DEGREE COURSE APPLICATION GUIDES: SCIENCE

Biology
Chemistry
Computer Science
Mathematics
Physics
Interview Guide
Personal Statement Guide

STEP BY STEP GUIDE

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Stephen Thomas

Degree Course Applications – Science

A step-by-step guide 16-19

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Degree Course Applications

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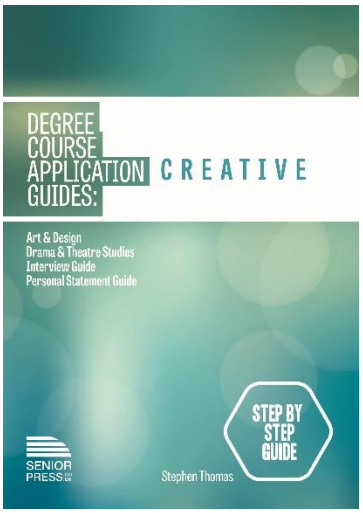

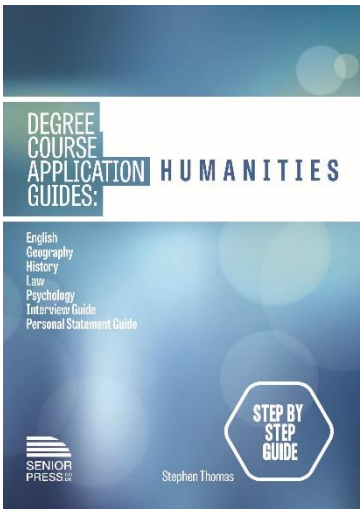

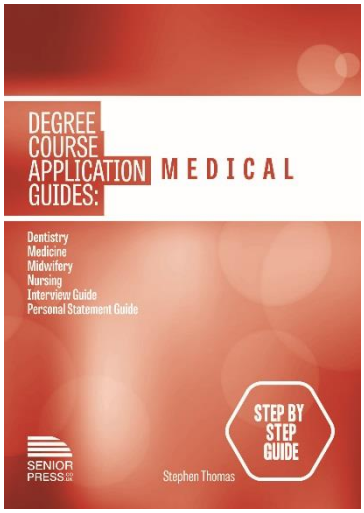

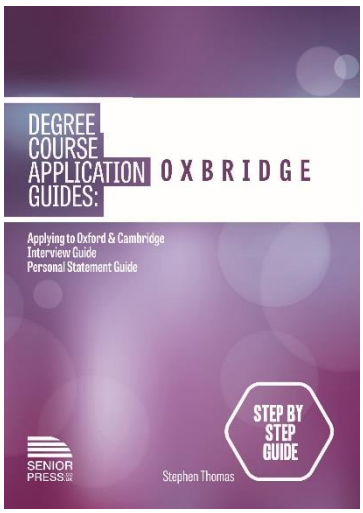

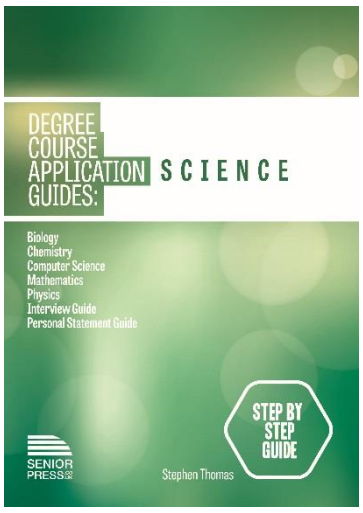

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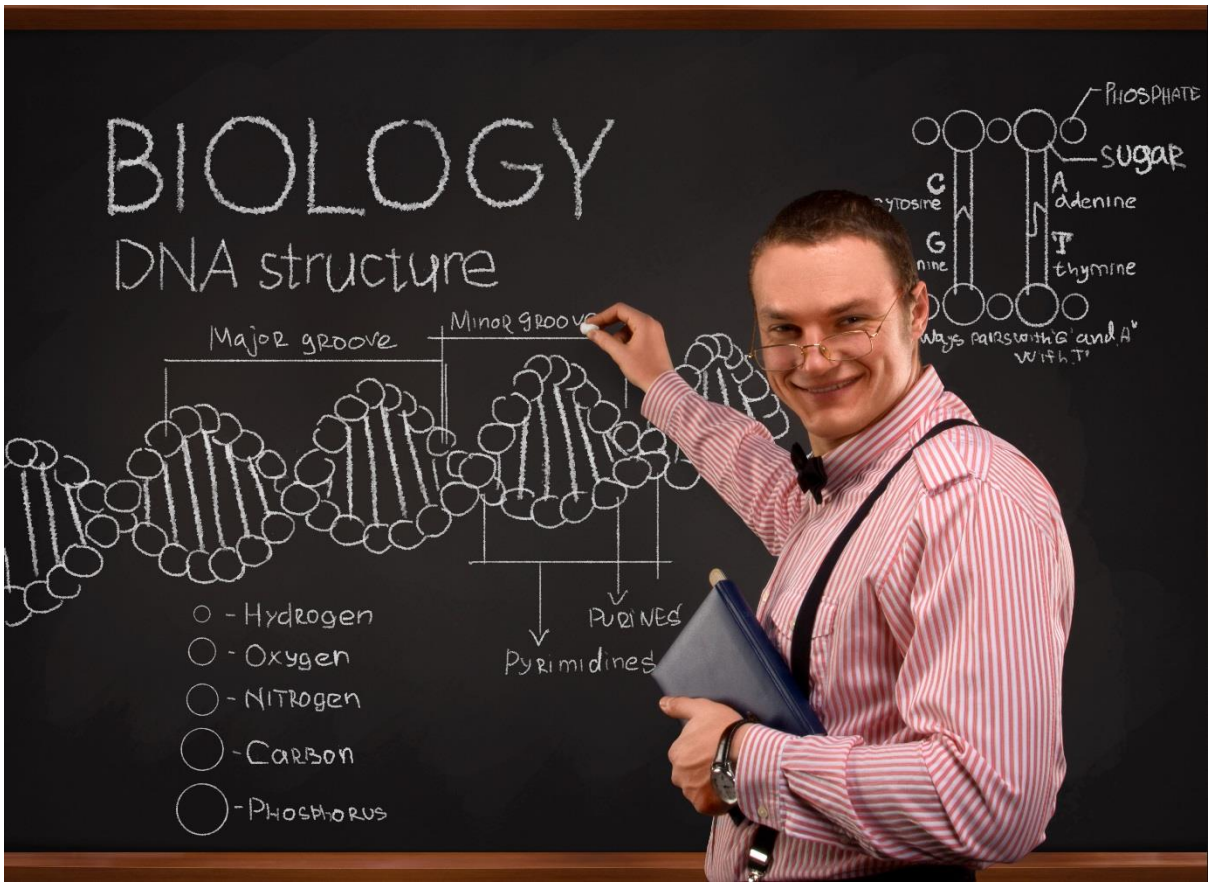


Key Subject Pointers

Grades Needed To get offers for Biology courses will need to achieve At least AAA or AAB or equivalent for the top universities although you will find some lower offers. A*AA will be asked for at some universities including Oxford with A*A*A at Cambridge.

Career Prospects If you want some re-assurance on this and to find out about the range of occupations Biology graduates go into in a typical year go to this link:

http://www.hecsu.ac.uk/assets/assets/documents/WDGD_Sept_2013.pdf

First Rate Advice on applying for Biology can be found on the Biology Faculty website**:**

http://www.thebiologyfaculty.org/

Video Profiles Go to this link to listen to students talking about Biology at university:

http://www.youtube.com/results?search_query=biology%20at%20univdersity&sm=12

HE Course Profile

http://university.which.co.uk/subjects/biology

In Year 11

A Level Choices Think carefully about your A level choices in the Sixth Form. The Russell Group (most of the leading universities) advice on A level choices for Biology is as follows:

ESSENTIAL Biology, usually Chemistry. A few universities specify two sciences.

USEFUL Mathematics or Physics, Computing/Computer Science.

What you Need to Start Doing as Early as You Can

At the end of Year 12 and beginning of Year 13 you will be required to write an A4 length Personal Statement to accompany your university application. Find out more about the Personal Statement here:

https://www.ucas.com/ucas/undergraduate/getting-started/when-apply/writing-personal-statement

Make sure that when you write your UCAS Personal Statement that you have something relevant and interesting to write about. There are suggestions for activities you should start and websites you should visit as early in Year 12 as you can towards the end of this guide. Use them to enrich your knowledge of your chosen course and to get involved n what universities call super-curricular

Early in Year 12

Begin to Gather Key Information Visit www.ucas.com and begin to gather information about the sort of grades you will need to get to go to particular universities that attract you.

Biology faculty Website Start using this first rate website to find out about such things as choosing

a university, entrance requirements, what you study and the job skills you will acquire:

http://www.thebiologyfaculty.org/

Early in Year 12:

Work experience of actual jobs is not essential for Biology but any experience you can get relevant to your A level course is useful and will strengthen your application. You could organise placements at a Natural history museum, in wildlife conservation, in a research lab in a university or industrial setting, in a clinical lab in a hospital, a zoo, a vet practice or a school. This website offers some very good advice:

https://www.societyofbiology.org/careers-and-cpd/careers/work-experience

From January of Year 12:

Open Days Look at www.ucas.com from January in Year 12 as the Open Days often go live from this point. You can secure the most favourable dates e.g. weekend dates so that you don't miss lessons (missing lessons means its harder to get the grades). http://www.opendays.com/ is a very useful website which provides an open days calendar as well as advice on choosing your visits.

Plan Open Days Early Don't leave your open days planning till May or June in Year 12, the best dates may have been and gone.

Clear Aims Make sure that you have some clear aims and key questions before you attend an open day.

Record Keep a record observations and insights in a journal/diary as well as questions you might want to ask at the time or at interview.

Virtual Open Days Some medical schools, Warwick for example, also have virtual open days on their website. This does not mean you should not go on the actual open day.

Early June in Year 12

UCAS APPLY OPENS UCAS Apply system becomes available online.

July to September in Year 12: The Personal Statement

Start Early Make sure that when you write your UCAS Personal Statement early in Year 13 that you have something relevant and interesting to write about by this time in your A level career. See enrichment activities below**.** At least 75% of your statement should be about Biology related issues

Check the course requirements and selection criteria: This will give you a good idea of what is being looked for

Check the course details: many students do not do this and make false assumptions about what they will study on the courses they have chosen

Avoid Clichés Don't begin you personal statement with clichés. Ask yourself whether this is something anybody could have written. If so write something original**.**

Do Not List It is better to write about fewer things but in more depth

Area of Interest You may want to write about a particular area of interest in Biology. Make sure you have something to say about if asked at interview.

Writing about your Work Experience It is important to say what you learnt from your work experience and to write about the insights which were gained. For some good advice on how to do this go to:

http://university.which.co.uk/advice/personal-statements-how-to-make-your-work-experience-really-count

Personal Statement Examples The Student Room website has useful advice on and examples of personal statements for Biology:

http://www.thestudentroom.co.uk/wiki/Category:Biology_Personal_Statements

From July in Year 12: Selection Tests

Oxford You will not be required to sit a selection test for Biological Sciences for Oxford

Cambridge Some colleges will ask you to sit a test for the Natural Sciences course which may be the Thinking Skills Assessment Test (TSA)

http://www.study.cam.ac.uk/undergraduate/courses/natsci/index.php#Entry-Requirements

http://www.study.cam.ac.uk/undergraduate/apply/tests/tsa.html

October in Year 13:

UCAS Oxbridge Deadline If you are applying to Oxford or Cambridge for Biological Sciences/Natural Sciences make sure you have finished your application well before the 15 October deadline for submitting Oxbridge applications so that your advisers can check it and write a reference.

October to March in Year 13: The Interview

Most Do Not Interview Although Oxford and Cambridge will interview for Biological Sciences/Natural Sciences many universities including some of the top ones like Durham and Nottingham do not. If there are no interviews your Personal Statement becomes even more important because this is all that the university will see of you.

Oxford Sample Questions Oxford University have some sample questions with suggested approaches at:

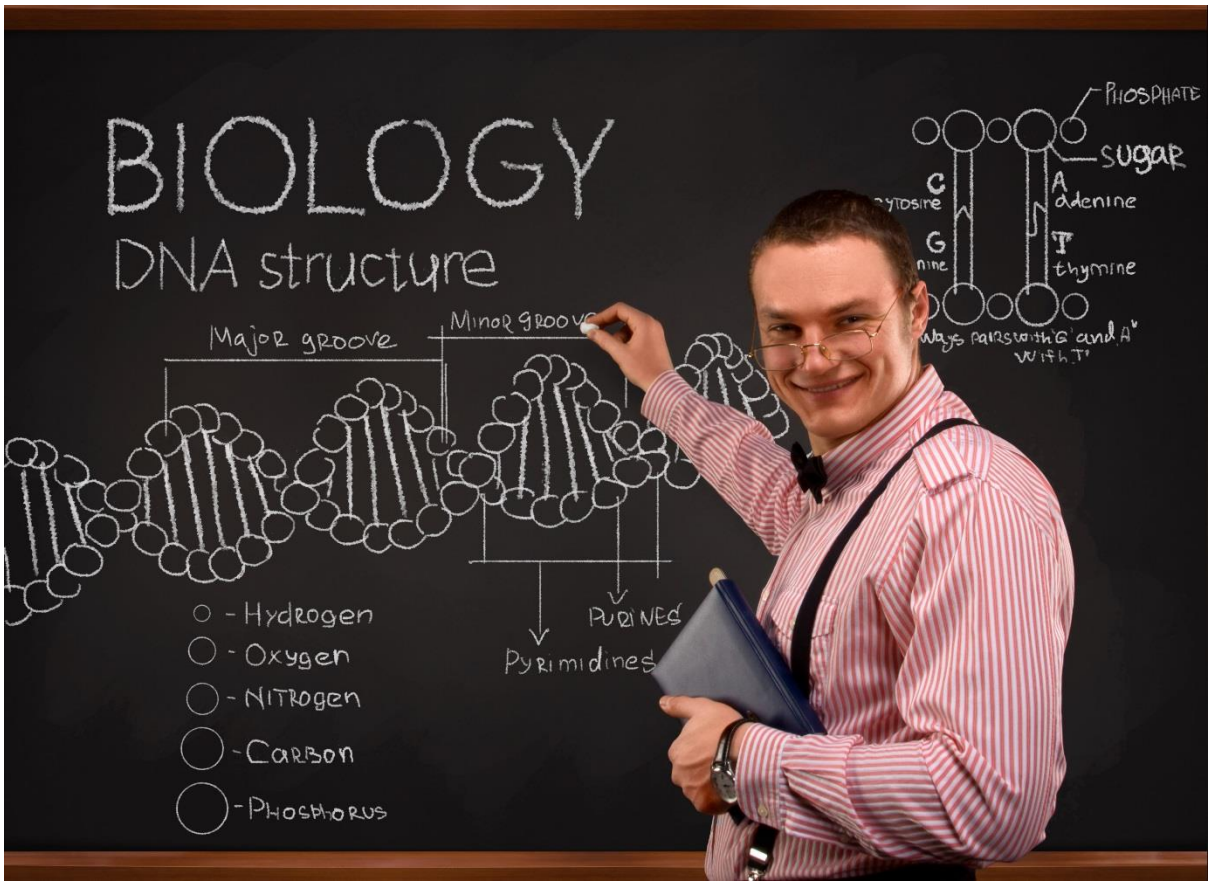
http://www.ox.ac.uk/admissions/undergraduate_courses/applying_to_oxford/interviews/sample_questions.html#abiological_science

Interview Podcast There is a podcast about the Oxford Biological Sciences interview at this link:

http://www.ox.ac.uk/admissions/undergraduate_courses/why_oxford/podcasts/eleventh_episode.html

- **Cambridge Interview Questions** You will find some examples at this link: http://www.cambridgeinterviewquestions.com/questions/sciences/natural-sciences/

Subject Enrichment Activities in Year 12 and Beyond



- Read more about the topics on your course and other biology topics and issues that you have not yet studied
- Go on a Biology A level Day at the Natural History Museum in London
- Consider doing an EPQ into an area of the subject that interests you
- Enter the Biology Olympiad: http://www.biology-olympiad.org.uk
- Explore the videos articles and podcasts on the biology section of the *Podology* website: http://www.podology.org.uk
- Try the online extension activities for AS and A2 students on the Villiers Park Educational Trust website: http://www.villierspark-online-extension activities.org.uk

What should I be reading?

- Subscribe to the *Biological Sciences Review* magazine published by Philip Allan Updates and look at the back-numbers if they are in your school library
- Read *New Scientist* magazine and visit its website: http://www.newscientist.com/
- *Darwin: A Very Short Introduction* by Jonathan Howard
- *The Animal Kingdom: A Very Short Introduction* by Peter Holland
- University of Cambridge suggested reading list at:

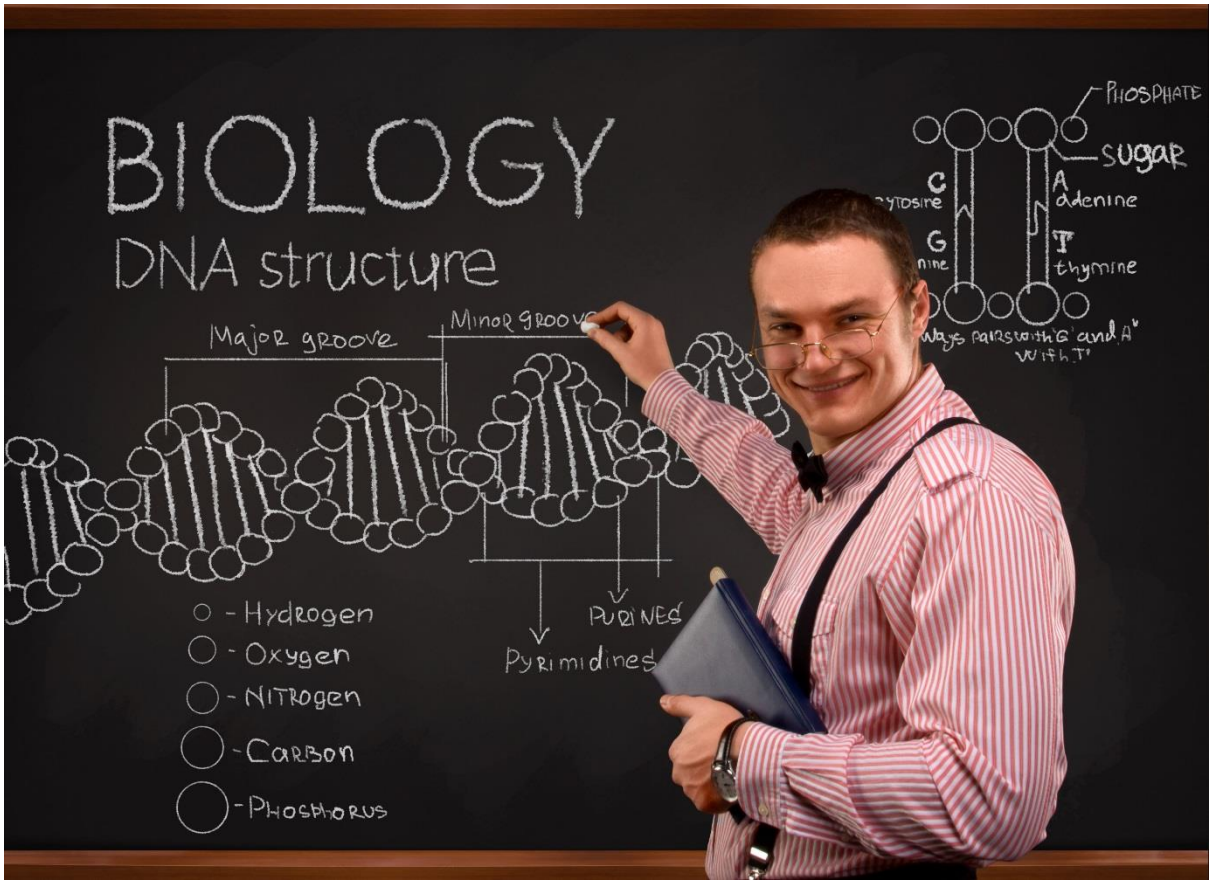
http://www.bio.cam.ac.uk/sbs/facbiol/mvst/keyconcepts.html

Which websites will be useful?

- The Biology Faculty website provides an excellent library of short films and podcasts of university lecturers talking about biological issues and methods directly relevant to topics you will be studying at A level.The content is free to stream:
  http://www.thebiologyfaculty.org/
- *Biology Mad*: A very useful website with biology resources and dozens of links to useful Biology websites:
  http://www.biologymad.com/
- *Biology Guide*
  http://www.biologyguide.net/
- BBC *Science and Nature* website:
  http://www.bbc.co.uk/sn/
- *Nature* magazine website:
  http://www.nature.com/nature/index.html
- BioDigital Human™ is an excellent virtual 3D body that brings to life thousands of medically accurate anatomy objects and health conditions in an interactive Web-based platform**.**
  https://www.biodigitalhuman.com/home/
- *New Scientist* Articles on the latest science and technology news, reports, developments and research:
- http://www.newscientist.com/
- Cellsalive!
  http://www.cellsalive.com/
- Centre of the Cell:
  http://www.centreofthecell.org/
- Biology Online:
  http://www.biology-online.org/
- *Scientific American* Insights Coverage of developments and research in science and technology.
- *ECSITE-UK* - Represents over 80 science centres and discovery centres in the UK.
  http://www.ecsite.eu/members/directory/association-science-and-discovery-centres
- *BioEthics Education Project (BEEP)* Deals with ethical dilemmas that arise out of modern applications of Biology: genetic technology, reproductive issues, cloning, environmental issue etc Content is linked to exam syllabus specifications.

http://www.beep.ac.uk/content/index.php

- *Natural History Museum* website especially the Nature Plus archive http://www.nhm.ac.uk/



Find out about Post-Graduate Employment

To get some sense of where you might be going with this degree. The following websites are very useful:

Prospects.ac.uk website

http://www.prospects.ac.uk/

Click ‘Careers advice’ link then click ‘Options with your subject’ link which will give you information on:

- skills the degree will give you
- job options related to your degree
- jobs for which your degree would be useful
- links to each of the jobs for further details
- career areas chosen by those with your degree
- where the jobs are
- other possibilities after your degree.

The icould website

http://icould.com/

has over a thousand videos of individuals talking about their careers with hundreds of supporting articles giving an insight into:

- what each career involves
- what people who follow the career actually do

- what it is like
- how they came to be where they are
- their plans for the future.

National Careers Service website:

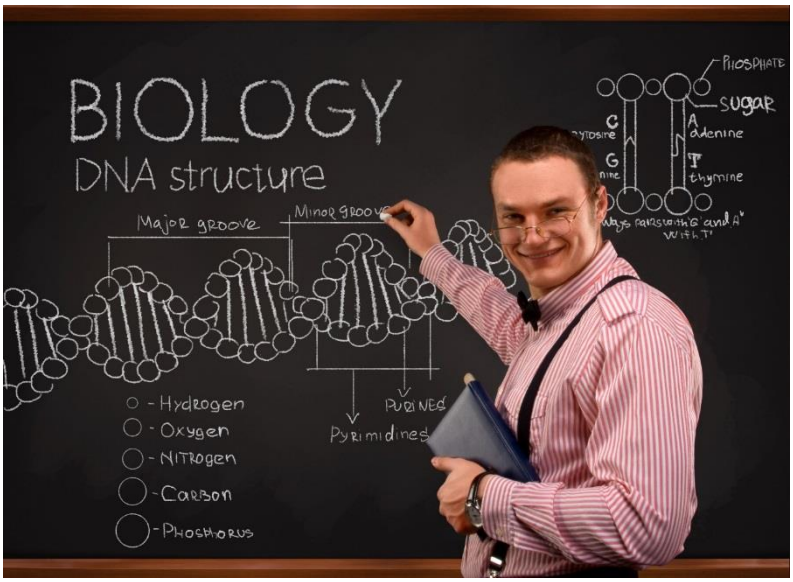
https://nationalcareersservice.direct.gov.uk

The National Careers Service provides information, advice and guidance to help you make decisions on learning, training and work opportunities. The service offers confidential, helpful and impartial advice, supported by qualified careers advisers.

The service is freely available for people living in England. Links to organisations offering targeted advice for people living in Scotland, Northern Ireland or Wales are provided on the website.

Help and support is provided to show you how to:

- develop your CV
- search and apply for jobs
- understand the job market
- search for courses and training schemes
- find funding to support any learning
- identify your key strengths and skills
- explore your career options
- choose training routes that fit your lifestyle
- develop an action plan to help you achieve your goals.



APPLYING FOR CHEMISTRY DEGREES: A STEP BY STEP GUIDE 16-19

Key Subject Pointers

Types of Degree A BSc will take three years, but in many cases you will be able to do a fourth year for an MChem or MSci, usually involving a research project or some kind of industrial experience. Some chemistry courses will give you the opportunity to study abroad for part of the course

Grades Needed To get offers for Chemistry courses will need to achieve At least AAA or AAB or equivalent for the top universities although you will find lower offers at other universities. A*AA will be asked for at some universities including Oxford, with A*A*A at Cambridge

Shortage of Applicants There is a shortage of applicants for chemistry degrees despite the fact that they can lead to a wide range of interesting careers: pharmaceuticals, medicine, veterinary science, health, agriculture, petroleum, cosmetics, plastics, the food industry and a range of careers to do with environment

Career Prospects If you want some re-assurance on this and to find out about the range of occupations Chemistry graduates go into in a typical year go to this link:

http://www.hecsu.ac.uk/assets/assets/documents/WDGD_Sept_2013.pdf

The Royal Society of Chemistry website has case studies of chemistry graduates working in a range of careers, with information about how they got there and what their job involves

www.rsc.org/profiles

First Rate Advice on applying for Chemistry can be found on the Chemistry Faculty website:

http://thechemistryfaculty.org/

HE Course Profile

http://university.which.co.uk/subjects/chemistry

In Year 11

A Level Choices Think carefully about your A level choices in the Sixth Form. The Russell Group (most of the leading universities) advice on A level choices for Biology is as follows:

ESSENTIAL Chemistry and occasionally Mathematics. Most courses require Chemistry and would like Mathematics and one other science subject (for example, Physics or Biology).

USEFUL Mathematics, Further Mathematics, Physics, Biology, Computing/ Computer Science

What you Need to Start Doing as Early as You Can

At the end of Year 12 and beginning of Year 13 you will be required to write an A4 length Personal Statement to accompany your university application. Find out more about the Personal Statement here:

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you can towards the end of this guide. Use them to enrich your knowledge of your chosen course and to get involved n what universities call super-curricular activities.

Early in Year 12

Begin to Gather Key Information Visit www.ucas.com and begin to gather information about the sort of grades you will need to get to go to particular universities that attract you.

Chemistry Faculty Website Start using this first rate website to find out about such things as choosing a university, entrance requirements, what you study and the job skills you will acquire:

http://thechemistryfaculty.org/

Early in Year 12:

Work experience is not essential for Chemistry but any experience you can get relevant to your A level course is useful and will strengthen your application. You could organise placements in a research lab in a university or industrial setting, chemical engineering or in a clinical lab in a hospital. This website offers some good advice:

http://www.futuremorph.org/14-16/next-steps/follow-your-favourite-subject/careers-from-chemistry/work-experience-in-chemistry/

From January of Year 12:

Open Days Look at www.ucas.com from January in Year 12 as the Open Days often go live from this point. You can secure the most favourable dates e.g. weekend dates so that you don't miss lessons (missing lessons means its harder to get the grades). http://www.opendays.com/ is a very useful website which provides an open days calendar as well as advice on choosing your visits.

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UCAS APPLY OPENS UCAS Apply system becomes available online.

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Start Early Make sure that when you write your UCAS Personal Statement early in Year 13 that you have something relevant and interesting to write about by this time in your A level career. See enrichment activities below**.** At least 75% of your statement should be about Chemistry related issues

- **Check the course requirements and selection criteria:** This will give you a good idea of what is being looked for
- **Check the course details:** many students do not do this and make false assumptions about what they will study on the courses they have chosen

Avoid Clichés Don't begin you personal statement with clichés. Ask yourself whether this is something anybody could have written. If so write something original**.**

Do Not List It is better to write about fewer things but in more depth

Area of Interest You may want to write about a particular area of interest in Chemistry. Make sure you have something to say about if asked at interview.

Writing about your Work Experience It is important to say what you learnt from your work experience and to write about the insights which were gained. For some good advice on how to do this go to:

http://university.which.co.uk/advice/personal-statements-how-to-make-your-work-experience-really-count

Personal statement Advice at:

http://www.chemistry-degree.co.uk/personalStatements.html

Personal Statement Examples The Student Room website has useful advice on and examples of personal statements for Chemistry at:

http://www.thestudentroom.co.uk/wiki/category:chemistry_personal_statements

From July in Year 12: Selection Tests

Oxford You will not be required to sit a selection test for Chemistry for Oxford

Cambridge Some colleges will ask you to sit a test for the Natural Sciences course which may be the Thinking Skills Assessment Test (TSA)

http://www.study.cam.ac.uk/undergraduate/courses/natsci/index.php#Entry-Requirements

http://www.study.cam.ac.uk/undergraduate/apply/tests/tsa.html

October in Year 13:

UCAS Oxbridge Deadline If you are applying to Oxford or Cambridge for Chemistry/Natural Sciences make sure you have finished your application well before the 15 October deadline for submitting Oxbridge applications so that your advisers can check it and write a reference.

October to March in Year 13: The Interview

Most Do Not Interview Although Oxford and Cambridge will interview for Chemistry/Natural Sciences many universities including some of the top ones like Durham and Nottingham do not. If there are no interviews your Personal Statement becomes even more important because this is all that the university will see of you.

Interview Advice at:

http://www.chemistry-degree.co.uk/interviews.html

Oxford Sample Questions Oxford University have some sample questions with suggested approaches at:

http://www.ox.ac.uk/admissions/undergraduate/applying-to-oxford/interviews/sample-interview-questions

Cambridge Interview Questions You will find some examples at this link:

http://www.cambridgeinterviewquestions.com/questions/sciences/natural-sciences/

Cambridge Mock interview You will find a video of a Cambridge Natural Sciences mock interview at this link but it does not include Chemistry questions:

http://www.emma.cam.ac.uk/admissions/video/interviews/?showvid=98

Subject Enrichment Activities in Year 12 and Beyond

- *Use the resources on the Chemistry World* website which has the latest chemistry news, analysis articles, features, opinion. There is also an Android and iPad app:

  http://www.rsc.org/chemistryworld.

- Subscribe to the *Chemistry World* monthly magazine: http://www.rsc.org/chemistryworld/Subscriptions.asp

- Subscribe to the Royal Society of Chemistry Chemnet website to keep up with current developments in Chemistry as well information about universities and details of seminars:

  http://www.rsc.org/Membership/Networking/ChemNet/

- Attend lectures and seminars on topics that interest you in Chemistry at your local university.
- Visit or do work experience with companies in the chemical industry or at a chemical laboratory
- Get a paid gap year placement with a chemical company with the Year in Industry scheme:
  http://www.etrust.org.uk
- The FutureMorph website has information on science careers:
  www.futuremorph.or

What should I be reading?

- Subscribe to the *Chemistry Review* magazine published by Philip Allan Updates and look at the back-numbers if they are in you school library
- *Degrees in Chemistry and the Chemical Sciences* is an excellent PDF guide on the RSC website:
  http://www.rsc.org/images/Degrees_in_Chemistry-The_Essential_Guide_tcm18-10333.pdf
- *The Fontana History of Chemistry* by William Brock
- *Periodic Tales: The Curious Lives of the Elements* by Hugh by Philip Ball
- *Molecules: A Very Short Introduction* by Philip Ball
- *Molecules at an Exhibition* (The Science of Everyday Life) by John Emsle
- *The New Chemistry* by Nina Hall
- *Nature's Building Blocks: An A-Z Guide to the Elements* by J. Emsley
- *Why Chemical Reactions Happen* by James Keeler and Peter Wothers
- *A Short History of Nearly Everything* by Bill Bryson
- *How to Fossilise Your Hamster* by Mick O'Hare
- *The Periodic Table* by Primo Levi

Which websites will be useful?

- The Chemistry Faculty website provides an excellent library of short films and podcasts of university lecturers talking about

research in Chemistry and methods directly relevant to topics you will be studying at A level. The content is free to stream:

http://www.thechemistryfaculty.org

- *Royal Society of Chemistry* has support resources for chemistry students, careers advice and advice on studying chemistry
  http://www.rsc.org/

- *Chemistry-degrees.co.uk* is a small site offering advice to students preparing for a chemistry application to university with help on personal statements, interviews, textbooks and choosing a degree. Go to the link http://www.chemistry-degree.co.uk/textBooks.html for useful advice on chemistry textbooks
  http://www.chemistry-degree.co.uk/

- *Molecule of the Month* is a Bristol University site with quirky information about molecules
  http://www.chm.bris.ac.uk/motm/motm.htm

Find out about Post-Graduate Employment

To get some sense of where you might be going with this degree. The following websites are very useful:

Prospects.ac.uk website

http://www.prospects.ac.uk/

Click ‘Careers advice’ link then click ‘Options with your subject’ link which will give you information on:

- skills the degree will give you
- job options related to your degree
- jobs for which your degree would be useful
- links to each of the jobs for further details
- career areas chosen by those with your degree
- where the jobs are
- other possibilities after your degree.

The icould website

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has over a thousand videos of individuals talking about their careers with hundreds of supporting articles giving an insight into:

- what each career involves
- what people who follow the career actually do

- what it is like
- how they came to be where they are
- their plans for the future.

National Careers Service website:

https://nationalcareersservice.direct.gov.uk

The National Careers Service provides information, advice and guidance to help you make decisions on learning, training and work opportunities. The service offers confidential, helpful and impartial advice, supported by qualified careers advisers.

The service is freely available for people living in England. Links to organisations offering targeted advice for people living in Scotland, Northern Ireland or Wales are provided on the website.

Help and support is provided to show you how to:

- develop your CV
- search and apply for jobs
- understand the job market
- search for courses and training schemes
- find funding to support any learning
- identify your key strengths and skills
- explore your career options
- choose training routes that fit your lifestyle
- develop an action plan to help you achieve your goals.

APPLYING FOR COMPUTER SCIENCE DEGREES: A STEP BY STEP GUIDE 16-19

Key Subject Pointers

- Computer Science courses tend to focus on software engineering and the development of computer solutions, covering such fields as database design, network systems and the Internet as well as areas like games design, artificial intelligence and cybernetics.
- You need strong maths skills, an interest in physics or electronics, and to be good at technical problem solving as well as analytical skills, the ability to use abstract concepts and symbols and the capacity for independent work
- If you are new to programming, it is recommended that you pick up at least one computer language because languages change quickly and you will be expected to learn more than one.
- ICT courses tend to focus on the use of ICT in business and the ways in which computers can be used to inform, improve or control business decisions and procedures
- Modules such as games design, programming and software engineering will be found on Computer Science and ICT courses but research your

course carefully because content can vary considerably. Information systems or Business Information Systems might be alternative courses.

HE Course Profile

http://university.which.co.uk/subjects/computer-science

http://university.which.co.uk/subjects/computer-games-design-and-programming

In Year 11

A Level Choices Think carefully about your A level choices in the Sixth Form. The advice from the Russell Group (most of the leading universities) for Computer Science is as follows:

ESSENTIAL: For some courses, Mathematics. For some courses Computing/ Computer Science.

USEFUL: Mathematics, Further Mathematics, Computing/Computer Science, Physics, Philosophy, ICT.

Look at Informed Choices Look at the document and video 'Informed Choices' on the Russell Group website which has some more very good advice on A level choices:

http://www.scribd.com/doc/188915625/Informed-Choices

What you Need to Start Doing as Early as You Can

At the end of Year 12 and beginning of Year 13 you will be required to write an A4 length Personal Statement to accompany your university application. Find out more about the Personal Statement here:

https://www.ucas.com/ucas/undergraduate/getting-started/when-apply/writing-personal-statement

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From January of Year 12:

Open Days Look at www.ucas.com from January in Year 12 as the Open Days often go live from this point. You can secure the most favourable dates e.g. weekend dates so that you don't miss lessons (missing lessons means its harder to get the grades). http://www.opendays.com/ is a very useful website which provides an open days calendar as well as advice on choosing your visits.

Plan Open Days Early Don't leave your open days planning till May or June in Year 12, the best dates may have been and gone.

Clear Aims Make sure that you have some clear aims and key questions before you attend an open day.

Record Keep a record observations and insights in a journal/diary as well as questions you might want to ask at the time or at interview.

Virtual Open Days Some universities also have virtual open days on their website. This does not mean you should not go on the actual open day.

Work Experience Work experience is not essential but can be useful nevertheless. Doing lots of computing and maths on your own initiative is also important.

Early June in Year 12:

UCAS APPLY OPENS UCAS Apply system becomes available online.

July to September in Year 12:

The Personal Statement

Make sure that you check to see if the universities you have applied to have any particular requirements for the Personal Statement. In most cases you should include the following:

- How your interest in Computing developed?
- What you have done to develop your interest
- Are there any particular areas of computing that interest you and why.

- What personal qualities do you have that would make you a good student of computing? Do not simply make claims about yourself but support them with evidence that demonstrates these qualities
- **Writing about your Work Experience** It is important to say what you learnt from your work experience and to write about the insights which were gained. For some good advice on how to do this go to:

  http://university.which.co.uk/advice/personal-statements-how-to-make-your-work-experience-really-count

Useful Personal Statement Advice You will find some sound personal statement advice for Computing at this link:

http://university.which.co.uk/advice/personal-statement-advice-computer-science-students

Interviews

As with maths interview, questions are likely to be mainly problem solving based maybe both maths problems and computing problems

You will find examples of Oxford questions at:

http://www.ox.ac.uk/admissions/undergraduate/applying-to-oxford/interviews/sample-interview-questions

There is a very useful Oxford interview dialogue at this link. Look at it even if you are not applying to Oxford:

http://www.cs.ox.ac.uk/ugadmissions/how_to_apply/interview_sample.html

There is a video of a Cambridge mock interview at:

https://www.youtube.com/watch?v=Jm__u4aGdoM

And another at:

https://www.youtube.com/watch?v=a7XwKVCBPfM

Subject Enrichment Activities in Year 12 and Beyond

- Gain as much experience of working with computers and programmes in a wide variety of context as you can
- Get work experience with a computer company or a company with a large IT department
- Get a paid gap year placement in an IT company or the IT department of a company with the Year in Industry scheme: http://www.etrust.org.uk/year_in_industry.cfm
- Enter the British Informatics Olympiad: http://www.olympiad.org.uk/
- Consider doing an EPQ into an area of the subject that interests you
- If you are female, investigate the *Women in Technology* website which has advice on getting into ICT and information about the AXIOS A Star awards which offer bursaries to encourage female students into ICT: http://www.womenintechnology.co.uk

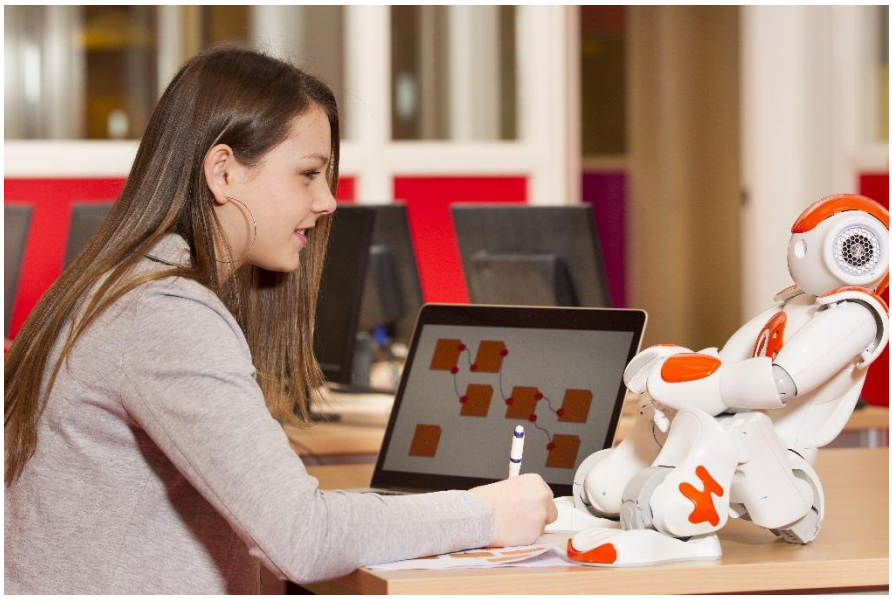
What should I be reading?

- *The Computer: A Very Short Introduction, Darrel Ince, Oxford University Press*
- *Out of Their Minds by D Shasha and Cathy Lazere.*
- *The Pattern on the Stone: The Simple Ideas That Make Computers Work by Daniel Hillis.*
- *The Pleasures of Counting* by Tom Körner.

- *The Code Book* by Simon Singh.
- *Algorithmics: The Spirit of Computing* by David Harel.
- *The New Turing Omnibus* by A Kee Dewdney.
- Articles by Sara Robinson: http://www.msri.org/people/members/sara/
- Articles by Brian Hayes in American Scientist archived at: http://www.americanscientist.org/authors/detail/brian-hayes
- Good suggested reading list from Oxford University Computer Science department: http://www.comlab.ox.ac.uk/admissions/ugrad/Background_reading

Which websites will be useful?

- Computer Science Unplugged: http://csunplugged.org/
- CS4FN Computer Science for Fun website with twice-yearly magazine
- Oxford University GeomLab website: http://www.cs.ox.ac.uk/geomlab/home.html
- The website for web developers and web designers: http://www.webreference.com/
- *coolhomepages* for website design: http://www.coolhomepages.com/
- The online computer dictionary: http://www.webopedia.com/
- *howstuffworks:* http://computer.howstuffworks.com/dns.htm
- The IT encylopaedia and learning centre: http://whatis.techtarget.com/
- Prospects: www.prospects.ac.uk Very good on computer science/IT careers



Find out about Post-Graduate Employment

To get some sense of where you might be going with this degree. The following websites are very useful:

Prospects.ac.uk website

http://www.prospects.ac.uk/

Click 'Careers advice' link then click 'Options with your subject' link which will give you information on:

- skills the degree will give you
- job options related to your degree
- jobs for which your degree would be useful
- links to each of the jobs for further details
- career areas chosen by those with your degree
- where the jobs are
- other possibilities after your degree.

The icould website

http://icould.com/

has over a thousand videos of individuals talking about their careers with hundreds of supporting articles giving an insight into:

- what each career involves
- what people who follow the career actually do

- what it is like
- how they came to be where they are
- their plans for the future.

National Careers Service website:

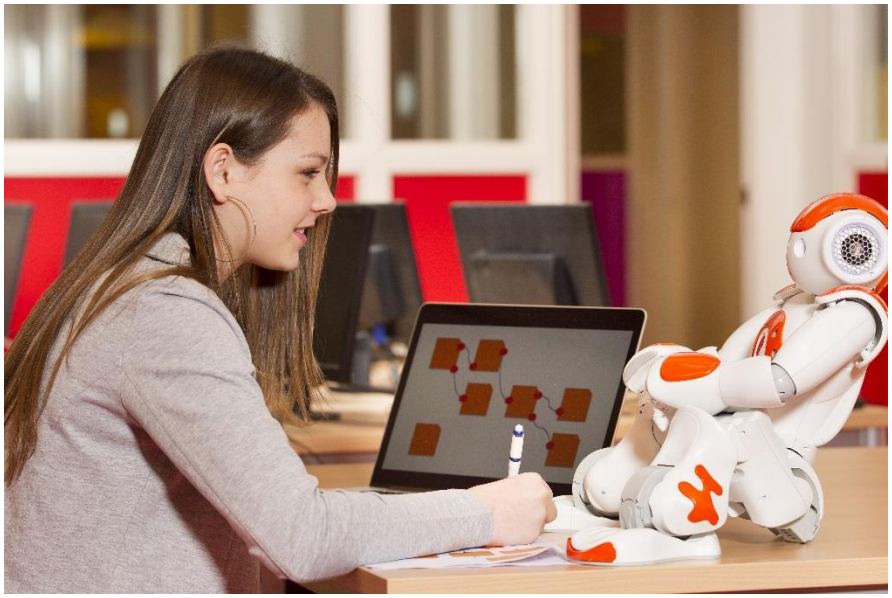
https://nationalcareersservice.direct.gov.uk

The National Careers Service provides information, advice and guidance to help you make decisions on learning, training and work opportunities. The service offers confidential, helpful and impartial advice, supported by qualified careers advisers.

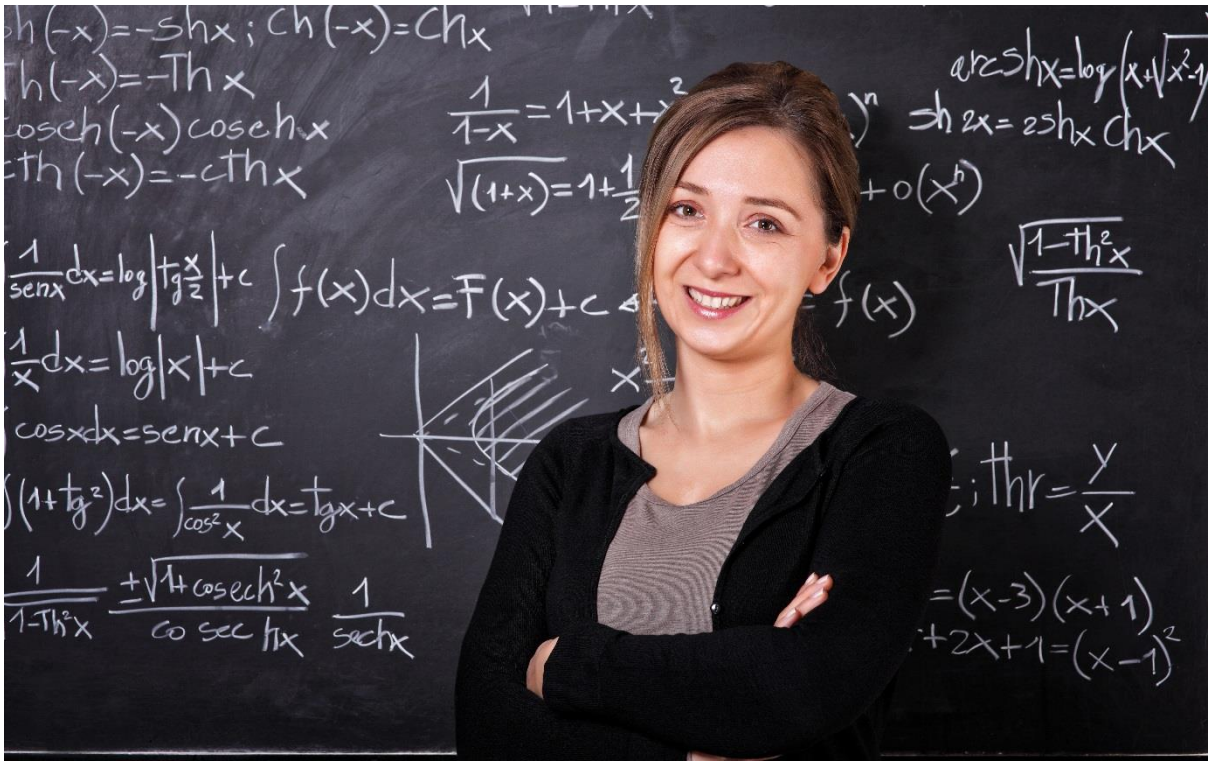
The service is freely available for people living in England. Links to organisations offering targeted advice for people living in Scotland, Northern Ireland or Wales are provided on the website.

Help and support is provided to show you how to:

- develop your CV
- search and apply for jobs
- understand the job market
- search for courses and training schemes
- find funding to support any learning
- identify your key strengths and skills
- explore your career options
- choose training routes that fit your lifestyle
- develop an action plan to help you achieve your goals.



APPLYING FOR MATHEMATICS DEGREES: A STEP BY STEP GUIDE 16-19



Key Subject Pointers

Essential It is essential to have taken A Level maths or equivalent if you want to study Mathematics at university. Some universities also ask for some Further Maths modules and this will increase you chances of being accepted on a course, particularly at a competitive university

Grades Needed The competition for degrees is high. The best universities will be asking for at least three As at A level, AA*A* in the case of Cambridge and Oxford and some other competitive universities. However you will find some courses with lower offers.

Be Careful Although there is a tremendous variety of courses covering different historical periods and the history of different countries, courses with the same title may have very different content. Look closely at what you will be studying over the full length of the course before you make your choices.

First Rate Advice on applying for Maths can on the Maths Faculty website:

http://www.themathsfaculty.org

Good Employment Prospects Although Maths is a non-vocational subject the graduate employment pattern is encouraging. Mathematics graduates have god career prospects in education, finance, government, research IT, insurance. Go to the What do Graduates Do? website to find the evidence about this:

http://www.hecsu.ac.uk/assets/assets/documents/Wdgd_arts_humanities_2013.pdf

The Maths Faculty website has some very good material on Maths careers:

http://www.themathsfaculty.org

Useful Videos Go to this link to hear students talking about studying Maths at a range of universities:

http://www.youtube.com/results?search_query=studying%20maths%20%20at%20university&sm=12

HE Course Profile

http://university.which.co.uk/subjects/maths

http://university.which.co.uk/subjects/statistics

In Year 11

A Level Choices Think carefully about your A level choices in the Sixth Form. The advice from the Russell Group (most of the leading universities) for History is as follows:

ESSENTIAL: Mathematics and sometimes Further Mathematics.

USEFUL: Further Mathematics, Physics, Computing/Computer Science

Look at Informed Choices Look at the document and video 'Informed Choices' on the Russell Group website which has some more very good advice on A level choices:

http://www.scribd.com/doc/188915625/Informed-Choices

What you Need to Start Doing as Early as You Can

At the end of Year 12 and beginning of Year 13 you will be required to write an A4 length Personal Statement to accompany your university application. Find out more about the Personal Statement here:

https://www.ucas.com/ucas/undergraduate/getting-started/when-apply/writing-personal-statement

Make sure that when you write your UCAS Personal Statement that you have something relevant and interesting to write about. There are suggestions for activities you should start and websites you should visit as early in Year 12 as you can towards the end of this guide. Use them to enrich your knowledge of your chosen course and to get involved n what universities call super-curricular activities.

From January of Year 12:

Open Days Look at www.ucas.com from January in Year 12 as the Open Days often go live from this point. You can secure the most favourable dates e.g. weekend dates so that you don't miss lessons (missing lessons means it's harder to get the grades). http://www.opendays.com/ is a very useful website which provides an open days calendar as well as advice on choosing your visits.

Plan Open Days Early Don't leave your open days planning till May or June in Year 12, the best dates may have been and gone.

Clear Aims Make sure that you have some clear aims and key questions before you attend an open day.

Record Keep a record observations and insights in a journal/diary as well as questions you might want to ask at the time or at interview.

Virtual Open Days Some universities also have virtual open days on their website. This does not mean you should not go on the actual open day.

Work Experience Work experience is not as directly relevant for maths as for some other subjects. Doing lots of challenging maths on your own initiative is much more important.

Early June in Year 12:

UCAS APPLY OPENS UCAS Apply system becomes available online.

July to September in Year 12:

The Personal Statement

Make sure that you check to see if the universities you have applied to have any particular requirements for the Personal Statement. In most cases you should include the following:

- How your interest in Maths developed?
- What you have done to develop your interest
- Are there any particular areas of maths that interest you and why.
- What personal qualities do you have that would make you a good student of maths? Do not simply make claims about yourself but support them with evidence that demonstrates these qualities
- **Writing about your Work Experience** It is important to say what you learnt from your work experience and to write about the insights which were gained. For some good advice on how to do this go to:

  http://university.which.co.uk/advice/personal-statements-how-to-make-your-work-experience-really-count

Useful Personal Statement Advice You will find some sound personal statement advice for maths at this link:

http://university.which.co.uk/advice/personal-statement-advice-maths-students

From July in Year 12: Selection Tests

Applying to Oxford If you are applying to Oxford all candidates must take the Maths Aptitude Test (MAT). Further information and sample papers can be found at:
http://www.maths.ox.ac.uk/prospective-students/undergraduate/how-apply/mat

Applying to Cambridge Cambridge (and some other universities such as Warwick) use STEP **as the basis for conditional**

offers. Other universities which use STEP will advise on which papers to take. There are some Maths applicants who sit the STEP papers as a challenge. Further details at:

http://www.study.cam.ac.uk/undergraduate/apply/requirements/step.html

http://www.admissionstestingservice.org/our-services/subject-specific/step/about-step/

STEP Support Cambridge runs an intensive STEP Mathematics study course. Offer-holders from non-selective state schools that are unable to provide support/preparation for STEP Mathematics may be invited to attend. You can also find advice on the Faculty of Mathematics website at:

www.maths.cam.ac.uk/undergrad/admissions/.

Cambridge Maths Guide. This can be found at:

http://www.maths.cam.ac.uk/undergrad/admissions/guide.pdf

The Interview

Chances of Being Interviewed You will not always be interviewed for a Maths course. More universities do not interview than do, so the Personal Statement is even more important if the university you are applying to does not interview. Some universities will interview every serious applicant, others none. Some will interview borderline applicants only. Check when you are choosing your universities. Maths interviews may well involve doing some actual Maths in the interview. So make sure you practise discussing new maths problems

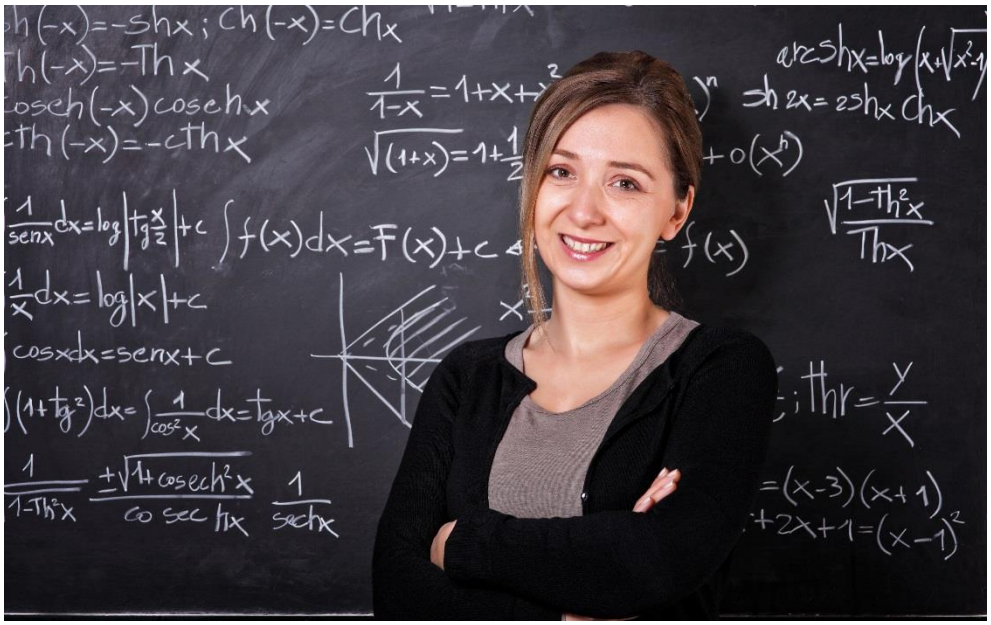
Oxford and Cambridge will interview. You will find a video of a mock Cambridge Maths interview at:

http://www.emma.cam.ac.uk/admissions/videos/interviews/?showvideo=24

Sample Cambridge Questions There are some sample Cambridge maths question at:

http://www.cambridgeinterviewquestions.com/questions/sciences/mathematics/

Subject Enrichment Activities in Year 12 and Beyond



What should I be doing?

- Enter maths competitions such as the UK Mathematical Challenge and British Mathematical Olympiad
- Join or start a Maths club in your school or college
- Try the online extension activities for AS and A2 students on the Villiers Park Educational Trust website:

  http://www.villierspark-online-extension-activities.org.uk

- Consider doing an EPQ into an area of the subject that interests you
- The Bridging the Gap web-pages on the Oxford University website ahs interesting handouts and transcripts of lectures of interest to mathematicians:

http://www.maths.ox.ac.uk/prospective-students/undergraduate/background

- Use the handouts for single A level Maths students applying to university on the Oxford University website at: http://www.maths.ox.ac.uk/prospective-students/undergraduate/single-a-level

What should I be reading?

- *Progression to Engineering and Mathematics*, UCAS Books
- *The History of Mathematics: A Very Short Introduction* by Jacqueline Stedall

- *Mathematics: A Very Short Introduction* by Timothy Gowers, Oxford University Press
- *Story of Numbers* by J. McLeish
- *Concepts of Modern Mathematics, From Here to Infinity, Nature's Numbers, Does God play Dice*? All by Ian Stewart
- *What is Mathematics*? by Richard Courant and Herbert Robbins
- *The Music of the Primes: Why an Unsolved Problem in Mathematics Matters* by Marcus du Sautoy
- *Finding Moonshine: A Mathematician's Journey Through Symmetry* by Marcus du Sautoy
- *Indra's Pearls: The Vision of Felix Klein*, by David Mumford, Caroline Series, David Wright
- *The Pleasures of Counting* by T. W. Korner (Cambridge University Press 1996); showing the kinds of problems that interest mathematicians.
- *The Book of Numbers* by John H. Conway and Richard K. Guy
- ***C**alculus Gems* by G. F. Simmons.
- *The Mathematical Experience* by P.J. Davis and R. Hersch (Birkhauser 1997).
- *The Shape of Space* by Jeffrey R. Weeks
- *Fermat's Last Theorem* by Simon Singh

Which websites will be useful?

- The Maths Faculty website provides an excellent library of short films and podcasts of university lecturers talking Maths topics directly relevant to topics you will be studying. All the content is free to stream: http://www.themathsfaculty.org/
- For STEP sample papers: www.stepmathematics.org.uk
- NRIC enriching Maths website: www.nrich.maths.org.uk
- For STEP papers and maths problems: http://meiklriggs.org.uk
- United Kingdom Mathematics Trust website:
- http://www.ukmt.org.uk/
- British Mathematical Olympiad Committee site: http://www.bmoc.maths.org/home/bmo.shtml

Find out about Post-Graduate Employment

To get some sense of where you might be going with this degree. The following websites are very useful:

Prospects.ac.uk website

http://www.prospects.ac.uk/

Click ‘Careers advice’ link then click ‘Options with your subject’ link which will give you information on:

- skills the degree will give you
- job options related to your degree
- jobs for which your degree would be useful
- links to each of the jobs for further details
- career areas chosen by those with your degree
- where the jobs are
- other possibilities after your degree.

The icould website

http://icould.com/

has over a thousand videos of individuals talking about their careers with hundreds of supporting articles giving an insight into:

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- what people who follow the career actually do

- what it is like
- how they came to be where they are
- their plans for the future.

National Careers Service website:

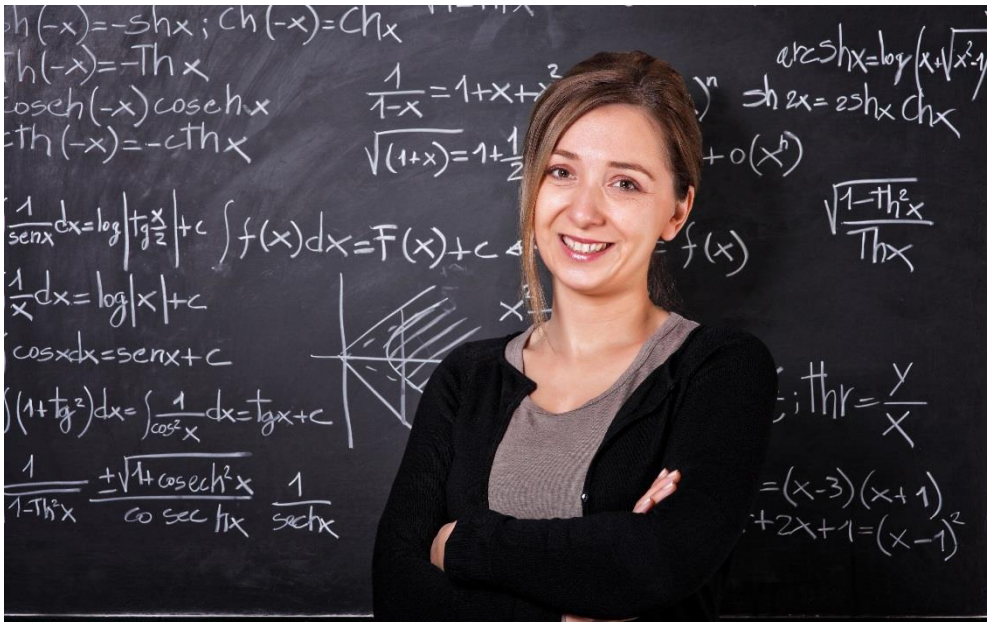
https://nationalcareersservice.direct.gov.uk

The National Careers Service provides information, advice and guidance to help you make decisions on learning, training and work opportunities. The service offers confidential, helpful and impartial advice, supported by qualified careers advisers.

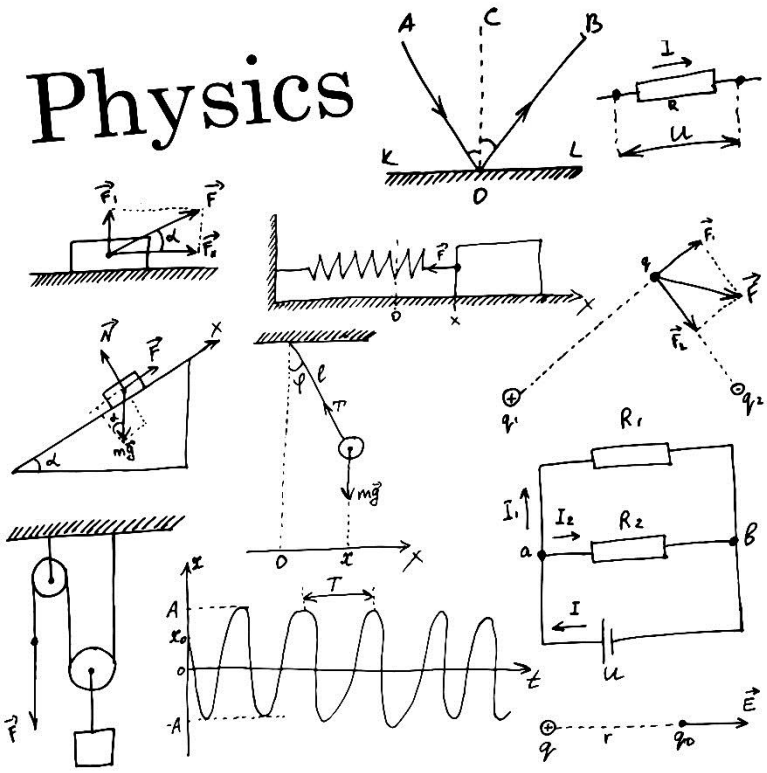
The service is freely available for people living in England. Links to organisations offering targeted advice for people living in Scotland, Northern Ireland or Wales are provided on the website.

Help and support is provided to show you how to:

- develop your CV
- search and apply for jobs
- understand the job market
- search for courses and training schemes
- find funding to support any learning
- identify your key strengths and skills
- explore your career options
- choose training routes that fit your lifestyle
- develop an action plan to help you achieve your goals.



APPLYING FOR PHYSICS DEGREES: A STEP BY STEP GUIDE 16-19



Key Subject pointers

- Physics is a challenging and rewarding degree like any other but there is a shortage of applicants making it less competitive than many courses
- You will need an aptitude for both physics and maths.
- Typical graduate careers are academic or industrial research, product development and scientific consultancy.
- On most courses you are able to choose options such as microwave devices, cosmology, medical physics, solid state electronics and many others

There is a shortage of physics graduates, especially of those who want to go into teaching.

If you want a career in physics research you will almost certainly need to go on to take a post-graduate degree

Types of Degree A BSc will take three years sometimes you will be able to to do a four year course leading to an MSc

Grades Needed To get offers for Physics courses you will need to achieve At least AAA or AAB or equivalent for the top universities although you will find lower offers at other universities. A*A*A will be asked for at Cambridge and A*AA at Oxford

Career Prospects If you want some re-assurance on this and to find out about the range of occupations Physics graduates go into in a typical year go to this link:

http://www.hecsu.ac.uk/assets/assets/documents/WDGD_Sept_2013.pdf

The Institute of Physics website has useful information about potential careers for physics graduates:

http://www.iop.org/careers/index.html

HE Course Profile

http://university.which.co.uk/subjects/physics

In Year 11

A Level Choices Think carefully about your A level choices in the Sixth Form. The Russell Group (most of the leading universities) advice on A level choices for Physics is as follows:

ESSENTIAL Mathematics and Physics

USEFUL Further Mathematics, Chemistry, Computing/ Computer Science

What you Need to Start Doing as Early as You Can

At the end of Year 12 and beginning of Year 13 you will be required to write an A4 length Personal Statement to accompany your university application. Find out more about the Personal Statement here:

https://www.ucas.com/ucas/undergraduate/getting-started/when-apply/writing-personal-statement

Make sure that when you write your UCAS Personal Statement that you have

something relevant and interesting to write about. There are suggestions for activities you should start and websites you should visit as early in Year 12 as you can towards the end of this guide. Use them to enrich your knowledge of your chosen course and to get involved n what universities call super-curricular activities.

Early in Year 12:

Begin to Gather Key Information Visit www.ucas.com and begin to gather information about the sort of grades you will need to get to go to particular universities that attract you.

Work experience is not essential for physics but any experience you can get relevant to your A level course is useful and will strengthen your application. You could organise placements in a research lab in a university or industrial setting. This website offers some very good advice:

http://www.physics.org/article-careers.asp?contentid=465

From January of Year 12:

Open Days Look at www.ucas.com from January in Year 12 as the Open Days often go live from this point. You can secure the most favourable dates e.g. weekend dates so that you don't miss lessons (missing lessons means it's harder to get the grades). http://www.opendays.com/ is a very useful website which provides an open days calendar as well as advice on choosing your visits.

Plan Open Days Early Don't leave your open days planning till May or June in Year 12, the best dates may have been and gone.

Clear Aims Make sure that you have some clear aims and key questions before you attend an open day.

Record Keep a record observations and insights in a journal/diary as well as questions you might want to ask at the time or at interview.

Early June in Year 12:

UCAS APPLY OPENS UCAS Apply system becomes available online.

July to September in Year 12: The Personal Statement

Start Early Make sure that when you write your UCAS Personal Statement early in Year 13 that you have something relevant and interesting to write about by this time in your A level career. See enrichment activities below**.** At least 75% of your statement should be about Physics related issues

Check the course requirements and selection criteria: This will give you a good idea of what is being looked for

Check the course details: many students do not do this and make false assumptions about what they will study on the courses they have chosen

Avoid Clichés Don't begin you personal statement with clichés. Ask yourself whether this is something anybody could have written. If so write something original**.**

Do Not List It is better to write about fewer things but in more depth

Area of Interest You may want to write about a particular area of interest in Physics. Make sure you have something to say about if asked at interview.

Writing about your Work Experience It is important to say what you learnt from your work experience and to write about the insights which were gained. For some good advice on how to do this go to:

http://university.which.co.uk/advice/personal-statements-how-to-make-your-work-experience-really-count

Personal statement Advice at:

http://university.which.co.uk/advice/personal-statement-advice-physics-students

Personal Statement Examples The Student Room website has useful advice on and examples of personal statements for Physics at:

http://www.thestudentroom.co.uk/wiki/Category:Physics_Personal_Statements

From July in Year 12: Selection Tests

Oxford You will be required to take the Physics Aptitude Test at Oxford:

http://www2.physics.ox.ac.uk/study-here/undergraduates/applications/physics-aptitude-test-pat

Cambridge Some colleges will ask you to sit a test for the Natural Sciences course which may be the Thinking Skills Assessment Test (TSA)

http://www.study.cam.ac.uk/undergraduate/courses/natsci/index.php#Entry-Requirements

http://www.study.cam.ac.uk/undergraduate/apply/tests/tsa.html

October in Year 13:

UCAS Oxbridge Deadline If you are applying to Oxford or Cambridge for Chemistry/Natural Sciences make sure you have finished your application well before the 15 October deadline for submitting Oxbridge applications so that your advisers can check it and write a reference.

October to March in Year 13: The Interview

Most Do Not Interview Although Oxford and Cambridge will interview for Physics/Natural Sciences many universities including some of the top ones like Durham and Nottingham do not. If there are no interviews your Personal Statement becomes even more important because this is all that the university will see of you.

Oxford Sample Questions Oxford University have some sample questions with suggested approaches at:

http://www.ox.ac.uk/admissions/undergraduate/applying-to-oxford/interviews/sample-interview-questions

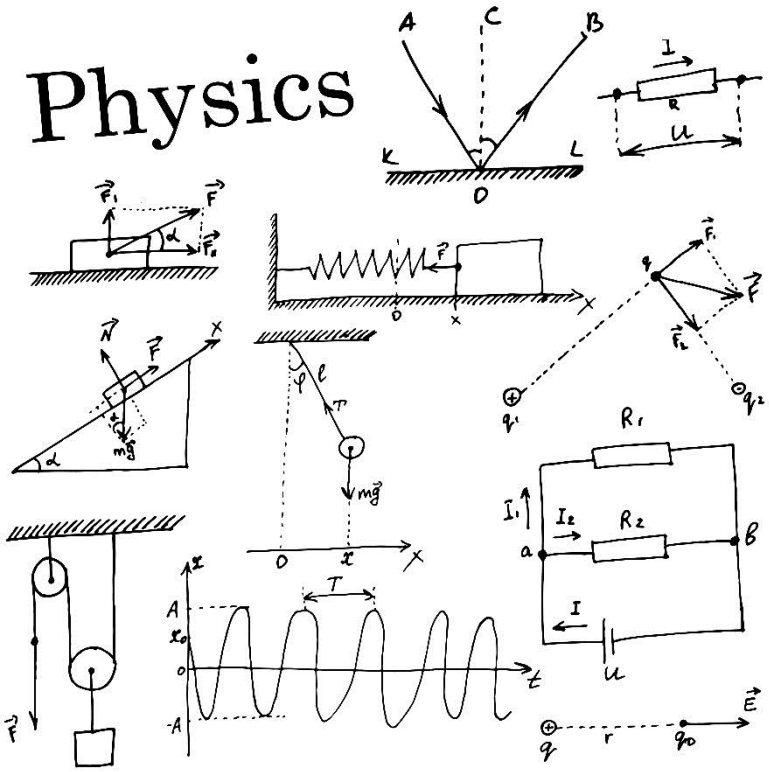
Cambridge Interview Questions You will find some examples at this link:

http://www.cambridgeinterviewquestions.com/questions/sciences/natural-sciences/

Cambridge Mock interview You will find a video of a Cambridge Natural Sciences mock interview at this link:

http://www.emma.cam.ac.uk/admissions/video/interviews/?showvid=98

Subject Enrichment Activities in Year 12 and Beyond



- Read more about the topics on your course and other physics topics and issues that you have not yet studied
- Go to the public lectures on Science and Technology at Imperial College London http://www.imperial.ac.uk/P1973.htm or at your local univesity
- Visit the *Institute of Physics* website to find out more about the work of physicists http://www.iop.org/ You can join the IOP free to get: regular updates on what's new in physics, exam and university guidance, information about physics careers, the chance to interact with other young physicists
- Look at the *Physics Lives* link on the Institute of Physics website for the videos *Baths and Quarks, Written in the Sky and Ion Beam Cop*
- Consider doing an EPQ into an area of the subject that interests you
- Visit Jodrell Bank Science Centre
- Visit relevant museums and their websites such as: the National Space Science Centre, Leicester, the London Planetarium, Hampstead Observatory, *the* Royal Observatory Greenwich and Planetarium, the Science Museum, the Michael Faraday Museum
- Get a paid gap year placement with a company relevant to your interests in Physics with the Year in Industry scheme: http://www.etrust.org.uk

What should I be reading?

- Subscribe to the *Physics Review* magazine published by Philip Allan Updates and look at the back-numbers if they are in you school library
- *The Elegant Universe* Brian Greene
- *The Pleasure of Finding Things Out* Richard Feynman
- *The Meaning of It All* Richard Feynman
- *A Brief History of Time* Stephen Hawking
- *The End of Time* Julian Barbour
- *In Search of Schrödinger's Cat* John Gribbin
- *E=mc2: A Biography of the World's Most Famous Equation* David Bodanis
- *Big Bang: The Most Important Scientific Discovery of All Time and Why You Need to Know About it* Simon Singh
- *Do Polar Bears Get Lonely?: And 101 Other Intriguing Science Questions* New Scientist
- *Why Don't Penguins' Feet Freeze?: And 114 Other Questions* New Scientist
- *The New Scientist magazine*
- *Scientific American* magazine
- *Physics World magazine*

Which websites will be useful?

- Physics.org is a very useful guide to Physics sites on the web with many useful video clips showing Physics demonstrations *http://www.physics.org*
- *Institute of Physics* Site *http://www.iop.org/*
- Physics animations *http://phet.colorado.edu/index*
- Dr Quantum explains the weird world of Quantum Physics
- http://www.youtube.com/results?search_type=&search_query=dr+quantum&aq=f
- *The Great Relativity Show: Albert Einstein* http://www.youtube.com/watch?v=Mi_exSXi0
- Nature Video has short films on the future of physics including dark matter, dark energy, the Large Hadron Collider, space-time and quantum computing. http://www.nature.com/video/lindau/index.html
- Prospects.ac.uk website 'Careers Advice' link to find out more about careers and jobs in this subject area

Find out about Post-Graduate Employment

To get some sense of where you might be going with this degree. The following websites are very useful:

Prospects.ac.uk website

http://www.prospects.ac.uk/

Click 'Careers advice' link then click 'Options with your subject' link which will give you information on:

- skills the degree will give you
- job options related to your degree
- jobs for which your degree would be useful
- links to each of the jobs for further details
- career areas chosen by those with your degree
- where the jobs are
- other possibilities after your degree.

The icould website

http://icould.com/

has over a thousand videos of individuals talking about their careers with hundreds of supporting articles giving an insight into:

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National Careers Service website:

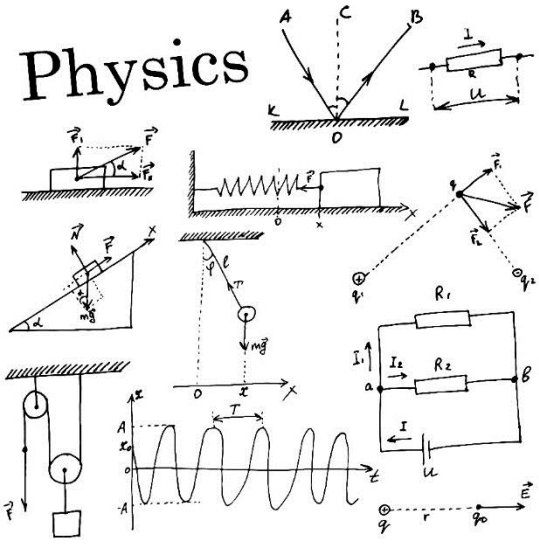
https://nationalcareersservice.direct.gov.uk

The National Careers Service provides information, advice and guidance to help you make decisions on learning, training and work opportunities. The service offers confidential, helpful and impartial advice, supported by qualified careers advisers.

The service is freely available for people living in England. Links to organisations offering targeted advice for people living in Scotland, Northern Ireland or Wales are provided on the website.

Help and support is provided to show you how to:

- develop your CV
- search and apply for jobs
- understand the job market
- search for courses and training schemes
- find funding to support any learning
- identify your key strengths and skills
- explore your career options
- choose training routes that fit your lifestyle
- develop an action plan to help you achieve your goals.



PLANNING AND WRITING AN OUTSTANDING UCAS PERSONAL STATEMENT: A STEP BY STEP GUIDE

Key Pointers

How Important is it? The Personal Statement is a very important part of your university application which will be made in the first term of Year 13. Many courses do not interview so the Personal Statement may be your only chance to impress selectors. The London School of Economics (LSE) say: 'The Personal statement is the most important way we decide between applicants.'

Many universities will score you statement because they are looking for quite specific things.

How Much Do I have to Write? It is around an A4 side in length.(47 lines maximum, 4,000 characters maximum, 1,000 characters minimum, 12 point Times New Roman font)) In most cases it will be written between July of Year 12 with a final version in September/ October of Year 13

What is it for? The Personal Statement gives you an opportunity to:

tell the universities and colleges why they should choose you

tell universities and colleges about your suitability for the course(s) that you hope to study.

demonstrate your enthusiasm and commitment, and above all, ensure that you stand out from the crowd

Start Early If you get the big picture of the application process early and understand what will be needed for the Personal Statement you can begin to collect experiences, evidence of reading and other activities which can be written about when the time comes to write your statement? These are the things you need to start thinking about, doing and keeping on the back burner to make your eventual application a stronger one

Give Yourself an Edge It will give you a head start compared to many students who are applying nationally and will give you a competitive edge over other students who have left things till the last minute

In Year 11

Know Where You are Going? If you think you know where you are going with possible university course choices in Year 11 it will help if you to begin to collect experiences and engage in enrichment activities so that you have something significant to write about when the time comes.

Super-curricular activities ae particularly important, things which show you have taken the initiative to find o9ut more about and deepen you knowledge of subjects in which you have a particular interest or which are going to important for your future course choices

From January of Year 12:

How can I show my commitment to a university subject I want to study?

The first priority is to be on top of the subjects you are studying at A level (or equivalent) because without achieving the required you will not get a place at university. You need to be:

- Up to date with assignments
- Cover the specification thoroughly
- Clear about the assessment criteria for each subject
- Have a good revision programme in place

The second priority is to enrich the A level subject you wish to study at university and any other related A levels by engaging in a range of activities to broaden and deepen your knowledge and to persuade university selectors of your commitment.

If the subject you want to study is not one of your current courses, Engineering or Vet Science for example, the same applies. Engage in activities to show that you have made a substantial effort to find out about the subject and that you have a genuine commitment to it.

Activities to Get Involved in

- Attend summer schools
- Work experience
- Public lectures
- Voluntary work
- Read (serious) newspapers
- Read journals (eg scientific)
- Enter academic competitions

Above All Read widely

- Textbooks quickly get out of date and have a narrow focus. Read more about topics you are studying and about other areas of the subject that interest you.
- Get a breadth of understanding beyond what is in the specification.
- Read subject magazines and journals to keep in touch with the latest developments.

- Philip Allen Updates subject review magazines are worth subscribing to and will keep you up to date with new research and ideas in your subject: http://magazines.philipallan.co.uk/

Get relevant experience

- This will depend on thee subject you want to study. Some university subjects like Medicine or Vet Science will require extensive work experience and it is also expected for subjects such as Nursing, Teaching or Social Work. Watch this video: https://www.youtube.com/watch?v=D-Fkrz8ms5w

- For other subjects you should try to gain relevant experiences in the world outside school such as theatre visits for English, industrial and business experience for subject such as Economics, Business Studies and Engineering, voluntary work for caring careers
- A useful websites is: http://www.direct.gov.uk/en/YoungPeople/Workandcareers/Workexperienceandvolunteering.

Early June in Year 12

UCAS APPLY UCAS Apply system becomes available online.

- You can now start thinking about the sort of things you will want to write about in your Personal Statement

July to September in Year 12:

You now need to begin to think about the Personal Statement in earnest and start writing preliminary drafts

What Should go into the Personal Statement?

Some of the best advice on the Personal Statement comes from UCAS who suggest that **at least two thirds of your personal statement should relate to the course you wish to study at university and your suitability for it**.

For a mind-map and worksheet to help you use the links:

http://www.ucas.com/documents/statement/mindmap.pdf

http://www.ucas.com/documents/statement/worksheet.pdf

UCAS also give the following important pointers about how you should include in your Personal Statement:

(1) Why you are applying for the course you have chosen?

- Why does the subject interest you?
- Include evidence that you understand what is required to study the course
- What got you interested in the subject?
- What have you learnt about the subject?
- Any activities that demonstrate your interest in the course(s)

(2) Why you are suitable for the course:

- Which skills and experience do you have that will help you succeed on the course.
- What have your done to develop your knowledge of the subject?
- What evidence is there that you have read, studied, gained experiences outside the confines of your A level courses?

From July in year 12

Important Things you Should Do

Make sure that you check to see if the universities you are thinking of applying to have any particular requirements for the Personal Statement.

Useful Personal Statement Advice

This section of the Which University website gives specific subject focused Personal Statement advice:

http://university.which.co.uk/advice/personal-statement-subject-guides-admission-tutor-tips

For £5 subscribe to Personal Statement Builder on the SACU website which guides you through each section of your Personal Statement. The final re-draft section automatically scans your statement for potential issues and reports back on items including: clichés, overuse of intensifier words (Amazing! Enthralled! Captivated! etc), number of sentences starting with I, american spelling errors, repetition, overall structure.

http://sacu-student.com/?product=personal-statement-builder-student-license

What Makes a Good Personal Statement Videos and Podcasts

These videos and podcasts from UCAS and different universities give very sound Advice:

UCAS: http://www.ucas.tv/ucas/video/WXSch

Birmingham: https://www.youtube.com/watch?v=w6wGWlIOxpw

Imperial College: https://www.youtube.com/watch?v=Z_mlyruYQ24

Leicester: https://www.youtube.com/watch?v=zESqEAXqX-Y

Kings College: https://www.youtube.com/watch?v=gtm2xtsqMLU

Bangor: https://www.youtube.com/watch?v=nH_mAYnqn0I

Oxford: http://www.ox.ac.uk/admissions/undergraduate_courses/why_oxford/podcasts/third_episode_the.html

Make Sure You Know about the Course You are Applying For

Look them up on university course websites

Use the UCAS entry profiles web-pages which you fill find when you begin to search for courses

Redrafting is Essential

- First, start by looking at the Personal Statement Mind-map on the UCAS APPLY website :

  http://www.ucas.com/students/applying/howtoapply/personalstatement

- Use it to help you construct a mind-map focused on your personal aims and aspirations
- Second, use the excellent four page Personal Statement worksheet on the UCAS APPLY website to plan your statement in detail:

  http://www.ucas.com/students/applying/howtoapply/personalstatement

- The worksheet gives you very clear indications about how much to write for each section Remember: at least two thirds on the course
- Next write out your statement in full and read carefully what you have written and don't be satisfied until you have re-worked it several times
- Your Personal Statement will need **to go though many drafts** before it is right. Read it to others to see what it sounds like and get them to comment on it too.

Do Not Use Pretentious Language Write in a natural way using vocabulary you would normally use but don't be chatty either. You are not texting.

Avoid Cliché Opening Sentences

UCAS say the 10 most common opening sentences are such things as:

1. I am currently studying a BTEC National Diploma in...
2. From a young age I have always been interested in …
3. From an early age I have always been interested in …
4. Nursing is a very challenging and demanding career...
5. For as long as I can remember I have been fascinated with
6. Fashion is not something that exists in dresses only …
7. Nursing is a profession I have always looked upon with …
8. For as long as I can remember I have been interested in..
9. I am an International Academy student and have been studying since....
10. Academically, I have always been a very determined …

Avoid Empty statements about Yourself

- I have been interested in philosophy all my life (all???)
- I feel global warming is a really important issue (which aspects?)
- I feel that genes are fundamental in shaping human behaviour (say something original about genetics)
- You need team work and communication skills and I have got them (where is the evidence?)

- Maths is important for helping us understand all sorts of things (give examples)

Avoid Mentioning Cliché Books

- Show that you have explored beyond the obvious in your reading and say something original about the books you do mention. Everyone will write about Fermat's Last Theorem' for Maths or 'A Brief History of Time' for Physics, for example
- Make sure they are books you can talk about if interviewed
- Anticipate the interview question: 'What have your read since you wrote your Personal Statement?'

Avoid Exaggerated Language

For example, Maths is……

'amazing'

'incredible'

'fantastic'

'unbelievably interesting'

'captivating'

Say something more thoughtful

What Sort of Language should I use?

- Persuade them that you are like this don't just claim it?
- 'This shows that I am/can…….'
- Use evidence from work experience
- Use evidence from achievements
- Use evidence from voluntary activities BUT not, for example 'I am a good at team work because I play in a team'.

Writing About your Work Experience

- Include details of jobs, placements, work experience or voluntary work, particularly if it's relevant to your chosen course(s). Try to link any experience to skills or qualities related to the course
- Make it clear how long was spent on each placement

- Think about how they demonstrate your personality, skills and abilities. Try to link them to the skills and experience required for your course(s).
- UCAS give this example:

NOT

'I spent two weeks working at a department store. I enjoyed speaking to customers and helping them with their enquiries'

BUT

'I spent two weeks managing customer enquiries at a department store. I learnt how to interact with customers and handle complaints. The experience highlighted the importance of positive communication between a business and its customers, and taught me how to manage difficult enquiries effectively. I would like to develop this skill further by studying a degree in public relations.'

For some good advice on how to write about your work experience go to:

http://university.which.co.uk/advice/personal-statements-how-to-make-your-work-experience-really-count

Skills you May Need to Write About

Depending on the nature of the course you may need to write about skills such as the following:

- Practical
- Problem solving
- Caring
- Enthusiastic
- Teamwork
- Good communicator
- Using own initiative
- Work under pressure
- Self motivated
- Working to deadlines
- Organisation
- Leadership
- Self-expression
- Scientifically literate
- Artistic/creative

Writing about Interests and Activities Relevant to the Course

The Assistant Registrar for Undergraduate Admissions from University of Warwick says that:

‘ 'The strongest applicants are those who can link their extra-curricular activities to their proposed course of study. Your statement will be more convincing and personal if you write about why an experience, activity or interest makes you a good candidate for the course. Include enough additional information to make it interesting and to demonstrate your own interest.’

- Don’t just list them
- Say what you got from the activity
- Use telling examples
- Be precise about time was spent on the activity
- Show how it helped to develop your thinking
- Emphasise skills and qualities you developed eg team work, commitment, caring
- Mention particular insights gained

The EPQ

- If you are involved in this mention it in your
- Personal Statement
- Show how it has helped you to develop intellectually with examples
- Show how it has helped you learn new study and research skills
- Show how you think it has helped you prepare for university

Applying for Multiple courses and Joint Degrees

- You only write one personal statement to all your choices. Try not to mention a university by name, even if you are applying to only one university - your personal statement cannot be changed if you apply to a different place later.
- If you're applying for a joint degree you will need to explain why you are interested in both aspects of this joint programme.
- If you're applying for different subjects or courses, you need to identify the common themes and skills that are relevant to your choices.

Do Not Plagiarise

One year 234 UCAS personal statements contained the following: ‘Ever since I accidentally burnt holes in my pyjamas after experimenting with a chemistry set on my eighth birthday, I have always had a passion for science.’

BEWARE UCAS Copycatch Plagiarism Software

- Your PS is checked against 1,500,000 statements past and present on the UCAS website, those on other websites and in books
- 30,000 students 'caught' in a typical year
- 10% were identical to other applicants personal statements or online examples eg Student Room
- Universities applied to informed so that they can take appropriate action
- Student told by email with details on Track
- Flagged up on Adviser Track for school staff as well

The Most Common Reasons for Unsuccessful Applications According to UCAS

- Your personal statement does not strongly support your desire to study your chosen degree.
- Your personal statement did not show sufficient understanding, relevance or knowledge about the course you are applying for.
- You failed to demonstrate sufficient knowledge and interest in the subject in your personal statement.
- There is a lot of competition for places on this course and your personal statement and experience was not as strong as other applicants this year.
- Application form (including personal statement, reference and predicted grades) does not evidence accurate understanding of or motivation for subject.
- Not expressed a strong enough interest in the subject .

Using Example and 'Model' Personal Statements

- The danger of model answers is that you imitate them, risk plagiarism, sacrifice originality and get caught out
- There are similar issues with commercial websites which offer to 'coach' you It stops being your work.
- The Student Room website has a library of personal statements:

  http://www.thestudentroom.co.uk/wiki/personal_statement_library

- Be very careful with this website
- Uploaded by students some will be good some bad
- **No monitoring by Student Room** although some have been commented upon
- Not model statements
- Don't copy. You will be caught!
- Best approach: use them to analyse with other students
- Most useful section of this website is the **Reviewed** Personal Statement Advice for different subjects section

http://www.thestudentroom.co.uk/wiki/category:reviewed_personal_statements

5 key Characteristics of an Excellent Personal Statement

- At least two thirds should be about the course(s) and your suitability for it.
- Make it personal and original
- Do not plagiarise
- Provide evidence and examples to back up claims you make about yourself
- When you write about things you have done show what skills you have gained and what they demonstrate about your character and/or personality

Applying to Oxford: Personal Statement Advice

- Remember that tutors will be most interested to read about your academic achievements and your commitment and motivation for your chosen degree course.
- Extra-curricular activities may help demonstrate how well you have managed your time, but they do not form part of the selection criteria in any subject.
- Do bear in mind that your UCAS personal statement will be seen by all the universities to which you are applying
- Extra-curricular is secondary
- Honesty is key! Anything included could be a talking point in the interview
- Read PS aloud.
- Students could read each other's statements in pairs
- Read the last paragraph first
- Starting early in Year 12 keep a notebook for anything relevant: books, programmes, lectures, conversations that inspired them about the subject.

Applying to Cambridge: Personal Statement Advice

- Students are advised to follow the UCAS advice Admissions decisions are based solely on academic criteria (ability, commitment and potential). We are looking for an applicant to:
- explain their reasons for wanting to study the subject

- demonstrate enthusiasm and commitment for chosen course
- express any particular interests within the field
- outline how they have pursued their interest in the subject in their own time
- Such information is often used as a basis for discussion at interview.
- Students are advised to follow the UCAS advice Admissions decisions are based solely on academic criteria (ability, commitment and potential).
- Applicants can if they wish make additional comments particularly relevant to their Cambridge application on their Supplementary Application Questionnaire . This is an opportunity to highlight particular features of the Cambridge course that attracted them. This additional personal statement is optional.

  http://www.study.cam.ac.uk/undergraduate/apply/saq.html

- Applicants will not be disadvantaged if they add nothing to this section of the SAQ but should not to repeat information in their UCAS personal statement

Extra-Curricular Activities and Cambridge

- Participation (or not) in extra-curricular activities is not taken into account (unless relevant to the course) and does not affect the chances of an offer.
- We look at how extra-curricular activities demonstrate characteristics that will aid students' transition to life at university, such as the balance of academic and personal commitments, and the development of skills or qualities (perseverance, independence, leadership or team-working).
- However, other university may place more importance on extra-curricular activities.
- Cambridge are much more interested in **super-curricular activities** which show how you have deepened your knowledge and understanding of the subject you want to study.

Interviews and Personal Statements

- **Chances of Being Interviewed** You will not always be interviewed. More universities do not interview than do, so the Personal Statement is even more important if the university you are applying to does not interview. Some universities will interview every serious applicant, others none. Some will interview borderline applicants only. Check when you are choosing your universities.
- If you are interviewed make sure to read through your personal statement before hand and that you can justify everything that you have written

Get Ahead Reading and Subject Enrichment Activities in Year 12 and Beyond

Find out about the historical development and scope of the subject

- It helps to know how your subject has developed over time and how people approached it in the past. This will give you a better sense of what it is about and a clearer insight into how it has reached its current position.
- Understand that in all subjects there is not just one way of looking at things. There will be different perspectives, schools of thought, different views about how the subject should be studied. Be clear where you stand in relation to these debates.
- Oxford University Press (OUP) have a very useful series of books called *Very Short Introductions* which give you excellent background to academic subjects and topics within subjects.
- Wikipedia also has some useful articles on different academic subjects, their scope and historical background.

Be clear why the subject is important and worth studying

Think about what the subject has to offer.

- It may help to bring economic and technological benefits to society.
- It may help us to understand how humans behave.
- It may simply be worth studying in its own right

Understand the importance of argument and evidence

Serious academic debate revolves around argument or attempts to persuade others to your point of view using evidence and examples to support your case. It is important to:

- Ask yourself how convincing is the evidence you are using to support your views
- Ask others what evidence they have to support theirs and challenge it.
- Familiarise yourself with terms such, as argument and counter argument and be aware of the dangers of misrepresenting, insufficient or unrepresentative evidence
- Understand the common fallacies in argument that others might use such as correlation not causation or restricting the options.

- Be aware of the criteria we should use to decide whether sources of evidence are reliable.
- If you are not already studying Critical Thinking which deals with these issues, any Critical Thinking A level textbook will help you with all this or the website:
  http://www.criticalthinking.org.uk

Use radio, television, newspapers and their websites productively

- Use the media to keep in touch with issues and debates relevant to your subject: news, documentaries, arts programmes, reviews.
- Radio and television programme and newspaper websites will have archives of programmes and articles which you can search for relevant material. Radio 4, for examples has extensive archives of broadcasts relevant to a wide rang of academic subjects.

Involve yourself in serious talk and debate

- Be enthusiastic about debating with and expressing your ideas to other students. It is only in discussion and debate with others that we really clarify what we think.
- Test your views against others.
- Do not be defensive and get used to being relaxed about having your views challenged by others.

Above all do not believe all that you are told: learn to be sceptical

- Constantly question views, theories and opinions that you are faced with.
- Test every idea to destruction so that you can tell which ones really stand up.
- Understand that what we currently think is only the best knowledge we have at the time.
- Don't be too easily persuaded

Find out about Post-Graduate Employment

If you are applying for vocational degree which prepare you for a specific job such as medicine , social work of teaching it is very important to show in your Personal Statement that you know what the job involves. Here are some websites which will help you to find out about the realties of work:

Prospects.ac.uk website

http://www.prospects.ac.uk/

Click 'Careers advice' link then click 'Options with your subject' link which will give you information on:

- skills the degree will give you
- job options related to your degree
- jobs for which your degree would be useful
- links to each of the jobs for further details
- career areas chosen by those with your degree
- where the jobs are
- other possibilities after your degree.

The icould website

http://icould.com/

has over a thousand videos of individuals talking about their careers with hundreds of supporting articles giving an insight into:

- what each career involves
- what people who follow the career actually do
- what it is like
- how they came to be where they are
- their plans for the future.

National Careers Service website:

https://nationalcareersservice.direct.gov.uk

The National Careers Service provides information, advice and guidance to help you make decisions on learning, training and work opportunities. The service offers confidential, helpful and impartial advice, supported by qualified careers advisers.

The service is freely available for people living in England. Links to organisations offering targeted advice for people living in Scotland, Northern Ireland or Wales are provided on the website.

Help and support is provided to show you how to:

- develop your CV
- search and apply for jobs
- understand the job market
- search for courses and training schemes
- find funding to support any learning
- identify your key strengths and skills
- explore your career options
- choose training routes that fit your lifestyle
- develop an action plan to help you achieve your goals.

UNIVERSITY INTERVIEWS: A STEP BY STEP GUIDE

Key Pointers

Chances of an Interview More universities and university courses do not interview than do, **so the Personal Statement is even more important** if the university you are applying to does not interview. Some universities will interview every serious applicant, others none. Some will interview borderline applicants only. Check when you are choosing your universities.

Some Top Universities do not Interview In the case of two of the top universities, for example, LSE do not interview at all and Durham only interview for medicine and Education.

Who is More Likely to Interview? The following interview or are more likely to than not to interview BUT **this is not a definitive list:** Oxford and Cambridge, Medicine and medical professions, Vet Science/medicine, Dentistry, Teaching, Nursing and midwifery, Architecture, Classics, Computing, Drama and Theatre Studies, Engineering, Journalism, Music, Social work

Is a University Interview Always Selective? Interviews come in two main forms.

The ‘selection’ interview A genuine attempt to assess suitability for a course: interviews for medicine and Oxbridge, teaching, nursing, midwifery are examples.

The ‘recruitment' interview. The university has decided to make an offer and the interview is encouragement to accept. Interviews for less popular courses are examples of this. BUT be on your guard and present yourself as well as possible, it is not always as simple as this.

From January of Year 12:

General Interview Technique Find out as much as you can about what is good interview techniques. Look at these examples of a poor and a good economics interview:

https://www.youtube.com/watch?v=snol9dIz6Ds

https://www.youtube.com/watch?v=zzwxQ164FE0

Begin to mull over the ways you would answer possible questions you might get asked in an interview and do this more systematically as the year goes on:

Typical General Questions

- Tell me about yourself?
- How would you describe yourself?
- Tell us about your current courses?
- What are you best at?
- What are your main interests?
- Do you have any weaknesses
- Prepare by thinking about:
- Your key personality characteristics
- Your general and study interests
- Try and be relevant and talk about those personality qualities and interests that match the course

Questions about your motivation for the course and the university

- Why do you want to study for a degree?
- Why did you choose this course?

- What do you think university can offer you?
- What else, apart from study, interests you about this university?
- Why do you want to study at this university?
- Why do you want to study in this town/city?

Find out What to Expect at the Interview If you know what course you want to apply for find out as much as you can from university websites about how likely your are to be interviewed, the form the interview will take, what sort of questions are likely to be asked and whether or not some sort of test or challenge will be presented to you at the interview.

Oxford or Cambridge Interviews

Go to the Oxbridge Step by Step Guide

Medical Interviews

Go to the Medicine Step by Step Guide

Dentistry Interviews

Go to the Dentistry Step by Step Guide

Vet Science Interviews

Go to the Vet science Step by Step guide

Nursing Interviews

Go to the Nursing step by Step Guide

Teaching Interviews

Go to this link especially the interactive interview tab on the left hand side.

http://www.education.gov.uk/get-into-teaching/apply-for-teacher-training/help-with-your-interview

Other Subject Focused University Interview Guidance Interview Preparation

Mental Rehearsal Mull over answers that you would give to questions that topically come up at interviews**:**

Subject related questions

- Why do you want to study this subject?
- What do you know about the course? (very important that you prepare for this)
- What attracts you to this course?
- Are there particular aspects of the course that attract you ? Why?
- What have you read recently that is relevant to your interest in this course?
- What experiences /work experience/ visits/ independent study have you done which is relevant to this course?

Topical questions Interviewers may ask your opinion on something topical, that is in the news or related to your subject.

- Prepare for the interview by looking in the media to see what is current
- You can reading the national serious newspapers online or in hard copy and pick out current stories that seem linked to your subject.
- Collect them in a folder and think about how you could respond to a question on these topics.
- Watch TV documentaries related to the subject

Hypothetical situation or problem solving questions

- Be prepared to have to think on your feet and do not over rehearse prepared answers
- Give me an example of a time when... you dealt with a problem, or overcame some obstacles, or worked in a team to achieve an outcome etc
- If you were asked to....do something creative about .....what would you do?

Course-related questions: Aston University encourage applicants to think about the following:

- What are the employment prospects for graduates?
- What is the content of the second year module x?
- Is the focus of the course more practical or theoretical?
- Is there preparatory reading I can do?
- How many contact hours per week should I expect?
- How much independent study is expected?
- How much choice do I have with module selection?

Video Look at this video about interview techniques

https://www.youtube.com/watch?v=CMyD6c9Z3z8

Early June in Year 12

UCAS APPLY UCAS Apply system becomes available online.

July to September in Year 12:

Look at the excellent advice on Interviews from UCAS:

- The when's and where's: Make sure you know where you need to be and when. Make any travel and accommodation arrangements in advance. Visit university website for maps and directions.
- Knowledge is power: Read the prospectus and look on the university's or college's website. Make a list of questions you'd like to ask, things the prospectus doesn't tell you.
- Know your application: This is all your interviewer knows about you so far.
- Be familiar with 'hot topics' in your subject area
- Practice: A mock interview is a good idea.
- Dress appropriately: Show you are taking things seriously by dressing smartly (smart trousers and shirt or blouse)
- Arrive in good time: Take contact numbers in case you get delayed.
- Body language: Don't slouch or yawn; sit up and look alert. Make sure you are giving off all the right signals.
- Stumped? Ask for question to be repeated.
- Expect the unexpected: A surprise test or exercise isn't unheard of so stay calm and think clearly.
- Ask questions: Use the interview as a chance to find out about things not on website or in prospectus.
- Sit up straight, and lean slightly forward in your chair to projecting interest and engagement. Aligning your body's position to that of the interviewer.

- Keep an interested expression. Nod and make positive gestures in moderation.
- Establish a comfortable personal space between you and the interviewer. Invading personal space (anything more than 20 inches) makes the interviewer uncomfortable.
  If you have more than one person interviewing briefly address both with your gaze and return attention to the person who asked the question.
- If interruptions happen refrain from staring at your interviewer while they address their immediate business. Show willingness to leave if they need privacy.
- According to research at Harvard **striking an expansive posture** with open limbs rather than one with crossed arms and legs raises testosterone levels by an average of 20% and lowers cortisol, the stress hormone by a similar amount.

September in Year 12:

Look at this UCAS video about university interviews:

http://www.ucas.tv/ucas/video/pwHtR

Get a Mock Interview! with a member of staff who knows about the subject you are applying for. Explain to them what you can expect for the interviews you are going for because they may not know.
Get them to really challenge what you are saying with questions such as:

- What evidence is there for that?
- I disagree with that because.....?
- You are not taking account of .....?
- Doesn't that contradict what you said earlier.....?
- Wouldn't x's ideas/theories argue against that?
- Would you be able to apply that kind of thinking to.....?
- Can you explain how you came to that conclusion?
- On the other hand, couldn't you say that.....?
- The problem with what you are saying is.....?
- There are limitations to that argument aren't there.....?

What should I be reading?

University Interviews Guide, Andy Gardner and Barbara Hamnett

Which websites will be useful?

The University of Kent Careers Service offer some very good general advice about different types of interviews. It is aimed at undergraduates but is still useful to those applying to university or for a variety of careers.

http://www.kent.ac.uk/careers/applicn.htm

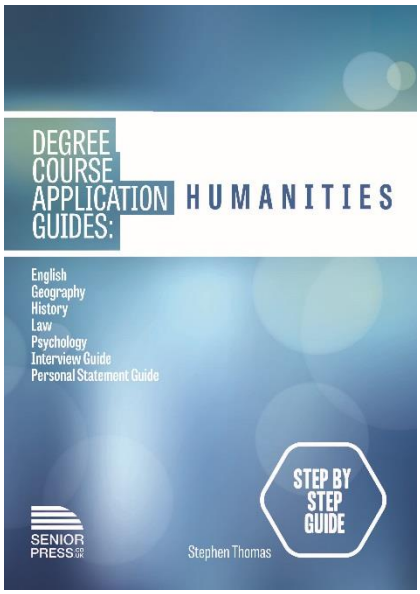
Which University? There are some interview tips on this website:

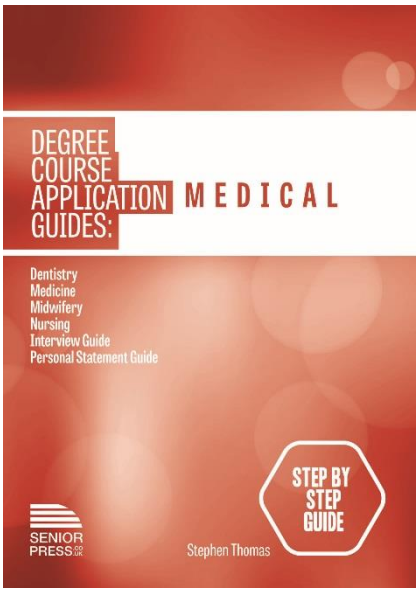
http://university.which.co.uk/search/advice?utf8=%E2%9C%93&a%5Bq%5D=interviews&commit=Go

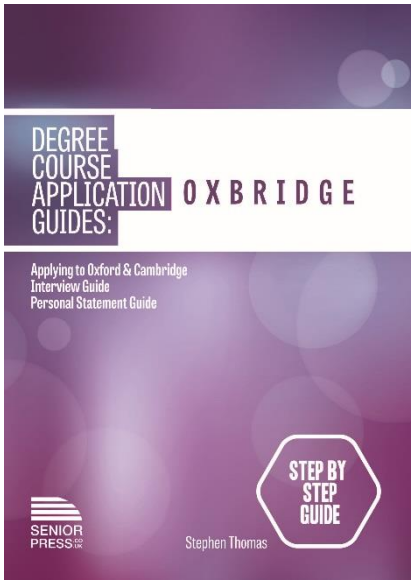
Sample Questions This site has many examples of university interview questions and discussion of possible answers

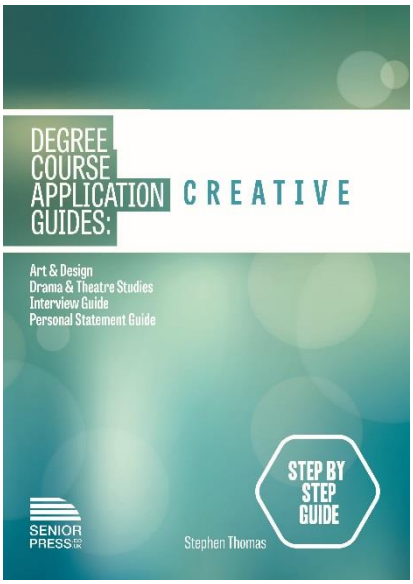
http://www.studential.com/interviews

READ MORE DEGREE COURSE APPLICATION GUIDES









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