Aim
To better understand student experiences learning mathematics and statistics, and to provide additional resources.

Work Undertaken
- **Research** 500+ students were surveyed by questionnaire after mathematics and statistics modules in 2005 & 2006. Research under supervision of Loughborough University.
- Production of Statistics Booklets.
- Mathematics Support Workshops for other numerical modules.

Impact to Date

Research Findings
- Engineering students had medium confidence and understood ‘Maths is necessary’ for Engineering.
- Natural and Social Science students studied statistics more reluctantly, but showed better motivation as their understanding of the usefulness of the subject increased in the second year.
- Students’ past mathematics qualifications and student confidence were found to have significant relations with performance at university in mathematics and statistics.
- Various features of teaching helped students’ learning including: doing examples, mathematics support, provision of handouts, and use of computers for learning statistics.
- Mathematics Support provided a value added measure, being used by and improving the performance of students with lower mathematics qualifications.

Statistics Resources
- 6 leaflets were produced:
  - ANOVA Glossary
  - ANOVA - Single Factor ANOVA Example
  - ANOVA - Factorial ANOVA Example
  - ANOVA - Dose Response ANOVA Example
  - T-test Notes
  - Chi Squared Test Notes.
- Leaflets have been made available to students in paper and electronic forms.
- Leaflets were used by students for private study, in mathematics support for individuals and groups, and as recommended reading by module lecturers.
- Positive feedback has been received from a range of students and staff.

Workshops
- Additional workshops were run in 2005 and 2006 for numerical subjects, including: Surveying Valuation calculations, Economics Elasticity calculations, Vet Nursing Drug Dose calculations and Statistics.
- Positive feedback was obtained. Course managers and teaching staff noted an improvement in student achievement and confidence.

Lessons Learnt
- To stress the usefulness, relevance and importance of the mathematics and statistics to students.
- To maximise opportunities for students to do the mathematics/statistics by all and various means.
- To provide student handouts, including a selection of worked examples.
- To allow sufficient time and correct pace for students to think during lectures.
- To encourage students to seek help/mathematics support as early as possible.
- To include use of computer packages, especially for learning statistics.

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