Research and Study Skills: Research and Evaluation

Student Pack

Think. Rethink

THOUGHT

![University of Birmingham Library Services logo]

Overview

This pack will help you develop the key skills that are needed for successful research and evaluation. Covering note taking, searching Google and other electronic resources, website evaluation and critical thinking, this pack is a good starting point if you want to know more about finding good quality information for your essays or how to effectively summarise information and recognise academic arguments.

This pack is one of two packs on Research and Study Skills available from the University of Birmingham. The other, complementary pack focuses on academic writing skills.

Further support online – Academic Skills Gateway
http://libguides.bham.ac.uk/asg/

Throughout this pack you will see links through to the **Academic Skills Gateway** for further online support.

Library Services has developed the Academic Skills Gateway, a collection of online resources, to support a wide array of study skills. The topics covered range from writing, research and referencing skills through to maths support, time management and presentation skills.

All activities featured in this pack can be further supported by the Academic Skills Gateway. Please note, there are many additional topics covered by the Gateway which you may also wish to explore independently.

The Library Academic Engagement Team
Library Services, University of Birmingham. 2017

![University of Birmingham Library Services logo]

Contents

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1 Getting to know an academic library

✅ Learning outcomes

By the end of this section you should be able to:
☐ Recognise that an academic library is very different from a school or college library
☐ Understand the range of resources, services and facilities that an academic library offers

➕ Background

Students are often overwhelmed by the scale of an academic library and can find it daunting to begin with. You should not feel discouraged as there is always lots of help available with using the resources and facilities.
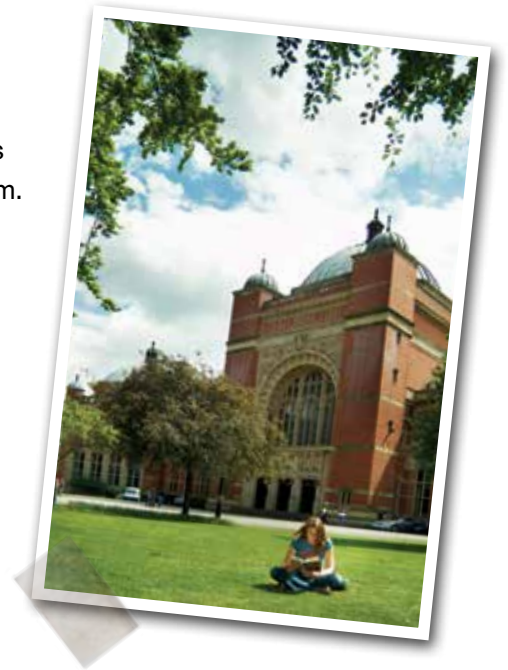
🔄 Activity

This quiz aims to test your current perceptions of academic libraries against the reality of Library Services at the University of Birmingham.

Answer the following questions:

1. How many libraries are there at the University of Birmingham?
☐ 5
☐ 6
☐ 7
☐ 8
☐ 9

1 Getting to know an academic library continued

2. How many books does the University of Birmingham Library own?

☐ Under 500,000
☐ 500,000 – 1 million
☐ 1 million – 2 million
☐ 2 million – 3 million

3. Which of the following does the University of Birmingham Library have?

Answer 'Yes' or 'No' to each.

Yes	No	
☐	☐	Books
☐	☐	Cash point
☐	☐	Coffee shop
☐	☐	Computers
☐	☐	DVDs
☐	☐	Electronic resources
☐	☐	Group study rooms
☐	☐	Help
☐	☐	Journals (academic magazines)
☐	☐	Newspapers
☐	☐	Photocopiers
☐	☐	Pub
☐	☐	Study spaces
☐	☐	Wi-Fi

4. How many electronic journal (academic magazines) articles are downloaded every year at the University of Birmingham?

- ☐ 1.5 million – 2.5 million
- ☐ 2.5 million – 3.5 million
- ☐ 3.5 million – 4.5 million
- ☐ over 4.5 million

5. Over 300 members of full-time and part-time staff work for Library Services at the University of Birmingham. Which of the following do they do?

Answer 'Yes' or 'No' to each.

Yes	No	
☐	☐	Add the books to the library catalogue
☐	☐	Answer questions via an online chat service
☐	☐	Buy books and other materials
☐	☐	Help staff and students
☐	☐	Library development/improvement work
☐	☐	Maintain and pay subscriptions to the electronic resources
☐	☐	Make the books ready for the shelves
☐	☐	Obtain books from other libraries in the world
☐	☐	Offer course advice
☐	☐	Offer support on essay writing and study skills
☐	☐	Offer support on digital technology skills
☐	☐	Provide tours of the library
☐	☐	Repair books
☐	☐	Shelve books
☐	☐	Train students in how to find information in their subject(s)
☐	☐	Serve in the café

2 Note taking

✅ Learning outcomes

By the end of this section you should be able to:
- ☐ Identify clear and concise note taking
- ☐ Understand that good note taking should concisely summarise the key points and should demonstrate how related ideas are linked
- ☐ Appreciate that the approach used in taking notes is a personal preference

Further help
For further guidance on note taking please visit the **Academic Skills Gateway: http://libguides.bham.ac.uk/asg/learn**

✚ Background

Making notes is an important skill in academia. There are many instances of when students would make notes, for example: during lectures, classes or when reading. We make notes for a variety of reasons. These include:
- ☐ To help us to concentrate
- ☐ To remember important information
- ☐ To allow us to process information and clarify ideas
- ☐ To keep active through multi-tasking
- ☐ To collect material for assignments
- ☐ To help revise and prepare for exams

2 Note taking continued

Activity

This activity is designed to allow you to reflect on your current note-taking skills.

Imagine you are an Education student who needs to read the following text in preparation for an exam. Take notes from this text in the way that you would normally take notes. You may do this by using the 'Notes' space provided or by drawing, highlighting etc on the text itself or a mix of the two.

Inclusive education: widening participation activities

Widening participation is a higher education policy introduced by the Labour Government in its 2001 election manifesto. At its simplest, the policy was and is concerned with encouraging and enabling non-traditional groups of students to access higher education institutions through a programme of expansion. Non-traditional students can be defined for example as those who have little or no experience of universities, those from poorer and/or working class backgrounds, black minority ethnic groups, women, older applicants and those with a disability.

The policy's main driver was its attempts to a) increase the numbers of non-traditional entrants into university – the target then was for 50% of young people 18–30 to have experienced higher education by 2010, and b) through a range of activities and interventions to meet society's economic and social needs. To widen participation, those activities and interventions have been undertaken in collaborative partnerships with schools and colleges.

The first of these was the Aimhigher initiative that was established in 2002. Aimhigher was the national outreach programme for widening participation and it specifically targeted schools, colleges and universities to work collaboratively on raising aspirations and attainment amongst young people from disadvantaged backgrounds. Aimhigher delivered a number of programmes including summer schools and masterclasses. Although funding for the Aimhigher programme ceased in 2011, universities continue to provide a range of initiatives that raise aspirations and encourage learners with potential to enter higher education.

2   Note taking continued

Notes

2 Note taking continued

Note-taking tips

☐ Make sure you are actually reading and engaging with the document you're taking notes from, rather than just mindlessly highlighting or copying it out word for word.

☐ If you like highlighting, be selective about it, and combine it with concisely written notes or annotations in the margin.

☐ Try to write notes in your own words, to aid your understanding, but always record the full reference of the source, and the page number.

☐ Your notes should be meaningful to you, and should help you understand and respond to what you've read. Use colours, subheadings, arrows and bullet points to organise and connect ideas. Write down questions and thoughts as you go. Try to create your own summaries after every few pages.

☐ File your notes carefully so that you can easily find and use them in the future. If you like to take notes on a laptop or tablet, make sure your file names are meaningful and your folder system is organised. Electronic note-taking software programmes such as Evernote can help you to categorise and tag your notes.

A note-taking template to try

Now that you've discussed some different techniques and their benefits or drawbacks, you might like to try a template like the one below, which is based on the Cornell note-taking system.

SOURCE REFERENCE:	
NOTES/ KEY POINTS:	MY QUESTIONS OR COMMENTS:
SUMMARY:	

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3 Google

✅ Learning outcomes

By the end of this section you should be able to:

☐ Recall that there are three types of Google (Google, Google Scholar and Google Books) which can be useful in finding information for an academic essay, though it is always worth asking a librarian if they can recommend other electronic resources that are specific for your subject area

☐ Discuss the advantages and disadvantages of each type of Google

Further help

For further guidance on using Google please visit the **Academic Skills Gateway: http://libguides.bham.ac.uk/asg/research**

Background

You will probably already be familiar with Google and are likely to use it for finding information on a regular basis. Google was founded in 1998 by two university research students, and it processes over a billion search requests a day. In addition to Google there are also two other Google search engines which can be useful if/when finding information for an academic essay: Google Scholar and Google Books.

Google (www.google.co.uk) – this is a search engine which searches over a billion websites.

Google Scholar (http://scholar.google.co.uk) – this is the academic arm of Google. Google has deals with a number of academic publishers and Google Scholar allows users to search across their content. The results can be a mix of citation details, abstracts and entire journal articles. It also searches across journal articles that university academic staff have written and made freely available.

Google Books (http://books.google.co.uk) – this allows you to search across a number of books that have been made available electronically. Google has worked with a number of large research libraries to scan their books and make them freely available to the world. For some books you will find basic publication details, whilst for others you will discover some or all of the entire book.

3   Google continued

Activity

This activity will demonstrate the differences between Google, Google Scholar and Google Books.

Your tutor will give you a keyword (or keywords) to use to search for information on a topic. You will be asked to enter the keyword(s) into each type of Google in turn and execute the search. For each type of Google you should look at how many results are returned, as well as the benefits and drawbacks of the type of information that is found. You should enter your findings into the table provided on the next page. You should try to think about this from the point of view of finding information for your essays.

3 Google continued

Google

For the keyword (or keywords) that you have been given, search the three types of Google and complete the following table.

Type of Google	Number of results	Benefits	Drawbacks
Google www.google.co.uk			
Google Scholar http://scholar.google.co.uk			
Google Books http://books.google.co.uk			

Note: We have interrogated the different versions of Google using the basic search box in each instance. However each form of Google has an Advanced Search – by using this you can find even more relevant results. If you have time, take a quick look at the Advanced Search options for the three forms of Google that you have just studied.

4 Searching electronic resources

✅ Learning outcomes

By the end of this section you should be able to:

☐ Understand what Boolean logic is and explain how to use it
☐ Identify keywords in an essay title and think of alternative keywords (synonyms)
☐ Combine keywords using Boolean logic
☐ Combine keywords using the Google version of Boolean logic

Further help
For further guidance on searching electronic resources please visit the **Academic Skills Gateway: http://libguides.bham.ac.uk/asg/research**

➕ Background

Very few resources (such as Google, Google Scholar and Google Books) allow you to do a natural language search, such as '*is there a link between violence in the media and crime*?' You need to pick out the keywords for your topic and then link them with *Boolean operators*, such as AND or OR.

4 Searching electronic resources continued

Keywords

The keywords in the topic '*is there a link between violence in the media and crime*' are: *violence, media* and *crime*. As well as searching for these keywords, you should also think of synonyms (words with the same meaning). The following table illustrates the idea of keywords and synonyms.

Keywords ⟶		
violence	**media**	**crime**
fury	television	criminal
cruelty	film	illegal
aggression	press	offence

(row label: **Synonyms** ↓)

You should also consider alternative spellings, for example American spellings such as **color** for **colour**, acronyms such as **TV** for **television**, as well as alternative words, such as **automobile** for **car**.

Boolean Logic

Boolean logic was devised by English mathematician George Boole and can be used to combine keywords to effectively search electronic information: returning relevant results whilst eliminating insignificant results.

There are three main Boolean operators: *AND*, *OR* and *NOT*.
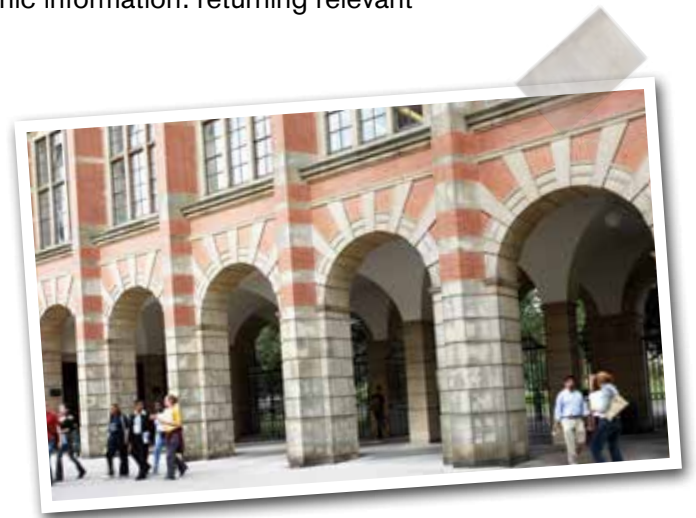
4 Searching electronic resources continued

In Google, a **space** is used for AND, **OR** is used for OR and **–** is used for NOT. To search for a phrase put " at the start of the first word and " at the end of the last word (this method of phrase searching also works in Boolean searching). Google will automatically search for synonyms: if you would like Google to search for the exact word you have typed then include a **+** sign (followed by no space) ahead of the word, eg, +car.

AND is used to join search terms when you want both terms to be present in a record, so it is used to combine the different concepts in your search. This can be illustrated as follows:

Eg, **media** AND **crime** (when searching Google you could use: **media crime**. Alternatively if you wanted media and crime as exact words you would type **+media +crime** when searching Google).
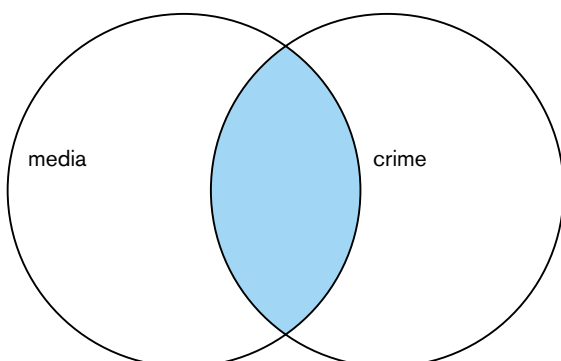
The shaded area represents the articles you want, with both the word *media* and the word *crime* in them.

OR is used to combine synonyms, ie, words with the same or similar meanings. It will find articles containing *either or both* words.

Eg, **media** OR **television** (when doing this search on Google you would use **media OR television**).
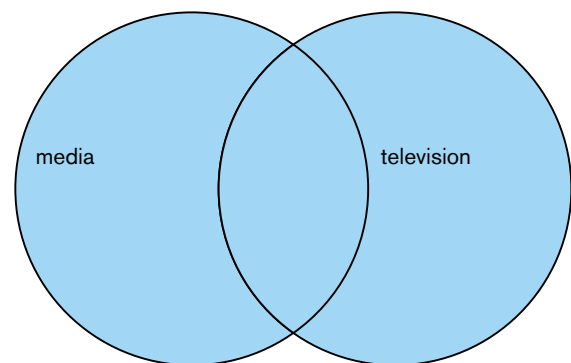
Thus this search finds articles with the word media, or with the word television, or with both words (in the intersection in the middle).
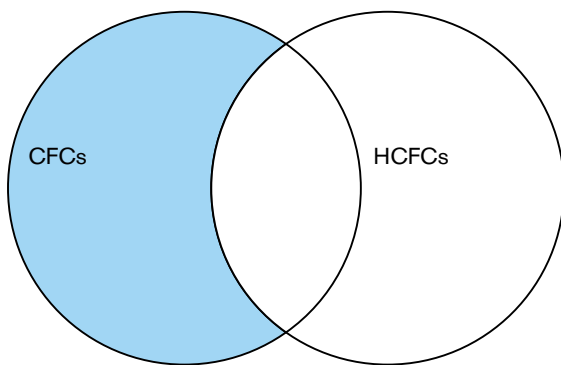
NOT is used to eliminate concepts from your search. The term following NOT must be *absent* from the item in order for the record to be returned.

4 Searching electronic resources continued

Eg, **CFCs** NOT **HCFCs** (when doing this search on Google you would use **CFCs –HCFCs** or if you wanted CFCs as an *exact* word you would type **+CFCs –HCFCs**).

Therefore, this search will retrieve all documents with the term *CFCs*, but will eliminate any which also have the term *HCFCs*.

NB: the NOT search should be used with caution as it may eliminate articles which would otherwise have been useful. For example, the above search would eliminate an article comparing the effects of CFCs and HCFCs which may have contained some useful information about CFCs.

4 Searching electronic resources continued

Activity 1

Your tutor may choose to illustrate Boolean logic to you using an activity involving playing cards.

Activity 2

This activity will help you identify keywords, think of synonyms and combine words using Boolean logic.

For the essay title(s) that you have been assigned, consider the following:

(a) Identify the keywords you might use if you wanted to find information to write the essay that you have been assigned.

(b) For each of the keywords that you have identified in part (a), try to think of at least one other alternative word meaning the same thing (synonym).

(c) How would you combine the keywords to get the best results using Boolean logic?

(d) How would you combine the keywords to get the best results using the Google form of Boolean logic?

For each question, note your answer on a separate post-it note and affix the post-its to the template on the wall for your essay question.

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5 Website evaluation

✅ Learning outcomes

By the end of this section you should be able to:
- ☐ Understand the difference between primary and secondary resources.
- ☐ Recall some of the key questions that need to be asked
  in order to evaluate a website for academic use
- ☐ Critically evaluate websites
- ☐ Work as a small team
- ☐ Feedback key ideas to a larger group of peers

Further help
For further guidance on evaluating websites please visit the **Academic Skills Gateway: http://libguides.bham.ac.uk/asg/research**

➕ Background

You will often use the internet to do your research for academic essays. It is an important skill to be discerning and able to identify whether a website is suitable as a source of information for use in an academic assignment.

📈 Activity

Imagine that you have an essay due in on the topic of nuclear power the following day. It is now late at night and the only resource you have access to is the internet. You find the following four websites on the topic:
- ☐ World Nuclear Association
  – **www.world-nuclear.org/**
- ☐ World Information Service on Energy (WISE)
  – **www.wiseinternational.org**
- ☐ Culham Centre for Fusion Energy
  – **www.ccfe.ac.uk/**
- ☐ Wikipedia – **en.wikipedia.org/wiki/Nuclear_power**

Spend five minutes looking at each website in turn and, using the questions on the *Website Evaluation Checklist* (on the next page) to help, decide on some plus and negative points for each website. Remember: for each website, you are trying to evaluate the quality and not how aesthetically pleasing it is! Record your findings in the *Website Evaluation Table* on page 21.

Tip: If in the future you are evaluating websites on another topic, why not construct a similar table to the *Website Evaluation Table* on page 21 to help you record your observations about the websites that you have found?

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5 **Website Evaluation Checklist**

	Notes
Is it related to your essay?	☐ When you search the web you will get thousands of results. Stick to the ones that are directly related to your essay topic and do not get distracted! ☐ Consider the country/countries that this information refers to and only use if it is appropriate to your topic.
Who produced the website and the material within it?	☐ Anybody can post material onto the web. It is important to identify the author or organisation and check their credentials. The 'About Us' section of a website can be useful for checking these details.
Is the material biased?	☐ Check to see if the website gives a balanced viewpoint. Websites are created by individuals or organisations that wish to promote their own point of view. This may (intentionally or unintentionally) lead to bias. Consider why the web page has been written. ☐ Look at the way the material has been written and the language that has been used. For example, is the language sensationalist? Check to make sure that all claims are backed up with appropriate primary/secondary material. ☐ It is good practice to use a variety of sources of information so that you can see (and assess for yourself) all points of view on a topic.
Is the material on the website primary or secondary?	☐ Primary material – is first-hand information produced by the author/organisation eg, data from their experiments, photographs, maps etc. ☐ Secondary material – uses, interprets, evaluates, criticises and/or comments on primary material eg, a newspaper article that comments on the results of an experiment. ☐ Example – The novel Harry Potter is a primary source as it was created from the mind of its author – J.K. Rowling. The book *Critical Perspectives on Harry Potter* by Elizabeth Heilman is a secondary source as it analyses the Harry Potter novels. ☐ Secondary material cannot exist without the primary material and involves third party interpretation (which could be inaccurate). A good secondary source will always take you to the primary material which allows you to check the interpretation and come to your own conclusions.
Is the material up-to-date enough for your essay?	☐ Check when the web page was last updated (you can often find this information near the bottom of the page or look for clues within the text). It is not uncommon for people to publish material on the web and then not remove/update it. ☐ Some topic areas change more rapidly than others, for example the law changes daily as new legislation is released so a website that has not been updated since 2014 may be very out-of-date!

Website Evaluation Table

You are writing an essay on Nuclear Power and decide to look at the following websites to find information for it. Go to each website in turn and, using the Website Evaluation Checklist analyse what the plus and negative points are for using each of these websites for your essay and note them in the table below (eg, is the information of high enough quality? Is it up to date? Is it written by an expert in the field? Is it biased? etc).

	Plus Points	Negative Points
World Nuclear Association www.world-nuclear.org		
World Information Service on Energy (WISE) www.wiseinternational.org		
Culham Centre for Fusion Energy www.ccfe.ac.uk		
Wikipedia en.wikipedia.org/ wiki/Nuclear_power		

6 Critical thinking – arguments

✅ Learning outcomes

By the end of this section you should be able to:
- ☐ Understand what arguments are
- ☐ Analyse simple arguments, identify the premises and conclusions and understand the concept of standard form
- ☐ Understand why good arguments are required in academic writing, and how they relate to essays

Further help
For further guidance on critical thinking please visit the **Academic Skills Gateway: http://libguides.bham.ac.uk/asg/learn**

⊞ Background

Whether reading others' work, or writing your own essay, an appreciation of arguments is key to academic success. By being able to break down an argument into its constituent parts, you will be able to see more easily the statements a writer wants you to accept, and be able to see clearly the points being offered as evidence.

6 Critical thinking – arguments continued

Activity 1

Definitions

First of all, it's essential to know what we mean when we say the word 'argument'.

In pairs, discuss different meanings of the term 'argument' in both everyday life and at university. Be prepared to share your findings with the group.

How does the term 'argument' as used in academia differ from some other uses?

6 Critical thinking – arguments continued

Activity 2

Identifying claims

Only certain sorts of sentences can be used in arguments. These are statements or claims.

- ☐ They are either true or false
- ☐ They are declarative (not questions or commands; they describe how things are, were, will be, would be, could be or should be)
- ☐ They are clear and unambiguous – never vague

Which of the following are claims, and which are not?

1. All cats have four legs.
2. Barack Obama was the 44th president of the United States.
3. Don't walk through the city at night.
4. Why do people always talk on their phones on the bus?
5. My uncle is very tall.
6. There is life in outer space.
7. All dogs have fleas.
8. Are you serious?
9. Julius Caesar was the best.
10. You shouldn't be in here.

6 Critical thinking – arguments continued

Activity 3

Argument structure

In an argument, one of the claims offered must be a conclusion that the writer (or speaker) wants the reader (or listener) to accept, while the other(s) are offered as premises, which are reasons why the conclusion should be accepted. If this doesn't happen, it's not an argument.

Take a look at the following example:

> **Conclusion**   Premises
>
> (You should join your local gym.) Regular exercise is key to losing weight and staying healthy, and local gym memberships are cheaper than ever!'

Here, the argument is simple. The speaker is recommending that the listener join their local gym.

☐ You should join your local gym.

This is the argument's **conclusion**.

There are **three** reasons offered to support this:
1. Regular exercise is key to losing weight.
2. Regular exercise is key to staying healthy.
3. Local gym memberships are cheaper than ever.

These are the argument's premises.

Notice how the first and second premises (losing weight and staying healthy) are combined in the original text. It is sometimes easy to miss combined premises like this, but listing them individually can help clarify all the claims of an argument. This is known as putting the argument into standard form.

Look at the following arguments.

Underline the PREMISES and circle the CONCLUSIONS.

> Animals do not have a choice in whether they are used for food or not, and killing them for our own needs is selfish, so all people should be vegetarian.

> You enjoy socialising with others, so you should get a job that involves talking to people. You've always hated boring office work!

> The Prime Minister is a Communist, because only a Communist would allow such rampant abuse of the welfare system. Her policies have directly contributed to this.

> You should complete your degree course. People who graduate from university not only earn, on average, more money than those who do not; they also report much higher levels of satisfaction in life.

6 Critical Thinking – Arguments continued

Analysing arguments

An argument should conform to two basic conditions if its conclusion is to be accepted. These are known as the truth condition and the logic condition.

You can perform checks on an argument to see whether it satisfies these:

Truth condition
Are the premises offered credible? That is to say, are they believable? What are their sources?

Logic condition
Does the conclusion make sense, given the premises stated? Does the conclusion follow, logically, or is the writer asking you to take a leap of faith?

**How can understanding arguments help you to be a better student?**

1. You can critically analyse the arguments of others.

You will come across many arguments at university – and some will be better than others. Good critical thinking and skills in argumentation will help you to weigh-up the claims and conclusions made by scholars.

2. You can critically analyse your own arguments.

Most essays you will be asked to write at university will take the form of arguments. In these, you will make a central point in order to respond to a problem and, in turn, this point will be supported by premises from your reading and research. Whether writing for a piece of assessed of work, or speaking to a tutor in a seminar group, you will be routinely asked to back-up what you are saying with evidence. Learning the basics of how to present an argument is something that will help you at all stages of academic life, and testing your own assertions is a key part of this process.
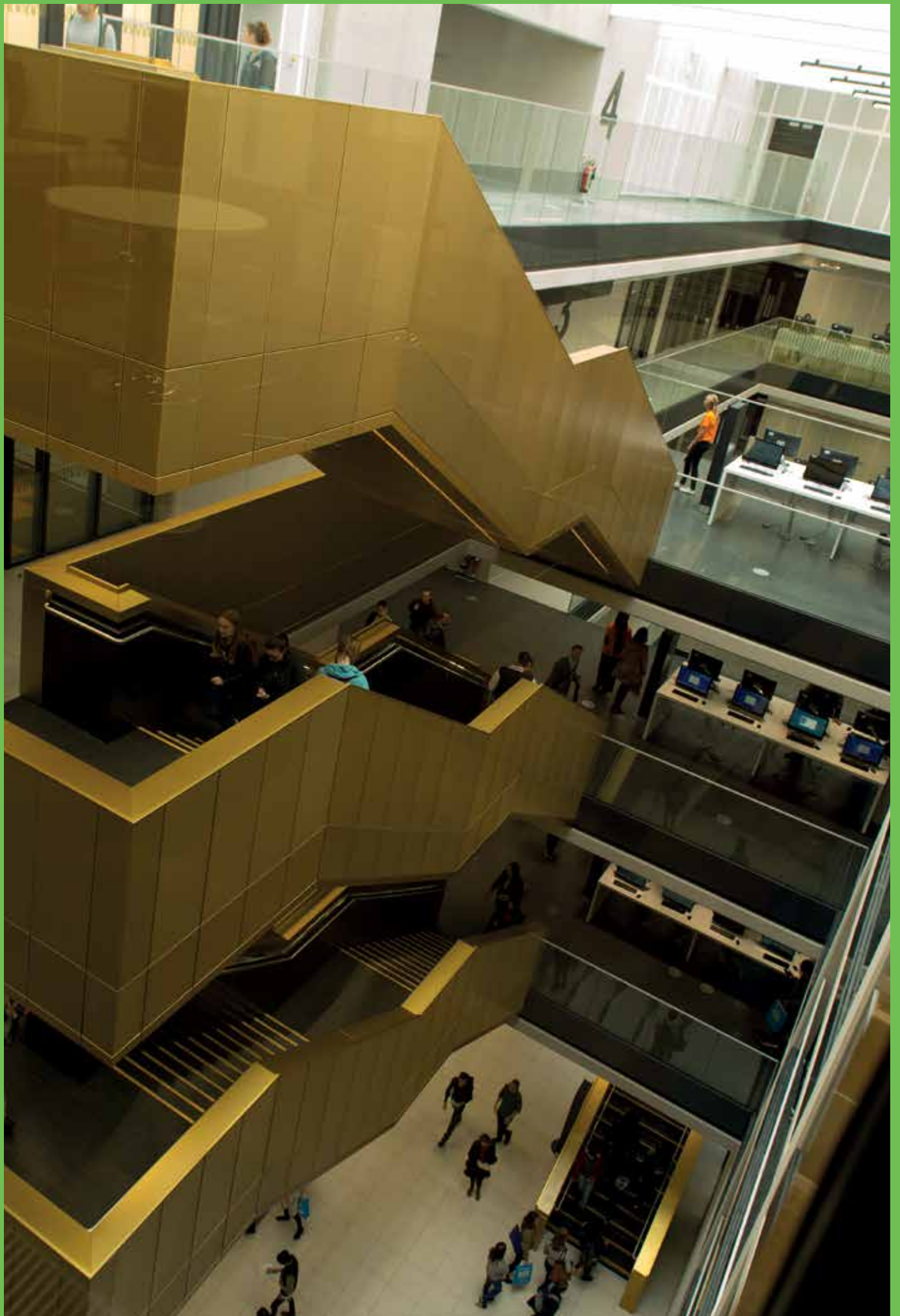
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