Introductory Quantitative Economics

This summary contains information extracted from UK university websites offering Economics degrees that include a statistics or mathematics module at introductory (first-year) level. The majority of the information relates to teaching and assessment practices and is information that is publicly available through the websites of the subject modules. The list of universities comes from a web page of the Economics Network of the Higher Education Academy (http://www.economicsnetwork.ac.uk/). The information presented here will be of interest to lecturers involved in the teaching of quantitative courses as it provides them with an opportunity to reflect on their own practices and to compare their practices with those used by colleagues at other universities.

The Data

The Economics Network web page (http://www.economicsnetwork.ac.uk/links/depts.htm) lists 90 universities involved in teaching economics or economics-related courses, such as business economics. Information was extracted by going to each university's web page and searching from there for details of the quantitative modules that are part of economics degree programmes. The information presented in this paper is therefore publicly available information. It is the type of information that prospective students might reasonably want to have access to when making decisions about their study plans.

The information in this paper comes from only a subset of universities and relates to teaching practices and assessment procedures. The reason that information from only a subset of the 90 universities is presented is that for many universities information on modules is impossible to obtain unless one is enrolled as a student at the university. For some other universities, the publicly available information was only partial and not specific enough to be of much use. As a consequence the number of observations reported in the tables of this paper often differ depending on the characteristic being discussed. The extraction of this data proved to be very time consuming, suggesting that it would be difficult for prospective students to research this information for themselves.

The information in this paper is presented for statistics modules, maths modules and statistics and maths modules. This reflects the different module structures for the degree programmes offered at different universities.

Student teaching

Lecturers have available to them a number of different teaching formats, ranging from workshops, seminars/tutorials, study groups and computer-based learning to lectures. Information was collected on the number of hours of student contact through lectures, seminars/tutorials and seminars and workshops. Using this information, the percentage of total student class contact hours with teachers[1] in the form of seminars/tutorials and workshops was calculated. The results are shown in Table 1.

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[1] The teacher in workshops and seminars/tutorials is unlikely to be the lecturer in the module. The term 'teacher' as used here could be a graduate teaching assistant.

Table 1 Percentage of class contact from seminars/tutorials and workshops

% of class contact hours	Statistics		Maths		Stats & Maths	
	no.	%	no.	%	no.	%
0 < 10	1	5.3	0	0.0	1	16.7
10 < 20	0	0.0	1	4.5	0	0.0
20 < 30	3	15.8	7	31.8	0	0.0
30 < 40	1	5.3	4	18.2	2	33.3
40 < 50	9	47.4	6	27.3	3	50.0
50 < 60	2	10.5	3	13.7	0	0.0
60 < 70	2	10.5	0	0.0	0	0.0
70 < 80	0	0.0	1	4.5	0	0.0
80 < 90	0	0.0	0	0.0	0	0.0
90 < 100	0	0.0	0	0.0	0	0.0
100	1	5.3	0	0.0	0	0.0
Total	19	100.0	22	100.0	6	100.0

Class contact through seminars/tutorials and workshops represented between 40 and 50 per cent of the total hours of class contact for 9 of the 19 statistics modules (47 per cent), and between 20 and 30 per cent for a further 3 such modules (16 per cent). Only 5 of the 19 statistics modules had 50 per cent or more of class contact in the form of seminars/tutorials and workshops.

The situation for the maths modules was somewhat similar: hours spent in seminars/tutorials and workshops represented between 40 and 50 per cent of total class contact hours in 6 of the 22 modules (27 per cent) and between 20 and 30 per cent of total contact hours in 7 modules (30 per cent). In only 4 of the 22 did seminars/tutorial and workshops make up 50 per cent or more of contact hours.

With only one or two exceptions, the statistics and maths teaching was done by staff who were in economics departments. It was relatively rare for statistics and maths to be taught in the same module – there were only six universities which did this.

The text that attracted the greatest use in the statistics modules is the one authored by Barrow, while in the maths modules, the text by Jacques was the most commonly used one for those modules for which information is available. There were 12 different statistics texts used and 14 different maths texts used (Table 2). The situation in statistics and maths is quite different from first level microeconomics and macroeconomics, where there were a smaller number of texts used. Note also that some of the texts used in the maths modules are economics, rather than maths, texts (e.g. Morgan, Katz & Rosen, Mankiw and Parkin, Powell & Matthews).

Table 2 Texts used in introductory statistics and maths modules

Statistics		Maths		Statistics & Maths	
Author	no.	Author	no.	Author	no.
Barrow	5	Binmore & Davies	1	Booth	1
Berry & Lindgren	1	Bradley & Patton	2	Bradley and Patton	2
Burton, Carrol & Wall	1	Chiang	2	Clarke and Cooke	1
Curwin & Slater	3	Curwin & Slater	2	Dinwiddy & Kmenta	1
Gujurati	2	Jacques	7	Freund	1
Judge	1	Mankiw	2	Pemberton &	2
Lind & Wathen	1	Morgan, Katz & Rosen	2	Salvatore	1
Moore & McCabe	1	Parkin, Powell & Mathews	1	Sydsaeter &Hammond	2
Newbold, Carlson & Thorne	3	Renshaw	3		
Pearson	1	Rosser	1		
Swift	3	Simon & Blume	1		
Thomas, R.L.	1	Soper	1		
		Swift	1		
		Sydsaeter & Hammond	2		

Assessment

Information on assessment practices revealed that some form of (summative) continuous assessment was used in 15 (or 55.6 per cent) of the statistics modules and 17 (68 per cent) of the maths modules. There were a number of additional cases where students were required to submit material but were not given credit for this work towards their final grade (Table 3).

Table 3 The use of continuous assessment in quantitative modules

	Statistics		Maths		Statistics & Maths	
	no.	%	no.	%	no.	%
Continuous assessment used for credit	15	55.6	17	68.0	3	60.0
No continuous assessment	8	29.6	5	20.0	2	40.0
Continuous assessment used, but not for credit	4	14.8	3	12.0	0	0.0
Total	27	100.0	25	100.0	5	100.0

The type of continuous assessment used varied. It ranged from a single in-class test to weekly assignments. In some cases where the students were required to hand in weekly assignments, these assignments were marked but the mark played no part in the students' grades. In one other case, a randomly selected subset of the assignments handed in by each student was graded – it is not known what became of the assignments not graded. In one of the statistics modules, students were required to extract data from the web, analyse the data and prepare a report on their findings, including a PowerPoint presentation. This would provide them with an opportunity to gain experience and skills that would help when employed. Table 4 provides examples of different forms of continuous assessment used in the Statistics and Maths modules.

Table 4 Examples of continuous assessment used in statistics and maths modules

Statistics
Computer-based exercise
Three take-home assignments each worth 25%
Extraction of data from world wide web & analysis of data.
Essays & assignments, PowerPoint presentation, computer-based assignment
Computer test (5%); end of semester computer test (15%); take-home test (20%)
Two tests
Weekly assignments
Two formative in-class tests, worth 20%. Students may resubmit to obtain the 20%.
Short multiple-choice tests (20%), essay (30%)
Two tutorial exercise are given in for marking but carry no credit
Management-style report with data analysis & discussion.
Workshop exercises and periodic tests
Maths
Test in class
Two 50-minute tests, each worth 50%
Weekly assignments
One test, one assignment
Two 30-minute in-class tests (12.5% each) & two sets of problems (25%)
Students complete a homework assignment after each tutorial. One is selected randomly for marking (15%). There is also a one-hour written test worth 10%.
Two multiple-choice tests & one assignment
One piece of work is to be submitted for marking. A non-assessable test of 45 minutes involving MCQs is also used.
Best 14 of 16 weekly assignments

Quite a high proportion of the modules based assessment entirely on the final examination. Data was available for 25 Statistics modules, 22 Maths modules and seven Statistics and Maths modules. Table 5 shows that 12 of the 25 Statistics modules and 10 of the 22 Maths modules based assessment solely on the final exam. There was one Maths module where all of the assessment was based upon assignments completed through the semester/term.

Table 5 Share of assessment from final exam

% of assessment	Statistics		Maths		Statistics & Maths	
	no.	%	no.	%	no.	%
0 < 10	0	0.0	1	4.5	0	0.0
10 < 20	0	0.0	0	0.0	0	0.0
20 < 30	0	0.0	0	0.0	0	0.0
30 < 40	1	4.0	1	4.5	0	0.0
40 < 50	0	0.0	0	0.0	0	0.0
50 < 60	3	12.0	2	9.1	0	0.0
60 < 70	2	8.0	2	9.1	2	28.6
70 < 80	1	4.0	0	0.0	0	0.0
80 < 90	5	20.0	6	27.3	2	28.6
90 < 100	1	4.0	0	0.0	0	0.0
100	12	48.0	10	45.5	3	42.9
Total	25	100.0	22	100.0	7	100.0

For the 44 modules on statistics, maths, and statistics & maths combined, for which information is available, a two-hour to a two-and one-half hour final exam was the most likely choice by lecturers. An examination of this length was used in 20 of the 44 modules. A three-hour final examination was set in 13 of the modules and a one and one- half-hour exam was used in 11 of the 44 modules (Table 6).

Table 6 Length of final exam

Hours	Statistics		Maths		Statistics & Maths	
	no.	%	no.	%	no.	%
1.5 < 2	7	33.3	4	22.2	0	0.0
2 < 2.5	10	47.6	9	50.0	1	20.0
2.5 < 3	0	0.0	0	0.0	0	0.0
3	4	19.0	5	27.8	4	80.0
Total	21	100.0	18	100.0	5	100.0