Higher degrees and honours bachelor degrees in mathematics and statistics completed in Australia in 2005

Peter Johnston

This report presents data relating to students who completed Honours or Higher Degrees in Mathematics during 2005. The data is part of an on going project for the Australian Mathematical Society and should be read in conjunction with previous reports [1, 2, 3, 4, 5, 6] covering the period 1993–2004.

Table 1 presents data for students completing Honours degrees in 2005, at all Universities in Australia. Within each institution, the data are broken down into male and female students and into the three traditional areas of Mathematics: Pure; Applied and Statistics. There is also the general category "Mathematics" for institutions which do not differentiate between the conventional areas. Finally, there is an "Other" category for newer areas of mathematics such as Financial Mathematics. Each category is further broken down into grades of Honours awarded. The table shows that in 2005 there were 152 Honours completions in Australia, with 105 (69%) receiving First Class Honours (compared with 99 out of 138 (72%) in 2004). In the three years prior to 2004 there were approximately 160 Honours completions each year. It is pleasing to see a rebound in the number of completions for 2005. However, this downturn in student numbers is possibly due to incomplete data collection with only 25 responses (out of a possible 37) received for 2005, compared with up to 30 responses received in previous years. Despite the slight decrease in numbers of students, the standard is just as high.

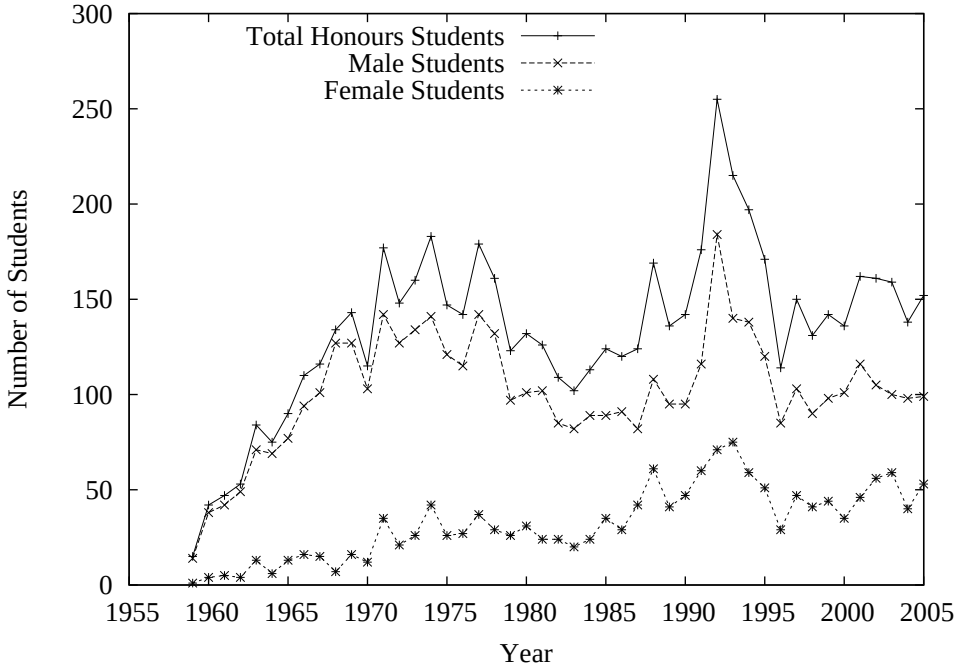

Figure 1. Number of Honours degrees completed in Mathematics and Statistics, 1959-2005.

Figure 1 presents the total number of students completing Honours degrees in Mathematics over the period 1959-2005. It shows that in 2005 the number of graduates has almost climbed back to the levels over the period 2001-2003. The figure also shows the numbers of male and female students who completed Honours over the same time period. It is interesting to note that there has been a decreasing number of male graduates. Also, it is encouraging to see that there was an increase in the number of female graduates compared to the previous year.

Table 2 presents the data for Higher Degree completions in 2005. The data are broken down into Coursework Masters, Research Masters and PhD degrees, with the latter two divided into the three typical areas of Mathematics. These data are also represented in Figure 2, as part of the overall Higher Degree data for the period 1959–2005. The figure shows that: (1) the number of PhD completions has rebounded from the drop last year and is in fact the second highest number of PhD completions in any one year, (2) the number of Research Masters completions is still in decline and (3) the number of Coursework Masters completions shows a considerable jump, being more than double the number of last year.

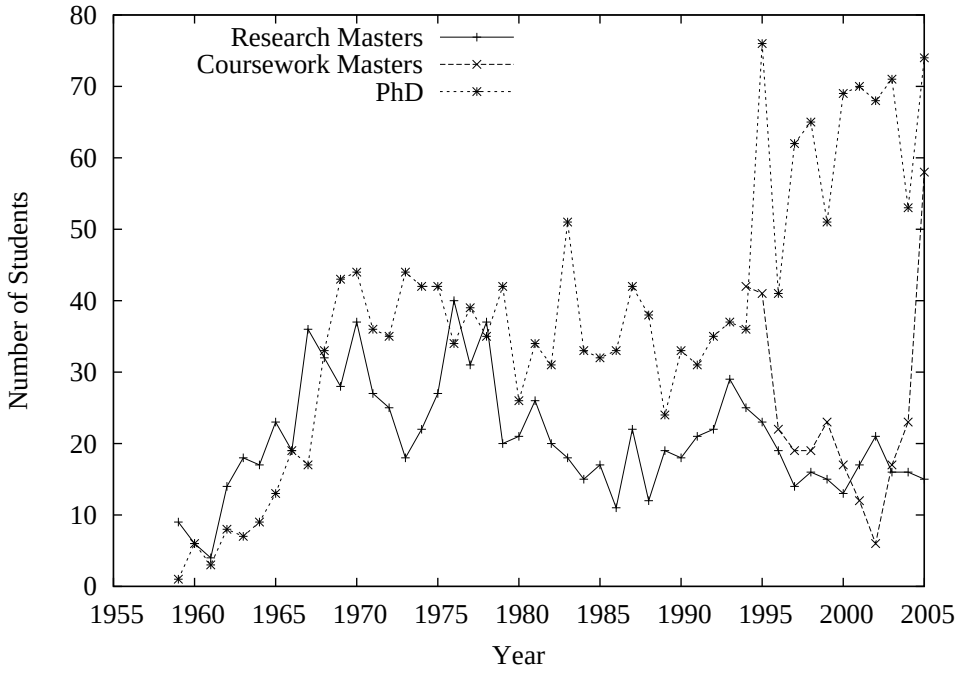

Figure 2. Number of research higher degrees completed in Mathematics and Statistics, 1959-2005.

Finally, Table 3 gives a list of completed Research Masters and PhD theses awarded in 2005.

For those who are interested in the finer details, the raw data is available from links on the web page http://www.cit.gu.edu.au/maths. There is an Excel spreadsheet containing the complete data for 2005 as well as spreadsheets containing cumulative data from 1959 for Honours, Research Masters and PhD degrees. Readers might be interested to know that this data has been accessed as part of the Strategic Review of Mathematics conducted this year.

Uni.	Sex	Mathematics				Pure				Applied				Statistics				Other				Honours
		I	IIA	IIB	III	I	IIA	IIB	III	I	IIA	IIB	III	I	IIA	IIB	III	I	IIA	IIB	III	Total
ACU	M																					0
	F																					0
ADF	M																					0
	F										1											1
ANU	M	1								2	1			1								5
	F	1									1											2
BOU																						0
																						0
CDU	M																					0
	F					1																1
CQU	M	1																				1
	F																					0
CSU	M																					0
	F																					0
CUT	M																					0
	F																					0
DKU																						0
																						0
ECU																						0
																						0
FDU																						0
																						0
GFU	M									1												1
	F																					0
JCU																						0
																						0
LTU																						0
																						0
MDU	M										1					1						2
	F									2	1			2	1							6
MNU	M	8			1					2	1			1								13
	F														2							2
MQU	M	2																				2
	F	2																				2
QUT	M									1	3											4
	F									2	1											3
RMT	M																					0
	F	1																				1
SCU																						0
																						0
SUT	M																					0
	F																					0
UAD	M					3	0.5				2.5			1								7
	F													1		1						2
UBR																						0
																						0
UCB																						0
																						0
UMB	M	1				3				1	2				1			1				9
	F					1				4	2				2							9
UNC	M	3	1																			4
	F	1	1											1	2							5
UNE																						0
																						0
UNS	M					3								2	2							7
	F					1				1				1								3
UQL	M	5	2											2								9
	F	2	1											1								4
USA	M									1												1
	F									2												2
USN	M					5			1	6		1		5	1							19
	F					1				1				1								3
USQ																						0
																						0
UTM	M	1																				1
	F	1																				1
UTS																						0
																						0
UWA	M					2						1			1							4
	F									1				2	1	1						5
UWG	M		1							1				3				1	1			7
	F													1								1
UWS	M		3																			3
	F																					0
VUT																						0
																						0
Totals		30	9	1	0	20	0.5	0	1	28	16.5	2	0	25	13	3	0	2	1	0	0	152

Table 1. Number of Honours degrees completed in Mathematics and Statistics, 2005

Uni.	Sex	Coursework	Research Masters			Total	PhD			Total
		Masters	Pure	Applied	Statistics		Pure	Applied	Statistics	
ACU	M					0				0
	F					0				0
ADF	M					0				0
	F					0				0
ANU	M					0	1		1	2
	F		1		1	2	2			2
BOU						0				0
						0				0
CDU	M					0				0
	F					0				0
CQU	M			1	1	2			2	2
	F					0		1		1
CSU	M					0				0
	F					0				0
CUT	M	1				0		5		5
	F					0		3		3
DKU						0				0
						0				0
ECU						0				0
						0				0
FDU						0				0
						0				0
GFU	M					0				0
	F					0				0
JCU						0				0
						0				0
LTU						0				0
						0				0
MDU	M					0				0
	F					0				0
MNU	M			2		2	1	4	1	6
	F			1		1				0
MQU	M	7				0				0
	F	9				0				0
QUT	M					0		1	2	3
	F					0			1	1
RMT	M	21				0		1	1	2
	F	12				0				0
SCU						0				0
						0				0
SUT	M					0			1	1
	F					0				0
UAD	M		1			1		4		4
	F			1		1				0
UBR						0				0
						0				0
UCB						0				0
						0				0
UMB	M					0	1			1
	F		2			2	2	2	1	5
UNC	M	1				1	4		1	5
	F					0			1	1
UNE						0				0
						0				0
UNS	M		1			1	1	2	2	5
	F			1		1		1	1	2
UQL	M	2				0	4	3	2	9
	F	3				0	2	2		4
USA	M					0				0
	F					0				0
USN	M		1			1	6			6
	F				1	1				0
USQ						0				0
						0				0
UTM	M					0				0
	F					0				0
UTS						0				0
						0				0
UWA	M					0				0
	F					0				0
UWG	M	1				0		3	1	4
	F	1				0				0
UWS	M					0				0
	F					0				0
VUT						0				0
						0				0
Totals		58	6	6	3	15	24	32	18	74

Table 2. Number of research higher degrees completed in Mathematics and Statistics, 2005

Table 3: Higher Degrees in Mathematics and Statistics, 2004

Uni.	Degree	Area	Name	Title
ANU	MPhil	Appl	V. Boero Rodriguez	The state space approach to modelling longitudinal data
	MPhil	Pure	A. Copetti	Finite-Dimensional lie algebras of nilpotency class Z
	PhD	Stat	Y. Pittelkow	The statistical analysis of high-density oligonucleotide gene expression data
	PhD	Appl	S. Haji Husain	Computational and Mathematical Modelling in Muscle Rheology
	PhD	Appl	J. Clutterbuck	partial Differential Equations in Geometry
	PhD	Stat	R. Pakyari	Nonparametric inference in multivariate mixture models
MNU	MSc	Appl	N. Al Dhamri	Robust pole assignment via minimizing various robustness measures
	MSc	Appl	J. Lee Jin	Effects of coastal topography over the structure and evolution of fronts in Southeastern Australia.
	MSc	Appl	P. Phetolo	The impact of EI Nino/Southern Oscillation (ENSO) on Botswana rainfall
	PhD	Appl	J. Freeman	Non-Newtonian viscosity stagnant lid convection and the Thermal evolution of Europa, Ganymede and Callisto
	PhD	Pure	D. Freedman	Perturbation Bounds for Joint Spectra
	PhD	Appl	R. Goler	Numerical modeling of cloud lines over Cape York Peninsula
	PhD	Appl	S. Jimi	Properties of nanoparticles in the marine boundary layer near Southeastern Australia. A regional perspective using two years in situ observations at Cape Grim, Tasmania, Australia.
	PhD	Stat	N. Le Truc	Stochastic volatility models
	PhD	Appl	M. Velic	Gauge Invariant Integration and Perturbation of Petrov Type D Spacetimes
QUT	PhD	Stat	M. Kynn	Eliciting expert knowledge for Bayesian logistic regression in species habitat modelling.
	PhD	Stat	S. Sando	Estimation of a Class of Nonlinear Time Series Models
	PhD	Stat	G. Ridall	Bayesian Latent Variable Models for Biostatistical Applications
	PhD	Stat	C. Pesee	Stochastic modelling of financial processes with memory and semi-heavy tails
RMT	PhD	Appl	K. Srinivasan	Design and Analysis of Ciphers and Other Cryptographic Primitives
	PhD	Stat	N. Boonyanunta	Comparative Analysis of the Predictive Power of Neural Network and Other Approaches in Credit Risk Analysis
UAD	PhD	Stat	K-P. Hui	Network Reliability Estimation
	PhD	Appl	D. McInerney	A Triangular grid finite-difference model for wind-induced circulation in shallow lakes
	PhD	Pure	D. Matthews	Rethinking Systems Thinking: Towards a Postmodern Understanding of the Nature of Systemic Inquiry
	PhD	Appl	T. Tao	An Extended Mumford-Shah Model and an Improved Region Merging Algorithm for Imaging Segmentation
UMB	PhD	Appl	Y-B. Chan	Selected problems in lattice statistical mechanics
	PhD	Pure	G. Handley	Hilbert and Hardy type inequalities
	PhD	Pure	S. Kuhlmann	Geodesic knots in hyperbolic 3-manifolds
	PhD	Pure	J. Mashford	Invariant measures and Mobius structures: a framework for field theory
	PhD	Appl	L. Merlot	Techniques for academic timetabling
	PhD	Stat	H-J. Yoon	Discrete regression and statistical moderation
	MSc	Pure	D. Mathews	From algebra to geometry: A hyperbolic odyssey. The construction of geometric cone-manifol d structures with prescribed holonomy
	MSc	Pure	I. Scott	Ter-associative ternary topological algebra
UNC	PhD	Pure	P. Cutting	Classifying von Neumann factors arising from actions on affine buildings
	PhD	Pure	J. MacDougall	Construction of minimally triangle-saturated graphs
	PhD	Pure	Z. Mustafa	A new structure for generalized metric spaces - with applications to fixed point theory
	PhD	Pure	T. Yeend	Topological higher-rank graphs, their groupoids and operator algebras
	PhD	Stat	P. Graham	Statistical methods for assessing and improving quality in hospitals
	PhD	Stat	P. Howley	Analysing and reporting clinical indicator data using hierarchical models
UNS	PhD	Appl	S. Xie	Stochastic Heat Equations with memory in infinite dimensional spaces.
	PhD	Appl	C. Chen	A study of term structure of interest rates - Theory, modelling and econometrics.
	PhD	Appl	K. Sun	Aspects of G2.
	PhD	Appl	A. Alghofari	Problem in analysis related to satellites.
	PhD	Appl	W. Sijp	The effect of the Drake Passage and subgrid-scale eddy parametrization on the global thermohaline circulation.
	PhD	Appl	A. Santoso	Evolution of climate anomalies and variability of Southern Ocean water masses on interannual to centennial time scales.
	PhD	Appl	P. Charoen	The dynamics of recent thymic emigrants.
	PhD	Appl	E. Cripps	Bayesian variable selection and covariance selection in Gaussian linear regression.
	PhD	Appl	J. Brown	The kinematics and dynamics of cross-hemispheric flow in the Central and Eastern Equatorial Pacific

Table 3: Higher Degrees in Mathematics and Statistics, 2004

UQL			J. Alcock	Numerical Methods for Quantitative Finance
			P. Blake	The Devonian Corals of the Yarrol Province, Eastern Central Queensland
			M. Bremner	Characterizing Entangling Quantum Dynamics
			S. Byrnes	Some Computational and Geometric Aspects of Generalized Weyl Algebras
			B. Cairns	Hitting Times for Markov Population Processes Subject to Catastrophes
			S. Chang	Clustering with Mixed Variables
			K. Dancer	Solutions to the Yang-Baxter Equation and Casimir Invariants for the Quantised Orthosymplectic Superalgebra
			K. Harris	Small Graph Designs and their Various Properties
			P. Jenkins	Partial Graph Design Embeddings and Related Problems
			J. Lefevre	Graphical Trades
			A. Martinez-Garcia	A Complex Co-Evolutionary Systems Approach to the Management of Sustainable Grasslands: A Case Study in Mexico
			T. Mollee	Mathematical Modelling of Solute Transport Through Stratum Corneum
			B. Petschel	Mean Reversion Models for Weather Derivatives
			M. Takizawa	The Ladder Operator Approach to Constructing Conserved Operators in Integrable One-Dimensional Lattice Models
			M. Waterhouse	Coloured Graph Decompositions
			T. Waterhouse	Optimal Experimental Design for Nonlinear and Generalised Linear Models
USN	MSc	Appl	A. Tjetjep	Estimation under GNVM for Financial Data
	MSc	Pure	S. Wilcox	Cellularity of Twisted Semigroup Algebras of Regular Semigroups
	PhD	Pure	S. Blumen	Quantum superalgebras at roots of unity and topological invariants of three-manifolds
	PhD	Pure	J. East	On monoids related to braid groups and transformation semigroups
	PhD	Pure	H. Ho	On Hilbert modular forms
	PhD	Pure	K. Muraleedaran	Investigation of normalizers of parabolic subgroups of irreducible unitary reflection groups
	PhD	Pure	J. Parkinson	Buildings and Hecke Algebras
	PhD	Pure	B. Smith	Explicit endomorphisms and correspondences
UWG	PhD	Appl	N. Thamwattana	Some Analytical Solutions for Problems Involving Highly Frictional Granular Materials.
	PhD	Appl	F. Bierbrauer	Mathematical Modelling of Water-Droplet Impact on Hot Galvanised Steel Surfaces.
	PhD	Appl	W.-L. Wu	Boundary Element Forumlations for Fracture Mechanics Problems.
	PhD	Stat	N. Von Sanden	Title: Interviewer Effects in Household Surveys: Estimation and Design

I would like to thank the many people who took the time and effort to collect this data and forward it to me. Next year I will endeavour to obtain data earlier in the year, when the figures are still fresh in peoples' minds. Finally, if having read this report, you would like to contribute missing data for 2005, I can add it to the data on the website.

References

[1] P. Petocz, *Higher degrees and honours bachelor degrees in mathematics and statistics completed in Australia 1993*, AustMS Gazette **23(3)** (1996), 123–133.

[2] P. Johnston and P. Petocz, *Higher degrees and honours bachelor degrees in mathematics and statistics completed in Australia in 1994 and 1995*, AustMS Gazette **29(1)** (2002), 62–72.

[3] P. Johnston, *Higher degrees and honours bachelor degrees in mathematics and statistics completed in Australia between 1996 and 2001*, AustMS Gazette **30(1)** (2003), 42–44.

[4] P. Johnston, *Higher degrees and honours bachelor degrees 2002*, AustMS Gazette **30(5)** (2003), 315–320.

[5] P. Johnston, *Higher degrees and honours bachelor degrees in mathematics and statistics completed in Australia in 2003*, AustMS Gazette **31(5)** (2004), 314–319.

[6] P. Johnston, *Higher degrees and honours bachelor degrees in mathematics and statistics completed in Australia in 2004*, AustMS Gazette **32(5)** (2005), 320–325.

School of Science, Griffith University, Nathan, Qld, 4111
E-mail: P.Johnston@griffith.edu.au