

Response to Pathway to Diversity in STEMM

1. STEMM at the University of Sydney: Importance of STEMM at Usyd

The context for our dialogue is the University of Sydney. In the last decade we have made great strides in improving gender diversity in terms of recruitment, career progression and leadership in STEMM. A key driver for this systemic and behavioural shift has been the embedding of the Science in Australia Gender Equity (SAGE) program which has informed (i) the collection of data and (ii) solutions for enabling gender equity, diversity and inclusion (GEDI) in STEMM. Indeed, we cannot establish a dialogue about STEMM without recognising the value placed on GEDI as central principles and practices at the University of Sydney. A combination of leadership commitment and program commitment supported by a recognition that GEDI are key values/practices have resulted in a positive shift toward greater gender equity.

Notably the SAGE program goes beyond being an accreditation process reliant on an evidence basis for systemic and behavioural change. A by-product of the accreditation process is that the program also raises awareness, sparks conversations and provides an evidence-based information source for colleagues and key stakeholders at the University about the benefits of capitalising on diversity. The program has now expanded to include all Schools and Faculties, Professional Service Units and students. It is now a whole of university endeavour.

The evidence is clear – since the introduction of the SAGE program the STEMM area has made seismic progress¹. In fact, the University of Sydney was recently noted by Snow Foundation as a leader in Gender Equity targets². The SAGE program has been instrumental in driving real change. In advocating for change and in raising awareness about the importance of setting targets, implementing programs, driving systemic change and addressing the barriers. While there is still a lot of work to be done to continue to drive change, to capitalise on diversity, and to create a culture of inclusion, the embedding of the SAGE program as business as usual is an important marker of the commitment to GEDI in STEMM and beyond.

The supply of young women into STEMM is an important driver for change and we are looking at developing an eco-system approach – developing explicit links with secondary institutions to inform and encourage young girls to undertake studies in STEMM. Part of this approach will include profiling female role models who will also be tasked with running workshops with a focus on young women on Open Days. We also find a lot of value in mentoring programs. Various models of such programs have been trialled in the Faculty of Medical Health with great success. In terms of closing the loop we also see a great opportunity in partnering with Industry. We need industry to also mirror the culture of inclusion we are making efforts to create in order to establish safe spaces for young women entering what are presently heavily male dominated industries.

Student population

At the University of Sydney, we aspire to be the best Australian university for teaching and learning while also creating a culture of inclusion and belonging, safety and trust. Our student-focused education is one of three central pillars in the [University's 2032 Strategy](#). This is also supported by one of the parallel pillars which focuses on diversity and inclusion – *thriving on diversity*.

Sydney graduates are critical in helping to deliver a highly educated and skilled workforce, and STEMM fields are crucial in next the generation of creative thinkers and problem solvers to growing challenges of today. As new fields of STEMM employment continue to emerge, it's important that our students/graduates remain agile and able to adapt their skills to the fast-changing global economy. In 2021, STEMM Undergraduate (UG) student enrolments made up 54% of total UG students, and STEMM Postgraduate students (PG) 46% of total PG students at the University (with total STEMM student population making up 50% of University enrolments in 2021).

¹ See table titled: Gender Targets 2015 – 2022 below

² See AFR, March 6 2023; Julie Hare, No gender equality? Then no money from this major philanthropist
Usyd's recent award of a Snow Foundation Fellowship (Associate Professor Lining (Arnold) Ju) is testament to the progress made and the culture of EDI created at the University of Sydney.

Faculty	total PG	% of total PG	total UG	% of total UG	TOTAL
Engineering	4035	12%	6073	15%	10108
Faculty of Science	2068	6%	9543	23%	11611
FMH	8061	24%	4642	11%	12703
School of Architecture, design and planning	1485	4%	1783	4%	3268
Total for STEMM	15649	46%	22041	54%	37690
University grand total	33737		41125		74862
% STEM of grand total	50%				
<i>*figures pulled from 2021 Annual Report</i>					

Table 1: Annual Report 2021 - Enrolments by faculty of course registration and course level

Enrolments by faculty of course registration and course level

Domestic/ international	Faculty of registration	Enrolments		Enrolments
		Postgraduate	Undergraduate	
Domestic	University of Sydney Business School	1,345	2,776	4,121
	Faculty of Arts and Social Sciences	2,582	7,275	9,857
	Faculty of Engineering	890	3,576	4,466
	Faculty of Medicine and Health	6,921	3,594	10,515
	Faculty of Science	1,547	6,206	7,753
	Sydney Conservatorium of Music	188	975	1,163
	University of Sydney Law School	1,446	651	2,097
	University of Sydney School of Architecture, Design and Planning	667	1,017	1,684
	University Programs**	1	268	269
Domestic total		15,587	26,338	41,925
International	University of Sydney Business School	9,018	2,429	11,447
	Faculty of Arts and Social Sciences	2,784	4,308	7,092
	Faculty of Engineering	3,226	2,497	5,723
	Faculty of Medicine and Health	1,140	1,048	2,188
	Faculty of Science	521	3,337	3,858
	Sydney Conservatorium of Music	29	40	69
	University of Sydney Law School	559	122	681
	University of Sydney School of Architecture, Design and Planning	818	766	1,584
	University Programs**	55	240	295
International total		18,150	14,787	32,937
Grand total		33,737	41,125	74,862

Research grants and fellowships

We strive for research excellence that tackles the greatest challenges and contributes to the common good. Major research funding bodies continue role in enabling us to do the work in STEMM. From 2014 to 2022, the University of Sydney received ~\$290M income for STEMM research fellowships.

In 2021, the University received significant research funding:

- Australian Research Council (ARC) awarded a total of \$73 million for 120 grants and fellowships;
- National Health and Medical Research Council (NHMRC) awarded a total of \$105 million for 70 grants;
- and between November 2020 and December 2021 the Department of Health's Medical Research Future Fund (MRFF) awarded more than \$58 million for 29 projects.

World Class teaching and research facilities

Tech Central. In early 2021 we embarked on an ambitious collaboration with the University of Technology Sydney to anchor and turbocharge Tech Central as a global centre of excellence and home for innovation in digital sciences and technology to train digital scientists and engineers, delivers world-leading research and

outcomes to elevate NSW as a leaders in digital transformation. In Dec 2021, the University launched a \$25 million facility to drive innovation and foster industrial output in the heart of Tech Central – *the Sydney Manufacturing Hub*.

Sydney Biomedical Accelerator. In August 2022, the University announced its largest ever capital investment \$478 million to build a nation-leading biomedical precinct to fast-track research and patient care in NSW. [The Accelerator](#) will tackle some of our most complex health challenges included cancer and neurodegenerative diseases.

What are we most proud of?

Improving the gender balance is a key component of the University of Sydney's Diversity and Inclusion Strategy, a value and policy position supported by the University's 2032 strategic vision which spotlights GEDI as a key pillar.

By way of example, the University of Sydney's Our Women's Career Acceleration and Leadership Strategy (WCALS) has been designed to help progress female representation at leadership levels across the University (refer to chart 1 below). Targeted initiatives have resulted in an increase in the contribution and inclusion of the University of Sydney's female workforce (55%). The ultimate objective is to shift the culture to create a level playing field for all staff and a culture of inclusion.

As part of the University's efforts to promote GEDI education we have gained the [Bronze Award in the Athena SWAN accreditation](#), as part of our commitment to the [Science in Australia Gender Equity](#) (SAGE) initiative. Notably, between 2015-2022, most STEMM faculties met or exceeded their 2020 targets for Level C, D and E academics during the Bronze Award implementation period (see table 2 below). This highlights that when measures are implemented and outcomes reported on, change occurs as we are able to provide an evidence-based understanding of the gaps and implement meaningful interventions to address the gaps.

Key achievements include:

- A reduction in the gender pay gap of 3.1% over the past four years, from 11.4% in 2018 to 7.1% in 2022.
- Increase in the proportion of women in senior academic and professional roles.
- Improved policies and procedures for recruitment, promotion and career development.
- In February 2023, the University became the first international signatory to the UK Science Council-led [Technician Commitment](#), which ensures visibility, recognition, career development and sustainability for technicians working in higher education and research.

Chart 1: Female representation in key decision-making committees in 2022

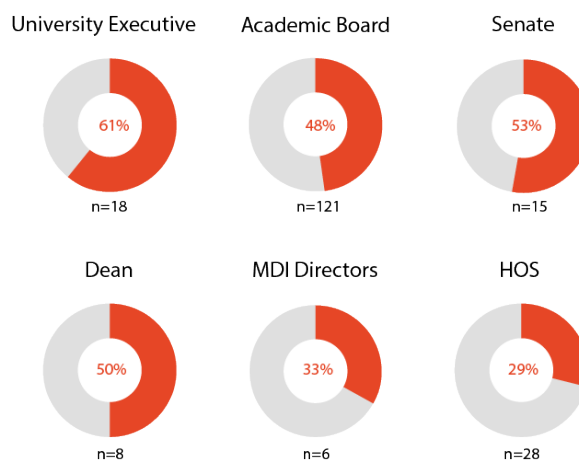


Table 2: Gender Target (2015-2022)

			% Female at each level			
			2015	2022	Change from 2015	2020 target
Whole University		Level C	48	53	+5pp	50
		Level D	39	45	+6pp	45
		Level E	28	35	+7pp	40
STEMM faculties	Engineering	Level C	7	11	+4pp	20
		Level D	12	10	-2pp	25
		Level E	15	18	+3pp	30
	Science	Level C	38	48	+10pp	45
		Level D	24	35	+11pp	33
		Level E	23	26	+3pp	33
	Medicine and Health	Level C	61	68	+7pp	50
		Level D	48	54	+6pp	45
		Level E	31	43	+12pp	40
	Architecture, Design and Planning	Level C	29	53	+24pp	50
		Level D	22	53	+31pp	45
		Level E	25	46	+21pp	40
non-STEMM faculties	Business	Level C	35	35	-	40
		Level D	46	38	-8pp	45
		Level E	23	24	+1pp	35
	Law	Level C	50	48	-2pp	50
		Level D	50	63	+13pp	50
		Level E	44	37	-7pp	50
	Conservatorium of Music	Level C	27	32	+5pp	40
		Level D	31	44	+13pp	40
		Level E	43	50	+7pp	50
	Arts and Social Sciences	Level C	54	53	-1pp	50
		Level D	46	50	+4pp	45
		Level E	28	42	+14pp	40

2. Accessing and belonging in STEMM

Thriving through diversity is a foundational pillar of the [University's 2032 Strategy](#), which recognises that if we genuinely aspire to be a world-leading university we must reflect the broader community around us. We want our student and staff community to be rich in life experiences and diverse in terms of age, ethnicity, nationality, gender, sexuality, disability and other social coordinates ~ where all people feel a greater sense of belonging so they can bring in their whole selves as we work and study.

This is carried out through a number of policy and procedures, staff networks and events, such as but not limited to:

Aboriginal and Torres Strait Islander Employment plan 2022-24 complements the work of the *One Sydney, Many People Strategy 2021-2024* and commits the University to increasing the employment and development opportunities for Aboriginal and Torres Strait Islander staff ~ key objectives of community engagement, career attraction, development and progression, workplace culture and experience, and accountability and best practice.

Disability Inclusion Action Plan 2019-24 The University is committed to ensuring that students, staff and visitors with disability have equal opportunities to excel at and enjoy our University. The [Disability Inclusion Action Plan](#) seeks to enable students and staff with disability to lead full and enriched lives at the University by delivering an accessible best practice teaching, learning and working environment.



LGBTQIA+ The University is a workplace committed to supporting our diverse LGBTQIA+ community through policy reform, a supportive and engaged Pride Network, best-practice inclusive language guidelines, initiatives to support LGBTQIA+ students (Student Support Liaison Officers and OUT for Now series), supporting community events (Mardi Gras). In 2022, the University achieved Gold accreditation for the second consecutive year in the

Australian LGBTQ Inclusion Awards, which recognise Australia's top organisations for inclusion based on the results of the Australian Workplace Equality Index (AWEI).

Safer Communities Office are specialist staff experienced in providing an immediate response to people that have experienced sexual misconduct, domestic/family violence, bully/harassment and issues relating to modern slavery. The [Safer Communities Office](#) provides case management, more information on support services available (i.e. student counselling) and how to make a complaint or disclosure to the University.

Support of University of Sydney staff

Providing the support and structures to enable all our staff to succeed and advance their careers is a cornerstone of the University of Sydney's ambition to retain its reputation as an employer of choice in Australia. Considerable investment is made in career development with several dedicated programs in place targeting female professional and academic staff. Many of these have been offered for more than 5 years already and their impact and effectiveness are reviewed against our own internal targets. Notably they have had a significant positive impact.

Examples of these programs include:

- Vice Chancellor's Sponsorship Program for Culturally Diverse Women
- Sydney Women's Leadership Program (Academic Cohort)
- Sydney Women's Leadership Program (Professional Cohort)

Targeted support that enables and accelerates promotions/career development include:

- Positioning for Promotion Program – assists women to progress to more senior roles and recognition
- The Faculty of Science and the Faculty of Medicine and Health run the Strategic Promotion Advice and Mentoring program for women – provides workshops and individualized coaching
- Professional coaching for academics in the Faculty of Engineering intending to apply for promotion
- Franklin Women/Serendis Mentoring Program – Faculty of Science and Faculty of Medicine and Health send ~8 mid-career female academic mentees and ~8 senior academic mentors to this program each year

We award a range of internal grants and prizes that enable academics to develop their research careers and facilitate collaborations on campus and with industry. These include:

- **Equity Prizes.** We have awarded between 10 and 20 of these prizes every year since 2013. They support individuals with promising research trajectories that could be accelerated with additional support. Thompson Prizes specifically target women aspiring to leadership roles (recognising women are underrepresented at senior academic levels). Laffan Prizes target colleagues who have, or have experienced, a significant disability, and Brown Prizes target colleagues who have significant carers' responsibilities. Recipients benefit from an individually tailored 12-month career development program, up to \$20k, mentoring and focused time for research development.
- **Sydney Research Accelerator Prize (SOAR) (will be phased out in 2024 and replaced with a more generous award).** A two-year program which recognises and develops our most talented early and mid-career researchers to establish a cohort of future research leaders. Recipients are awarded \$50k per year to support their research, innovation and development plans. They also benefit from a personalised program of research development support and structured mentoring (at least 50% of awardees are female).

Staff and student networks

Support offered through staff networks

- Aboriginal & Torres Strait Islander Staff Network
- Pride Network
- Women at Sydney Network
- Disability At Work Network (DAWN)
- Mosaic Network (cultural diversity is understood, accepted and celebrated)
- Parents and Carers Network

Over 250 Student [clubs and societies](#) including:

- Engineers Without Borders
- Women in Science
- Women in Engineering
- Women and Diverse Genders in Mathematics Society

Awareness raising events and activities

- Disability Inclusion Week
- International Women's Day
- Mardi Gras
- LGBTQIA+ People in STEM
- Wear it Purple Day

3. Fixing unacknowledged assumptions, including unconscious biases, of STEM system

Central to our SAGE journey, we recognise the need to 'fix the system' rather than enabling people to cope with flawed systems. Actions to challenge unacknowledged assumptions/biases include, but limited to:

Visibility of role models

- Collection and reporting of diversity demographics of senior management and University Committees

Recruitment processes

- Review of language of job descriptions/advertisements and criteria for gender bias and develop best practises.
- Mandatory training for Chairs and members of Selection Committees

Inclusive work policies and practices

- Improve the representation of diverse staff on our website and communications.
- Provide training on discrimination, bullying and harassment
- Review, evaluation of key institutional policies and procedures with a focus on the experience/interests of LGBTQIA+ staff
- Raise profile and inclusion of transgender and gender diverse staff

Encourage gender-balanced panels via the Panel Pledge

- A public commitment to taking action to improve gender diversity when speaking at forums or events, or when organising or sponsoring a forum or event.

Training and development

- Inclusion in Action training modules for leaders and team members to increase knowledge on GEDI and aims to help build the capabilities and capacity of all participants around GEDI principles, understanding of unconscious bias, and how to mitigate against it.

4. Existing measures and programs to improve diversity of Australia's STEM System

See above