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University research funding: a quick guide

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Australian universities are required to undertake research, and offer Masters and Doctoral research degrees, in at least three broad fields, as a condition of registration.[1]

The Australian Government emphasises the importance of university research performance through assessments of quality and engagement and impact. A wide range of international rankings based largely on research performance, such as the *Times Higher Education* World University Rankings and QS World University Rankings, also confer academic prestige on highly ranked institutions.

Research performance is also often a basis for academic hiring and promotion, acting as an incentive (beyond inherent motivation) for individual researchers to maintain research activity.[2]

This quick guide explains how Australian universities resource research activities. Based on key Australian Government data, it sets out the major sources and distribution of university research funding.

Funding sources

Australian universities fund research activities from:

- the performance-based research block grants (RBGs) administered by the Department of Education and Training (DET), made up of the Research Training Program and the Research Support Program
- Australian nationally competitive grants, mainly from the National Health and Medical Research Council (NHMRC) and the Australian Research Council (ARC); but also from other national funding bodies, such as the Medical Research Future Fund
- Australian Government funding to support industry engagement, such as the Cooperative Research Centre (CRC) Program, administered by the Department of Industry, Innovation and Science (DIIS), which supports industry-led collaborations with researchers and other groups

1. Higher Education Standards Framework (Threshold Standards) 2015, Part B1.2.3. Under the Threshold Standards, Australian higher education providers that are not registered as universities are not required to conduct research.
2. For example, see: Australian National University (ANU), 'Procedure: Academic promotion', ANU website; University of Sunshine Coast (USC), 'Academic Promotion to Levels C, D and E – Procedures', USC website, accessed 24 April 2019.

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- Australian Government research infrastructure funding programs, such as the DET-administered National Collaborative Research Infrastructure Strategy, or the ARC-administered Linkage Infrastructure, Equipment and Facilities scheme
- other public sector research funding that is not awarded on a nationally competitive basis—for example, National Institutes Program grants administered by DET, or state and local government grants and direct contributions to projects
- student fees—a recent study undertaken for DET found 85 per cent of funding for a Commonwealth supported place is spent on teaching, with the remainder cross-subsidising other functions, including research
- income from research commissioned by industry and private not-for-profit organisations, such as charities and foundations and
- other sources such as philanthropic donations, endowments, and crowd-funding.

Higher education research expenditure

The Australian Bureau of Statistics (ABS) release *Research and Experimental Development, Higher Education Organisations, Australia* (cat. no. 8111.0) publishes higher education expenditure on research and development (HERD). The latest issue, released on 22 May 2018, is based on survey data about research and development (R&D) performed by Australian higher education organisations during the 2016 calendar year. Although the data does not provide program-level detail to match the funding sources outlined above, it does include information about higher education organisations' R&D expenditure by source of funds, type of activity, and field of research.

Source of funds

The two main sources of funds for HERD in 2016 were general university funds ($6,075 million, or 56 per cent of HERD) and Australian competitive grants ($1,673 million, or 15 per cent of HERD). As shown in Table 1, these were also the two main sources identified in each survey since 2008.

Table 1: source of funds for higher education R&D expenditure, 2008–16 ($ million)

Source	2008	2010	2012	2014	2016
General university funds	3 620.6	4 476.9	5 340.0	5 464.9	6 075.1
Australian competitive funds	1 204.8	1 355.6	1 624.7	1 832.1	1 672.8
Commonwealth schemes	*1 142.9*	*1 290.9*	*1 568.0*	*1 745.7*	*1 592.0*
Other schemes	*61.9*	*64.7*	*56.7*	*86.3*	*80.8*
Other Commonwealth government	1 001.3	1 233.6	1 448.4	1 614.6	1 610.1
State and local government	403.0	419.7	419.9	374.3	420.1
Business	338.2	336.3	398.2	426.0	476.0
Donations, bequests and foundations	95.9	140.1	124.0	192.8	250.8
Other Australian	0.4	0.2	0.2	0.1	0.3
Overseas	138.7	179.7	230.7	240.4	372.3
Total	**6 843.5**	**8 160.9**	**9 609.7**	**10 145.1**	**10 877.5**

Sources: Australian Bureau of Statistics (ABS), *Research and Experimental Development, Higher Education Organisations, Australia, 2016*, cat. no. 8111.0, ABS, Canberra, 2018, Table 1; ABS, *Research and Experimental Development, Higher Education Organisations, Australia, 2014*, cat. no. 8111.0, ABS, Canberra, 2016, Table 1.
Notes: Figures are not adjusted for inflation. Figures may not sum due to rounding.

Expenditure by type of activity

In 2016, HERD comprised support for the following activities (in order of greatest expenditure):

- 48.5 per cent ($5,280 million) for applied research—'original work undertaken primarily to acquire new knowledge with a specific application in view'
- 22.8 per cent ($2,478 million) for pure basic research—'experimental and theoretical work undertaken to acquire new knowledge without looking for long term benefits other than the advancement of knowledge'
- 18.6 per cent ($2,019 million) for strategic basic research—'experimental and theoretical work undertaken to acquire new knowledge directed into specified broad areas in the expectation of practical discoveries' and
- 10.1 per cent ($1,101 million) for experimental development—'systematic work, using existing knowledge gained from research or practical experience, which is directed to producing new materials, products, devices, policies, behaviours or outlooks; to installing new processes, systems and services; or to improving substantially those already produced or installed'.[3]

Expenditure by field of research

Table 2 shows HERD by broad Field of Research (FoR), arranged in descending order, for 2016. Almost one third of expenditure was in the Medical and Health Sciences (28.4 per cent), followed by Engineering (10.2 per cent). All other FoRs received less than 10 per cent of total expenditure.

Table 2: higher education expenditure on R&D, by Fields of Research, 2016 ($ million)

Field of Research	Expenditure	Percentage of total
Medical and Health Sciences	3 086.9	28.4
Engineering	1 114.5	10.2
Biological Sciences	1 020.7	9.4
Studies in Human Society	497.5	4.6
Commerce, Management, Tourism and Services	473.2	4.4
Agricultural and Veterinary Sciences	408.7	3.8
Information and Computing Sciences	394.4	3.6
Education	393.7	3.6
Environmental Sciences	392.7	3.6
Physical Sciences	365.2	3.4
Chemical Sciences	335.7	3.1
Psychology and Cognitive Sciences	335.5	3.1
Earth Sciences	298.0	2.7
Language, Communication and Culture	280.5	2.6
Economics	260.0	2.4
Technology	212.3	2.0
Built Environment and Design	209.6	1.9
Mathematical Sciences	205.1	1.9
History and Archaeology	182.8	1.7
Law and Legal Studies	182.5	1.7
Studies in Creative Arts and Writing	148.9	1.4
Philosophy and Religious Studies	79.1	0.7
Total	**10 877.5**	**100**

Source: ABS, *Research and Experimental Development, Higher Education Organisations, Australia, 2016*, op. cit.

3. As defined in ABS, *Australian and New Zealand Standard Research Classification (ANZSRC), 2008*, cat. no. 1297.0, ABS, Canberra, 2008.

Australian Government funding for university research

The Australian Government operates a 'dual funding system' for university research, made up of:

- the DET-administered RBGs to support the systemic costs of research including research student stipends and tuition fee offsets; and the indirect costs of competitive grants and
- national competitive grants (predominantly through the ARC and NHMRC) for particular research programs, projects or fellowships as approved by the funding body based on academic peer review.

The House Standing Committee on Education, Employment and Training *Inquiry into Funding Australia's Research* (October 2018) found widespread support for this structure among universities—notwithstanding concerns about the efficiency of competitive grants application and administration processes, and what some describe as a shortfall between RBG funding and the indirect costs of government-funded research.

Australian Government expenditure on university research

Information about Australian Government R&D expenditure over time is available from the Science, Research and Innovation (SRI) Budget Tables, published in the second half of each year by DIIS. These detail all Australian Government R&D expenditure, including for university research.

Table 3 shows estimated expenses for key Australian Government programs that fund university research.

Both the ARC and NHMRC fund some research outside the higher education sector, meaning total funding to universities from these programs will be lower than shown in Table 3. The SRI Budget Tables include a breakdown of RBG, ARC and NHMRC funding for the higher education sector only, but this breakdown does not provide forward estimates.

Table 3: estimated expenses, key Australian Government programs funding higher education research, 2014–15 to 2022–23 ($ million)

Program	2014–15	2015–16	2016–17	2017–18	2018–19	2019–20	2020–21	2021–22	2022–23
RBG	1 755.9	1 829.9	1 777.9	1 943.2	1 921.1	1 938.4	1 978.2	2 023.7	2 068.2
NHMRC grants	904.5	825.5	840.5	853.1	846.2	868.6	886.2	887.0	894.0
ARC grants	852.9	815.3	744.4	758.1	766.7	794.0	808.0	824.4	841.7

Sources: DIIS, Science, Research and Innovation (SRI) Budget Tables, October 2018; Australian Government, *Portfolio budget statements 2019–20: budget related paper no. 1.5: Education and Training Portfolio*, pp. 49, 51 and 117; Australian Government, *Portfolio budget statements 2019–20: budget related paper no. 1.5: Health Portfolio*, pp. 45 and 356

Distribution of research income from key Australian Government programs

Although all universities receive some Australian Government research funding, the majority goes to the research-intensive Group of Eight (Go8) institutions: the Australian National University, University of Adelaide, University of Melbourne, Monash University, University of Queensland, University of Sydney, University of New South Wales, and University of Western Australia.

According to calculations based on RBG time series data from DET, shown in Table 4, of the university research income reported to DET for 2017:

- the Go8 universities received 67.1 per cent of cumulative funding from the RBG, NHMRC and ARC grant income

- the Australian Technology Network (ATN), made up of the University of South Australia, RMIT University, the University of Technology Sydney, and Curtin University, received 9.3 per cent of this income
- the Innovative Research Universities (IRU), made up of Charles Darwin University, Flinders University, Griffith University, James Cook University, La Trobe University, Murdoch University, and Western Sydney University, received 8.6 per cent of this income
- the Regional Universities Network (RUN), made up of CQ University, Federation University, University of Southern Queensland, Southern Cross University, the University of New England and the University of the Sunshine Coast, received 1.7 per cent of this income
- the remaining 16 universities (unaligned) collectively account for the remaining 13.3 per cent of RBG, ARC and NHMRC income for 2017.

Because income data is reported by calendar year, it does not match financial year expenses information for Australian Government programs.

Table 4: RBG, ARC and NHMRC research income by university affiliation, 2017 ($ million)

Affiliation	RBG	ARC	NHMRC	Total	Percentage of total
ATN	195.6	68.2	34.4	298.2	9.3
Go8	1 194.8	474.8	483.0	2 152.6	67.1
IRU	178.3	47.3	51.6	277.3	8.6
RUN	47.2	6.3	0.8	54.2	1.7
Unaligned	274.9	101.2	49.3	425.4	13.3
Total	**1 890.8**	**697.8**	**619.0**	**3 207.6**	**100**

Source: Parliamentary Library calculations using DET Consolidated Time Series Data.
Note: Totals may not sum due to rounding.

Further information

- DIIS publishes the Australian Innovation System Report each year, covering the performance of Australia's R&D investment, including international comparisons and reflections on policy directions and future challenges.
- The ARC publishes information about the outcomes of funding rounds in its Selection Outcome Report. A statistical breakdown for approved proposals in each recent scheme round is also available via the ARC Grants Search website.
- The NHMRC publishes outcomes of funding rounds data and research funding data.
- DET compiles the Finance Publication covering annual financial performance, financial position and cash flows for higher education providers, derived from institutions' financial statements.
- The Organisation for Economic Co-operation and Development (OECD) Research and Development Statistics provide information about resources devoted to R&D for OECD member countries and seven non-member economies. The database covers gross domestic expenditure on R&D by sector and source of funds.
- The peak body for Australian universities is Universities Australia (UA). UA publishes a range of policy analysis and sector views, including information about university R&D. UA's latest analysis of Australian Government funding for university research is included in its 2019–20 Pre-Budget Submission (pp. 16–18).

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