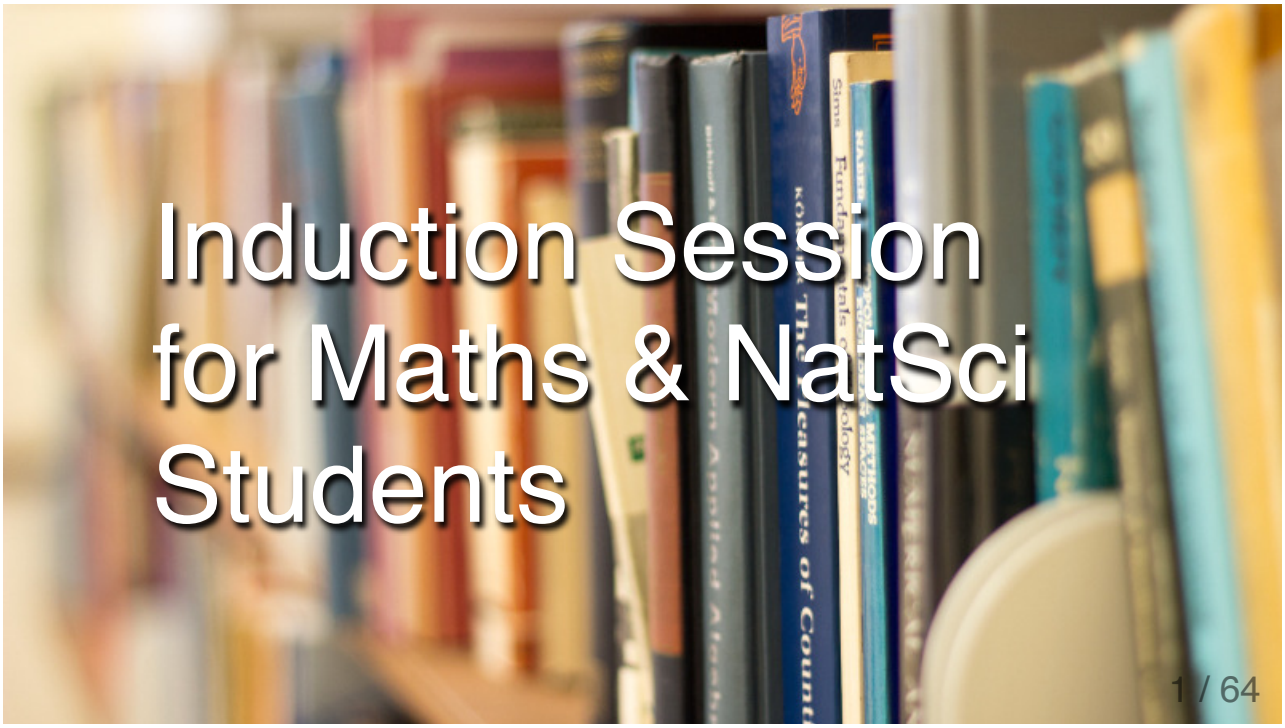
Induction Session
for Maths & NatSci
Students
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Who am I?

- Prof. Steven Abel
- maths.ugdirector@durham.ac.uk
- Director of Education
- CM214

Who are you?

- Mathematics Students
- Natural Scientists taking Calc, Lin Alg
- Others taking Calc, Lin Alg
- **Incredibly well qualified**

Plan

- Session 1 ~ 75 mins
  - Why study maths at uni? What is uni?
  - Overview of 1st year, lectures, tutorials
  - Student perspective
- Break ~ 30 mins
- Session 2 ~ 60 mins
  - Homeworks
  - What to do if I get stuck
  - Student feedback
  - Careers and DSU


What is University?
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Why study maths at university?

Because...

- I will get a good job
- I will acquire graduate skills
- I love mathematics

List of graduate qualities

Understanding disciplines

- Critical analysis
- Research capability
- Engage with the professional world
- Scholarship
- Practical competency

Study skills

- Independent learning
- Numeracy
- IT skills
- Information skills
- Literacy

Interpersonal skills

- Networking
- Negotiation
- Teamwork
- Communication
- Leadership

Entrepreneurial behaviour

- Initiative and drive
- Innovation and creativity
- Opportunity identification
- Problem solving
- Emotional intelligence

Personal effectiveness

- Time management
- Careers management
- Self awareness
- Continuing personal development
- Adapting to change

Understanding the world around you

- Ethical sensitivity
- International & local perspective
- Cultural awareness
- Commercial awareness
- Environmental awareness

Don't let your degree get in the way of your education

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Am I up to it?

- **Do not be under-confident**
- You are amongst the best qualified students in the country
- Maths is a challenge but there is lots of support on hand to help you
- Almost everyone is capable of getting a good degree

Am I up to it?

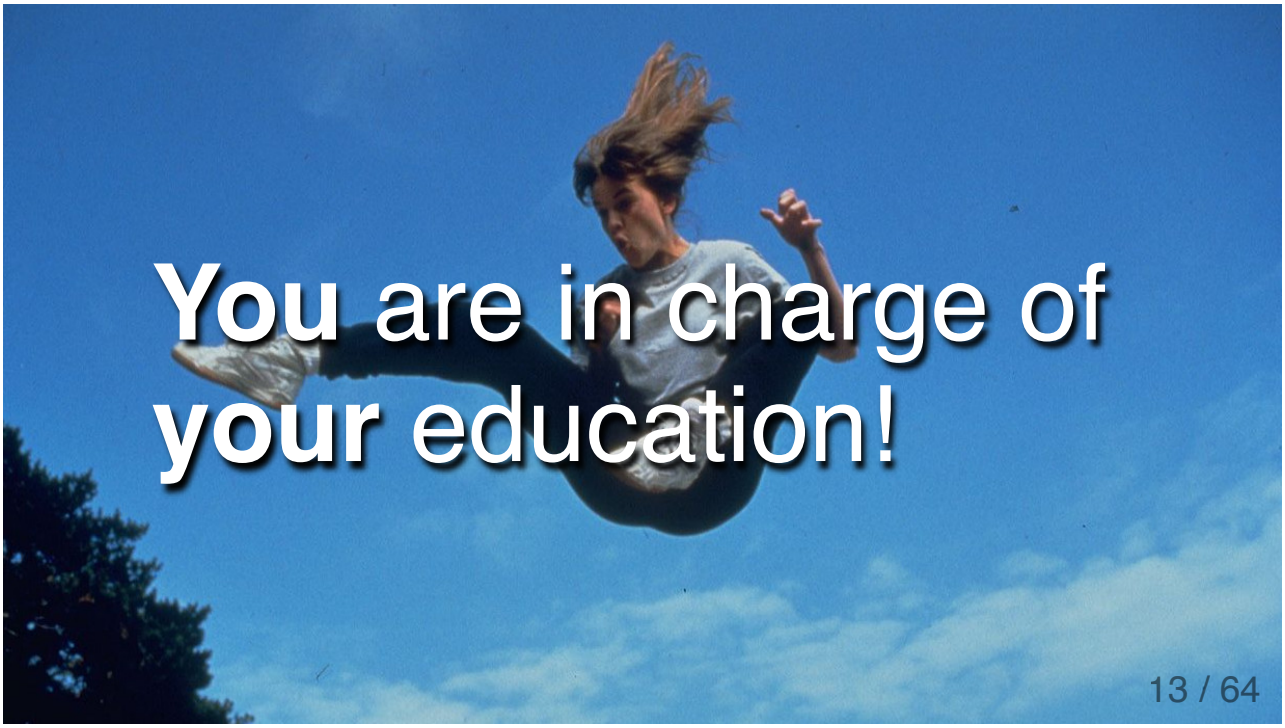
- **Do not be over-confident either!**
- There is a strong correlation between tutorial attendance / homework results and exam performance
- No-one gets a good degree without working very hard!

How hard should I work?

- A student taking six maths modules has around 20 contact hours/week
- You should be spending as much time again at maths on your own
- But if you are spending **lots** more than this, you should look for help

Differences from school

School	University
• Daily routine pretty prescribed • Teachers, parents, will nag you to complete tasks • Teacher will repeat lessons until you get it • Emphasis on learning specific skills needed to answer questions on exam • Learn specific way of writing solutions • Teachers dedicated to teaching same material 100% of the time	• Up to you to balance work with outside interests • You are responsible for meeting deadlines • Lectures move on to new topics constantly. You must work outside lectures to master things you don't understand at first • Emphasis on understanding concepts deeply which can be used to answer unseen questions • Learn how to write precise logical arguments • Lecturers engaged in active research as well as research-led teaching


You are in charge of your education!
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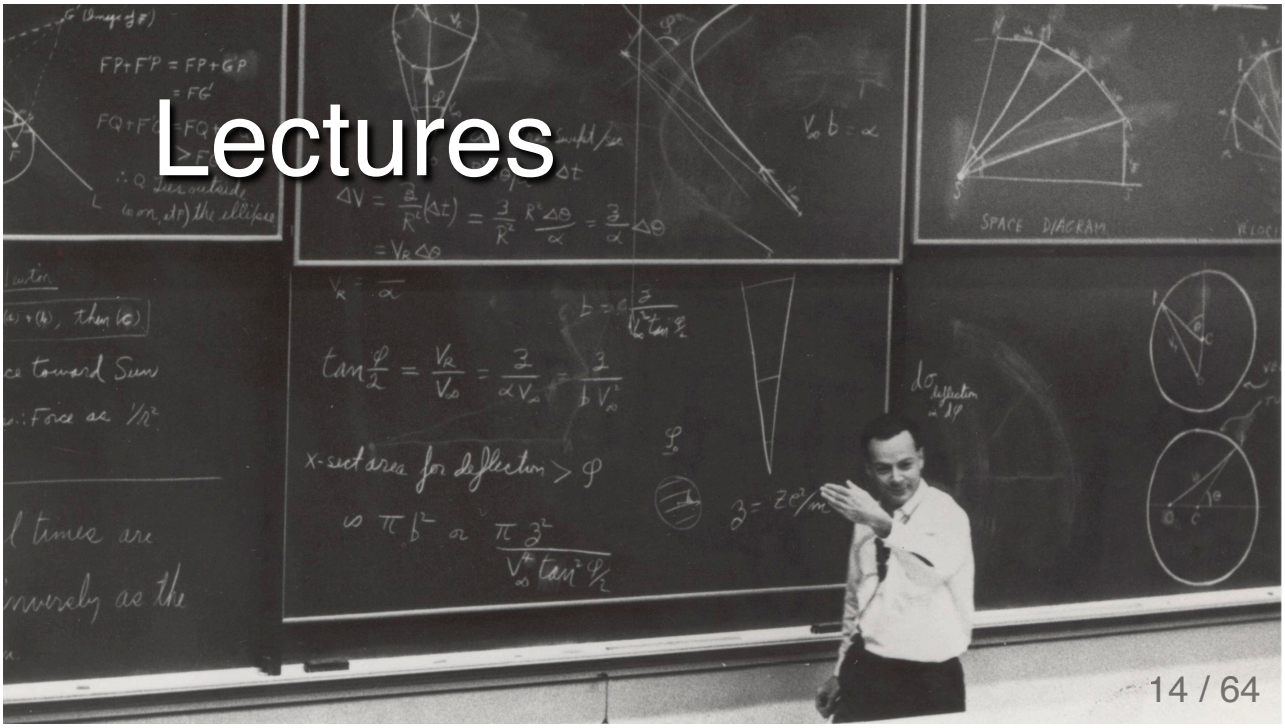
Lectures
SPACE DIAGRAM
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First year lectures

- Calculus (3/week), Linear Algebra (3/week), Analysis (2/week): **all in TLC042**
- Probability and Stats (3/week in ER201)
- Programming and Dynamics (1 lecture/week **in W103** + 2hr practical/week in Michaelmas)
- Discrete (2/week) **in PH8**
- all start next week (week 1)

Durham (GB) https://www.dur.ac.uk/mathematical.sciences/teaching/ Search

Department of Mathematical Sciences

You are in: Home ⇨ Department of Mathematical Sciences ⇨ For current UG students

- Department of Mathematical Sciences
- Research
- Grants
- Distinguished Fellowships
- Networks
- Consultancy
- Undergraduate
- Postgraduate
- **For current UG students**
  - Modules
  - Handbook
  - My Maths Timetable
  - My Advisor

Current Undergraduate Course Information

Mathematics Modules

These pages list details about all mathematics modules:

- 1H Mathematics
- 2H Mathematics
- 3H Mathematics
- 4H Mathematics
- Auxiliary Modules

First year students please also note:

- Collections Exams Timetable for January.
- Introductory Maple Classes in Week 1.
- Brush Up Your Skills is a respository of mathematical skills that can (and should) be used to refresh knowledge learnt in previous years which will be required for your present and upcoming courses.

Degree Programme Handbook

The student handbook summarizes key policies and resources relating to undergraduate programmes and modules offered by the department. All students taking modules in Mathematics should be aware of the policies contained in this handbook and the university policies linked from it.

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Undergraduate Prizes

Lectures

- Core courses are some of the largest classes in the University - near 450
- Lectures in TLC. Lecturer should use a microphone and lecture is recorded
- Start 5 mins after hour, and finish 5 mins before
- In theory not compulsory but **highly advisable**

Lectures

- Many different styles of lectures
  - Mostly "chalk and talk"
  - Sometimes use slides/transparencies/visualiser
  - Sometimes hand out notes (with/without blanks)
- Lectures move much faster than lessons - no expectation that you understand in real time

Taking notes

- Most use punched A4 + ring-binders - maybe up to 4 sides/lecture
- In maths usually best to copy everything off board + annotate any points highlighted by lecturer
- Try to write legibly


Engage!
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Can I ask questions?

- Yes!!!
- Sometimes the lecturer makes a mistake
- If something is unclear then a question can help clarify things
- Sometimes lecturers will ask questions to the audience
- Can also ask questions personally at the end right after the lecture

After the lecture

- Go through your notes, see if you understand proofs and tidy up - number them!
- If you don't understand, try reading textbooks & ask other students
- But remember, maths is a craft, learnt by doing: always try out your understanding on problems


Tutorials
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Tutorials

- Michaelmas Term: one tutorial/module/week
- Begin in week 2 (on Oct 14th)
- Tutorial groups taught by lecturers or postgraduate students
- Groups of about 10-12
- You will find out which group you are in shortly
- **Attendance is compulsory**
- If you have a clash, **go to the maths office**
- Tutorial problems set by lecturer: prepare before tutorial, and discuss at tutorial

Tutorials

- Given by lecturers or postgrads
- Can be given in different styles
  - Tutor lets you get on with solving problems but walks around giving one-to-one assistance
  - Tutor asks students to come to board to do problem
  - Tutor does problem on board but asks students to help
  - Students work in groups either at board, or present results on board

Aim of tutorials

- Clarify misconceptions and deepen understanding of material through an **interactive conversation involving the whole group**
- Encourage communication and presentation skills
- So try not to hide in the corner - **do not worry about looking stupid**


Support classes
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BUYS support classes

- Diagnostic test tells you if you might need help
  - Complete it if you haven't yet! https://www.maths.dur.ac.uk/BUYS/
- Two extra sessions/week if you need extra support
- Anyone can go
- Not just A-level material, also material from lectures

Welcome

This page provides additional support for students taking first year maths courses at Durham. Here you will resources and revision questions on material which it may well be assumed you are thoroughly familiar with. If you find you are not completely sure of any of the material you find here (you may even not have covered it in your A-level course) you should go along to the support/revision classes (see the Maths module timetable or Single A/B timetable).

In addition to the support you find here, you should work through The Summer Workbook which has further revision questions.

Diagnostic Tests

A timed diagnostic test is also available for students taking Calculus and Probability I and Linear Algebra I. The test is compulsory for all students taking these modules. The test will be available via DUO. The 1H Diagnostic Test is only for students taking 1H Calculus and Probability and Linear Algebra modules. Single A/B and MES have their own tests.

Please contact your course director or maths.teaching@durham.ac.uk if you are not sure of which test you need to take.

In order to access the test, you have to be enrolled to the **Brush Up Your Skills in Maths (2019)** course on DUO. If you are not already enrolled simply follow this link to send an enrolment request to the team (you need to be logged into duo first).

After logging in to DUO, look for a frame called Current Courses located on your DUO Home page. In Current Courses, click on Brush Up Your Skills in Maths (2019). First read all announcements carefully then click on the Diagnostic Test located on the left menu and follow the instructions on the screen.

Please note that DUO and some of the resources for BUYS are not fully compatible with Edge and Internet Explorer.

Please contact maths.teaching@durham.ac.uk if you have any queries.

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Epiphany

- Collection exams (mock) 1st week of Epiphany
- Tutorials every fortnight
- Problem classes in between (like lecture but focussed on doing problems, not new material)
- All core courses have 3 lectures/problem classes per week

Easter Term

- 2 weeks revision lectures and tutorials
- Exams
  - All exams must be passed
  - Resits in August
- Do not count towards final degree classification
- **Getting good marks in 1st year will help you enormously in getting good marks in later years**

Questions?

Now...

- Student prespective


Break
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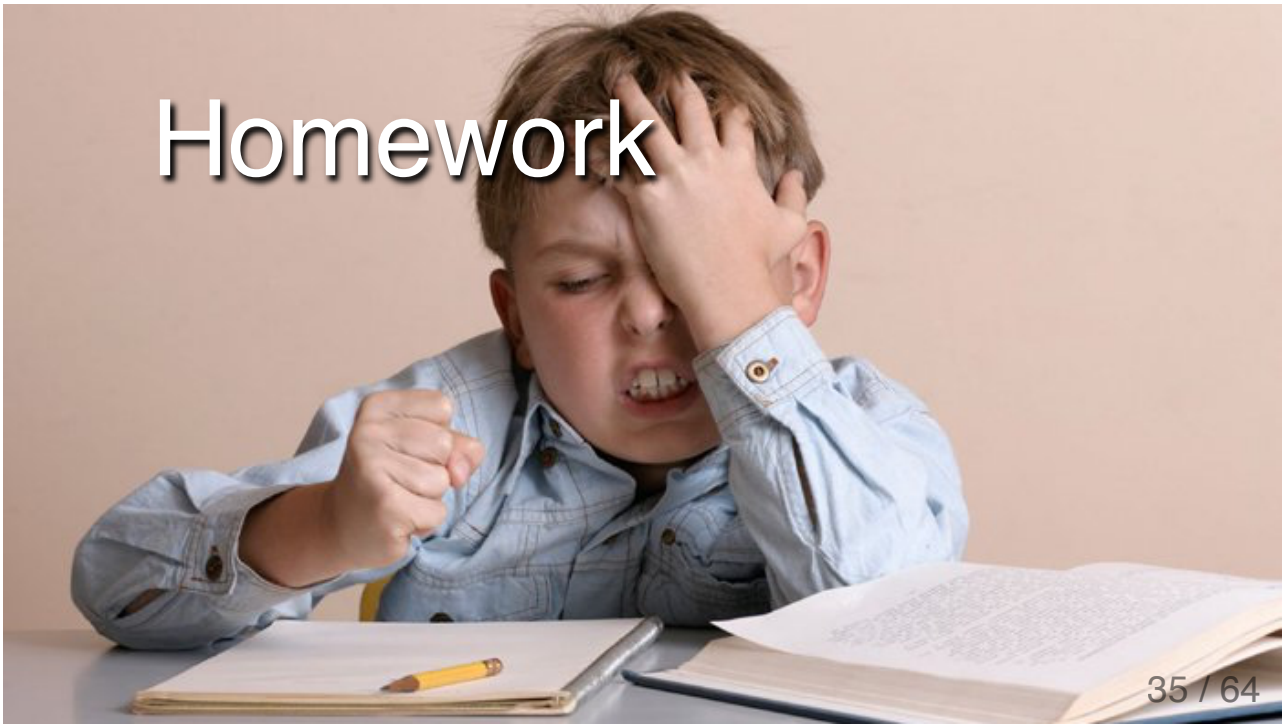
Homework
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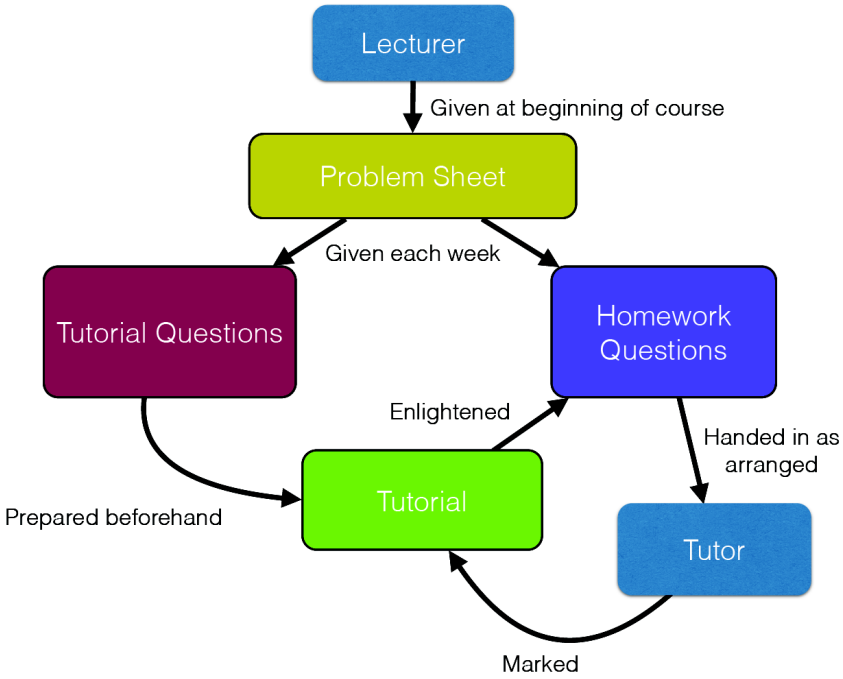
Lecturer
Given at beginning of course
Problem Sheet
Given each week
Tutorial Questions
Homework Questions
Enlightened
Handed in as arranged
Prepared beforehand
Tutorial
Tutor
Marked

Homework

- For each course you will be given problem sheets containing lots of questions
- Each week a number of these problems will be set for homework and for tutorials
- Calculus/LA have alternating marked/e-assessments:
  - physical hand-in deadline every two weeks in week 2n+a
  - e-assessment deadlines set every two weeks in week 2n+a+1

Homework

- Core courses (Calculus/LA/Analysis)
  - Hand in to tutor or do e-assesment
  - Hand-in deadline set by tutor
  - Marked work handed back in tutorial with written and verbal feedback
- Discrete/Probability
  - Hand in to lockers in CM117 (room right of main entrance to maths)
  - Deadline set by lecturer
  - Marked by markers & returned in tutorials or lectures


Homework lockers CM117
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Homework

- Homework is **compulsory**
- Lecturer will provide solutions to at least all set questions, and perhaps all the questions on problem sheet
- e-assessments give instant feedback. You may try as often as you like before you submit
- **Solutions to past exam papers are not provided**

Homework

- Almost all homework is **formative** not **summative** i.e. does not count directly towards your final degree
- You can work together on some problems but make sure **you** understand what is going on
- Copying may help you get the mark in an assignment though a wary tutor will spot it, but it won't help you understand
- Write neatly. Setting things out intelligently is an important skill
- Marked work is deeper, e-assessment tests technical skills

Homework

- Markers should also provide detailed comments on where you have gone wrong, and enough of a hint for you to correct error!
- If you get consistently low marks (C's or worse), discuss why with your Tutor and perhaps Advisor

Marking

Generally given a grade A-E

- A = 80% - 100% excellent, minimal problems
- B = 60% - 80% good, minor problems
- C = 40% - 60% pass, serious problems
- D = 20% - 40% fail, extremely serious problems
- E = 0% - 20% complete failure

Marks in exams

- 70%-100% 1st Class
- 60%-70% 2:1 Class
- 50%-60% 2:2 Class
- 40%-50% 3rd Class
- 0%-40% Fail


Academic Progress

Academic Progress

- Homework marks and tutorial attendance are monitored
- If you don't do your homework or don't attend tutorials, you may get an APN (Academic Progress Notice) - **you don't want this**
  https://www.dur.ac.uk/learningandteaching.handbook/2/6/3/


Stuck?

What to do if I get stuck? - self help

- Step back and think about the problem. Have I used all facts? What is this question about? Have I read it properly? Can I simplify the problem?
- Look at your notes & work through similar worked examples in your notes
- **Use textbooks** (library!) - they provide a different explanation & a wealth of examples. Work through these!
- Ask your friends. See if you can make collective progress!

What to do if I get stuck? - departmental help

- Try to discuss it in a tutorial session where others may benefit
- Go to see the tutor, but take your notes/working
- Go to see the lecturer, but take your notes/working

What to do if I get stuck? - departmental help

- Department runs an "open door" policy
- Most tutors/lecturers have office hours, or can be consulted at any time
- It might be worth emailing them to avoid disappointment - don't be put off if they can't make an appointment immediately
- If you are not happy with the way things are going, see your Advisor or the Course Director

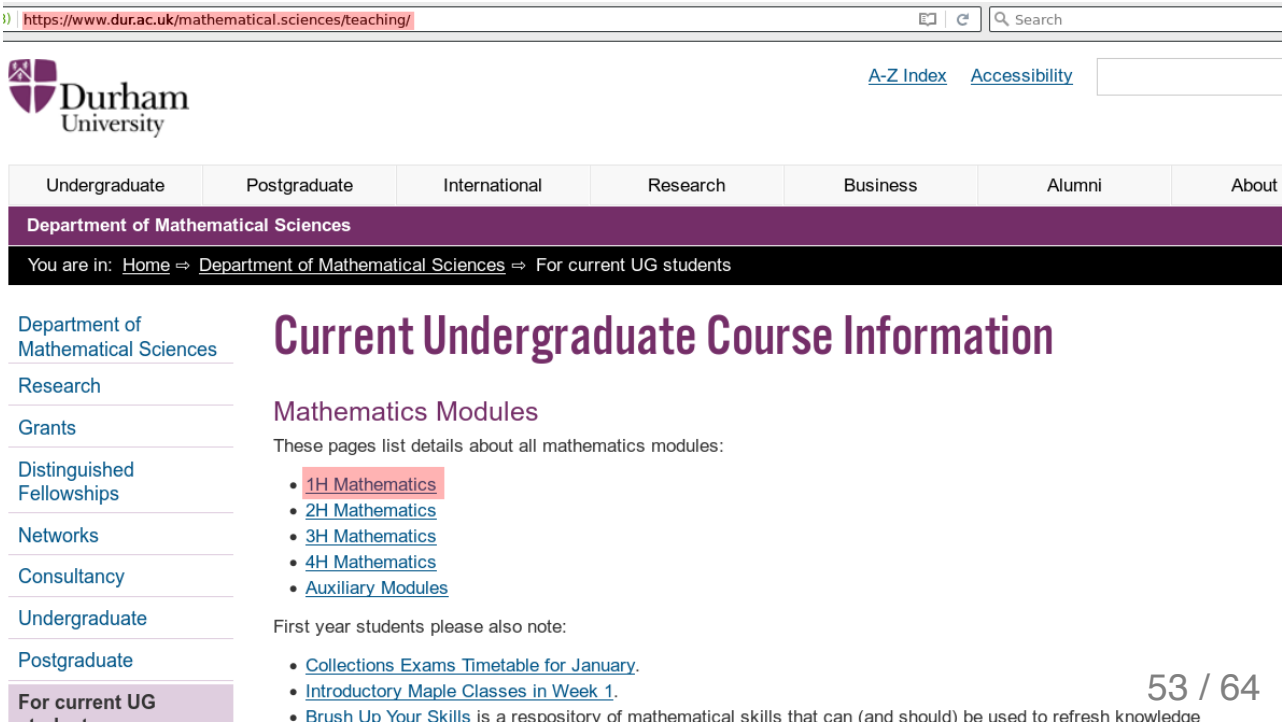
Resources

Lecturers provide resources

- Problem sheets
- Handouts (sometimes)
- Lecture notes (sometimes)
- Solutions (at least for homework questions)

Module information

- Module web pages
  - On DUO http://duo.dur.ac.uk/
  - More information sometimes hosted on departmental server (linked through DUO)
- Module information at http://www.dur.ac.uk/mathematical.sciences/teaching/
- 1H course booklet
  - contains module description and recommended books


https://www.dur.ac.uk/mathematical.sciences/teaching/
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Alumni
About
Department of Mathematical Sciences
You are in: Home ⇨ Department of Mathematical Sciences ⇨ For current UG students
Department of Mathematical Sciences
Research
Grants
Distinguished Fellowships
Networks
Consultancy
Undergraduate
Postgraduate
For current UG
Current Undergraduate Course Information
Mathematics Modules
These pages list details about all mathematics modules:
1H Mathematics
2H Mathematics
3H Mathematics
4H Mathematics
Auxiliary Modules
First year students please also note:
Collections Exams Timetable for January.
Introductory Maple Classes in Week 1.
Brush Up Your Skills is a respository of mathematical skills that can (and should) be used to refresh knowledge
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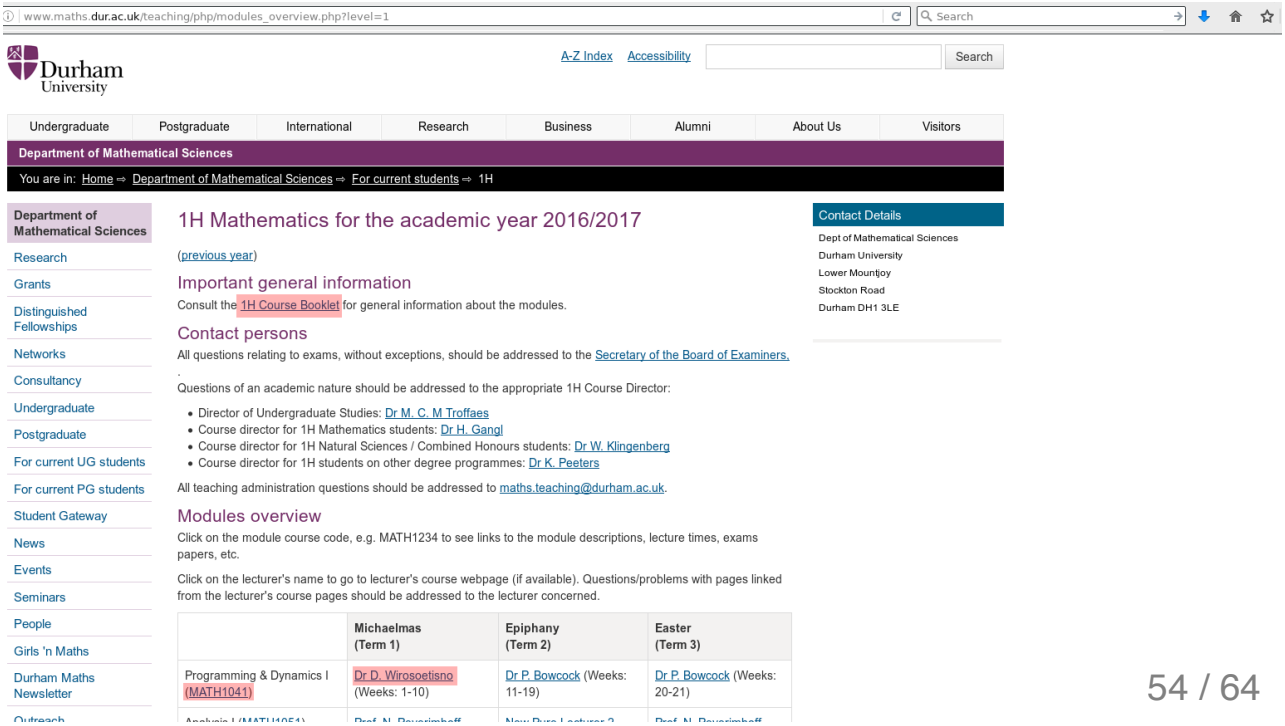

www.maths.dur.ac.uk/teaching/php/modules_overview.php?level=1

Search

Durham University

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Department of Mathematical Sciences

You are in: Home ⇨ Department of Mathematical Sciences ⇨ For current students ⇨ 1H

Department of Mathematical Sciences
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Grants
Distinguished Fellowships
Networks
Consultancy
Undergraduate
Postgraduate
For current UG students
For current PG students
Student Gateway
News
Events
Seminars
People
Girls 'n Maths
Durham Maths Newsletter
Outreach

1H Mathematics for the academic year 2016/2017

(previous year)

Important general information

Consult the 1H Course Booklet for general information about the modules.

Contact persons

All questions relating to exams, without exceptions, should be addressed to the Secretary of the Board of Examiners.

Questions of an academic nature should be addressed to the appropriate 1H Course Director:

- Director of Undergraduate Studies: Dr M. C. M Troffaes
- Course director for 1H Mathematics students: Dr H. Gangl
- Course director for 1H Natural Sciences / Combined Honours students: Dr W. Klingenberg
- Course director for 1H students on other degree programmes: Dr K. Peeters

All teaching administration questions should be addressed to maths.teaching@durham.ac.uk.

Modules overview

Click on the module course code, e.g. MATH1234 to see links to the module descriptions, lecture times, exams papers, etc.

Click on the lecturer's name to go to lecturer's course webpage (if available). Questions/problems with pages linked from the lecturer's course pages should be addressed to the lecturer concerned.

	Michaelmas (Term 1)	Epiphany (Term 2)	Easter (Term 3)
Programming & Dynamics I (MATH1041)	Dr D. Wirosoetisno (Weeks: 1-10)	Dr P. Bowcock (Weeks: 11-19)	Dr P. Bowcock (Weeks: 20-21)

Contact Details
Dept of Mathematical Sciences
Durham University
Lower Mountjoy
Stockton Road
Durham DH1 3LE

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Textbooks

- In Durham, course defined by syllabus/lecture notes
- But textbooks provide useful alternative expositions
- & have lots of examples in them
- Can be borrowed, bought new or bought used


Undergraduate library / study space CM117, CM125
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Feedback

Feedback

Department to Student

- Lectures provide solutions
- Tutors mark work and give grades
- Verbal feedback during tutorials
- Advisor gives academic & pastoral advice
- **Always read your university email**

Feedback

Student to Department

- Directly to tutor/lecturer
  - We cannot read what is written on the board
  - The microphone is not working
- Student Reps are elected (3/4 1st Year Reps)
  - Collect information about how courses are going
  - Staff student committee in week 5 of Michaelmas and Epiphany discusses any issues with courses
  - Represent students on Board of Studies where decisions about changes to courses are made

Feedback

Student to Department

- Questionnaires
  - On DUO at end of each term - anonymous
  - Grades & free-text comments for various aspects of each module (teaching quality etc)
  - All questionnaires read by lecturers and others
  - Action plans drawn up & discussed with students


Departmental Skills Award
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Questions?

Now...

- Careers (Donna Carr)
- DSU (Sam Johnson-Audini)
- Library (in next Friday's Calculus Lecture -- Colin Theakston)


Thank you & good luck!!!