Options with Mathematics

Where to Start

Ever wondered what your job options are? What graduates in your subject do next? Why employers might want you? What special skills and experiences you've gained as a student? Or do you fancy doing something completely different? Then read on for some tips on what to consider and where to look for further information to help you decide what to do next.

Bear in mind that it's not just your degree discipline that determines your options. Get hold of the AGCAS information booklet *Your Degree... What Next?* from your careers service. This looks more generally at the options for today's graduates and offers informed advice on career planning. Or try *'What jobs would suit me?'* an online career planning tool, at *www.prospects.ac.uk/links/Pplanner.*

What Skills Do You Have?

You'll have to think hard about what you have to offer. You should consider everything you've done on your course plus other achievements such as paid work, volunteering, family responsibilities, sport, membership of societies, leadership roles, etc. You'll then have to think about how these can be used as evidence of your skills and personal attributes. Then you can start to market and sell who you *really* are. And identify the gaps and consider how you could fill them.

Mathematics graduates will have acquired specific skills from their degree studies and also general transferable skills. The most specific skill that graduates possess will naturally be highly developed numeracy.

You should be thoroughly comfortable with using numerate concepts and arguments in all stages of your work. You will possess an analytical approach to problem-solving and be able to pursue the solution of a problem to its conclusion. You will be adaptable, in particular displaying readiness to address new problems from new areas, and able to transfer knowledge from one context to another.

General skills, which maths graduates will have developed, include the ability to work independently with patience and persistence to reach conclusions. You should have greatly developed your time management and organisational skills. Communication skills, such as the ability to write coherently and communicate results clearly should be strong. It is highly likely that you'll be experienced in using computer applications and general IT skills, such as word processing and using the internet and have the ability to find and research information.

Employment Prospects

Every year statistics are collected to show what HE students do immediately after graduation. These can be a useful guide but in reality, with the data being collected within just six months of graduation, many graduates are still travelling, waiting to start a course, paying off debts, getting work experience or still deciding what they want to do. For further information about some of the areas of employment commonly entered by graduates of any degree discipline, check out *What Do Graduates Do?* and the AGCAS information booklet *Your Degree...What Next?*

In 2004, 61% of mathematics graduates had entered employment in over 18 work sectors. Employers are aware that maths graduates possess knowledge and skills that will enable them to make a contribution that is beyond the capabilities of those without a background in maths. Many enter fields where their combination of analytical, numerical and communication skills is valued. Regular recruitment sectors include: actuarial work; operational research; government statistical and security services; engineering and management consultancy; IT; investment banking; financial modelling; accountancy; and teaching.

The largest work sectors that maths graduates entered were business and finance (17%), followed by teaching (12.3%). There are some occupations in which a degree in maths is specified, such as statistical work, teaching maths, and some types of research and development. But, generally, around half of all graduate vacancies don't ask for a specific degree subject and mathematicians will also find many openings in fields unrelated to their degree.

Job Options

A mathematics degree opens the door to a wide variety of career opportunities. The highly transferable skills gained enable graduates to enter many different types of occupations. However, there are some areas of employment in which possessing a degree in maths would be a requirement, or at least give a healthy advantage over other graduates, in securing the job. These include:

- **Actuary, consultancy/Actuary, insurance company** - evaluates outcomes of events by conducting careful studies of similar events in the past, thus assessing probabilities and risk.
- **Chartered certified accountant** - works within private practice, industry, commerce and the public sector, providing accountancy services.
- **Chartered management accountant** - provides the financial information necessary for the planning and control of organisations and commercial companies.
- **Investment banker (corporate finance)** - provides a range of financial services and advice to companies, institutions and governments seeking to manage corporate, strategic or financial opportunities.
- **Market researcher (qualitative/quantitative)** - plans and implements research projects, and analyses the results, for use in business, health and social policy.
- **Meteorologist** - uses specialist computer programs and mathematical models designed to make both short and long-term predictions of weather and climate.

- **Patent examiner** - studies applications for patents, ensuring that any applications meet the requirements of the relevant legislation.

- **Pensions adviser** - works in financial services advising both organisations and individuals about making financial provision for their future.

- **Quantity surveyor** - manages all costs relating to building projects, from the initial calculations to the final figures.

- **Secondary school teacher** – teaches maths to pupils aged 11-18. A Postgraduate Certificate in Education (PGCE), or Scottish Professional Graduate Diploma in Education (PGDE), is usually required.

- **Statistician** - concerned with the collection, analysis, interpretation and presentation of quantitative information in areas such as health, biology, industry, government and education.

Although for many graduates the jobs listed here might not be their first, they are among the many realistic possibilities with your degree, providing you can demonstrate you have the attributes employers are looking for. And it's worth noting that many vacancies advertised for graduates don't specify particular degree disciplines.

Find out more about the above options and view other AGCAS Occupational Profiles and sources of information available in careers services. Occupational Profiles are also available on *www.prospects.ac.uk/links/Occupations.*

Where are the jobs?
Employment for maths graduates is widely available throughout industry, business, commerce, and the public and private sectors. See the following AGCAS Sector Briefings for more information on the most common employment sectors for maths graduates:

- *Education Sector* - divided into school, further and higher education;

- *Financial Services Sector* - composed of retail banks, commercial banks, private banking and building societies;

- *Professional Financial and Accounting Services Sector* - firms providing advice and accounting services to clients in the public and private sector.

Career management is an ongoing process; one that you'll no doubt develop all your working life. For further information on all the above employment areas visit *www.prospects.ac.uk/links/SectorBs* or ask to see these and other AGCAS Sector Briefings at your careers service.

Further Study

Many maths graduates aspire to a career where they can use particularly high-level mathematical skills, such as research within universities, engineering, industry, financial institutions and public services. To achieve this it's often necessary to go on to postgraduate study. In 2004, 24% of all maths graduates had decided to enter further study and a further 11% combined both study and employment.

The range of masters and PhD topics taken by mathematics graduates is very wide: usually to enter a field directly related to maths or to further another career ambition. Areas for further study relating directly to the degree include: computational mathematics; numerical analysis; communication systems; medical statistics; and business and economic forecasting. Other graduates decide to take postgraduate qualification courses in teaching or law conversion courses.

These trends show only what previous graduates in your subject did immediately upon graduating. Over the course of their career - the first few years in particular - many others will opt for some form of further study, either part time or full time. If further study interests you, start by taking a look at the AGCAS information booklet *Postgraduate Study and Research* or the 'Further study' section of Prospects.ac.uk. For a comprehensive list of courses see *Prospects Postgraduate Directory.*

Refer too to the *Prospects Postgraduate Funding Guide,* the AGCAS information booklet *Postgraduate Study and Research* and AGCAS Vocational Course Surveys for further details relating to finance and the application process.

Other Options

Don't forget there are alternatives to entering employment or postgraduate study, such as taking time out, volunteering or travelling. Longer term you may want to consider starting your own business. Check out the AGCAS information booklets *Beyond Nine to Five: Flexible Working; Self-employment; Working Abroad;* and *Working in Europe - First Steps:* all available in your careers service.

What Next?

This should have started you thinking about your future. Whatever stage you are at, your careers service will be able to help you. A huge number of resources, including most of those mentioned here, plus a wide range of services including individual careers guidance, employer presentations and workshops on topics like successful applications and interview techniques are likely to be on offer.

A full list of useful resources plus case studies can also be found on *www.prospects.ac.uk/links/Options.*

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