



UNIVERSITY OF
BATH

Student enhancements of mathematics support provision – two very different approaches

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Mathematics Resources Centre

Mathematics &
Statistics Help

Background

Vocational student support

- Pre-sessional material
- Additional small group support
- Alternative teaching arrangements

Cohorts

- Computer Science
- Sports and Exercise Science
- Engineering

Funding

Thriplow Charitable Trust

Activities

FURTHERANCE OF HIGHER EDUCATION AND
RESEARCH IN INSTITUTIONS.

Where it operates

THROUGHOUT ENGLAND AND WALES

Funding specifically for support of vocational-entry
students

Project outline

Employ students as

BTEC/Access mathematics ambassadors

Creating a
'survival guide'
for freshers

Discipline-
based maths
project

Creating an
alternative
prospectus for
recruitment

Peer support

Or something
else...?

Computer Science

Employed 3 students:

Year 1, Year 2, Final Year

Final Year

Peer support for Year 1 in Transition Maths module



Dedicated one-to-one support


- ✓ Better for student
- ✓ Freed up tutor time

Computer Science

Year 1 and Year 2
CS project approach

Discipline-based
content online

Collected feedback
informally


 MASH CS BTEC Guide

PAGE TREE

- Content Ideas
- Creating prototype
- Design Ideas
- Feedback
- Mathematics Content
- MathJax
- Timesheets
- **User Requirements**
- Writing Mathematics

Pages / MASH CS BTEC Guide Home

User Requirements

Created by Daniel  on Feb 11, 2015

Must have

- Design
 - Responsive design (especially tablets)
 - Minimal (spread out)
- Content
 - Introduction
 - Pre-sessional
 - Course Summary
 - Maths Covered
 - Contact

Should have

- Design
 - As interesting as possible (engaging/colourful)
 - CSS3 Transitions?
 - Submit feedback
- Content
 - Relevant examples
 - Notations
 - How to write maths
 - Additional help

Could have

- Design
 - Search
- Content
 - Glossary

Computer Science

[Guide](#) [Home](#) [Introduction](#) [Arrival ▾](#) [Maths Covered ▾](#) [Using Maths ▾](#) [Additional Help](#) [Contact](#)

Welcome

This guide was created by students from the department of Computer Science at the University of Bath who did not study A-level Maths. It is aimed at new students coming to the department who also did not study A-level Maths. It aims to help you catch up with other students as well as provide means of additional help.

[Read introduction »](#)

Course Summary

Take a look at a brief summary of some of the topics that will be covered on your course. This will help you to know what you will need to prepare for.

[View details »](#)

Relevant Examples

Take a look at some examples showing how the maths you will learn is relevant to Computer Science.

[View details »](#)

Maths Covered

Take a look at the various areas of maths that will be covered throughout the course and learn the essentials. This is the main area of the guide.

[View details »](#)

Additional Help

If you are stuck on something or are worried about the maths content this page provides ways for you to gain additional help.

[View details »](#)

Computer Science

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Analytical Mathematics

[Home](#) / [Maths Covered](#) / [Analytical Mathematics](#)

Matrices

A matrix is like an array. For example:

$$\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$$

We can describe the dimensions of a matrix by rows x columns. For example, a 3 x 3 matrix would look like this:

$$\begin{bmatrix} a_{11} & a_{12} & a_{13} \\ b_{21} & b_{22} & b_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

Here the entries are labeled with subscripts which say which row, first and column, second, they are in.

Matrix addition and subtraction

Matrices can be added and similarly subtracted from each other like so:

If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} 4 & 5 \\ 6 & 7 \end{bmatrix}$ then

$$A + B = \begin{bmatrix} 5 & 7 \\ 9 & 11 \end{bmatrix}$$

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Examples relevant to Computer Science

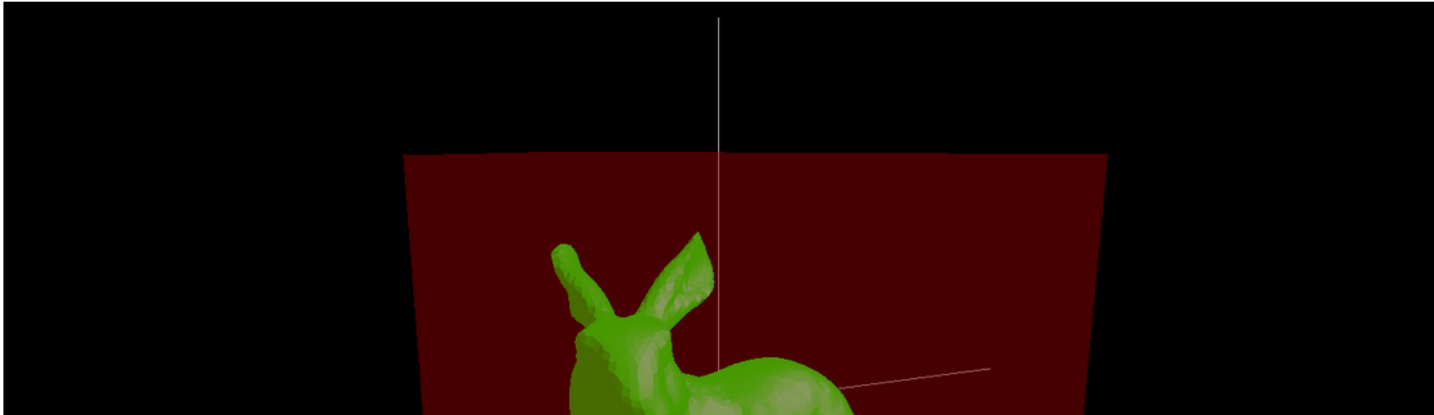
[Home](#) / [Examples relevant to Computer Science](#)

[Vectors](#)

Vectors are important when it comes to simulating a physical world. For example we can use vectors in graphics to indicate the direction a beam of light is travelling. This is useful when calculating the illumination of a surface when the beam of light falls upon it. We can imagine that a surface facing directly towards the light will be illuminated fully but a surface that is facing at least 90 degrees away from the light, then the surface will be in shadow.

For example:

Front



Spanner in the works

Digital Marketing & Communications

We've seen 1s and 0s you wouldn't believe

Introducing the new Bath CMS

Posted by  on September 2, 2015

 [Beta, CMS](#)

Today the University's new content management system went live, and publishers in departments around the University will begin using it to publish their content to the web.

This marks a major milestone in [transforming how the University communicates and delivers services digitally](#).

Categories

[Alpha](#)

[Beta](#)

[Blogs](#)

So....

Hosted on VLE space via GitHub, but...

Survival guide: created for you by current students

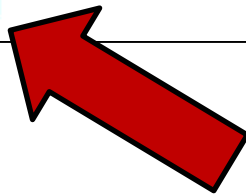
Two current Computer Science students, one in first year and one in second year, who themselves studied BTEC without A level Mathematics before coming to Bath have created a **Survival Guide** to help you through your first year. Please do make use of this! If you are going to the site for the first time you should visit:

- [Log in and go to Survival Guide](#)

Once you have logged in you will be registered and logged on the Bath GitHub revision control service (you'll need to use this later in your studies). If you are already logged in to GitHub then you should instead visit:

- [Got to Survival Guide \(already logged in to GitHub\)](#)

We are trying to sort out this login issue!



!!!

Two very different approaches

CS

More
Maths!

More
resources!

SES

Are you
crazy?!

Sport and Exercise Science

3 Year 1 students

Engagement with **current** resources, not more of them

Use students who have been through it – important to see them

Needed student input

- Survey
- Focus group



SES – Student feedback

Tell people sooner

BTECs do well

Test in week one

Keep your notes

Weekly quizzes online

Dedicated MASH drop-in

...

Small change, big impact



Promotional video



Pre-conceptions
Preparing for university (maths)
Maths module
...
Relevance to rest of degree



Survival guide



Information for
BSc/MSci Sports
Entry year



A-Z TIPS

FOR GETTING THROUGH YEAR 1

A-levels

If you don't have them, don't worry. This year is all everyone to the same level and there is a lot of support so. If you are worried though, speak to us. We're all students and have been through it, our emails are in a leaflet. There are also benefits of having a BTEC background generally be more used to coursework, which helps with management and deadlines. Most units contain content so this is an easy way to push up your grades.

Biomechanics

One of the main SES disciplines and it will require a lot of thinking, it's all relevant to the rest of your degree. It involves movement and helps us to understand athletic performance and avoid getting injured.

Calculator

Invest in the suggested one, it will definitely come in handy. A university exam calculator is a Casio fx-85ES and you can find it on eBay for cheap! You are given a calculator for maths, so use your own, so it's definitely worth getting to know your one as soon as you can.

Diary

Organise your time effectively, it will stop you from missing lectures. In an age where we are reliant on our phones, there's no excuses to be missing meetings, lectures or yourself.

Eduroam

The university wifi network that is about as reliable as a mobile charger.

Facebook

Join your course groups, support pages, add peers and start networking. Our details are on the back page - if you need any advice/have any questions at any time, find us on Facebook and get in touch!

DOs & DON'Ts

DO:

- Complete as much of the pre-sessional material as you can.
- Go to the introductory lectures as you'll meet your teachers, peers and get to know the campus.
- Go along to MASH with anything that you need help with.
- Do the problem set module as homework help you!
- Ask for help! If you will be more than happy to help others.
- Go to **all** of your lectures, it's harder to catch up.
- ENJOY YOURSELF!

DON'T:

- Feel intimidated, you'll get there in the end.
- Miss lectures because content is different, it's always good for a change.
- Be lazy. Do the work.
- Settle for a pass, and your other Year degree will be.
- Worry if you don't know, you're not the only one.
- Think the maths is too hard for our course and then point.

AND FINALLY...

We hope you've found this survival guide useful. Here's a picture of us so you will recognise us if you see us around campus...



...along with some idea of the societies and clubs you can join...



See you soon!!

Lessons learnt

One size does not fit all

Do not be prescriptive

Students know your target audience (they are it!)



Next steps

Resources to be distributed via Student Experience Officers

Ambassadors to attend lecture in week 1 (SES)

Monitor impact

Thank you for listening

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