

AUSTRALIAN ACADEMY OF SCIENCE

NATIONAL COMMITTEE FOR ASTRONOMY

A SURVEY OF DEMOGRAPHICS IN AUSTRALIAN ASTRONOMY INSTITUTES

15 MAY 2020

BACKGROUND

As part of the 2020 mid-term review of the 2016-25 astronomy decadal plan, the National Committee for Astronomy (via the Australian Academy of Science) invited fifteen Australian astronomy universities and institutes to provide demographic information on astronomy academics, researchers, students and teaching load. This survey was undertaken in November and December 2019 and was completed by all invitees.

The survey questions were aligned with those contained in the detailed survey¹ undertaken by the Decadal Plan Working Group 3.1 which contains statistical information as of 31 January 2014. More detailed questions were added in order to understand the gender balance and the employment status balance (fixed term v. ongoing) for the different academic levels.

RESULTS

A total of 204 fixed-term staff (202 FTE) and 166 (164 FTE) ongoing research staff were reported in this survey. Compared with 2015, this represents a small decrease in the total number of staff and a small increase in total FTEs. The fraction of women researchers has significantly increased to 27%. Interestingly, the fraction of ongoing research staff has also increased from 36% to 45%.

For the first time, the fraction of researchers at different academic (or equivalent) levels was recorded (fixed-term and continuing). The distribution of staff by employment status and level is shown in Figure 1.

The distribution of staff by employment status and gender is shown in Figure 2. In 2019, 40% of level A astronomy research staff were women, but this percentage reduces to 21%, 26%, 20% and 19% for levels B to E, respectively.

One of the largest changes over the last few years seems to have been in the number of astronomy PhD students, which has increased from 266 in 2015 to 326 in 2019, with the fraction of women students remaining roughly constant at 30%. The distribution of research students into PhD, Masters and Honours (also international), and split by gender is shown in Figure 3.

The full table is given in Appendix A, and the survey questions are listed in Appendix B.

¹ [Australian Astronomy Decadal Plan 2016-2025 Working Group 3.1, 2015, Demographic Survey of Australian Astronomy.](#)

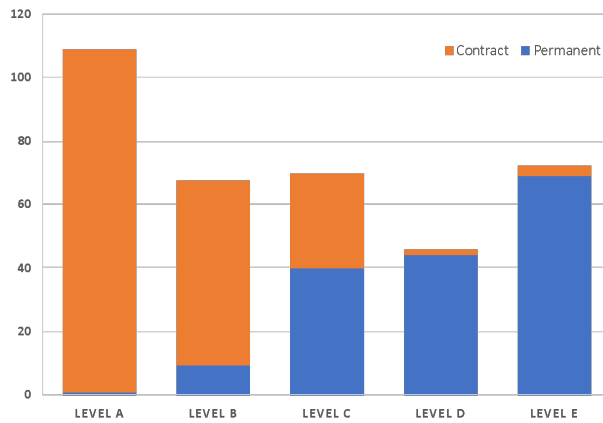


Figure 1: Distribution of employment status (fixed-term contract or permanent) by seniority level for Australian astronomy researchers in 2019. Levels A-E corresponds to research associate, research fellow (junior lecturer), senior research fellow (senior lecturer), principal research fellow (A/Prof) and senior principal research fellow (Prof), respectively.

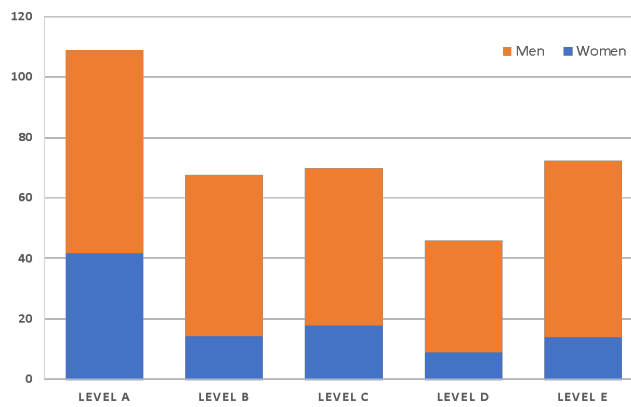


Figure 2: Distribution of gender by type of astronomy student across all Australian universities. International students are a subset of the previous categories (mainly PhD).

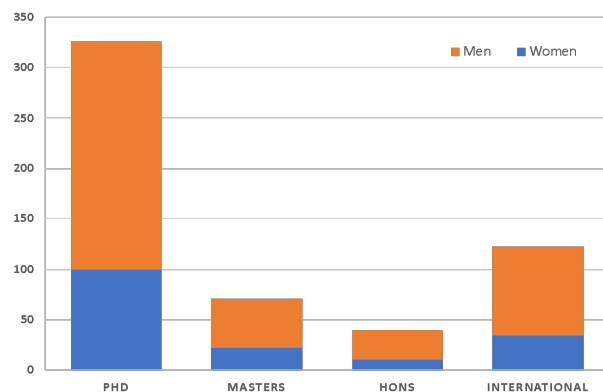


Figure 3: Distribution of gender by seniority levels for Australian astronomy researchers in 2019. Levels A-E are as explained in the previous caption.

APPENDIX A: SURVEY RESPONSES

1.1. Institute	1.2. State	1.3. Contact person	1.4. Email
University of Queensland	Queensland	Holger Baumgardt	h.baumgardt@uq.edu.au
Western Sydney University	NSW	Miroslav Filipovic	m.filipovic@uws.edu.au
Macquarie University	NSW	Orsola De Marco	orsola.demarco@mq.edu.au
ANU Research School of Astronomy and Astrophysics	ACT	Matthew Colless	matthew.colless@anu.edu.au
The University of Adelaide	South Australia	Bruce Dawson	bruce.dawson@adelaide.edu.au
Swinburne University of Technology	VIC	Glenn Kacprzak	gkacprzak@swin.edu.au
UNSW	NSW	Sarah Brough	s.brough@unsw.edu.au
Curtin Institute of Radio Astronomy	Western Australia	Steven Tingay	s.tingay@curtin.edu.au
International Centre for Radio Astronomy Research, UWA	WA	Renu Sharma	renu.sharma@uwa.edu.au
Monash University	Victoria	Amanda Karakas	amanda.karakas@monash.edu
University of Sydney	NSW	Tim Bedding	tim.bedding@sydney.edu.au
CSIRO Astronomy & Space Science	NSW	Philip Edwards	philip.edwards@csiro.au
University of Tasmania	Tasmania	Simon Ellingsen	Simon.Ellingsen@utas.edu.au
University of Southern Queensland	Queensland	Brad Carter	Brad.Carter@usq.edu.au
University of Melbourne	Victoria	Rachel Webster	r.webster@unimelb.edu.au

Table 1: Demographics survey of Australian astronomical institutes

	Total number of permanent staff		Total number of contract staff		Level A (Associate Lecturer/Research Assistant)				Level B (Lecturer/Research Associate)			
	M	F	M	F	Contract		Permanent		Contract		Permanent	
					M	F	M	F	M	F	M	F
1.1. Institute	M	F	M	F	M	F	M	F	M	F	M	F
University of Queensland	3	1	1	0	0	0	0	0	1	0	0	0
Western Sydney University	3	0	1.5	0	0	0	0	0	1	0	0	0
Macquarie University	9	2	5	1	2	0	0	0	3	1	0	0
ANU Research School of Astronomy and Astrophysics	14	5	29	9	16	8	0	0	5	1	0	0
The University of Adelaide	3	0	1	1	0	1	0	0	1	0	0	0
Swinburne University of Technology	18	6	17	5	5	5	0	0	4	2	0	0
UNSW	5	4	3	3	3	3	0	0	0	0	0	0
Curtin Institute of Radio Astronomy	7	1	27	11	10	6	0	0	13	2	0	0
International Centre for Radio Astronomy Research, UWA	11	1	15	9	4	4	0	0	4	2	0	0
Monash University	10	2	10	2	6	1	0	0	2	1	1	0
University of Sydney	7.5	4	17	2	9	1	0	0	8	1	0	0
CSIRO Astronomy & Space Science	26	6	5	10	5	9	1	0	0	1	4	1
University of Tasmania	5.5	0	2	0.5	1	0	0	0	1	0	0	0.5
University of Southern Queensland	4	3	4.2	0	0	0	0	0	2.2	0	1	2
University of Melbourne	4	1	8	5	5	4	0	0	2	0	0	0
TOTALS	130	36	145.7	58.5	66	42	1	0	47.2	11	6	3.5

Table 1 contd

	Level C (Senior Lecturer/Senior Research Fellow)				Level D (Associate Professor/Principal Research Fellow)				Level E (Professor/Senior Principal Research Fellow)			
	Contract		Permanent		Contract		Permanent		Contract		Permanent	
1.1. Institute	M	F	M	F	M	F	M	F	M	F	M	F
University of Queensland	0	0	1	0	0	0	1	0	0	0	0	1
Western Sydney University	1	0	1	0	0	0	0	0	0.5	0	1	1
Macquarie University	4	1	0	0	0	0	1	0	0	0	4	1
ANU Research School of Astronomy and Astrophysics	6	0	0	1	2	0	8	1	0	0	6	3
The University of Adelaide	0	0	0	0	0	0	2	0	0	0	1	0
Swinburne University of Technology	0	0	3	3	0	0	6	1	0	0	10	2
UNSW	0	0	1	2	0	0	1	2	0	0	3	0
Curtin Institute of Radio Astronomy	4	2	2	0	0	0	2	1	0	1	3	0
International Centre for Radio Astronomy Research, UWA	7	1	4	3	0	0	2	0	0	0	5	0
Monash University	2	0	2	1	0	0	4	1	0	0	3	0
University of Sydney	0	0	0	0	0	0	1	2	0	0	6.5	2
CSIRO Astronomy & Space Science	0	0	9	2	0	0	4	1	0	0	8	2
University of Tasmania	0	0	2	0	0	0	1	0	0	0	2.5	0
University of Southern Queensland	0	0	1	1	0	0	1	0	2	0	1	0
University of Melbourne	1	1	1	0	0	0	1	0	0	0	2	1
TOTALS	25	5	27	13	2	0	35	9	2.5	1	56	13

Table 1 contd

	Total number of current astronomy PhD students		Total number of current astronomy Masters students		Total number of current astronomy Honours students		Total number of current astronomy international research students	
	M	F	M	F	M	F	M	F
1.1. Institute								
University of Queensland	5	2	0	0	1	1	1	0
Western Sydney University	5	3	1	0	0	0	1	1
Macquarie University	15	6	3	4	0	0	11	4
ANU Research School of Astronomy and Astrophysics	32	15	12	5	7	3	15	5
The University of Adelaide	10	5	2	2	2	1	1	1
Swinburne University of Technology	32	19	0	0	0	0	0	0
UNSW	5	3	0	0	2	2	2	3
Curtin Institute of Radio Astronomy	19	5	4	0	6	2	9	4
International Centre for Radio Astronomy Research, UWA	21	7	8	8	0	0	15	6
Monash University	18	8	2	0	2	1	10	2
University of Sydney	26	8	3	2	7	1	11	4
CSIRO Astronomy & Space Science	0	0	0	0	0	0	0	0
University of Tasmania	8	4	0	0	2	0	0	0
University of Southern Queensland ²	12.5	4	2	0	0	0	2	0
University of Melbourne	18	11	12	2	0	0	10	5
TOTALS	226.5	100	49	23	29	11	88	35

Table 1 contd

² For the purposes of this table, 13 male and 6 female part-time USQ PhD students were counted at 0.5 FTE; similarly 2 male part-time Masters students.

	What type of teaching activities are your staff engaged in? Please indicate in percentage of total staff teaching activity time.				4.2. Average permanent staff teaching load	4.3. Average contract staff teaching load
1.1. Institute	Postgrad research student training	Postgrad coursework student training	Undergrad student training	Public outreach		
University of Queensland	20%	0%	20%	5%	40%	5%
Western Sydney University	30%	30%	30%	10%	60%	10%
Macquarie University	10%	5%	30%	5%	35%	5%
ANU Research School of Astronomy and Astrophysics	40%	20%	35%	5%	1.0 course/year (semester-long courses)	0.05 course/year (semester-long courses)
The University of Adelaide	40%	0%	30%	5%	70%	40%
Swinburne University of Technology						
UNSW	25-66%	0%	33-75%	<10%	60 hours lecturing per year	0%
Curtin Institute of Radio Astronomy	49.50%	0%	45.50%	5%	404 hrs/yr	83 hrs/yr
International Centre for Radio Astronomy Research, UWA	50%	30%	10%	10%	20%	0%
Monash University	10%	5%	80%	5%	about 60 hours contact hours per year.	Depends greatly on their position! Fellowships are 0-10% but 2 are contracted teaching staff.
University of Sydney	20%	0%	75%	5%	40% of time	2% of time
CSIRO Astronomy & Space Science	0%	0%	0%	0%	0%	0%
University of Tasmania	20%	10%	65%	5%	50%	10%
University of Southern Queensland	10% but varies widely so "average" can be misleading	10% but varies widely so "average" can be misleading	70% but varies widely so "average" can be misleading	10% but varies widely so "average" can be misleading	70%	10%
University of Melbourne	50%	30%	15%	5%	20%	0%

Table 1 contd

1. INSTITUTE AND CONTACT INFORMATION

1.1. INSTITUTE *

1.2. STATE *

1.3. CONTACT PERSON *

1.4. EMAIL *

2. STAFF INFORMATION

2.1 TOTAL NUMBER OF PERMANENT STAFF ENGAGED IN ASTRONOMY RESEARCH

Men

Women

2.4. TOTAL NUMBER OF CONTRACT STAFF ENGAGED IN ASTRONOMY RESEARCH

Men

Women

2.3. ASTRONOMY RESEARCH STAFF BREAKDOWN BY ACADEMIC LEVEL, GENDER AND CONTRACT STATUS

2.3.1. LEVEL A (ASSOCIATE LECTURER/RESEARCH ASSISTANT)

Contract - Men

Contract - Women

Permanent - Men

Permanent - Women

2.3.2 LEVEL B (LECTURER/RESEARCH ASSOCIATE)

Contract - Men

Contract - Women

Permanent - Men

Permanent - Women

2.3.3 LEVEL C (SENIOR LECTURER/SENIOR RESEARCH FELLOW)

Contract - Men

³ Originally published at www.science.org.au/demographics-survey

Contract - Women

Permanent - Men

Permanent - Women

2.3.4 LEVEL D (ASSOCIATE PROFESSOR/PRINCIPAL RESEARCH FELLOW)

Contract - Men

Contract - Women

Permanent - Men

Permanent - Women

2.3.5 LEVEL E (PROFESSOR/SENIOR PRINCIPAL RESEARCH FELLOW)

Contract - Men

Contract - Women

Permanent - Men

Permanent - Women

3. RESEARCH STUDENT INFORMATION

3.1. TOTAL NUMBER OF CURRENT ASTRONOMY PHD STUDENTS

Men

Women

3.2. TOTAL NUMBER OF CURRENT ASTRONOMY MASTERS STUDENTS

Men

Women

3.3. TOTAL NUMBER OF CURRENT ASTRONOMY HONOURS STUDENTS

Men

Women

3.4. TOTAL NUMBER OF CURRENT ASTRONOMY INTERNATIONAL RESEARCH STUDENTS

Men

Women

4. AVERAGE TEACHING LOAD

4.1. WHAT TYPE OF TEACHING ACTIVITIES ARE YOUR STAFF ENGAGED IN? PLEASE INDICATE IN PERCENTAGE OF TOTAL STAFF TEACHING ACTIVITY TIME.

Postgraduate research student training

Postgraduate coursework student training

Undergraduate student training

Public outreach

4.2. AVERAGE PERMANENT STAFF TEACHING LOAD

4.3. AVERAGE CONTRACT STAFF TEACHING LOAD