

# Piscopia

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HOW TO:

## ACE YOUR PHD APPLICATION

Written *by* students, *for* students



UNIVERSITY OF  
BIRMINGHAM



# HOW TO: ACE YOUR PHD APPLICATION

This booklet has been designed to help you through PhD applications, from just deciding about whether to apply right up until interview. It does not cover everything! But hopefully it should be a place to start and point you in the right direction of where to get more support. Good luck!

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# HOW TO:

# DECIDE

PhDs are for people who like research. It is different to your undergrad where you take lots of modules and learn set things from lecturers that talk at the front of a lecture theatre. PhDs are about investigating new parts about your favourite subject.

**"You don't have to be an expert in anything; an interest in research is all you need"**

You have a lot of freedom in the part of maths you would like to study, loads of experience in one specific area isn't necessary. In fact, you don't have to be an expert in anything; an interest in research is all you need.



You might not know everything now but that's what your PhD is there to do. It will give you the tools to build that knowledge and at the end, you'll find you are one of the only people that is be able to speak about the topic you chose.

*"Am I good enough?"*



**Talking to current students is the best way to find out whether a PhD is right for you.**

People with PhDs are thought to be geniuses, like Marie Curie and Hannah Fry. But at one point, they were all in the same position as you are: *just thinking about doing a PhD.*

*"Would I fit in?"*





# HOW TO: SEARCH FOR PHDS

## 1. NARROW DOWN TOPICS

What kind of topics did you enjoy as part of your studies? Did you like proving things? Did you like applying things? Did you like your research project? What parts did you like about it?

## 2. FINDING PROJECTS & GETTING SUPPORT

- *FindAPhD.com*
- *University websites*
- *Asking your supervisors, tutors or lecturers of topics you've enjoyed.*
- *PhD application support events*
- *Masters' project supervisor*
- *Piscopia events:*  
[www.piscopia.co.uk](http://www.piscopia.co.uk)

## 3. WHAT TO DO WHEN YOU FIND ONE

Always e-mail the project supervisor so you can hear about the project in more depth. They love to talk about their projects specially to interested students. It'll show that you are a keen student, make them remember you if you apply later on and give you an idea of whether you would get on should you be offered the project.



### TOP TIP:

**Start early! Deadlines are usually around December so make sure to start looking around September/ October.**

**REMEMBER:** You can apply to several projects at once.

**Project 1:**  
**Project 2:**  
**Project 3:**

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## HOW TO:

# WRITE A PERSONAL STATEMENT

When writing your personal statement, you want to be able to tailor it to the specific University and project that you are applying to. One way to get started is to think of answering the following questions. It is then easier to adapt the answers to suit each application you submit.

### GENERAL THINGS ABOUT YOU

- *What has drawn you to do a PhD?*
- *What would you like to improve upon by doing a PhD?*

### THINGS ABOUT THE SPECIFIC PROJECT

- *Why are you interested in this particular area of maths?*
- *Why have you chosen to apply to a specific University?*

### THINGS THAT MAKE YOU RIGHT FOR THE JOB

- *What specific technical skills do you have? (e.g., certain programming languages, modules relevant to the project)*
- *What do you think makes you suitable for a PhD (soft skills e.g., self discipline, time management—think of experiences that have made you so)*



**"For every piece of experience, try to relate this back to why that makes you a good fit for the project."**

The most important thing to put across is your interest in the topic and demonstrating how your previous experience makes you suitable. For every piece of experience, try to relate this back to why that makes you a good fit for the project.



**EXAMPLES OF BUZZWORDS:**

- real-world applicability*
- interdisciplinary*
- analytic*
- computational*
- collaborative working*

*real-world applicability*  
*interdisciplinary*  
*analytic*  
*computational*  
*collaborative working*



## HOW TO:

# WRITE A RESEARCH PROPOSAL

A research proposal is usually a 500-word document that speaks about the research that you would like to study. This document is an opportunity to talk in depth about the project that you are applying to.

**"The project abstract is the starting point for writing your own proposal"**

When projects are advertised, abstracts about the project will be included which talk about the possible routes that the project supervisor wants to take. The project abstract is the starting point for writing your own proposal and is why it is important to the project supervisor as they can explain in more detail the possible outcomes of the project and the sort of techniques that might be used.

**The main purpose is to explain what you are interested in researching and suggest possible approaches that could be used on the specific project.**

At the end of the research proposal, you will have the opportunity to say whether you want to stick to this project or whether you are open to other projects. If you are not sure which aspect or branch of mathematics you are interested in, then it is best to say that you are open to speaking to other members of the team. (This can help if the University thinks your skill set may suit another project better.)

*"Is there interest in this project outside of maths?"*





## HOW TO:

# MAKE AN ACADEMIC CV

If you are applying to do a PhD, you may need to submit an academic CV. This should be a short (1-2 page) document where you can briefly sell your achievements. This is similar to a standard CV but the focus should be a lot more on academic achievements.

**Remember: keep it brief and easy to read, but don't be afraid to show off your achievements.**

It is a good idea to divide your CV into sections to make it easier for someone reading it to pick out the relevant details quickly. For maths applications in particular, there are templates in LaTeX on Overleaf that will provide section headings and will make your CV look professional.

**"You should include the title of your masters or undergraduate project along with a brief summary"**

Even if it is not directly relevant to the PhD you are applying for, you should include the title of your Master's project (or undergraduate), along with a brief summary. You can also highlight any relevant modules you have taken (include mark if you have done particularly well in one!) or any relevant skills you may have (e.g., programming languages or a sub-topic of a module that you have a lot of experience in). You could also include something about extra-curricular activities, such as committees you have been on.



***SECTIONS TO INCLUDE: SHORT PROFILE -  
EDUCATION - RESEARCH PROJECTS - SKILLS - WORK  
EXPERIENCE - EXTRA-CURRICULAR ACTIVITIES***



## HOW TO:

# PREPARE FOR INTERVIEW

The final stage of the application is the interview. An academic interview can be similar to a normal job interview, however there is much more emphasis on your previous work during your undergraduate/ masters degree, specifically on any research projects you may have taken part in, either alone or as part of a group.



The best way to prepare is to anticipate questions that may be asked and plan your answers. It is important that you have evidence to support your answers too, for example, don't just say "I work well in a group", instead say "I took part in a group project last year and I was responsible for bringing together my colleagues' ideas to create a clear and cohesive report on ...".

**Be prepared to talk about your masters/final year project, including some of the mathematical detail.**

*FindaPhD.com* has a great blog which lists potential questions and guidance and what to say and not say for each question, e.g.,

***"Are there any training needs that you can identify ahead of your PhD?"***



This is a great way to express that you have some weaknesses in a constructive way. For example, there may be a specific topic mentioned in the project abstract that you don't have much experience in. It shows that you are aware of things you need to work on, which is what the PhD is there to help you do.



**INTERVIEW DATE:**



## HOW TO:

# FIND YOUR OWN FUNDING

Unfortunately, it can often be quite tricky to obtain funding from your desired University. In which case, you may need to seek out your own sources of funding. This can appear quite daunting but there are a few different ways of finding alternative funding.

## 1. Fee Waiver

First, check if any of the universities that you are applying for would be able to offer you a fee waiver. While this won't help with living costs, it will significantly help reduce your outgoings.



## 2. Check for scholarships

You can also check any scholarships that your university offers. Depending on your area of interest, background or any additional sporting achievements, you may be eligible for a scholarship that you can apply for through your university.

## 3. Charitable funding

If both approaches are unsuccessful, you can go to the charitable funding page of: [www.findaphd.com/guide/phd-funding-charities](http://www.findaphd.com/guide/phd-funding-charities).

Charitable funding often isn't as much as a full scholarship, but if you find several charities that are applicable, you may be able to win multiple awards that will significantly help fund your PhD.





## HOW TO:

# FIND YOUR OWN FUNDING

### 4. Graduate Teaching

Some universities offer graduate teaching assistant positions which mean that if you teach alongside your research, they will pay you to work for them. These positions are often longer but offer valuable teaching experience which could be very advantageous when applying for jobs in the future.

### 5. Postdoctoral Loan

If you are a student who normally resides in either England or Wales, you may qualify for a postdoctoral loan. These pay around £9000 a year, and in most areas, will make a large contribution towards living costs.

### 6. Assistant Wardenship

Some universities also offer assistant wardenships, where you live in university accommodation rent-free in term time and then at a reduced rate over the summer in return for taking care of students who live in that hall block. This is normally done on a rotational basis, with an assistant warden being required to be on call overnight up to a few times a week. Sometimes assistant wardenships will also provide catering.

You can also investigate tutoring opportunities at your university in order to top-up the amount of money you are receiving each month, and/or you can apply for part-time jobs alongside your studies.

Written by Laura Johnson

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# HOW TO:

# APPLY TO THE US

The application process for PhD programs in the US is like the UK, however there are some key differences to consider:

## 1. Admissions Process

Instead of a research proposal, you will have to write an “Academic Statement of Purpose”. This should be a concise statement that describes how your education and research background prepared you for a graduate program and why you have chosen the specific university. You would also need to mention your career goals after the PhD. It is not expected to describe a detailed research project, but it might be good to mention the area you are interested in and the names of professors you would like to work with.

**Many US universities do not require GRE tests anymore, but for some they are strongly recommended.**

You might have to take the “General GRE” and the “GRE Subject Mathematics” tests, which are worldwide recognised admissions tests. The GRE Subject Tests are offered up to three times a year in September, October and April.

More info: <https://www.ets.org/gre.html>.



You will still have to submit a CV, letters of recommendation, and write a personal statement. The purpose of the latter is for the committee to learn more about you and your experiences outside of academics. However, there is usually no interview.



# HOW TO:

# APPLY TO THE US

## 2. About US PhD Programs

- The duration of the PhD programs in the US is 5-6 years.
- Application deadlines are usually in November and December.
- Having a Master's degree is optional.
- Your tuition will be covered by the Graduate School. You will most likely have some teaching responsibilities, which could range from being a grader to teaching your own class! This is how you typically earn a salary. (Make sure to ask about funding opportunities over the summer!)

**Start researching the various programs early. Talk to professors or other students that have studied in the US.**

## 3. General Advice

Applying to many places in the US may be costly. Each university requires an application fee. Additionally, you will need to pay for any tests you need to take, your visa application, and possibly sending test scores or other documents (e.g., official transcripts).

There are hundreds of universities that offer PhD programs in the US, so it may be challenging to choose from such a wide range. Potential criteria are:

1. Are there many professors working in your area of interest?
2. Are there teaching or other professional development opportunities?
3. Do you like the location? This might sound silly, but you will spend the next 5 years of your life at that place!

**Written by Christina Athanasouli**

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Written by *Rahma Abdulahi, Rosie Evans*  
and *Amarja Kathapurkar*.

Artwork by *Meg Evans*.  
Instagram: *@megevens\_artist*