Transferable Skills in the Mathematical Tripos

Introduction

The term *Transferable skills* refers here to skills that are not primarily mathematical that might prove useful in other contexts. In particular, employers are interested in transferable skills that would help you to be successful in the job they are offering.

You may think that the only skills that you acquire on a mathematics course are mathematical, but that is far from being the case. After you graduate, you may never again be asked to find x, but the skill you used to find x — namely problem solving — is exactly what employers value most. If you don't believe this, take a look at our graduate employment data at the end of this article.

The most useful transferable skills are not taught directly; they are simply acquired, to a lesser or greater extent, in the course of your study. To give an example, *perseverance* is clearly a transferable skill that is vital for problem solving of all sorts. At school (doing A-levels, perhaps) you might have to persevere for half an hour to crack a mathematical problem (though this would be unusual for a good mathematician!); a STEP problem may well take much longer; but by the time you get to Part II and Part III of the Tripos you may well have to spend a whole afternoon or more to get to the bottom of an examples sheet question. No one has taught you to persevere like this — you have acquired the habit by practice and following the example set by others.

It is worth saying that almost all of our students pursue their other interests (which may include activities organised by or in colleges) together with their mathematical academic work and can acquire a variety of transferable skills by this route.

Problem solving

Problem solving is required in very many different situations. You may think that your skill in problem solving is limited to mathematical situations, but when you consider the general skills needed to solve difficult problems you realise that this is not so. The following skills, which are required for all types of problem solving, are required in abundance for tackling the kind of problem you encounter in the Mathematical Tripos:

- analytic ability
- creativity
- initiative
- logical and methodical reasoning
- persistence.

You will also often need to sieve through your notes, or find material in a text book or on some web site, when you are stuck and this ability to research the problem is also a highly transferable skill.

Good working habits

Another general area of transferable skills relates to working habits, which include:

- being careful with the work
- organising work schedules and meeting deadlines
- being able to work under pressure

- being able to work independently, without constant support.

Our students arrive with good working habits, but find these skills very much honed during their time here because of the short terms, the speed at which the course progresses, the volume of material that has to be mastered, and the regular deadlines that are entailed in the supervision system.

Communications skills

The image of the mathematician who is completely unable to communicate with ordinary humans is much used in films and books but is, in most cases, very far from the reality. The requirement to present supervision work twice a week will develop your capacity to assimilate and communicate highly technical information with brevity and precision. This skill readily transfers to written communications of non-mathematical material.

Although the opportunities for debate are rarer in mathematics than in, say, the humanities, you will find yourself exchanging mathematical ideas during supervisions with your supervisor and fellow students, and you will learn to phrase precise questions. You will also learn to listen carefully, and *actively* in both supervisions and lectures.

If you undertake the CATAM projects, you will spend a considerable amount of time honing your skill in writing up the projects, a skill that will be required in almost all careers.

In the fourth year (Part III), there is the opportunity for you to develop your written communication skills by writing an essay as part of your assessment. You may also choose to take part in the Part III Seminar Series, which is designed to help you develop skills in preparing and delivering a mathematical talk to a small audience.

IT skills

As part of the Computational Projects courses you will learn programming skills which are highly transferable. Although the Projects are mathematical, many of the skills required (for example, converting abstract ideas into algorithms, carrying out independent investigations of open-ended problems) can clearly be used for non-mathematical projects.

Employability and destination information

Some data for 2012 graduands (note that this relates to the graduating cohort, which is not the same as the matriculating cohort because of those who continue to our fourth year and graduate a year after their matriculating contemporaries):

- 211 graduated, 124 from our third year and 87 from our fourth year;
- 37 failed to respond to enquiries;
- a total of only 7 were still seeking employment after 6 months
- the big employment sectors are banking and IT: about 24 went to each sector;
- the other 15 sectors (including Accountancy, Actuarial, and Teaching) attract small numbers: 0, 1, or 2;

Each year, about 120 go into further study (including our fourth year, other taught courses, and research).