The MPLS Online Maths Bridging Programme: supporting the academic transition to university

Extending and broadening the reach of a residential programme

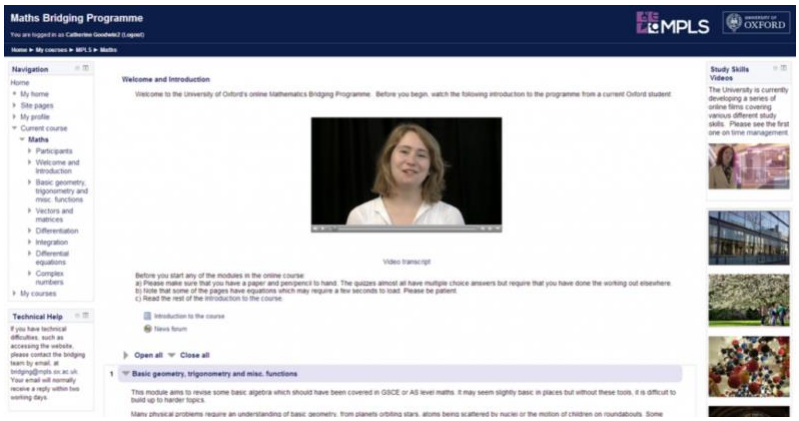

Figure 1 The introductory page of the maths course

The MPLS (Mathematical, Physical and Life Sciences) Division's Bridging Programme arose from the need for incoming students in the physical sciences to have certain prerequisite knowledge in mathematics and in their science subject. A one-week residential programme was established in 2012, involving a mixture of academic (subject-specific) sessions and transitional support (eg study skills) sessions. Places are prioritised for students who have a particular need: for example, if they have been identified in the admissions process as coming from socially and educationally disadvantaged backgrounds, if they have a disability, or there are other good reasons why they might be in need of such a course.

However, it isn't possible to accommodate all students on the residential programme. Student feedback indicated that an online version of the maths course would be welcome, particularly one which differentiated between students with different mathematical backgrounds. So, the Bridging Steering Committee decided to translate some of the materials into an online format for 2013 freshers in Chemistry, Physics, Materials and Earth Sciences. The programme has since been extended to Engineering Science.

An interactive and flexible path to mathematical knowledge

The online Maths Bridging Programme covers core maths topics that students will encounter in their first year and contains six modules. Each one consists of:

- an introduction outlining the topics covered in the module and their importance to the study science;
- a diagnostic quiz (containing 10 multiple-choice questions) to enable students to assess their existing level of knowledge;
- feedback on the quiz to help students identify which topics they might find it helpful to study;
- topic material including notes and links to other resources, and further quizzes with feedback for students to consolidate and develop their knowledge;

- extension material, with additional quizzes, for students who wish to take their knowledge beyond the core topics.

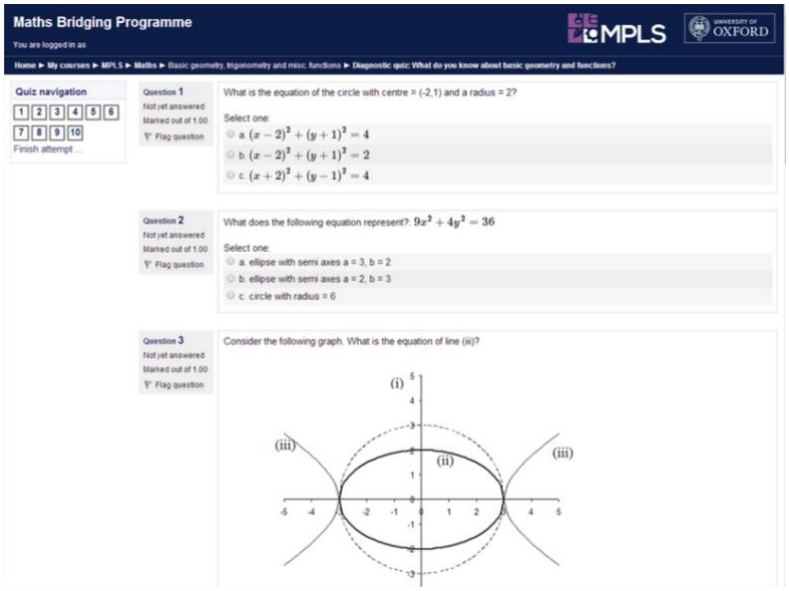

Figure 2 One of the diagnostic quizzes

Training in study skills is also included; a short film was made on time management using the content from a session on the residential programme. A film on note-taking and other resources have now been added as well.

The online bridging course has two advantages over its residential counterpart. First, it's open to all students (not just those who meet particular selection criteria) and is therefore more inclusive. Second, because the sequence in which students will encounter maths topics during their first year will differ according to their main subject of study, the online course enables them to study the topics in any order. In contrast, all students on the residential course take the topics in the same order.
The course runs in the Moodle VLE; technical development was carried out by the Technology Assisted Lifelong Learning Unit (TALL) in the Department for Continuing Education. Students access the course through a user name and password sent to them after the A Level results have been published.

A gap bridged…

The online programme appears to have been successful in achieving its aim of bridging the gap between students' mathematical knowledge at A Level maths and university level. Approximately 72% of all freshers reading Chemistry, Earth Sciences, Materials, Engineering and Physics accessed it in 2014. There is also evidence that some students continue to access the materials in the online programme throughout the year.
Due to the success of the online Maths programme, Chemistry and Physics materials have also been developed and these are now accessible to the students. These sections are mainly useful for students of Chemistry and Physics but parts of them are useful for students of the other subjects as well.

Words of wisdom

The MPLS Bridging Programme team offers the following advice for designing and developing online courses:

- First and foremost, consider the technical side: explore the different platforms on which your course could be built. Finding the right platform in terms of both accessibility and cost may require discussions with different departments or offices in the University.
- Work closely with departmental lecturers and tutors who teach the chosen subject.
- Link to existing study resources where you can.
- When developing online materials, be aware that if you want to use any existing materials in any format (whether a book extract or a video clip), you must seek permission from the copyright holder. It can take some time to obtain the necessary legal advice and permissions, and you may need the cooperation of publishers or the heads of the institutions to which the authors belong.
- Evaluation is very important. Plan a series of evaluations, both to assess the long-term impact of the programme and to make improvements in response to feedback from students and academics.

Further information

To find out more about the MPLS online bridging programme, visit the MPLS website or contact the programme team at bridging@mpls.ox.ac.uk.

Runner-up, OxTALENT 2014 award for the use of technology to support transition. The text and images in this case study have been adapted from the Bridging Programme team's entry for the OxTALENT competition.