mac-bhaird

Professor David Malone
https://www.maynoothuniversity.ie/mathematics-and-statistics/our-people/david-malone

Dr Oliver Mason, Senior Lecturer
https://www.maynoothuniversity.ie/mathematics-and-statistics/our-people/oliver-mason

Dr Pat McCarthy, Lecturer
https://www.maynoothuniversity.ie/mathematics-and-statistics/our-people/pat-mccarthy

Dr Keefe Murphy, Lecturer
https://www.maynoothuniversity.ie/mathematics-and-statistics/our-people/keefe-murphy

Dr John Murray, Senior Lecturer
https://www.maynoothuniversity.ie/mathematics-and-statistics/our-people/john-murray

Dr Fiacre Ó Cairbre, Senior Lecturer
https://www.maynoothuniversity.ie/mathematics-and-statistics/our-people/fiacre-cairbre

Professor Ann O'Shea
https://www.maynoothuniversity.ie/mathematics-and-statistics/our-people/ann-oshea

Professor Andrew Parnell
https://www.maynoothuniversity.ie/mathematics-and-statistics/our-people/andrew-parnell

Dr Lars Pforte, Lecturer
https://www.maynoothuniversity.ie/mathematics-and-statistics/our-people/lars-pforte

Dr Anthony Small, Senior Lecturer
https://www.maynoothuniversity.ie/mathematics-and-statistics/our-people/anthony-small

Dr Mark Walsh, Lecturer
https://www.maynoothuniversity.ie/mathematics-and-statistics/our-people/mark-walsh

Professor David Wraith
https://www.maynoothuniversity.ie/mathematics-and-statistics/our-people/david-wraith

SUPPORT STAFF

Ms. Janice Love, Senior Technical Officer
https://www.maynoothuniversity.ie/mathematics-and-statistics/our-people/janice-love

Ms. Gráinne O'Rourke, Administrator
https://www.maynoothuniversity.ie/mathematics-and-statistics/our-people/gr-inne-orourke

Mr. Anthony Waldron, Technical Officer
https://www.maynoothuniversity.ie/mathematics-and-statistics/our-people/anthony-waldron

COURSE COORDINATORS/DUTIES

2021/2022

https://www.maynoothuniversity.ie/mathematics-and-statistics/current-students/course-coordinators

Your Course Coordinator is available to advise on aspects of your academic programme, and may be consulted in the event that you encounter any difficulties with your course, be it timetabling, library or computer resources, or anything else.

REGULATIONS, RULES AND PROCEDURES

1. Attendance

Students are required to attend all classes, lectures, tutorials and practicals in their modules/courses (remotely or on-campus as instructed by the Department).

2. Continuous Assessment

The following are the standard 'continuous assessment' rules for courses other than Pure Maths. Lecturers may decide, in any given year, to draft their own rules for their own modules. Students will be informed in a timely manner.

- *Medical certificates must be supplied to the Department Office (Room 207, Top Logic) or email to mathsstats@mu.ie in the event of absence due to illness. Homework assignments and Midterm Examinations are compulsory. Students should note that continuous assessment is counted towards your grade, and is important in placing students whose examination is hampered by illness and other circumstances.*
- *Homework deadlines and project deadlines are absolute. Homework must be submitted as per the lecturer's instructions. Work submitted after the deadline will not be graded and will not count.*

3. Use of Calculators for on-site examinations

Students should note that the memories on calculators will be erased on entering on-site examinations.
PROGRAMMABLE OR GRAPHIC CALCULATORS ARE NOT ALLOWED.

4. Extreme weakness in Practical or Theory

Students should be aware that University regulations stipulate that they will fail their examination if they demonstrate extreme weakness in any module. Thus, care should be taken to ensure that each module is given its due measure of study time and attention.

5. Fundamental Proficiency Course

First Year (non-Pure) students are required to complete the online proficiency course. Notes and pre-recorded videos on topics requested by students are available on the dedicated Moodle space MC:MTSC Workshop (21-22:Yr)

6. Students' Course Choices

Undergraduate students who have module choices and need advice will be referred to a staff member.
Postgraduate students must discuss their course choices with **Dr Mark Walsh** (Mathematics), **Dr Catherine Hurley** (Statistics and MSc Data Science) or **Dr Rafael de Andrade Moral** (HDip Data Analytics) before the latest registration dates for changing modules in each semester.

7. Projects in Final Undergraduate Year

- The option of doing a reading course will be *offered* to selected students in their final undergraduate year. Marks will be assigned in a compulsory fashion, that is, not necessarily to the student's advantage.

- The project or reading course will be about some Mathematical or Statistical topic, or will involve significant use of Mathematics/Statistics. The two main factors, which determine how many marks are awarded for the project, are the difficulty of the material covered and the quality of the coverage.

a) Students will work singly when carrying out their project.

b) Students who are offered the option of doing a project or reading course do not have to take it up. Careful consideration should be given to whether the student's best interest would be served by instead taking a full complement of taught modules. The projects on offer may vary from year to year. Students should discuss their options with the relevant course coordinator.

c) Students should select their topics—after discussion with the relevant staff member—as soon as possible, and in any case no later than the end of September. Students should begin work on their chosen topic in early October.

d) Each student should make arrangements with the supervisor concerning consultations. The main conditions concerning consultations are that student work must be essentially independent, and that consultations should not normally involve more than six contact hours.

e) Each student will present a written report to be submitted to the departmental office before the Easter vacation in each academic year. The length of the report depends on the module, and is typically specified in the Overview section of the relevant module descriptor which can be found in the Reading Modules section of the **list of modules**. Each student may also be required to take part in a discussion, about thirty minutes long, on the topic.

f) Students are encouraged to make use of computers in preparing and presenting their reports, ideally using LaTeX. No matter whether the report is hand-written, typed or laser printed, it is important to avoid mistakes in grammar and spelling by carefully reading the final drafts of the document.

8. Combination of Subjects and Elective Courses

Students who combine Mathematics or Mathematical Studies or Statistics with other subjects should be careful to observe the distinction between **core** and **non-core elective** modules. When a degree programme offers you a choice of modules, it may be that some of these choices are timetabled outside the core hours allocated to the Department for the conduct of lectures in that programme. In that case, the elective modules may clash with modules given in the core hours of another Department's programme. The rule is that core modules take precedence over non-core electives. Frequently, modules offered at core times are **obligatory** elements of a degree programme. In that case, you may not sign up for a clashing elective in another subject.

It is very important to observe this rule. If you do not attend some obligatory component of a degree programme, you risk exclusion from the examination, under the regulations.

9. Conduct in Laboratories when on-site

- No food or drink in the labs.
- All authorised users (registered Mathematics & Statistics students only) must have a computer account with the Department.
- All problems encountered with systems must be reported to Ms Janice Love, Senior Technical Officer, Room 105, Middle Logic immediately when they arise: email – Janice.Love@mu.ie
- Guests are not allowed in the computer laboratories. **Authorised users only**.

ANNUAL PRIZES IN MATHEMATICS & STATISTICS

General Prizes

The Hamilton Prize
An annual prize is awarded to the best undergraduate mathematics student in his or her **penultimate year of study**, as nominated by each Irish university. It is presented at a ceremony in the Royal Irish Academy by that year's Hamilton Lecturer, often a Nobel Prize winner or Fields Medallist.
The Hamilton Prize in Mathematics celebrates the life and work of the Irish mathematician William Rowan Hamilton (1805-1865), who discovered quaternions and made major contributions to several areas of mathematical science.

The Huxley Prize for the History of Mathematics
This prize is awarded to the student obtaining the highest mark and a First Class Honours mark on the **History of Mathematics module MT382A**, chosen from those who have obtained an overall First Class Honours in Mathematical Studies, Pure Mathematics, or Applied Mathematics.
Instituted in honour of George Huxley, currently Adjunct Professor of Mathematics and Ancient Classics, Maynooth University.

The Huxley Prize for Euclidean Geometry
This prize is awarded to the student obtaining the highest mark and a First Class Honours mark in the module MT251P ("Foundations of Euclidean Geometry"), chosen from those who have obtained an overall First Class Honours in 1st year Pure Mathematics.

The Spelman Prize
The Monsignor Joseph Spelman Prize is for the best performance in either 1st Year Theoretical Physics and Mathematics or 2nd Year Mathematics Pure and Mathematical Physics.

Prizes in Pure Mathematics

The Delort Prize
This prize is awarded for outstanding performance in **Pure Mathematics in the First Year Examinations**.
Instituted in honour of the Peter Justin Delort, first Maynooth Professor of Mathematics and Natural Philosophy (1795–1801).

The McMahon Prize
This prize is awarded for outstanding performance in **Pure Mathematics in the Penultimate Year Examinations**.
Instituted in honour of the late James J. McMahon, a former Maynooth Professor of Mathematics (1960–1974).

The De Brún Prize
This prize is awarded for outstanding performance in **Pure Mathematics in the Degree Examinations**.
Instituted in honour of the late Pádraig De Brún, a former Maynooth Professor of Mathematics and Natural Philosophy (1913–1945), perhaps best known as author of the poem "Thánaig Long ó Valparaiso".

The Huxley Prize for Pure Mathematics
This prize is awarded to the student obtaining the highest average mark across the three modules MT434P, MT441P, MT451P in the **Pure Mathematics Degree Examinations**.
Instituted in honour of George Huxley, currently Adjunct Professor of Mathematics and Ancient Classics, Maynooth University.

Prizes in Mathematical Studies

The Lennon Prize
This prize is awarded to the student obtaining the best result in **Mathematical Studies in the First Year Examinations**. This prize is open to students of both Maynooth University and the Pontifical University.
Instituted in honour of the late Francis Lennon, a former Maynooth Professor of Mathematics and Natural Philosophy (1864–1912).

The Pamela Manly Prize
This prize is awarded to the student obtaining the best result in **Mathematical Studies in the Second Year Examinations**. This prize is open to students of both Maynooth University and the Pontifical University.
Instituted in honour of the late Pamela Manley, a former student at Maynooth University.

The Denvir Prize
This prize is awarded to the student obtaining the best result in **Mathematical Studies in the Degree Examinations**. This prize is open to students of both Maynooth University and the Pontifical University.
Instituted in honour of Cornelius Denvir, a former Maynooth Professor of Mathematics and Natural Philosophy (1813–1826), best known for introducing Nicholas Callan to electricity and magnetism.

Prizes in Science and Applied Mathematics

The Boole Prize
This prize is awarded to the student obtaining the best result in **Standard Mathematics in the First Science Examinations**.
Instituted in honour of the mathematician George Boole (1815-1864), who laid the foundations for Computer Science.

The Gauss Prize
This prize is awarded to the student obtaining the best result in **Standard Mathematics (20ECTS) in the Second Science Examinations**.
Instituted in honour of the mathematician Carl Friedrich Gauss (1777-1855), who made major contributions to many areas of mathematical science.

The Donaghy Prize
This prize is awarded to the student obtaining the best result in **Applied Mathematics in the Third Year Examinations**.
Instituted in honour of the late John Donaghy, a former Maynooth Professor of Mathematics and Natural Philosophy (1912–1913).

The Stokes Prize
This prize is awarded to the student obtaining the best result in **Applied Mathematics in the Degree Examinations**.
Instituted in honour of the Irish mathematician George Gabriel Stokes (1819–1903). The Navier-Stokes equations were named in his honour, and are the subject of a million dollar prize.

Prizes in Statistics

The Edgeworth Prize
This prize is awarded to the student obtaining the best result in **Statistics in either the Third Science or Second Arts Statistics Examinations**.
Instituted in honour of Francis Edgeworth (1845–1926), a former Professor of Political Economics and Statistics at King's College, London and later at Oxford.

The Gosset Prize
This prize is awarded to the student obtaining the best result in **Statistics in the B.A. Degree Examinations, the B.Sc. Degree Examinations, or the Higher Diploma in Statistics**. Final Year Pure and Applied Mathematics students taking at least 30 credits of Statistics at level 400 or above are also eligible for this prize on the basis of their marks in Statistics.
Instituted in honour of William S. Gosset (1876–1937), the statistician who published under the pseudonym 'Student', and invented the famous t-test while working for Guinness Brewery in Dublin.

Please Note: The Department may choose not to award a prize in the event that no student obtains a First Class Honours mark in the relevant examination(s).

GENERAL INFORMATION

EQUALITY

The department is committed to providing an environment free of sexual harassment. Any student with a complaint is invited to discuss the matter with Professor Stephen Buckley or Professor Ann O'Shea.

PAST EXAMINATIONS PAPERS

Previous years' examination papers are available on the **Library database** (password protected). You are advised that past examination papers may not provide a reliable guide to the format or content of future examinations. Modules are revised frequently, so a better guide to the kind of questions you should be able to deal with is provided by the homework sheets, class assignments and lecture material.

POSTGRADUATE STUDIES IN THE U.S.

Students thinking of pursuing postgraduate studies in the United States should note that the application process has to begin in October, in order to meet the January deadlines.

NUI graduates taking the MSc by examination should apply for the NUI Travelling Studentship if there is one in Mathematical Science in that particular year. The closing date is usually early in the year.

COMPUTING FACILITIES WHEN ON-SITE

The Mathematics & Statistics Department has three computer labs. The largest computer lab consists of 40 Windows 10/Ubuntu dual-boot workstations and it is situated on the Ground floor of Logic House. This is our main undergraduate computer based teaching facility and it is also where our computer helpdesks are held during term.

The Saotharlann consists has 12 Windows 10/Ubuntu dual-boot workstations and is located on Top Logic, opposite MS2.

The third lab, located in room 215 on Top Logic, consists of 10 Windows 10/Ubuntu dual-boot workstations.

All students whose modules in the Department have computing components are given access to the three computer labs when Government regulations allow it.

Mathematical and statistical software is provided in all our labs. The packages currently in use are Maple, Minitab, SageMath and R. All of our labs require a user name and login. People without an account will not be able to use our labs. Accounts are given to Mathematics and Statistics students only.

MATHEMATICS & STATISTICS COURSES: OUTLINE

Details of the Mathematics & Statistics courses can be found on the University website at:

http://apps.nuim.ie/courses/

MODULE TITLES, DESCRIPTORS AND ASSIGNMENTS 2021-2022

https://www.maynoothuniversity.ie/mathematics-and-statistics/undergraduates/module-descriptors-202122

STUDENT GRANT SCHEME

HEA Student Grant schemes can be accessed at:

www.studentfinance.ie

For further information, please see the University website at:

https://www.maynoothuniversity.ie/student-fees-grants/grants