

**Heads of Departments of Mathematical Sciences
Council for the Mathematical Sciences**

**Survey of the Health of UK Mathematical Sciences
Departments - Results 2006**

We are pleased to present the findings of the first survey by HoDoMS and the CMS. The aim of the survey is, over several years, to obtain robust information on the health of mathematical science departments in UK universities.

With funding becoming ever more concentrated, complex staffing issues and competition to win students, university mathematical science departments are under pressure like never before. Since 1995, five departments have closed and, as the results of this survey suggest, there are several other departments which are not certain of their future.

The government has now recognised mathematics as a strategically important subject and, as the subject underpinning the sciences, engineering, technology, business, finance and commerce, it is seen as vital to the future health of the UK economy. To make our case to government, policymakers and funders, we need to have a clear and comprehensive picture of the true state of the mathematical sciences

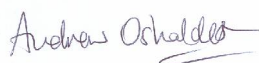
HoDoMS and the CMS were delighted with the response to the survey. Overall, there were 60 responses from a wide range of departments. The data has been analysed and anonymised.

Almost every size of department from every type of higher education institution was represented in the response. Some respondents have over 1,000 undergraduates studying the mathematical sciences whilst others have fewer than 50. One department reported just 0.5 FTE mathematical science professor, whilst another had 50.

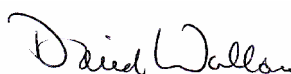
Departments' comments on their overall health were also diverse. From "very healthy ... and expanding" to "small but vibrant" and "pretty optimistic" through to "struggling" and "very hard pressed" and even "critical", the responses revealed a sector that is changing rapidly.

We intend this to be an annual questionnaire so that trends can be identified and used to inform CMS policy and actions. Over the next few years, we look forward to being able to compare data between years and see the trends emerge. As this is the first year of the report, we simply present the aggregated data from all the responses.

Finally, we would like to thank all the departments who took part in the survey for the time and effort taken to respond. We appreciate that this is no easy task and that for some departments, the data had to be drawn from several sources. But we would also like to encourage more departments to join in next year's survey, so that we can create as full a picture as possible of the health of the UK's mathematical sciences departments.



Andrew Osbaldestin
Chair of HoDoMS



Sir David Wallace
Chair of CMS

HoDoMS

**The Council for the
Mathematical Sciences**

Results

Altogether, there were 60 responses from 56 institutions, with 57 returned questionnaires. Three universities said they could not provide any data for the questionnaire. Four universities returned questionnaires from two separate departments.

There were two separate questionnaires – one for Scottish institutions and another for England, Wales and Northern Ireland – reflecting the different structures at undergraduate level. Nine questionnaires were received from nine Scottish institutions. The blank questionnaires can be downloaded from the CMS website at <http://www.cms.ac.uk/statistics.html>.

Many respondents could not complete the entire questionnaire. In the results for each section, there is an indication of how many responses to that question there were and how many distinct institutions that number represents.

Notes

- > Where a breakdown of the total figures was requested, for example questions looking at gender splits, some institutions were only able to return the total. This means that some totals may be greater (and in a few cases, even less!) than the sum of the broken down fields. The sum of these constituent fields is given in brackets below the stated total.
- > Where the total is different from the sum of the constituent fields, any proportions given represent the percentage of that total of constituent fields.
- > Several returns had blanks in various fields. It was unclear what this meant (a zero, no data available, field simply overlooked etc). As far as possible, this was followed up with that institution, but if this was unsuccessful, it was generally interpreted as a non-response to that question. Where an institution returned 'not available' this was also not counted as a response. However, explicit zeros on a return were counted as responses.
- > Oxford, Cambridge and the Open universities are structured somewhat differently to the majority of institutions. Their data was slotted into the fields as was best possible.
- > Where there was more than one response from a single institution, the data were combined. Whilst every effort was made to ensure there was no overlap by contacting the institutions, this was not always possible.

2. Numbers of Students

2.1 Number of Undergraduates on 1 December 2006 in programmes which are predominantly mathematics, statistics or operational research (MSOR) (e.g. G100, GG13)

ENGLAND/WALES/NI:

	Full Time			Part Time		
	Male	Female	Total	Male	Female	Total
Foundation	95 (70.9%)	39 (29.1%)	134 (134)	21 (67.7%)	10 (32.2%)	31 (31)
Level 1	2118 (59.1%)	1463 (40.9%)	3954 (3581)	432 (59.9%)	289 (40.1%)	721 (721)
Level 2	1891 (59.5%)	1286 (40.5%)	3512 (3177)	704 (64.6%)	385 (35.4%)	1089 (1089)
Level 3	1668 (57.9%)	1213 (42.1%)	3175 (2881)	609 (66.4%)	308 (33.6%)	917 (917)
Level 4	382 (67.8%)	181 (32.1%)	569 (563)	0	0	0
Total	6782 (60.7%)	4395 (39.3%)	11344 (11177)	1766 (64.0%)	992 (36.0%)	2758 (2758)

Level 4 is the final year of an integrated masters degree; integrated masters students at other levels should be included with other students at that level.

45 responses from 41 institutions

SCOTLAND:

	Full Time			Part Time		
	Male	Female	Total	Male	Female	Total
Foundation	0	0	0	0	0	0
Level 1	98 (56.0%)	77 (44.0%)	293 (175)	0	0	0
Level 2	111 (63.0%)	65 (37.0%)	261 (176)	3 (75.0%)	1 (25.0%)	2 (4)
Level 3	104 (58.4%)	74 (41.6%)	273 (178)	1 (50.0%)	1 (50.0%)	2
Level 4	73 (56.6%)	56 (43.4%)	185 (129)	0	0	0
Level 5	0	0	30 (0)	0	0	0
Total	386 (58.7%)	272 (41.3%)	1042 (658)	4 (66.7%)	2 (33.3%)	4 (6)

Level 5 is the final year of an integrated masters degree; integrated masters students at other levels should be included with other students at that level.

6 responses from 6 institutions

TOTAL FOR 2.1:

	Full Time			Part Time		
	Male	Female	Total	Male	Female	Total
Total	7168 (60.6%)	4667 (39.4%)	12386 (11835)	1770 (64.0%)	994 (36.0%)	2762 (2764)

52 responses from 48 institutions

2.2 Number of Undergraduates on 1 December 2006 in programmes not included in Table 2.1 and which are normally 50% or more MSOR and the remainder not MSOR. (These are often 'joint' programmes, e.g. GG14, or 'Mathematics with X', e.g. G1N3.)

ENGLAND/WALES/NI:

	Full Time			Part Time		
	Male	Female	Total	Male	Female	Total
Foundation	64 (95.5%)	3 (4.5%)	67 (67)	4 (100.0%)	0 (0.0%)	4 (4)
Level 1	980 (61.4%)	616 (38.6%)	1727 (1596)	290 (69.7%)	126 (30.3%)	417 (416)
Level 2	745 (58.8%)	522 (41.2%)	1350 (1267)	305 (74.0%)	107 (26.0%)	412 (412)
Level 3	691 (60.8%)	445 (39.2%)	1234 (1136)	187 (72.8%)	70 (27.2%)	257 (257)
Level 4	65 (59.6%)	44 (40.4%)	115 (109)	0	0	0
Total	2729 (60.9%)	1752 (39.1%)	4493 (4481)	786 (72.2%)	303 (27.8%)	1090 (1089)

47 responses from 43 Institutions

SCOTLAND:

	Full Time			Part Time		
	Male	Female	Total	Male	Female	Total
Foundation	0	0	0	0	0	0
Level 1	214 (54.5%)	179 (45.5%)	393 (393)	0	0	0
Level 2	193 (64.1%)	108 (35.9%)	301 (301)	0	0	0
Level 3	149 (60.6%)	97 (39.4%)	246 (246)	0	0	0
Level 4	93 (50.8%)	90 (49.2%)	183 (183)	0	0	0
Level 5	24 (68.6%)	11 (31.4%)	35 (35)	0	0	0
Total	673 (58.1%)	485 (41.9%)	1158 (1158)	0	0	0

7 responses from 7 Institutions

TOTAL FOR 2.2:

	Full Time			Part Time		
	Male	Female	Total	Male	Female	Total
Total	3402 (60.3%)	2237 (39.7%)	5651 (5639)	786 (72.2%)	303 (27.8%)	1090

56 responses from 52 Institutions

2.3 Number of Postgraduates on 1 December 2006

	Full Time			Part Time		
	Male	Female	Total	Male	Female	Total
Taught Postgraduates	636 (70.1%)	271 (29.9%)	913 (907)	591 (74.2%)	206 (25.8%)	797 (797)
Research Postgraduates	1112.8 (75.1%)	369.5 (24.9%)	1529.3 (1482.3)	93 (73.8%)	33 (26.2%)	127 (126)

Note that this does not include integrated masters students who should go in the previous tables. 'Taught postgraduates' includes all masters level qualifications (often 1 year Full Time and 180 credits) such as MSc, MRes but not MPhil or PhD which go under 'Research postgraduates'.

59 responses from 55 institutions

3. Number of graduates

3.1 Number of undergraduates graduating at academic year 2005/6

	Male	Female	Total
Bachelors MSOR	1498 (59.1%)	1036 (40.9%)	2562 (2534)
Bachelors Joint	832 (59.5%)	566 (40.5%)	1398 (1398)
Integrated Masters	463 (71.4)	185.5 (28.6)	648.5 (648.5)

As above, MSOR means degrees predominantly MSOR and Joint means degrees with normally 50% or more MSOR in the final year and the remainder non-MSOR.

56 responses from 52 institutions

3.2 Number of postgraduates graduating at academic year 2005/6

	Full Time			Part Time		
	Male	Female	Total	Male	Female	Total
Taught Postgraduates	528 (70.3%)	223 (29.7%)	756 (751)	94 (76.4%)	29 (23.6%)	123 (123)
Research Postgraduates	204 (72.6%)	77 (27.4%)	297 (281)	12 (75.0%)	4 (25.0%)	16 (16)

Include only students who graduate with a Masters degree under 'Taught Postgraduates'; exclude any receiving a PGCert or PGDip.

53 responses from 49 institutions

4. Numbers of Academic Staff as at 1 December 2006

Full time equivalent numbers

4.1 By Grade and Age

	20-29	30-39	40-49	50-59	60+	Total±
Lecturer [pre-1992] or L/Senior Lecturer [post 1992]	43.5 (7.8%)	250.1 (44.8%)	165.35 (29.6%)	70.8 (12.7%)	28.73 (5.1%)	558.48
SL/Reader or equivalent [pre-1992] or Principal Lecturer/R [post 1992]	0	92.33 (20.8%)	165.4 (37.2%)	111.8 (25.2%)	75.12 (16.8%)	444.65
Professor	0	22 (4.6%)	156.5 (32.4%)	204.4 (42.3%)	100.4 (20.8%)	483.2
Total (Lecturer, Senior Lecturer, Professor)	43.5 (2.9%)	364.43 (24.5%)	487.25 (32.8%)	386.96 (26.0%)	204.21 (13.7%)	1486.36

Research Assistant / Post Doctoral Research Fellow	186.25 (40.4%)	193 (42.0%)	24.5 (5.3%)	9 (2.0%)	47.5 (10.3%)	460.8
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57 responses from 53 institutions

4.2 By Grade and Gender

	Male	Female	Total
Lecturer [pre-1992] or L/Senior Lecturer [post 1992]	435.3 (77.8%)	124.18 (22.2%)	559.48
SL/Reader or equivalent [pre-1992] or Principal Lecturer/R [post 1992]	385.14 (85.0%)	68 (15.0%)	453.14
Professor	470.38 (97.3%)	13.15 (2.7%)	483.53
Total (Lecturer, Senior Lecturer, Professor)	1290.82 (86.3%)	205.33 (13.7%)	1496.15

Research Assistant/Post Doctoral Research Fellow	357.5 (79.7%)	90.75 (20.3%)	463.3
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56 responses from 52 institutions

4.3 By grade and country of (first degree) education

	UK	non-UK	Total‡
Lecturer [pre-1992] or L/Senior Lecturer [post 1992]	257.98 (55.8%)	204 (44.2%)	461.98
SL/Reader or equivalent [pre-1992] or Principal Lecturer/R [post 1992]	277.73 (68.6%)	127.26 (31.4%)	404.99
Professor	260.46 (71.3%)	105.06 (28.7%)	365.53
Total (Lecturer, Senior Lecturer, Professor)	796.18 (64.6%)	436.32 (35.4%)	1232.5

Research Assistant/Post Doctorate Research Fellow	140.5 (43.7%)	180.75 (56.3%)	321.25
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51 responses from 47 institutions

‡ Overall total may be larger than the sum of each category as detailed breakdown of figures were not always provided.

5. Service Teaching (at any level)

5.1 Number of students (fte) taught

0	0-50	50-100	100-200	200-500	500+
9	6	6	13	9	6

57 responses from 53 Institutions

5.2 Departments which provide support for MSOR outside module teaching, tutorials and office hours (eg. Manned student resource centre)

Yes	26
No	22

57 responses from 53 Institutions

6. General

6.1 What is your general impression of the 'health' of your department? *Responses will be used only in a way that does not identify individual departments or groups.*

Vulnerable	Stable	Good	Excellent	No comment
9	11	19	11	6

53 responses from 47 Institutions

6.2 Suggestions for questions we should/should not ask in future questionnaires, the better to gauge the health of mathematical sciences departments.

- Money available for supporting PhDs? Seminar speakers? Whether the change to CTA has made running Mathematics based MSc's more difficult (Russell group university)
- Less detail on staff breakdown etc (Russell group university)
- How many long term staff have left (retired/resigned/deceased) and how many were replaced by long term staff. (Pre-92 university)
- Numbers of sessional staff. (Pre-92 university)
- Differentiate between temporary staff on short term contracts and others (Pre-92 university)
- I recognise what is intended by 'service teaching' but it appears to devalue teaching that is not geared towards 'mathematicians'. If we want to raise the profile of mathematics we need to value and celebrate the many ways in which our subject can contribute to students' learning and growth. I have found it difficult to respond to the questions because our contribution does not fit neatly into a traditional mathematics department box. Can we take a more inclusive approach in the questions? (Post-92 university)
- This is a Stats dept, not a Maths Dept, so if you wish a response from us in future please modify the header of this questionnaire to be more inclusive. (Pre-92 university)
- Is EPSRC serving Mathematics well? (Pre-92 university)

Respondents

University of Bath	Department of mathematical sciences
University of Bolton	Mathematics
University of Brighton	School of computing, mathematics and Information Sciences
University of Bristol (2 responses)	Department of Mathematics Department of Engineering Mathematics
Brunel University	Department of mathematical sciences
University of Cambridge	Mathematics
Cardiff University	School of mathematics
Coventry University	Department of mathematical sciences
University Dundee University	Division of Mathematics
Durham University	Mathematical sciences
University Edinburgh	Mathematics
University of East Anglia	School of Mathematics, Science Faculty
University of Essex	Department of mathematical sciences
University of Exeter	School of Engineering, Computer Science and Mathematics
University Glasgow	Mathematics / Faculty of Information & Mathematical Sciences
University of Greenwich	Department of Mathematical Sciences
Herriot-Watt University	Department of Mathematics
University of Hertfordshire	School of physics, astronomy and maths
Kings College London	Mathematics Department
Keele University	School of computing and mathematics
University of Kent	Institute of Mathematics, Statistics and Actuarial Science
Lancaster University	Department of Mathematics and Statistics
University of Leeds	School of Mathematics
University of Leicester	Department of Mathematics
University of Liverpool	Department of mathematical Sciences
Loughborough University	School of Mathematics
London School of Economics and Political Science	Mathematics Department
University of Manchester	School of Mathematics - Faculty of Engineering & Physical Sciences
Napier University	Statistics Group, Business school
University of Newcastle upon Tyne (2 responses)	Faculty of SAgE School of Mechanical Systems Engineering
University of Nottingham	School of Mathematical Sciences
The Open University (2 responses)	Department of Mathematics Department of Statistics
Oxford Brookes University	Department of mathematical sciences, School of Technology
University of Oxford	Mathematical Institute
University Paisley	Mathematics & Statistics, School of Engineering & Science
University of Plymouth	School of mathematics and statistics
Portsmouth University	Mathematics Department
Queen Mary, University of London	Mathematical Sciences, Science & Engineering
Queens University Belfast	School of Mathematics and Physics
University of Reading	Mathematics
Royal Holloway, University of London	Mathematics Department
Sheffield Hallam University	Mathematics and Statistics
University of Sheffield	School of Mathematics and Statistics
University of Southampton	School of mathematics
University St Andrews University	School of Mathematics and Statistics
St Martins College, Lancaster (now University of Cumbria)	Division of Mathematics Education
Staffordshire University	Faculty of computing, engineering & technology
University Stirling	Computing Science and Mathematics
University of Strathclyde	Dept Statistics & Modelling Science
University of Surrey	Department of Mathematics
University of Sussex	Department of Mathematics
University of Wales, Swansea	School of Physical Sciences
University of Warwick (2 responses)	Mathematics Institute Department of Statistics
University of the West of England, Bristol	School of Mathematical Sciences
University of Wolverhampton	School of Computing and IT
University of York	Department of Mathematics