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Mathematics Learning Support in Australian Universities

JULY 2026

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Executive summary

This report provides an overview of mathematics preparation and support across Australian universities, including formal enabling and bridging programs as well as learning support services such as drop-in centres, workshops, and online resources. These offerings range from year-long enabling programs that provide alternative entry pathways to short intensive bridging modules and targeted assistance for enrolled students.

Identifying and mapping this landscape is complex due to varied terminology, decentralised delivery across faculties and units, and frequent changes in offerings. Drawing on a desktop audit and staff interviews at 40 Australian universities, this report documents the breadth of programs and services offered as of 2025, outlines their key features, and highlights emerging trends and challenges in the academic numeracy space. What we found was a wide variety of approaches that were tailored to the needs of the university. However, the support was difficult to find and quantify, often changed within the timeline we were investigating, and few universities took a strategic approach to numeracy support.

With fewer students completing mathematics at secondary school and more degrees requiring quantitative literacy, strengthening these pathways and support services is critical to student success and to maintaining a robust pipeline of mathematically capable graduates to meet Australia's growing industry demand. This report recommends a role at each university be established to empower a national or trans-Tasman group, ensure resources are shared, and lead evidence-based curriculum innovation. The formation of such a group will become a voice for staff working in this sector, and a platform to discuss and share ideas, and conduct scholarship. In addition, we endorse the recommendation of the Australian Council of Deans of Science et al. (2025) to provide a well-funded nationally coordinated pathway at the sub-degree level, and from Finkel et al. (2020) to give authoritative advice on which subjects to select to study in Years 11 and 12.

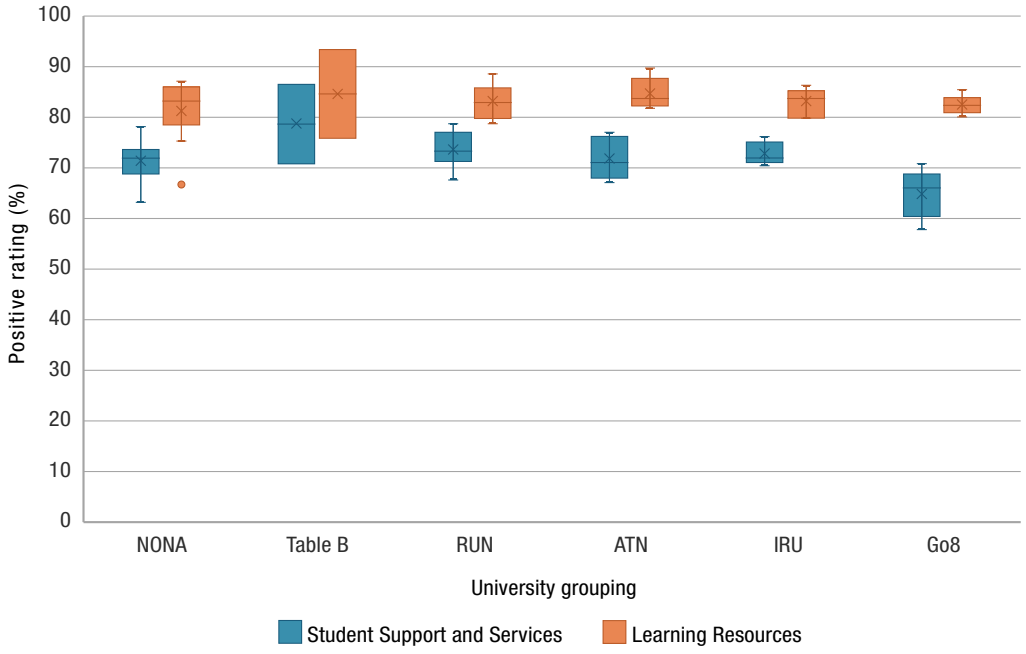
Introduction

Australia faces a growing mathematics skill gap. Participation in, and levels of, mathematics studied in senior secondary school has been declining for over three decades, leaving many students underprepared for the quantitative demands of university study (Barrington & Brown, 2014; Marchant & Kennedy, 2025). At the same time, fewer university degrees require mathematics as an entry prerequisite, increasing the number of students entering higher education without adequate preparation and knowledge of mathematics (Finkel, et al. 2020).

Many tertiary students struggle with mathematical components of their studies, a challenge reported across developed countries (Lawson & Croft, 2021). In response, universities have established mathematics and statistics learning support centres, programs, and services to enhance student success (MacGillivray, 2009; Grove et al., 2020; Mills et al., 2022). In 2008, an Australian Teaching and Learning Council project had identified such support as a core element of university teaching and learning, describing it as 'a critical component … in enabling student learning and avoiding preventable student attrition' (MacGillivray, 2008, p. 2). However, since the report almost 20 years ago, this element, while present at all universities, is not a core component of teaching and learning guidelines or policies.

National Student Experience Survey results provide insight into undergraduate students' perceptions of five areas: Skills Development, Peer Engagement, Teaching Quality and Engagement, Student Support and Services, and Learning Resources (QILT, 2024). In 2024, national average satisfaction in these areas was 83.6%, which recovered from a notable dip (down to 76.4%) that occurred during 2020–21 when remote learning replaced face-to-face learning at the height of the COVID-19 pandemic. In particular, the QILT data highlighted variation in satisfaction ratings across institutions for Learning Resources and Student Support. The top-ranked universities for Learning Resources, including Bond University (93.5%) and Deakin University (90%), returned rates well above the national average (83.6%), while lower-ranked universities, such as The University of Notre Dame Australia (66.8%) and the University of Tasmania (75.5%) fell well below the average. Looking at Student Support, Bond University (86.70%), University of the Sunshine Coast (78.8%) and Edith Cowan University (78.3%) were well above average (70.4%), with the University of Sydney (58%), The Australian National University (61.1%), and The University of Melbourne (60.3%) well below average. These rankings are reflected in Figure 1 by university grouping, with the Group of Eight (Go8) universities lower than the other groups in terms of Student Support (see Appendix A for a list of universities and their groupings). Although these ratings measure and reflect students' perception of general learning resources and support rather than mathematics-specific support, they suggest differences in institutional capacity or focus to provide effective academic support, which can influence student learning experiences in quantitative disciplines.

Figure 1. Student experience (% positive rating) among undergraduates by university grouping for Student Support and Learning Resources (QILT, 2024).



Variations apparent in academic support provisions across universities have prompted policy-driven responses. The Commonwealth Higher Education Support Amendment Bill 2023 now requires universities to identify students experiencing academic difficulties and provide appropriate support to help them succeed. Given more students are entering higher education with lower levels of mathematical preparation—even into degrees with significant quantitative components—it is timely and essential for building and reinforcing understanding of how institutions support development of students' quantitative literacy and academic numeracy.[1]

The landscape of mathematics learning support is constantly evolving—a 'moving beast' shaped by changing student needs, evolving curricula, and shifts in institutional priorities and resources. This report presents a snapshot of this landscape between 2023 and 2025, providing a timely overview of how universities address mathematics and numeracy support development, while acknowledging that the state of support is continually in flux. The audit offers an overview of bridging and enabling programs, ongoing learning support services, and emerging approaches to mathematics and numeracy learning across Australian universities.

1. Background

Identifying and mapping mathematics support across Australian universities has historically been challenging. Between 1991 and 2004, the Bridging Mathematics Network (BMN)[2] provided a valuable forum for collaboration among educators, researchers and practitioners, hosting annual conferences and publishing proceedings in Australia and New Zealand (Taylor & Galligan 2005). During this period, government policy placed increased emphasis on widening participation and equity in higher education, for example through A Fair Chance for All (DEET, 1990). By 1994, 23 of Australia's 35 universities reported offering some form of bridging program or learning centre that included mathematics support (Postle et al., 1995).

However, little changed in the decade that followed, aside from the disappearance of BMN (Taylor & Galligan, 2002). Galbraith (in Godden, 1993) noted a persistent problem of isolation among practitioners, limiting collaboration and the development of a shared research and practice base, a challenge that persists today. Since BMN's final conference in 2002, various organisations have partially filled the gap, including MERGA (Mathematics Education Research Group of Australasia), FYiMaths (First Year in Mathematics), and, more recently, NAEEA (National Association of Enabling Educators of Australia) and the counterpart in New Zealand, FABNEZ (Foundation and Bridging Educators New Zealand). In addition, AALL (Association for Academic Language and Learning) in Australia, and ATLAANZ (Association of Tertiary Learning Advisors of Aotearoa New Zealand) have a mathematics subgroup, and are linked to the International Consortium of Academic Language and Learning Developers (ICALLD). While MERGA and conferences such as Delta focus on research, FYiMaths and AALL have placed greater emphasis on practical support for tertiary educators, with King et al. (2015) recommending leadership roles in first-year mathematics to assist in developing an institutional perspective (King et al., 2015). Journals such as Adults Learning Mathematics—An International Journal (since 2005) and Literacy and Numeracy Studies (2006–2020) have

1 This report uses terms including quantitative literacy, (academic) numeracy, mathematics and statistical skills. These skills overlap considerably, and the support provided for their development is closely related. However, the term (academic) numeracy is used preferentially. This reflects its stronger connection to the contextualised teaching of mathematics, statistics and quantitative skills, and its recognition as a broader construct than quantitative literacy (Tout, 2020). Academic numeracy is defined as mathematical competence within the specific context of a profession, incorporating critical awareness that enables individuals to situate, interpret, critique, use and, where appropriate, create mathematics in context. As such, it extends beyond procedural competence or success in mathematics alone (Galligan & Taylor, 2005).

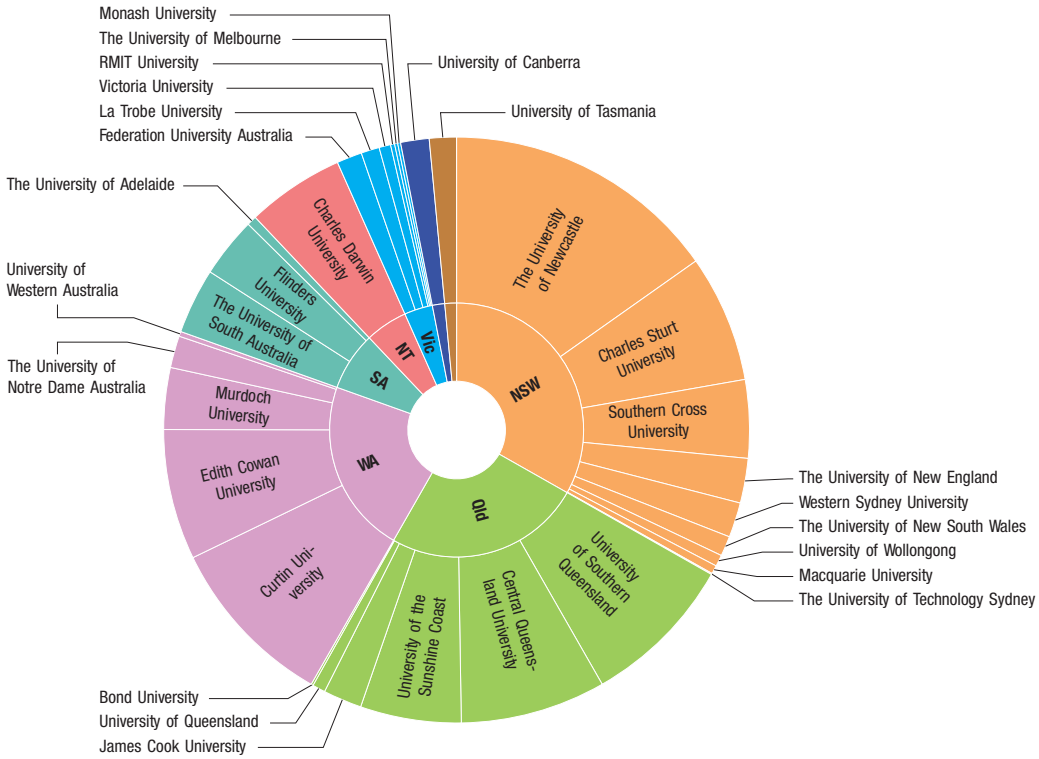
2 See Appendix B for list of abbreviations

offered outlets for more specific publications in numeracy support, however opportunities to promote and maintain a cohesive mathematics support community in both Australia and New Zealand remain fragmented. Concerns about mathematics participation and student preparedness have intensified over the same period. Since 2008, AMSI has reported persistent declines in calculus-based mathematics enrolments in Year 12. By 2023, only 16.8% of students studied Intermediate Mathematics (Mathematical Methods/Advanced Mathematics) and 8.4% studied Higher Mathematics (Specialist Mathematics/Mathematics Extension), the lowest rates since monitoring began (Marchant & Kennedy, 2025). Along with declining participation rates, performance is also declining. One in three primary school students do not meet proficiency in mathematics (Hunter et al., 2025), and Australian 15-year-old students scored significantly lower in mathematical literacy in 2022 than in 2003 (De Bortoli et al., 2023). Declining teacher supply and the prevalence of out-of-field mathematics teaching, affecting 76% of students in Years 7–10, has also been linked to reductions in student performance and confidence, exacerbating lower participation in senior mathematics (Prince & O'Connor, 2018; Beswick & Fraser, 2019; Thomson et al., 2021). These declines have consequences for tertiary study. For example, participation and performance in higher level Year 12 mathematics is associated with pass rates of first-year undergraduate science and mathematics units (McMillan & Edwards, 2019).

Many universities specify mathematical prerequisites or assumed knowledge for entry into degrees. In the context of admission to a university degree, a prerequisite mandates specified prior study, whereas assumed knowledge signals expected preparation but is not required for entry. Over recent decades, admissions frameworks have increasingly shifted from prerequisites to broader assumed knowledge statements (King & Cattlin, 2015). Assumed knowledge expectations vary substantially across institutions and programs, ranging from General Mathematics to Intermediate or Higher Mathematics. Definitions and interpretations of assumed knowledge are not consistent across universities, creating mismatches between what institutions assume, what teaching teams expect, and what students actually bring (Gordon & Nicholas, 2015; Czaplinski et al., 2019). This variability, in turn, contributes to the diversity of preparatory mathematics pathways observed across the Australian higher education sector, and examples in this report illustrate the diversity of institutional approaches currently in use.

In 2025 Australia had 42 universities (see Appendix A for the list). Universities have increasingly had to respond to the falling levels of mathematics skills and knowledge. Legislative requirements to provide academic support, the removal of mathematics prerequisites from many programs (Finkel et al., 2020), and the growth of quantitatively demanding degrees such as nursing, engineering, and information technology (Australian Government Department of Education, 2025b) have driven the development and expansion of a diverse range of initiatives. These include the introduction of certificate and diploma programs within the university, in the TAFE (Technical and Further Education) or college sector; formal bridging and government supported enabling programs; credit and non-credit-bearing units within degrees with content equivalent to Intermediate or Higher Mathematics; and 'just-in-time' numeracy development taken alongside existing units. Figure 2 displays Australian Government data (Australian Government Department of Education, 2024a) from 2023 on the proportion of domestic students enrolled in enabling courses by states and territories. Different states appear to take different approaches. For example, Victoria has a relatively small enrolment in government supported enabling programs and yet their overall TAFE enrolment is comparable to NSW and QLD (between 20% and 30%, NCVER, 2025). These differences are not surprising given documented interstate variations in secondary mathematics education across Australian states and territories (De Bortoli & Underwood, 2025).

Figure 2. Domestic enrolments in enabling programs by state and territory (2023) (based on a similar graph from Rylands et al., 2025)



While resource-intensive, within university approaches allow for targeted and discipline-specific skill development for students who did not complete calculus-based, or indeed, any mathematics at school. Internationally, this approach has been useful where there is uneven school education, such as in South Africa (Rathilal, 2020). However, even where good-quality education is freely available, many countries have well-developed mathematics support networks (e.g., the UK sigma Network) and excellent mathematics and statistics support centres (e.g., Loughborough University in the UK and the University of Limerick in Ireland).

In addition to providing support centres, a change in approach, where 'normalising' of support is encouraged, has been identified at James Cook and Notre Dame universities as a key factor in increasing student engagement with support (Bornschlegl & Caltabiano, 2022, McNaught & Beal 2012). McNaught & Beal (2012) found that using 'aspirational', as opposed to 'remedial' naming for the support services, and locating them in open and accessible campus spaces, contributed to students perceiving attendance as a normal element of university studies.

Despite the multiplicity of existing support services, challenges remain. Over the past decade, many staff who deliver mathematics support are no longer classified as academics (Nicholas & Rylands, 2017; de Jong & del Junco 2023; Campitelli, 2026), which may limit their capacity for scholarship, research, collaboration, and publication, and in some cases their autonomy. Galligan and Taylor (2008) noted that adult learning and bridging have historically received limited attention in the Research in Mathematics Education (RIME) review, with only modest coverage of student transitions and support in more recent volumes (Galligan et al., 2020; Oates et al., 2024). MacGillivray (2008) recommended that mathematics support be organised as a dedicated entity reporting to university academic leadership, while maintaining strong links with mathematics departments and central learning support units, urging that 'All aspects of the connections between the discipline-specific program providers and the learning support systems need to be strong, collaborative and complementary.' (p. 26). While this model is still desirable, today it is still rarely fully realised.

2. Method

An initial audit of 42 universities that indicated general learning support, was conducted in 2023 to identify the range of mathematics learning support available across Australian universities. Mathematics learning support is any optional assistance, facility or non-compulsory program designed to help students develop confidence and skills in mathematics or statistics while enrolled in a degree program. These forms of support are non-credit-bearing and differ from formal enabling and some bridging programs (MacGillivray & Croft, 2011).

The audit also considered a broader range of initiatives designed to support students' quantitative literacy. This included enabling and all bridging programs, as well as selected credit-bearing units delivered alongside a students' degree program where these served as a support function.

Desk audit

The desk audit used search terms such as: Mathematics Learning Support; Mathematics Preparatory Course; Mathematics Bridging Course; Mathematics Enabling Course; Mathematics Workshops; Assumed Knowledge; and STAT.

Where information could not easily be located, additional search terms such as more general 'learning support', 'student academic support' and 'one-on-one help' were used. Accessibility of information varied considerably between institutions. Some university web pages provided direct links under 'Student Support' on their home page, while others required extensive searching through internal pages and program guides. An audit undertaken by Lightbody (2018) on STEM support made similar conclusions, that is, that there is a wide variety of support, but that a scan has limited ability to uncover all services available.

The 2023 scan also included queries to each university's general enquiry email to ask about the availability of mathematics learning support in an attempt to gather further details. However, this yielded little extra information.

Detailed follow-up and interviews

To supplement the desk audit, a cross institutional working group of six academics/learning advisors collaborated to gather more detailed information, and confirm or update information gleaned from the desk audit via direct contact with staff involved in mathematics support. University of Southern Queensland ethical clearance was obtained for this supplementary phase (ETH2025–0438, with cross-institutional approval subsequently obtained by all academics involved). Initial contact was typically made via email and, in some cases, was preceded by informal discussion at professional venues such as the AALL Mathematics Advisors Special Interest Group, and conferences. This was followed by telephone interviews where needed. In the first round of emails, a summary of the audit findings for each university was provided for confirmation, accompanied by the following questions:

1. What bridging courses or enabling courses do you have in mathematics?
2. What workshops do you have in mathematics?
3. Do you have mathematics learning support?
4. If I was to study an undergraduate degree what other specific numeracy or mathematics support is available to help me as a student?
5. What else would you like to discuss about addressing the numeracy needs of your students?

Based on these initial discussions with a few universities, further questions were added:

6. How many people work in numeracy and are they academic appointments?
7. Does anyone assist nursing students with numeracy?
8. With the Enabling—are there programs (e.g., university preparatory programs) that have no mathematics?
9. Is there any separate statistics support in, for example, business or psychology?
10. Does your university have Peer Assisted Study Sessions [PASS] and if so, do you have any input into the subjects it will assist?
11. Has the university got a link to an 'assumed knowledge' statement?
12. Do you support Education students with LANTITE?
13. Is there any specific support for international students' mathematics readiness?
14. What is your relationship to others at the university—e.g. Nursing, Engineering, Business, Sciences (including Health), The Library, Enabling program?

Follow-up interviews were conducted where necessary for clarification. The working group met monthly throughout the data collection phase to refine the interview questions, clarify definitions, and discuss the scope of support types identified. All data finally collected was again checked with the contact with follow-up interviews where necessary. This follow-up investigation involved the 40 universities listed in Appendix A (out of the initial 42).

3. Results

The combined desk audit, email enquiries, and staff interviews revealed a multi-layered picture of mathematical learning support across Australian universities. The results below summarise the 2023 desk audit findings, highlighting the main patterns observed, and then report findings from direct university engagement during 2024–25.

Desk audit findings

In 2023, an initial desktop scan of 42 Australian universities (including four private Table B institutions with lower government funding) identified the range of mathematics and numeracy learning support offered through publicly available information (Table 1). In many instances the first desk audit failed to find support.

Table 1. Desk audit findings of mathematics and numeracy support offered at 42 Australian universities (2023)

Type of support	Found	Not found	Comment
Learning support (e.g., learning centre)	39	3	14 universities had general learning support webpages, but with no clear link(s) to mathematics support. 15 associated with a mathematics learning centre
Enabling program	12	30	Often difficult to locate, possibly due to separation between university and college websites.
Bridging programs	24	18	Difficult to locate, information may be restricted to current students.
Workshops	18	24	Difficult to locate, information may be restricted to current students.
Assumed-knowledge statement	20	22	Few universities had clear institution-wide statements.
Special Tertiary Admissions Test (STAT)	28	14	The test was described and some students could use it as entry.

Only three universities lacked visible quantitative learning support. Among the rest, face-to-face support was commonly provided through drop-in sessions or appointments, with many universities also offering online meetings. Many universities also offered additional learning resources such as downloadable guides, peer-led study groups, and academic skills workshops. Six of the universities subscribed to Studiosity (an online academic support platform that provides students with 24/7 access to personalised study help), with some universities specifically mentioning mathematics as part of this support.

Some forms of support, particularly workshops, bridging and enabling programs, and assumed knowledge statements, were difficult to identify, highlighting the need for further investigation.

Email enquiries and interviews

In 2023, general enquiries were sent to universities where there was an obvious general enquiry email, to verify and supplement audit findings. Responses were received from 25 universities, most of which referenced enabling programs, while fewer mentioning bridging programs. No respondents referred specifically to mathematics learning centres, mathematics workshops, or dedicated preparatory mathematics units, suggesting low institutional visibility of mathematics-specific support.

Follow-up emails and discussions with advisors and/or mathematics colleagues between 2023 and 2025 confirmed that mathematics support exists in 40 universities but is often not well signposted for prospective or current students. Staff commonly described services embedded within broader academic skills services, limiting their discoverability and potentially creating a barrier for students seeking timely help.

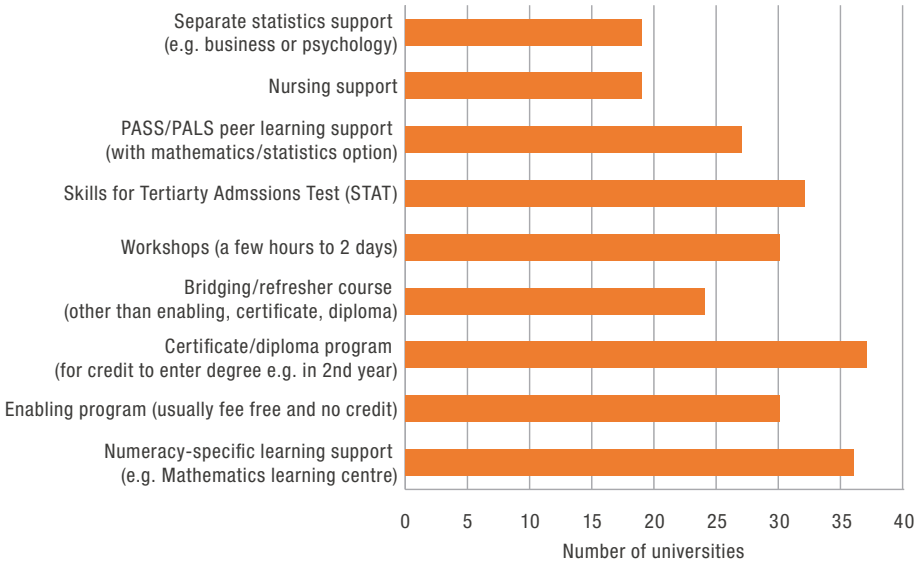
Aggregate support patterns (2023–2025)

Analysis of the comprehensive 2023–25 dataset of 40 universities with some mathematics support revealed that such support was widespread but uneven in form (see Figure 3) and accessibility.

- Learning support: When investigating further, we found only 36 universities (not the initial 39 from Table 1) with numeracy specific learning support, for example a mathematics learning centre. Torrens University was added to the final list as numeracy support was introduced after the audit.
- PASS/PAL peer learning programs: 27 of the 40 universities (67.5%) offered PASS/PAL for quantitative units.
- Complementary initiatives: Many universities supported numeracy development through pre-university outreach pathways, transition support, first-year learning programs, and secondary school pre-service/teacher-focused support.

Online support was also common. Since 2020, online support has become commonplace, with all universities providing some form of online synchronous or asynchronous support for mathematics. While Studiosity advertised that they provide access for 80% of universities, this access may not include mathematics, and only seven of the universities contacted mentioned Studiosity in relation to mathematics.

Figure 3. Number of Australian universities offering mathematics support between 2023–2025.



Of the 40 universities appearing to offer mathematics support, the most common forms were for-credit certificate or diploma programs (37 universities), numeracy-specific learning centres such as a ‘Maths and Stats Hub’ (36 universities) and enabling programs or workshops (30 universities). While STAT was mentioned on the websites of 32 universities (Figure 3), very few had any support for students undergoing this test.

These findings suggest that while mathematics support is well established across the sector, its form, visibility, and accessibility varied considerably, both across universities and over the few years studied. This variation likely reflects differences in institutional priorities, funding capacity, and institutional size, structure, and student profile, highlighting the absence of a nationally coordinated framework for numeracy support in higher education.

Support provision by university size (EFTSL band)

Mathematics support provision varied substantially across institutions, with no simple correlation between university size (measured by commencing EFTSL) and the breadth or type of support offered (Table 2). While larger universities were more likely to have established mathematics learning centres, smaller and medium-sized universities often offered a similar range of supports, albeit at a smaller scale.

Table 2. Mathematics support provision by university size (EFTSL bands for commencing students by higher education institution (2024); includes undergrads, postgrads, non-award & enabling programs).

EFTSL band (2024)	Large (≥15,000 EFTSL)	Medium (≥7,500 – 14,999 EFTSL)	Small (<7,500 EFTSL)	Total
Number of universities	9	16	15	40
Numeracy specific learning support (e.g. mathematics learning centre)	9	14	13	36
Enabling program (usually fee free and no credit)	5	14[a]	12	31
Certificate/diploma program (for credit to enter degree e.g. in 2nd year)	8	16	13	37
Bridging/refresher (other than enabling, certificate, diploma)	6	9	9	24
Workshops (a few hours to 2 days)	5	13	12	30
STAT	8	14	10	32
PASS/PAL peer learning support (with mathematics/ statistics option)	8	11	8	27
Nursing support	4[b]	9	7[b]	20
Separate statistics support (e.g. business or psychology)	3	12	5	20

[a] Fees had been charged at two medium universities, but changed during this investigation

[b] Not applicable as there is no undergraduate nursing degree

All nine large universities (≥15,000 commencing EFTSL) reported provision of mathematics or numeracy specific learning support, typically in the form of a mathematics learning centre or equivalent service. They also frequently offered bridging or refresher modules (6 of 9) and PASS/PAL peer learning programs (8 of 9). However, only five of these universities provided enabling programs or short workshops, suggesting that even among large universities, offerings are uneven and may reflect differing internal structures, funding arrangements, community composition, funding, priorities, and student cohorts.

Medium-sized universities (≥7,500–14,999 EFTSL) exhibited the broadest range of support overall. Nearly all (14 of 16) provided mathematics specific support, 13 offered enabling programs, and all 16 offered certificate or diploma entry programs. They were also most likely to provide separate statistical support, for example for business or psychology students (12 of 16). This suggests that medium-sized institutions, while smaller in scale, often maintain diverse and flexible support portfolios, potentially reflecting more integrated academic support models or stronger institutional coordination.

Smaller universities (<7,500 EFTSL) showed slightly lower overall coverage of support, but nonetheless demonstrated strong engagement in mathematics support. Nearly all (13 of 15) offered mathematics specific learning support by way of a mathematics learning centre or equivalent service. Most provided enabling (12), bridging (9) or certificate/diploma entry programs (13). Around two-thirds ran workshops (12) and around half offered PASS/PAL programs (8) and nursing support (7). Similarly to larger universities, only one-third (5) offered separate statistical support, which may reflect more limited resources or narrower disciplinary structures.

Support provision by university grouping

Analysis highlights substantial diversity in mathematics and numeracy support models across university grouping (Table 3).

Table 3. Mathematics support provision by university grouping

University grouping	Go8	ATN	RUN	IRU	NONA	Table B	Total
Number of universities	8	6	7	7	10	2	40
Numeracy specific learning support (e.g. mathematics learning centre)	8	6	6	6	9	1	36
Enabling program (fee free and no credit)	6	3	7	7[b]	8[b]	0	31
Certificate/diploma program (for credit to enter degree e.g. in 2nd year)	8	5	7	6	10	1	37
Bridging/refresher (other than enabling, certificate, diploma)	6	2	5	5	5	1	24
Workshops (a few hours to 2 days)	4	5	7	6	6	2	30
STAT	7	6	2	7	9	1	32
PASS/PAL peer learning support (with mathematics/statistics option)	6	6	4	4	7	0	27
Nursing support	2[a]	5	4	4	5	0[a]	20
Separate statistics support e.g. business or psychology	3	4	4	3	5	1	20

[a] Not applicable at three Go8 universities and one private university

[b] Fee charged but changed during this investigation

Group of Eight (Go8) universities demonstrate near-universal provision of mathematics learning centres, strong representation of for-credit or diploma programs, and PASS/PAL learning support, potentially reflecting their large student cohorts, comprehensive academic infrastructure, and higher levels of institutional funding. Only half of these institutions offer workshops, and fewer offer nursing or separate discipline-specific statistical support, for example, for business or psychology students.

In contrast, universities in the Regional Universities Network (RUN) and Innovative Research Universities (IRU) groups present a different support profile. All of these institutions offer enabling programs, and almost all offered two or more of the following support services: a mathematics learning centre or equivalent, for-credit certificate or diploma programs, bridging/refresher programs, and workshops. Just over half of these universities offered PASS/PAL learning support and numeracy support for nursing students. The RUN and IRU universities differ in the provision of the STAT (two RUN universities vs all IRU universities), and separate statistics support (four RUN universities vs two IRU universities).

A more applied orientation is evident in the support provided by Australian Technology Network (ATN) universities, through high provision of mathematics learning centres, for-credit certificate/diploma programs, workshops, PASS/PAL support, and discipline-specific support for nursing, business and psychology students. In contrast, few offered enabling programs or bridging/refresher programs.

Non-aligned universities (NONA) present comprehensive overall support, with consistently high numbers across almost all support categories. This suggests a more flexible institution-specific approach rather than adherence to a single model. The two private universities, by contrast, show more limited provision, with neither funded to offer free enabling programs, and with neither offering PASS/PAL, or nursing support. However, both offered workshops.

Support provision by mode of attendance (internal versus external)

Mode of attendance in higher education refers to how a student undertakes their studies and provides a useful context for understanding the delivery of mathematics and numeracy support services. Internal mode means attending classes or supervision sessions regularly on campus. All international students will need to enrol in this mode for most of their study (visa requirements). External mode applies when students study remotely, with materials and assessments usually delivered online, and only occasional or optional on-campus attendance. A blended delivery combines both approaches, with students completing part of their study on campus and part externally. For this analysis, shown in Table 4, universities are classified according to the proportion of students enrolled internally and externally.

Table 4. Number of universities providing mathematics and numeracy support of various types by student mode of attendance

University mode	Primarily External>50	Blended (25–49)	Primarily internal (<25)	Total
Number of universities	5	8	27	40
Numeracy specific learning support (e.g. mathematics learning centre)	4	9	23	36
Enabling program (usually fee free and no credit)	5	5	21	31
Certificate/diploma program (for credit to enter degree e.g. in 2nd year)	5	7	25	37
Bridging/refresher (other than enabling, certificate, diploma)	3	4	17	24
Workshops (a few hours to 2 days)	4	7	19	30
STAT	2	7	23	32
PASS/PAL peer learning support (with mathematics/ statistics option)	4	6	17	27
Nursing support	2	5	13	20
Separate statistics support e.g. business or psychology	3	6	11	20

Enabling programs were found in all five universities that offered primarily external programs, and 74% of universities that were mainly internal (20 of 27). Workshops were found in four of the five mainly external universities and in 70% of the mainly internal universities.

Support provision by university's geographic location (single or multiple campuses)

While multi-campus offerings provide universities with an extended student pool, they require a duplication of support if offered face to face. This is usually solved by offering much of the support online, although some universities choose to duplicate certain services for their on-campus students. For example:

- Notre Dame Australia (multi-campus, WA & NSW): centrally coordinated learning support service with mathematics assistance delivered primarily through one-to-one online appointments, complemented by workshops and bespoke offerings.
- UniSA (urban, multi-campus, SA): faculty-based model where mathematics and academic support are managed within individual divisions, providing locally tailored assistance rather than a centralised service.
- WSU (multi-campus, Sydney, NSW): for most of the last few years WSU has offered various types of face-to-face support on two or three of its Sydney campuses.

Summary of results

Considering both size and classification of institutions, the data underscores the heterogeneity of mathematics and numeracy support provision in Australian higher education. While most universities offer at least one form of dedicated mathematics or numeracy support, there is no uniform model. Instead of following a standardised national pattern or model, support appears to be context-driven and informed by institutional priorities, student demographics, and resourcing. Moreover, the summarised data do not show the depth of the support offered. For example, while many universities have a mathematics support centre, the number of staff, the number of students supported, and the extent of any other offerings is not revealed. Again, the picture is complex, as some learning centres, particularly within mathematics departments, are staffed by academics within the discipline, while others are staffed by those from an enabling program, by PhD students, by casual staff or by professional staff. While some universities may not have a learning centre, their support is found within other programs or sections of the university.

These findings provide the foundation for the following discussion, which explores the extent of some of the types of support, the historical, organisational, and policy factors shaping this diversity, and presents institutional case studies illustrating different approaches to mathematics learning support.

Sectoral landscape of mathematics and numeracy support

Following interviews conducted in 2024–25, this section provides detailed information about the types of mathematics support offered across the 40 surveyed Australian universities.

Learning centres

Historically, universities have offered learning support for mathematics. MacGillivray (2009) reported that 32 of the then 39 universities had learning support facilities, with 13 located within central services and 14 within mathematics or statistics departments, funded either from central or departmental budgets. Many features of this earlier landscape remain relevant today: students continue to require support, face-to-face interaction is common, and one-on-one support is valued but costly. Several differences are also evident, including the increasing prevalence of online support (particularly during and post-COVID-19), a shift from academic to professional staff, a greater availability of online asynchronous resources, and more utilisation of support staffed by students.

In 2025, 36 of the 40 universities surveyed provided some form of mathematics support through a dedicated learning centre such as a mathematics hub or similar. However, support models vary widely, from a single mathematics academic skills advisor within a library to fully centralised centres with multiple mathematics and/or statistics staff delivering services such as workshops, drop-in support, peer learning, and bridging programs. Examples include:

- Queensland University of Technology (large, predominantly internal, NONA): Mathematics support is offered within integrated STEM support. It employs 11 STEM staff and over 100 volunteer students. More details of this model can be found in Case Study 1.
- University of New England (medium, predominantly external, RUN): Has the Science Learning Hub, with mathematics support within this hub. The staff member interviewed said their model had been based on the La Trobe Maths Hub Model but with an online focus. For mathematics, it employs two academics (0.5 EFT) and 18–20 casual science tutors, some of whom support mathematics and statistics.
- The University of Sydney (large, predominantly internal, Go8): Has a centralised learning centre with mathematics support, offering drop-in help, appointments, workshops, peer learning, and digital resources. It employs six full-time staff, five casual staff and over 30 peer facilitators.
- James Cook University (small, predominantly internal, IRU): Has a centralised learning centre that employs three numeracy learning advisors. These offer support across two campuses and online. Additionally, there are paid and volunteer student roles in PASS and mentorship.
- Central Queensland University (small, blended, RUN): Has an academic learning centre with advisors situated at many locations and offering both on-campus and online services (individual appointments, drop-in sessions, workshops and study resources, and support for LANTITE and Med+Safe examinations).

Other universities used to offer more extensive support, but now offer more limited services, or have provided services in a different way. For example:

- Western Sydney University (urban, medium, IRU, predominantly internal): Support staff are now entirely professional, with the last academic departing in 2024. Numbers have decreased over a decade. The EFT had dropped from 4.7 to 2, but, as of December 2025, was back at 4.7.

- Federation University (rural, small, RUN, predominantly internal): The Learning Centre for mathematics closed in 2019. As this university has no mathematics entry requirements, any mathematics support tends to be embedded in specific units. This is an example of 'normalising', where the support is embedded within units, and there is no mention of 'assumed knowledge' as this is built into the ethos of the university.
- Griffith University (urban, medium, predominantly internal, IRU): While bridging programs are offered, for example for education or science students within these departments, there is no learning centre for mathematics support.
- University of Technology Sydney (urban, large, predominantly internal, ATN): Comprehensive Mathematics and Science Study Centre existed before 2020. Now operates with very limited hours and students having access to online options. The centre employs three to four casual staff with some extra staff for workshops as needed. The study centre operates on campus and online via Microsoft Teams (the latter featuring self-study modules). The centre's budget was severely cut during/after COVID-19. Students utilise numerous platforms that offer explanations of topics or, 'with appearance of AI, they just use it to solve problems', as noted by a staff member.
- Monash University (urban, large, Go8, predominantly internal): The Mathematics Learning Centre sits in the School of Mathematics and offers drop-in help in a dedicated room. It is open three hours a day with four or five staff in attendance. The staff include teaching-focussed staff and PhD students. The centre also has a large library of online videos.
- University of Tasmania (urban, medium, NONA, predominantly external): Currently there is no central mathematics support centre. There has been no mathematics learning advisor or drop-in centre for a few years.
- Torrens University Australia (small, private, blended): At the initial contact with Torrens University Australia at the beginning of 2024, there was no mathematics support, but by the final contact one full-time staff member now provides support in foundational numeracy topics.

Enabling education in Australian universities

Enabling education provides non-award programs designed to equip students with the skills and knowledge necessary for undergraduate study (Australian Government Department of Education, 2024b). Studies over the past decade have consistently highlighted the variability and complexity of enabling programs. Drawing on an audit of 27 institutions, Irwin et al. (2018) identified significant diversity, complexity, and context dependence in enabling program design and delivery, and observed that despite their widespread availability, enabling programs often occupied a marginal institutional position. Pitman et al. (2016) similarly characterised the enabling sector as highly diverse in structure, particularly noting that most programs were recognised only within their own universities, and that more than half of all enabling places nationally were concentrated within just eight institutions.

A benchmark study by Davis et al. (2023) suggested, in the nine universities benchmarked, that despite the variations across the programs such as length, structure, assessment number and type, there was notable comparability of curriculum and 'learning outcomes and topics in mathematics units were very similar across the nine programs' (p. 9). In this study, the authors called for a national framework to 'demonstrate comparability and rigour, and improve performance, academic practice, and student outcomes across the Australian enabling education sector' (p. 13) and a best practice guide has recently been published (Bennett et al., 2026). Currently, a more established community of academics has emerged that engages regularly in dialogue through an 'Enabling Education Community of Practice (CoP), which has been expanded beyond the universities involved in the project and open to all enabling educators through NAEEA. To date, 75 academics from institutions across

Australia have engaged in this CoP'. Interestingly, NAEEA (2019) proposes that enabling education includes an 'enabling initiative' which they defined as supporting:

> *... students who have achieved entry to tertiary education but require further assistance to succeed in their studies. Enabling Initiatives include any form of academic learning support service provided to students as deemed appropriate by the provider institution. Such initiatives may include individual or group academic learning skills sessions, orientations and bridging subjects/modules.* (p. 2)

The Australian Government committed $350 million over four years from January 2025 to fund FEE-FREE Uni Ready programs (FFUR), aiming to double participation in enabling programs by 2040 and to improve the quality, consistency, and portability of enabling education across institutions (Australian Government Department of Education, 2024b; 2025a). These programs are now generally more firmly established and benefit from relatively secure funding, with potential for expansion to additional universities. For example, in 2025 Griffith University offered an 'EmpowerED University Preparation Program' replacing, for domestic students, the previous, fee-paying foundation program offered by Griffith College. One constraining factor on this initiative is a cap on enrolments, which may result in some students still paying for a preparatory program such as that offered by Griffith College.

Twenty years ago, the Go8 universities had limited involvement in this area. However, in 2025, five of the eight institutions offered enabling programs, although program designs vary and the level of entry tends to be higher than at non-Go8 universities. More specifically, for mathematics The University of Melbourne offers their Uni Ready Enabling Program, a six-month FFUR program which satisfies Intermediate Mathematics prerequisites and includes two degree-credit units. The University of Queensland offers a 30-week, face-to-face Tertiary Preparation Program with mathematics options, where completion can yield a maximum selection rank of 93. In addition, a fee-based online Certificate IV program provides a Year 12 alternative qualification, with successful completion of relevant units satisfying the mathematics prerequisites for all undergraduate programs at UQ.

Of the nine non-Go8 universities who participated in the benchmarking project in 2023 (Davis 2023), six had a mathematics/numeracy/quantitative skills unit as a core unit, with some having higher level units as electives and many having an applied focus to the unit (for example, Southern Cross University's core unit 'Applied Quantitative Concepts', renamed 'Problem Solving with Maths' in 2025). The Tertiary Preparation Pathway Program at UniSC has one non-maths core unit 'Academic Skills for Success' and eight elective units, including two mathematics elective units ('Mathematics' and 'Mathematics for Science and Engineering').

Enabling programs were organised under different administrative models across institutions. In some universities, these programs were managed through centralised university administrative structures. In others, enabling programs were delivered through a separate college or TAFE, with little or no overlap with university academics or university support. In some cases, partial overlap between these arrangements was observed. The University of Newcastle, for example, had staff teaching in both areas. Before 2024, Charles Sturt University (based mainly in NSW) had a close relationship with TAFE, with students undertaking the first half of the enabling program at TAFE and the second half at the university. Now they undertake an enabling program, then a Certificate II at TAFE, and then go into the first year of the degree. This university also had asynchronous 'StudyLink' modules of mathematics under the enabling umbrella, and had set up a compulsory enrolment procedure for these modules; and if students wanted face-to-face support they booked an appointment with an enabling tutor. Macquarie University administers their UniReady program through Macquarie University College. The College is located centrally on the Macquarie University campus and also delivers

diploma programs, a fee-paying foundation studies program, an English language program, and a Masters qualifying program.

There is also a large variation in the length of enabling programs across and even within universities. At Flinders University, their Foundation Studies program can be taken in 5, 10, or 14 week variations. The University Preparatory Program at the University of New South Wales has one-year full time duration, and the Tertiary Preparation Pathway Program at UniSC runs for 6 months.

Whilst enabling programs across the universities surveyed were predominantly delivered to individuals who were 18 years and above, some universities also make these programs available to senior secondary school students. For example, at Edith Cowan University, their UniPrep program can be taken by secondary school students enrolled in any of their partner schools.

Certificate/diploma programs

Many universities now provide certificate or, more commonly, diploma programs. These are typically fee-paying and provide students with full or partial credit towards a specific degree program. Some students complete a low-level mathematics unit in an enabling program (not for credit) and then move to a diploma program to complete a course for credit. These sub-degree programs often incorporate mathematics at levels equivalent to Year 12 General Mathematics, Intermediate Mathematics, or Higher Mathematics. These programs are sometimes delivered by the same services managing enabling programs, and are increasingly replacing broader, generalist sub-degree offerings.

While Victorian universities have a relatively small investment in enabling programs (see Figure 2), they have strong links to TAFE. For example, in 2022, RMIT discontinued a program that used to offer Victorian Certificate of Education (VCE) equivalent study in mathematics, however as a dual-sector institution its ‘enabling’ offering is through the Certificate III/ Certificate IV in Tertiary Preparation program. Swinburne University of Technology does not offer a standalone enabling program but instead offers ‘UniLink’ diplomas and guaranteed pathways from TAFE to university degrees, including credit from a diploma to a related bachelor degree.

Some diploma programs require Year 12 completion and are not specifically intended as alternative pathways to degree study (e.g., diplomas at Murdoch University). Many universities also offer diplomas through affiliated colleges, particularly for international students (e.g., University of Technology Sydney College). Some universities appear to be phasing out and discontinuing diploma programs. For example, the University of Newcastle had a credit bearing unit (EPFMT104) which was equivalent to a degree unit but will not be offered in the future. Below are three examples that give some more detail of the nature of the complexity.

- UniSQ College (RUN) undertook a comprehensive redesign and rebranding of its diploma program, transitioning from the Diploma of University Studies and Bachelor of General Studies to the Diploma and Bachelor of Multidisciplinary Studies. This change was intended to better reflect the applicability of the programs to a broad range of career pathways and make them more attractive to prospective students. Within the diploma, students are required to complete four core units in the enabling program, followed by four specialisation units from a selected discipline area. Alternatively, after completing the core requirements, students may choose to complete four units from an approved list of electives. The core curriculum includes three compulsory units focussed on the development of study skills, academic communication and professional identity. The fourth unit provides a tailored foundation in either

mathematics or the humanities depending on the student's chosen study pathway. Two mathematics options are available: Students progressing to engineering and science-related disciplines undertake the advanced option, while those intending to pursue business, commerce, or education complete a mathematics literacy unit.

- Southern Cross University (RUN) offers a range of diplomas in business, education, engineering, health, hotel management, information technology, legal studies and science. Each diploma consists of eight units. Students are required to complete 1 or 2 foundation units of study offered through the university's pathways college, with the remaining units then offered by respective faculties. A foundation mathematics unit from the college is embedded in most of the diplomas. While students can elect to exit with a diploma upon completion of 8 units, each of these diplomas acts as a pathway into the second year of associated bachelor degree programs. For example, a student who successfully completes a Diploma of Engineering is given advanced standing for the first year of a Bachelor of Engineering and can enrol directly into the second year.
- Macquarie University (NONA), through Macquarie University College, offers a suite of diplomas across arts, business, commerce, engineering, marketing and information technology. Diploma structures vary by discipline, and depending on their program and intended bachelor articulation pathway, students may be required to complete one or two calculus and linear algebra units and/or a statistics unit. The college also delivers the University's enabling UniReady program, and the fee-paying enabling style Foundation Studies programs. UniReady students complete a Data in Society unit, while Foundation Studies students undertake a mathematics unit at either the intermediate or general mathematics level as part of their preparatory curriculum.

Like other initiatives in the mathematics support area, this pathway via sub-degrees needs to be 'well-funded, and affordable ... with national coordination—potentially led by the Australian Tertiary Education Commission—to ensure students without intermediate mathematics can still access STEM degrees' (Australian Council of Deans of Science et al., 2025).

Bridging programs

Bridging mathematics programs support enrolled students to meet prerequisites or address assumed knowledge gaps, particularly among the Go8 universities. Historically, these programs emerged as standalone pre-tertiary programs for students before enrolling, often within preparatory programs (now called enabling programs), or in-context support embedded within other units for enrolled students (Taylor & Galligan, 2005). Modern bridging programs are offered to enrolled students fee-free or on a fee-paying basis, range from several days to a semester in duration, and may be delivered online, in-person, or in hybrid formats. For example:

- University of Queensland (large, Go8, predominantly internal): offers a four-week intensive bridging program (online/in-person) as well as mathematics pathways embedded within the enabling and Certificate IV programs, allowing multiple routes to satisfy prerequisites.
- University of Western Australia and The University of Melbourne (both Go8, predominantly internal): Offer full semester credit bearing 'bridging units' required for students without the mathematics prerequisites.
- The University of Sydney and the University of New South Wales (both large, Go8, and predominantly internal): offer two-tiered bridging programs aligned with the NSW Higher School Certificate, introductory calculus (USyd MOOC; UNSW TAFE Essentials) plus higher-level Extension 1 units (3–4 weeks, online/in-person).

- Central Queensland University (small, RUN, blended): offers a STEPS (Skills for Tertiary Education Preparatory Studies) program, available both on-campus and online. The program consists of one core unit and several electives (including three mathematics units), depending on students' intended field of study. Most students complete 2–5 electives, taking between 1 and 6 terms to complete the program (2 terms on average). Students may also enrol in STEPS while undertaking their undergraduate degree, to upskill in specific areas. The university also offers an 8-week, online, non-accredited Pathways to STEPS program, consisting of eight units (including two foundational numeracy units). Enrolment requires referral from the STEPS Head, and students are not required to complete all units.
- Western Sydney University (medium, IRU, predominantly internal): The Mathematics Education Support Hub (MESH) offers five modules designed for students who have just enrolled at the university and who need to improve their mathematics and statistics skills before beginning their first semester. An online tool recommends suitable modules based on each student's mathematical background and intended degree program. The modules—Algebra 1, Algebra 2, Statistics, Trigonometry, and Calculus—serve as a refresher rather than bridging programs, as they are not long enough to fully close knowledge gaps for most students. Each module represents approximately two to five days of study and is delivered online. In the month leading up to the start of the academic year, the modules are supported by face-to-face and live online sessions to help students work through the material. The modules begin with diagnostic assessments that identify areas of need and include embedded questions that provide ongoing feedback and guide students on their next steps. The modules are available to all students throughout the year.

In addition to the bridging modules, students can enrol in self-paced options with self-testing. For example:

- University of Canberra (Small, IRU, predominantly internal): Four-day Numeracy Refresher twice a year, during the class-free week of both Semester 1 and Semester 2, on essential numeracy skills adjusted to address the students' self-reported needs.
- University of New England (Small, RUN, predominantly external): 'tUNEup your mathematics' online program runs for four weeks at the beginning of every trimester and outside these set times students can complete as a self-paced study module. It is for enrolled students and run by the Academic Skills Office.
- University of Southern Queensland (Small, RUN, predominantly external): 'Assumed Knowledge Quizzes' where current students self-enrol. In 2025 they were rewritten to align with the Year 12 curriculum and are developed using STACK (System for Teaching and Assessment using a Computer Algebra Kernel), a computer algebra–based assessment system designed specifically for mathematics and mathematically rich disciplines. STACK provides automatic and partial marking, question randomisation, and capacity to check for algebraic equivalence.
  The Library Study Support section includes a Study and research toolkit for mathematics and dedicated mathematics support pages, offering concise printed resources, videos and QuickTips on foundational topics. These cover arithmetic, statistics and algebra, mathematics communication, approaches to studying mathematics, calculator use, and digital platforms for typing mathematics. Resources are organised across increasing levels of complexity.

- Macquarie University (Medium, NONA, predominantly internal): There are four diagnostic tests and four associated Macquarie University Mathematical Skills (MUMS) modules. Students may attend a five-day bridging course or may take the tests and work through the modules in their own time, attending the learning centre as needed. The diagnostic tests, modules, and bridging courses are administered by the Macquarie University Numeracy Centre, the university's mathematics learning centre. At Macquarie University College, students commencing relevant diploma and enabling programs also sit an associated mathematics diagnostic test. These tests occur between two and seven months before the mathematics component of the students' program. Students receive feedback in which each question in the test links the student to a relevant part of a self-paced study module that they are encouraged to complete with the assistance of the college support staff. All students have full access to the self-paced study modules regardless of their performance in the tests.

Workshops, contextualised support, and enrichment activities

Workshops are generally short in duration (from a few hours to a full day), often subject-specific, delivered by the unit coordinator, and responsive to identified student needs. Context-specific support is common in disciplines such as engineering, education, and nursing. Some activities extend beyond direct academic support to include broader enrichment or outreach initiatives.

- RMIT (Large, ATN, predominantly internal) runs successful context-specific support in first-year engineering, where coordinators of large (by enrolment) units run a weekly drop-in session timetabled and linked to one of the core units and the sessions are included in their timetable. These sessions were trialled in 2024 and the timetabled sessions had higher attendance than individual consultation sessions. Moreover, students stayed and worked, and other students who were not enrolled in the unit(s) concerned turned up and asked for general mathematics help. The RMIT Library also facilitates the development of workshops that can be embedded into units. In one mathematics unit, two workshops on preparing for each of the two tests are prepared by an academic skills advisor in collaboration with the academic teaching into the unit.
- The University of Adelaide (medium, Go8, predominantly internal) has 'Tutorial takeovers' where Mathematics Learning Centre (MLC) staff run activities in the tutorial in place of regular tutors; usually around data literacy in core first-year health science units, first-year cultural studies, speech pathology, nursing drug calculations, second-year plant science, and third year animal science. Just before examinations, revision seminars are held for units with mathematics/statistics in the title. An MLC lecturer will take requests for topics to summarise or problems to solve and solve them. These are advertised to students in specific units via email and then the recordings are placed on the website afterwards. Between ten and twelve units have a revision seminar each semester.
- The Mathematics Learning Centre at The University of Adelaide (medium, Go8, predominantly internal) offers Mathematical Art & Play, a freely available series of mathematical art and play activities that appears open to the public. While several universities run outreach programs in mathematics, this is the only example identified that is delivered through a learning centre.

Since 2016, all students enrolled in an accredited initial teacher education degree are required to sit the Literacy and Numeracy Test for Initial Teacher Education (LANTITE). Nationally, there are free online resources including preparation workshops, numeracy practice tests, and mathematics anxiety management sessions. In 2023, it was difficult to see if support for LANTITE existed outside the education discipline, but more recently, this seemed to have changed, perhaps partly due to a LANTITE Community of Practice (Thai et al., 2019). The CoP developed LANTITE practice tests, and shares research findings and best practices regarding LANTITE. Some universities now offer specific support for their students. For example:

- Western Sydney University (medium, IRU, predominantly internal) offers a range of LANTITE numeracy resources including practice sets on a learning management site. Mathematics Education Support Hub (MESH) also provides workshops and practice tests, and runs a suite of LANTITE preparation workshops twice a year (down from four times a year). These workshops include a preparation workshop (1.5 hours, advice on how to prepare, and students have the opportunity to attempt some questions and see solutions), a 1-hour Mathematics Anxiety workshop and a face-to-face practice workshop where students work solidly on worksheets for two hours. Prior to each LANTITE test window, students are offered access to a full-length numeracy practice test, developed by staff from five universities in the LANTITE Community of Practice, including WSU.
- The Australian Catholic University (medium, NONA, predominantly internal) offers several types of support for Education students preparing for the LANTITE. Students receive assistance through Academic Skills Services, under the Centre for Education and Innovation. Mathematics Learning Advisors run a series of LANTITE numeracy workshops four times a year, with one series held before each LANTITE testing window. Each series includes a 1.5-hour workshop each day for a week. In addition to workshops, each student is entitled to a 30-minute online or face-to-face consultation per week, which can be booked in advance. Students may choose to attend occasional consultations or participate in ACU's Study Track Program for LANTITE numeracy. The Study Track Program guides students through all topics relevant to the LANTITE and includes weekly meetings with a Learning Advisor. The Study Track template also provides structured learning support and links to resources created by Learning Advisors on the university's learning management system. ACU staff are active members of the LANTITE Community of Practice, and students have access to both the Community of Practice diagnostic test and an additional diagnostic test developed by ACU Learning Advisors. A more comprehensive support approach is currently being developed, with greater emphasis on students who have failed the test twice.

  Support is also provided through the School of Education and Arts. All education students are required to complete a unit called LNTE110, which includes a diagnostic test and personalised feedback identifying areas that need further study. The school maintains a dedicated Learning Management System (LMS) site for LANTITE preparation, which also includes resources contributed by Academic Skills Services. This site provides information about the LANTITE test, sample questions, and practice materials. Some lecturers also offer regular tutorials, although availability may vary between campuses. Numeracy skills are further developed through selected units across the education program.

Other universities, such as RMIT, refer students to existing high-quality online resources (e.g., RMIT's LANTITE Guide). Griffith University takes a different approach and offers the six-week Bridging Mathematics for Aspiring Educators (BMFAE) program, which is underpinned by developing a mathematical mindset approach to learning. The staff member interviewed stated: 'The hope is to address the fears of undergraduates coming into teaching (primary) who try to avoid mathematics courses ('I am only teaching Prep so I don't need to do mathematics')'.

Another discipline that has a history of in-context support is nursing. Support for nursing students includes online tools such as Med+Safe, which is an evidence based commercial online training and assessment tool that includes medication calculations (e.g., tablets/capsules, paediatric calculations). According to their website, 23 Australian universities and many TAFE colleges use this tool. We found that 20 of the universities offered some extra support, even if Med+Safe was used. For example:

- Australian Catholic University (NONA) has targeted workshops in nursing (similar to LANTITE).
- Victoria University (NONA) Learning Advisors provide numeracy support for nursing and paramedicine students via class visits and tailored in-person drop-in sessions. These are organised on request by the educator. Nursing students at times also book 1–1 appointments online and receive support from Student Mentors (online also).
- ECU (NONA) Learning Advisors provide recorded workshops and drop-in sessions to support students with the numeracy requirement of their nursing program.

In 2025, FedU (RUN) introduced a nursing numeracy support program (see Case Study 4).

The Mathematics Education Support Hub at WSU had offered numeracy support in nursing but not in the last two years. UniSQ had a dedicated for credit unit on Literacy and Numeracy that was discontinued in 2018 and then embedded support in key first-year units in 2019. Currently it has online or drop-in support with preparation resources and workshops (promoted on relevant course LMS).

Online support

This type of support was found at most universities. In addition to the online support already mentioned, other examples include:

- Bond University (Private) offers pre-recorded workshops on a variety of topics, which are available free of charge on the Academic Skills Centre LMS page. Students can listen to a longer workshop (up to 1 hour) with multiple examples and various suggested methods (hand calculations, Excel, financial calculator, etc.) or choose a short video (max 10 minutes) focusing on just one problem. They can then test themselves with a short multiple-choice quiz and/or short-answer quiz. Lecturers also invite the Learning Advisor to visit their classes for forums during semester to talk about specific topics, for example, graphing for big data, commercial valuations using Excel, interpreting worded problems for finance.
- Charles Darwin University (NONA) study skills website includes resources for students to improve and practice their basic mathematics skills. This includes converting measurements, fractions, decimals and percentages, perimeters of simple shapes, Pythagoras' Theorem, and trigonometry. These resources are self-paced and self-assessed. Students who don't perform well in first-year undergraduate units that require a high level of mathematics knowledge are referred to Preparatory Studies units for support.
- Swinburne University of Technology (NONA) has self-paced learning materials published on the university LMS. For example, MathsCasts, which are freely available on YouTube 'were produced by the mathematics support centres at Swinburne University of Technology, the University of Limerick (Ireland) and Loughborough University (UK) to support mathematics learning'.

- Southern Cross University's Student Learning Zone (RUN) site contains numeracy resources in module form. Modules are designed to support students across a variety of mathematics topics, ranging from decimals, percentages and unit conversions to trigonometry, pre-calculus algebra and matrices. Each module is downloadable for easy use and includes activities for students to complete, as well as comprehensive answers.

Peer support programs

Many universities offered some form of Peer Assisted Study Sessions (PASS) or Peer Assisted Learning (PAL) sessions to provide support in mathematics and numeracy. These programs were often designed to offer additional assistance outside regular class time and, in some cases, participation was formally recognised through accreditation or certificates of completion.

In implementing such support, some universities adopted the official PASS model, developed from Supplemental Instruction in the 1970s, which emphasised structured sessions, comprehensive training and paid peer leaders to support consistency and quality. In Australasia, PASS has historically been supported through sector-wide training, professional development and accreditation (particularly certification of PASS Supervisors), previously coordinated via a national centre for PASS (University of Wollongong, later Griffith University). More recently, this function has been taken up by the Australasian PASS Alliance, providing a more distributed and agile model of leadership through accreditation pathways, professional development, conferences, and a community of practice.

Institutions developed their own peer-led support initiatives. These programs were typically tailored to specific units, often run with the involvement of library or support services, and coordinated in collaboration with individual unit coordinators. Such approaches allowed for flexibility in meeting the unique needs of each unit while still providing meaningful peer support for students seeking help with mathematics or numeracy.

In some instances, peer mentoring services were offered but did not include mathematics support. For example, Swinburne University of Technology's program mentors are described as a 'supportive guides who share personal insights and experiences to help first-year students navigate university life and settle in.' As this type of mentoring does not include mathematics support, it was not counted in this audit.

Several universities had peer support programs specific to numeracy and mathematics support.

- At University of Sydney (Go8), PASS expanded from the long-running Business School program into STEM and quantitative disciplines across multiple faculties in 2022. While the Business School continues to run its own program, the newer STEM and quantitative streams are coordinated centrally through its learning centre.
- At QUT (NONA) in 2025, there were about 100 students (either paid or unpaid) in their STEM support program, coming from 168 units and seeing over 1800 students, with over 4000 interactions. See Case Study 1.
- Deakin University (Large, ATN, blended) has about 20 paid mentors who have completed at least eight units of study in their degree. They work a minimum of one session per week (two hours online or three hours on campus).
- Curtin University (ATN) has both Peer Academic Mentoring and 'STEM Study Buddies'. The study buddies are volunteer students who can help students with their first-year science and engineering units. All Study Buddies have previously excelled in the unit.

- At UniSQ (RUN), the PASS initiative was discontinued for 2025 onwards, with a PAL model adopted in 2026. Previous attendance data was used to inform the creation of discipline-level learning and assessment support, complemented by some unit-level support for large units. Workshops and resources are being developed, intended for several units, including mathematics.

Statistics support

Statistics support for first-year students was generally provided through learning centres or an equivalent academic support service. In many cases, support was delivered by staff with dedicated experience in teaching statistics. There was generally limited integration of statistics support within specific disciplines such as business or psychology. However, one university's psychology department provided its own specialised statistics support for its students. Five examples are discussed below:

- The University of Adelaide (Go8) psychology department runs drop-in sessions for RStudio (an integrated development environment for R, a programming language for statistical computing and graphics) support.
- Victoria University (NONA) business and psychology students can book one to one 45-minute sessions (statistics is a popular topic requested). Students can book up to two appointments a week.
- Bond University (Private) has a business student tutor and psychology student tutor who lives on campus can be available after hours and at weekends, as well as during the week.
- At Deakin University (ATN), the Maths Mentors program has recognised the need for support in business mathematics and psychology statistics. The coordinator specifically recruits current students from these areas to support business and psychology students. This program is beneficial for mentors as well.

Some universities had a separate statistics support service tailored for higher degree by research students and staff. For example, the mathematics faculty at The University of South Australia (ATN) offers short intensive courses on statistics, especially for those without a mathematics background. The University of Queensland (Go8) has a similar arrangement. The University of Sydney (Go8) has the Statistical Information Hub for assistance with statistics, coding, and research design. The University of Southern Queensland (RUN) has a statistics consultancy service run by academics in the School of Mathematics, Physics and Computing that offers workshops and consultations on research design, data collection, analysis and interpretation.

Skills for tertiary admissions test (STAT)

The STAT is an aptitude test, developed by the Australian Council of Educational Research (ACER), which provides an alternative pathway to university for applicants who do not meet traditional entry requirements, particularly mature-aged students. It is delivered as an online computer-based test and assesses a range of competencies considered important for success in tertiary study, rather than specific academic knowledge. This includes quantitative reasoning, which assesses the ability to comprehend and apply information presented in scientific and mathematical contexts (ACER, 2025).

The STAT is accepted by multiple admissions centres and universities across Australia, including:

- NSW and ACT—Pathways to university - UAC
- Queensland—via QTAC
- NSW, ACT, Tasmania, Victoria—via ACER
- Western Australia—five participating universities (via University Admission 2025).
- South Australia and Northern Territory—via SATAC.

While the STAT was easily found on university websites and has the potential to benefit students if combined with mathematics support, very few staff at the universities knew about the test, its purpose, or any support that was available. The audit found a few specific references to STAT support:

- ANU (Go8) uses it for the Special Adult Entry Scheme (SAES,) and describes SAES as 'one of our most popular pathways for mature age students who do not hold assessable qualifications.'
- ACU (NONA) STAT is accepted for students over 21, but is not accepted as a mathematics subject prerequisite.
- The University of South Australia (ATN) produced a webinar on preparing for the STAT and a link to how to book through the ACER.

CASE STUDIES

In addition to the examples provided in the previous sections, four case studies are presented from staff at QUT, Deakin, FedU, and UniSQ that highlight features of support, for example, details of a single university's support offerings, a university that has changed significantly or is in the process of change, a university that uses learning analytics to identify students at risk, and a university that uses generative AI to enhance support.

Case study 1 QUT (medium, NONA, predominantly internal)

Coordinated and Integrated STEM Support at Scale

QUT's STEM peer support model exemplifies a coordinated and scalable approach to assisting students in mathematics across a range of disciplines. Delivered through the STEM peer support program (STIMulate), this model embeds mathematics support within a broader STEM framework, which itself forms part of QUT's integrated student support strategy. By leveraging economies of scope and scale, QUT ensures that resources serve multiple disciplines efficiently, addressing the challenge of limited resourcing common across universities.

The program combines peer-led learning with staff oversight, offering drop-in sessions, workshops, and online resources that are accessible and curriculum-aligned. This integrated approach is not only pedagogically sound but also strategically aligned with the Support for Students Policy, which emphasises coordinated and proactive support. By partnering with faculties and embedding university-wide services, QUT has created a sustainable ecology of support that improves engagement and retention while meeting compliance requirements. In 2025, the program has delivered 680 workshops to 1,854 students, with total attendance reaching 3,899. Additionally, 753 students have attended drop-in sessions, generating 2,008 individual attendances. Using student-created roster software—highlighting QUT's commitment to a student partnership model—staff and volunteer students have collaborated to support 250 different units. Its success illustrates how a unified, scalable model can deliver high-quality STEM support in a resource-constrained environment.

Contribution from Ian Lightbody who has written extensively on the STEM support model (e.g., Lightbody, I., & Rueckert, C., 2022).

Case study 2 Deakin (large, ATN, blended)

Maths Mentors and Foundation Mathematics Programs

The ‘Maths Mentors’ program (about 20 current students paid at HEW 2 level) sits within the student success division and aims to support mathematics across all disciplines and faculties. Mentors are a priority. A roster is set for each trimester so that there is consistency for the mentors. Mentors know that sessions can be swapped or filled to fit in with their work/life/study commitments. One staff member facilitates support for all Deakin University students through the coordination of the Maths Mentors program, LANTITE support, involvement in mathematics focussed Students as Partners projects and other faculty/department-based projects as they arise. Students can also access Studiosity (a 24/7 online support).

There is also the ‘Foundation Maths’ Program. In this initiative, students are bulk-enrolled in the Program by the request of their unit chair or can self-enrol through the Deakin website. The program consists of modules and support. Unit chairs encourage students to look over all or particular areas of the program. In 2025, over 10 000 students were enrolled. Key unit chairs were invited to provide feedback on the modules before and after construction of the program. Every page has a link to the Maths Mentors program—encouraging students to reach out for help at any point. Each module has a written explanation of the topic, worked examples and practice questions with worked solutions. Some have videos of Maths Mentors explaining the topic and discussion boards for feedback and further thinking.

The Foundation Maths Program modules are available to all Deakin University students. Maths Mentors, Students as Partners and the team have created seven Foundation Maths modules covering numeracy, statistics, geometry, trigonometry, and algebra. The modules are designed to revise, consolidate, and extend foundational knowledge across a wide range of units that involve mathematics and statistics. As such, students can access the modules before commencing a unit or at any stage of their enrolment. All modules are developmental, so students can work sequentially through them or focus on specific areas of concern.

Contribution by Megan Theodore

Case study 3—UniSQ (small, RUN, predominately external)

Identifying priority students for proactive outreach

The University of Southern Queensland (Student Success Advising team) introduced a student success advising initiative that uses learning analytics derived from Learning Management System (LMS) data, to identify students at risk of poor academic outcomes and enable timely, targeted support (Oostergo & Axelsen 2025). The approach integrates multiple data sources, including enrolment and program features, patterns of LMS engagement, and academic performance. Analysis of institutional data from 2023, covering over 21 000 students across 1 800 units, confirmed a strong association between levels of LMS engagement and unit outcomes, with lower activity linked to an increased likelihood of unit failure. Further examination of LMS interaction patterns identified specific types of engagement that were most predictive of academic success. These interactions were weighted using historical data to generate a coefficient matrix, allowing the relative contribution of different LMS activities to unit performance to be quantified and incorporated into an intervention model. Historical engagement data were also used to establish a critical activity threshold, revealing that students whose LMS engagement fell within the lowest 0–30th percentile relative to average unit activity had a probability of failure exceeding 80 per cent.

Building on these findings, the implementation of automated threshold-based identification substantially improved the timeliness and effectiveness of outreach. In 2024, just under 4,800 students with no or low LMS activity were identified within three days, enabling proactive contact with 88% of these students before census. These results provide strong empirical support for the use of LMS engagement thresholds as a mechanism for early identification of disengaged students and suggest that rapid, data-informed outreach has the potential to improve student engagement and progression.

Contribution from Natalie Oostergo who has written about this initiative (Oostergo & Axelsen 2025).

Case study 4 FedU (small, RUN, predominantly internal)

AI ChatBots

Many commencing students in disciplines such as nursing and education have varied mathematical preparation, a situation that creates challenges in numeracy confidence and success. The AI-powered chatbots NiNA (Numeracy in Nursing Agent) & EdNA (Education Numeracy Agent) were developed using the University of Sydney's AI platform to address the gap for competing priorities for educators, a lack of a separate low-stakes numeracy support, and the need for equitable learning assistance. The agents were designed with unit coordinators as part of a pilot project. NiNA was designed to handle queries related to Med+Safe calculations whilst EdNA supports LANTITE preparation. Both agents generate practice questions and use a Socratic approach to help develop conceptual understanding. Students access the agents directly embedded in their unit homepage as a first point of contact for numeracy support. This convenient access without additional logins or message limits, ensures low-barrier entry and increased accessibility. Both agents integrate with broader the Mathematics and Statistics Support Centre (MSC) support services by being utilised by MSC tutors during drop-in sessions, asynchronous resources to enable AI literacy and recommending 1-on-1 appointments with Learning Skills Advisors when students appear to be persistently struggling during the AI conversations. To bridge the gap between native and non-native AI users, a more holistic form of non-AI related mathematics support, such as live drop-in sessions, exemplar questions (and recordings of tutors going through the exemplars), and downloadable help sheets are also available. The MSC is part of the Office of the Pro Vice-Chancellor (Learning & Teaching) portfolio, which is overseen by a steering committee comprised of senior and executive staff as well as education, nursing, and mathematics specialists to ensure disciplinary accuracy. The MSC maintains the agents, updates prompt engineering, and monitors usage insights to highlight emerging student needs. The student-centric, Generative AI first approach of the MSC, complemented by multimodal mathematics support underpinned by the expertise of human educators, has enabled Federation University Australia to expand the reach of its mathematics support ecosystem by using AI to enhance, rather than replace, the human components of a conventional mathematics support.

Contribution from Luis Camacho based on abstract for ACSME 2025.

Final comments from participants

When discussing mathematics learning support across the sector, some general themes recur, namely: time constraints, student mathematics anxiety, change of staff, and reduction in resources. In a few instances, there are glimmers of positive change. While there is concern about the future, for example, with the increased use of AI, people working in the sector seem to be connecting, with organisations like the AALL Mathematics Advisors SIG, the LANTITE CoP, and the NAEEA STEM and Mathematics SIG. Comments below are examples of these themes (universities not identified):

- (Small, IRU, predominantly internal) University: 'Working in partnership with academics to provide embedded support is the preferred approach. However, balancing the time required to develop tailored, embedded support while maintaining regular general services is becoming increasingly challenging. As a result, many valuable ideas are shelved simply due to time constraints. Additionally, more students are turning to Generative AI as a shortcut for developing numeracy skills, drawn by its constant availability and ease of access. However, this reliance deprives students of meaningful learning experiences, leaving them without the essential numeracy skills they should have upon graduation.'
- (Small, IRU, predominantly internal) University: 'In 2025 there was an ongoing project with one of the aims being to try to discover the state of numeracy at the university after ongoing cuts. For about a decade, the numeracy/mathematics support (provided centrally) had been allowed to "wither on the vine". In particular, specialist support staff who had left were not replaced. The suspicion now is that any support that does exist has been woven into individual units by coordinators. One of the remits of the current project is to map that support across the university with a view to providing it more systematically.' The contact concluded: 'I think this is very important work—I haven't met a single unit coordinator who hasn't complained about the numeracy/mathematics standard of their students. This is mainly in the sciences but also in business and IT.'
- (Medium, IRU, predominantly internal): 'Recently, we have noticed that students from non-mathematical backgrounds are experiencing mathematics and statistics anxiety, along with challenges in understanding statistical concepts and their application to real-life data. To address this need, we plan to develop a study skills support module for statistics that will be embedded directly into the LMS next year. Additionally, we aim to reintroduce the Maths Skills program in collaboration with Cambridge Education to enhance students' mathematics skills.'
- (Small, NONA, blended): 'Staff are working hard to build relationships with specific disciplines to ensure preparatory studies units are aligned with the mathematics needs for specific discipline areas, as well as to ensure struggling students are directed to preparatory studies units for support. I believe the Preparatory Studies Program staff are planning to introduce a mathematics unit for students going into health care studies, including nursing, at some point in the future.'
- (Medium, NONA, blended): 'I am always interested in learning how other universities organise and sustain effective mathematics skills development services for their students. Specifically, I'd like to explore how they address the diverse numeracy needs of students, manage the expectations around "assumed" or "prerequisite" mathematics knowledge and navigate institutional "politics" to enable support staff to work effectively in delivering these services.'

- (Medium, ATN, blended): 'We have a mathematics support centre offering a drop-in service run mostly by casual academics tutoring into mathematics units, but it is not associated with any funding, and so is somewhat sporadic as it entirely relies on casual academics volunteering their time to offer the service. There are a few other similar services that are all siloed from one another and often tied to a particular school or even unit, I know at least a couple of courses have some extra casual funding attached to them to offer drop-in services as part of the teaching and learning delivery, and I've heard that for example the business school run their own mathematics support drop-in service, but I don't know much about it.'

4. Discussion

This comprehensive investigation into mathematics and academic numeracy support at the national level highlights the complex and fragmented nature of the various programs that are provided at most universities. Through this investigation we were able to identify six general characteristics that were present, at some level, in most universities. These characteristics differed in how they were implemented, supported, and financed at different institutions:

1. Enabling programs were positioned in a:
    - College (often with diploma/certificate fee programs),
    - TAFE, or
    - University.

Connections between the enabling programs and other sections of the university were sometimes identified, although these appeared to be contingent on individual relationships, rather than embedded in a sustained strategic framework.

2. Learning centres were found in:
    - (mathematics) departments,
    - the library, and/or
    - academic skills services (which could be in the library).

These centres (if they existed) varied in size and purpose—from drop-in support to organising and running workshops and bridging programs. They also varied in staffing, with some staffed from current academics and some from specific academic or professional appointments, casuals, or students (see point five).

3. Embedding of support within units took the form of:
    - online quizzes,
    - links to modules of mathematics/numeracy,
    - tailored workshops for mathematics/numeracy, and
    - links to a support centre.

This support could be led by numeracy experts, mathematicians, or by the unit coordinator and may have a unified approach, but often was offered in response to demand. Quizzes varied in sophistication, the tools used, and connectivity with other resources.

4. Approaches to prerequisites/assumed knowledge included:
    - prerequisites at point of enrolment (program level),
    - prerequisites at the unit level, and
    - no prerequisites, but alternatives in place for students who needed to review or learn necessary skills.

Assumed knowledge statements were sometimes centrally located, sometimes at the unit level. Sometimes they were well explained with links to support services, or sometimes there were no such statements (i.e., 'nothing assumed').

5. Provision/s of support were mediated through:
    - academics, as part of workload (typically mathematicians or statisticians),
    - casual staff, within learning centres, libraries, or academic skills services,
    - some part-time or full-time staff, depending on the size of the support, and
    - students (paid or voluntary; post-graduate or undergraduate), with varying amounts of autonomy.

If the first-year mathematics coordinators role as described by King et al. (2015) had been established as recommended, this would have been an obvious first place to find answers to our questions. But this was usually not the case. It was often difficult to find the right people to interview, oftentimes staff with the best knowledge were casual or part-time, with uncertain ongoing employment. While these staff had the on-the-ground knowledge, they lacked the broader interconnection of the more general academic support services and the specific mathematics support that was available or needed.

6. Strategic direction, design principles, evaluation, funding, staff development, risk management, and collaboration came from:
    - an expert mathematics/STEM academic,
    - the nomenclature,
    - library and learning advisors,
    - PVC Teaching and Learning or similar.

As for characteristic five, it was difficult to find someone who knew the overall university approach to quantitative support, data on identification of students at risk, students seeking support, or the evaluation of initiatives. Evaluation may have been undertaken, but was not discussed in many interviews or emails. Moreover, we only found one university (QUT) that had a clear overall direction regarding numeracy or mathematics support. This strategic direction would include alignment with teaching and learning policies, and pedagogically sound initiatives such as reducing the stigma felt by students associated with using academic support services, or 'normalising' help-seeking, particularly with mathematics. In 2024 UNSW established a cross-faculty Numeracy Working Group to identify ways to support new students and direct them to the appropriate first-year mathematics courses (Reddy et al., 2025). During the time of our interviews, a similar group had been established at Murdoch University.

Over several decades, the mathematics proficiency of secondary school students has steadily declined (Barrington & Brown (2014), Marchant & Kennedy (2025)). As a result, many students enter university with inadequate mathematical skills and fail to meet expectations during their first year of study. In 2025 another call was made for the reintroduction of prerequisites (Australian Council of Deans of Science et al., (2025)), yet no changes have been implemented. Even if prerequisites are not reinstated, Finkel et al. (2020) recommend that secondary school students should receive authoritative guidance to select an appropriate level of mathematics in Years 11 and 12, ensuring they are adequately prepared for university.

Various solutions to this problem have been attempted over the years. Many universities have responded to the removal of prerequisites by offering multiple entry pathways. However, persistent issues remain, specifically (i) fragmentation of support; (ii) overlap of services; (iii) inadequate and inconsistent funding and research; and (iv) limited connections to national or international organisations. While some universities have key individuals with a comprehensive understanding of support, no university staff reported having secure funding. Instead, many work in isolation, relying on short-term funding and facing uncertain futures.

Mathematics support has improved over the past 20 years. There is now more online assistance for both remote and on-campus students, with increased availability of well-designed asynchronous options. Support is often better targeted, especially through user-friendly self-testing tools linked to materials available in both print and video formats.

Recently, a nationally funded enabling support program (FFUR) has helped alleviate isolation and funding concerns for some staff, and in April 2026 the government announced a further investment of $1.1 billion over the next ten years to expand access to FFUR (Australian Government Department of Education, 2026). Nevertheless, numerous isolated and evolving support models remain in place in universities today. In mathematics-intensive programs, such as engineering, mathematics, and statistics, support is often provided by academics within the STEM disciplines as part of their workload. In contrast, more general or context-focused support (e.g., for business, health, or education) is typically delivered by non-academic staff, who lack the research and scholarship background and have limited time or funding for collaboration. Staff working in enabling programs are often disconnected from those supporting students to bridge mathematical gaps. These three cohorts seldom collaborate.

It is essential for institutions to establish coordinated, well-resourced, and research-informed support programs. The benefits include developing context-specific skills rather than teaching abstract content that students struggle to relate to. While mathematicians recognise the valuable meta-skills gained from deep mathematical study, this understanding is not widely appreciated.

A more coordinated support program should include initiatives to address staff isolation, such as the UK's sigma Network STEM Programme, which received a grant of £800,000 from the Higher Education Funding Council of England in 2016. The sigma Network now operates a widely used website, hosts conferences, and publishes newsletters. Another international organisation, ICALLD, with an AALL Australian branch, serves as a useful model for connecting academic advisors, although it is not focused specifically on numeracy. The International Congress of Mathematics Instruction (ICMI) has nine thematic affiliate organisations, but none currently address adult or transitional learning. Mathematics support staff would benefit from regular engagement with such organisations.

The enabling program community has established a national approach and a forum for discussing issues, such as NAEEA conferences, its website, and Special Interest Groups. This has not occurred in the mathematics support area. While NAEEA may consider including mathematics support through their 'Enabling Initiatives', it is not currently part of their agenda.

While mathematics and numeracy support do not require a framework like that offered by NAEEA, a shared framework to embed numeracy into university systems would be beneficial (Galligan, 2013). This framework would help align student numeracy with curricula and address the fragmented numeracy development practices prevalent in universities. A project is currently underway to develop an academic numeracies framework (Salmeron et al., 2024; Salmeron, Howarth & Galligan, 2026), which is open-licensed and available online.

This investigation revealed extensive and ongoing changes in mathematics support, making it difficult to pinpoint a 'state of numeracy support' at any given time. As of early 2026, these changes were still unfolding. For example, La Trobe University closed its Maths Hub in December 2025, with some staff redeployed. Another university reduced the number of mathematics advisors from two to none, with one reassigned to general learning support. Staff at another institution left due to uncertainty and change, while yet another

anticipated significant changes in 2026, including the removal of at least two mathematics units addressing readiness. Southern Cross University closed its StudyHub website at the end of 2025, consolidating support and resources, including numeracy, within its Student Learning Zone.

Many staff expressed concerns about the impact of AI, acknowledging some benefits but emphasising the importance of the human element in mathematics support. At the time of writing, AI was an emerging issue in mathematics teaching, diagnosing, and assessment. It is anticipated that its influence will grow as students become more aware of AI's growing capabilities. While solutions exist, such as student five-minute presentations linked to assessment, these issues need to be addressed at the university learning and teaching level. The implications for enabling and support further underscore the need for these groups to have access to broader, informed university planning at the strategic level, rather than relying on reactive or ad hoc approaches.

Recommendations

1. For universities

Establish a designated role at each university where one academic has a thorough knowledge of all aspects of mathematics and statistics support and preparation in their university

This person (or people) will have the capacity to work with heads of departments, deans and other managers to provide strategic direction, that is, be a voice for support and preparation across the university.

The academic(s) can ensure that staff are research aware. Scholarship and research are an important part of this role, so incentives and time are needed (e.g., some workload allocation for research, funds to support scholarship). They need time to give presentations, and to attend conferences and workshops. In addition, academics who teach in this space need to understand the pedagogy of mathematics support.

For staff working in support: the following three recommendations:

2. National group and summit

Form a national group of staff in working in universities who support current students and prepare future students with mathematics and statistics

The purpose of the group will include:

- to discuss issues relevant to the group; to share ideas, and practices; to offer professional development; and to encourage, conduct and support scholarship.
- to have a voice, so that the community can communicate with university services, professional bodies, and relevant sections of the community.
- to aim for a 'summit' where staff from every university are funded to attend a one-off national event.

Seed funding, or a grant, would provide the resources for some keen staff to create, build and lead such a group. Such a group could be based on the UK sigma Network. This report mentions MERGA, AALL, FYiMaths, AMSI, and NAEEA. Many staff in the mathematics support area currently have an association with some of these organisations, but the current arrangements do not provide for all the needs of staff working in support and enabling. While both NAEEA and AALL currently have a mathematics special interest group, the names of the bodies do not reflect 'mathematics' or 'numeracy'. MERGA and FYiMaths focus on mathematics, but their websites do not mention enabling/support mathematics. AMSI is an excellent space for advocacy and housing reports such as this, but does not provide the needed coordination and support. Without some initial seed funding, it might be difficult to re-establish the Bridging Mathematics Support Network, but linking to other professional bodies would be a start.

3. Shared support

Ensure resources are shared within each university and between universities via a dedicated website. This is managed through Recommendations 1 and 2

Examples of freely available resources are MathsCasts from Swinburne University of Technology and the UK sigma mathcentre resources.

4. Numeracy framework

Develop a numeracy framework to support the systematic embedding of academic numeracy across tertiary institutions

While there are many examples of mathematics support and preparation to build requisite skills that some students gain from secondary school mathematics subjects, there is a gap in deeper understanding of the support needed for students using mathematics in the context of the discipline, and particularly for the staff providing that support. The Academic Numeracy Framework (Salmeron, Howarth & Galligan, 2026) mentioned earlier is a practical tool designed to guide educators seeking a structured approach to integrate numeracy development into units, programs, and initiatives.

Acknowledgments

Authors: Emeritus Professor Linda Galligan, Associate Professor Leanne Rylands, Dr Raquel Salmeron, Dr Fu Ken Ly, Dr Joshua Peate, Dr Michael Brickhill, and Ms Sophie Kennedy

We greatly appreciate the contributions made by the many people we interviewed and contacted at every university in Australia as well as informal discussions from those in New Zealand.

Thank you to AMSI for assisting in the preparation and publishing of this Report and to Dr Bec Cronin who undertook much of the initial 2023 desk audit.

Please cite this as: L. Galligan et al. "Mathematics Learning Support in Australian Universities", AMSI Report, July 2026.

References

Australian Council of Deans of Science, Australian Council of Engineering Deans, Australasian Council of Environmental Deans and Directors, & Australasian Council of Information and Communications Technology. (2025). *Reinforcing the foundations of Australia's future through mathematics education: Joint position paper.* https://www.acds.edu.au/wp-content/uploads/FINAL-251031-Joint-Briefing-paper-OpEd-copy.pdf

Australian Council for Educational Research. (2025). *Skills for Tertiary Admissions Test.* https://stat.acer.org/au/

Australian Government Department of Education. (2024a). *2023 student summary tables.* https://www.education.gov.au/higher-education-statistics/resources/2023-student-summary-tables

Australian Government Department of Education. (2024b). *Higher education administrative information for providers: 6.7 Fee-free Uni Ready courses and enabling courses.*https://www.education.gov.au/higher-education-publications/higher-education-administrative-information-providers-october-2021/6-courses-study#toc-6-7-fee-free-uni-ready-courses-and-enabling-courses

Australian Government Department of Education. (2025a). *Fee-free Uni Ready courses.* https://www.education.gov.au/higher-education/feefree-uni-ready-courses

Australian Government Department of Education. (2025b). *Key findings from the 2024 higher education student statistics: Table 2. Number of domestic commencing students for select fields of education, 10 year and 2023–2024.* https://www.education.gov.au/higher-education-statistics/student-data/selected-higher-education-statistics-2024-student-data/key-findings-2024-higher-education-student-statistics

Australian Government Department of Education. (2026). *Bridging the gap between school and uni.* https://ministers.education.gov.au/clare/bridging-gap-between-school-and-uni(ministers.education.gov.au

Barrington, F., & Brown, P. (2014). AMSI monitoring of participation in Year 12 mathematics. *AustMS Gazette, 41*(4), 221–226. https://www.austms.org.au/wp-content/uploads/Gazette/2014/Sep14/Monitoring.pdf

Bennett, A., Allen, K., Mansfield, M., Hamilton, E., Relf, B., Garske, N., Way, G., Irwin, J., Jones, H., Griffiths, Z., Burgess, C., Smith, R., O'Neill, R., Williams, S., Sciffer, S., Doherty, S., Pipe, H., & Thompson, D. (2026). *Fee-free Uni Ready project: Best practice guide.* Australian Government Department of Education and Australian Tertiary Education Commission.

Beswick, K., & Fraser, S. (2019). Developing mathematics teachers' 21st century competence for teaching in STEM contexts. *ZDM Mathematics Education, 51*, 955–965. https://doi.org/10.1007/s11858-019-01084-2

Bornschlegl, M., & Caltabiano, N. J. (2022). Increasing accessibility to academic support in higher education for diverse student cohorts. *Teaching & Learning Inquiry, 10*, 1–18. https://doi.org/10.20343/teachlearninqu.10.13

Campitelli, S. T. (2026). Provision of individual academic skills advising services in Australian institutional academic language and learning teams: A snapshot of the current landscape. *Journal of Academic Language and Learning, 20*(2), 45–67. https://journal.aall.org.au/index.php/jall/article/view/1083

Czaplinski, I., Mallet, D., & Huijser, H. (2019). Addressing discrepancies between assumed, expected and actual levels of mathematical competencies: A learning design model of networked partnerships. *Proceedings of the Australian Conference on Science and Mathematics Education (2019)*, 127–133. https://openjournals.library.sydney.edu.au/IISME/article/view/13523

Davis, C., Syme, S., Cook, C., Dempster, S., Duffy, L., Hattam, S., Lambrinidis, G., Lawson, K., & Levy, S. (2023). *Report on benchmarking of enabling programs across Australia.* National Association of Enabling Educators of Australia. https://enablingeducators.org/wp-content/uploads/2023/03/Report-on-Benchmarking-of-Enabling-Programs-Across-Australia-2023.pdf

De Bortoli, L., Underwood, C., & Thomson, S. (2023). *PISA 2022: Reporting Australia's results. Volume I: Student performance and equity in education.* Australian Council for Educational Research. https://doi.org/10.37517/978-1-74286-725-0

De Bortoli, L., & Underwood, C. (2025). *PISA 2022: A closer look at mathematics in Australia.* Australian Council for Educational Research. https://doi.org/10.37517/978-1-74286-786-1

de Jong, S., & del Junco, C. (2023). How do professional staff influence academic knowledge development? A literature review and research agenda. *Studies in Higher Education, 49*(6), 1042–1065. https://doi.org/10.1080/03075079.2023.2258155

Department of Education, Employment and Training. (1990). *A fair chance for all: National and institutional planning for equity in higher education*. Australian Government Publishing Service.

Finkel, A., Brown, T., Wright, J., & Wienk, M. (2020). *Mapping university prerequisites in Australia.* Office of the Chief Scientist & Australian Mathematical Sciences Institute. https://amsi.org.au/?publications=mapping-university-prerequisites-in-australia

Galligan, L., Coupland, M., Dunn, P., Hernandez Martinez, P., & Oates, G. (2020). Research into teaching and learning of tertiary mathematics and statistics. In J. Way et al. (Eds.), *Research in mathematics education in Australasia 2016–2019* (pp. 262–292). Springer. https://doi.org/10.1007/978-981-15-4269-5

Galligan, L., & Taylor, J. A. (2008). Adults returning to study mathematics. In W. M. Dooren & P. vK (Eds.), *Research in mathematics education in Australasia 2004–2007* (Vol. 12, pp. 99–118). Brill. https://doi.org/10.1163/9789087905019_007

Galligan, L. (2013). A systematic approach to embedding academic numeracy at university. *Higher Education Research & Development, 32*(5), 734–747. https://doi.org/10.1080/07294360.2013.777037

Godden, G. (1993). A guide to tertiary bridging mathematics research to mid1992, including an annotated bibliography. In *Proceedings of the 5th Australian Bridging Mathematics Network Conference* (Vol. 1, pp. 67–91). University of Sydney.

Gordon, S., & Nicholas, J. (2015). What do bridging students understand by 'assumed knowledge' in mathematics? *International Journal of Innovation in Science and Mathematics Education, 23*(1), 10–20. https://openjournals.library.sydney.edu.au/CAL/article/view/8486

Grove, M., Croft, T., & Lawson, D. (2020). The extent and uptake of mathematics support in higher education: Results from the 2018 survey. *Teaching Mathematics and Its Applications, 39*(2), 86–104. https://doi.org/10.1093/teamat/hrz009

Higher Education Support Amendment (Response to the Australian Universities Accord Interim Report) Act 2023 (Cth). https://www.aph.gov.au/Parliamentary_Business/Bills_Legislation/Bills_Search_Results/Result?bId=r7060

Hunter, J., Haywood, A., Parkinson, N., & Petrie, D. (2025). *The maths guarantee: How to boost students' learning in primary school.* Grattan Institute. https://grattan.edu.au/report/maths-guarantee/

Irwin, E. L., Baker, S., & Carter, B. (2018). What 'counts' as numeracy preparation in enabling education programs? Results of a national audit. *Journal of Academic Language and Learning, 12*(1), A141–A145. https://journal.aall.org.au/index.php/jall/article/view/520

King, D., & Cattlin, J. (2015). The impact of assumed knowledge entry standards on undergraduate mathematics teaching in Australia. *International Journal of Mathematical Education in Science and Technology, 46*(7), 1032–1045. https://doi.org/10.1080/0020739X.2015.1070440

King, D., Cattlin, J., Ward, J., Poladian, L., & Koerber, A. (2015). *Building leadership capacity in university first year learning and teaching in the mathematical sciences: Final report.* Office for Learning and Teaching.

Lawson, D., & Croft, T. (2021). Lessons for mathematics higher education from 25 years of mathematics support. In V. DurandGuerrier et al. (Eds.), *Research and development in university mathematics education* (pp. 22–40). Routledge.

Lightbody, I. (2018). STEM support for learning models in Australian universities. In R. Field & K. Nelson (Eds.), *Proceedings of the 2018 STARS Conference* (pp. 74–75). UniSTARS. https://eprints.qut.edu.au/230150/1/STARS18_Poster_SFL_Models_in_Australian_Unis_20180620_v12.pdf

Lightbody, I., & Rueckert, C. (2022). Development of STEM support at QUT: Strategy, students, and a curriculumaligned model [Poster presentation]. *STARS Conference 2022.* UniSTARS. https://unistars.org/papers/STARS2022/P13-POSTER.pdf

MacGillivray, H. (2008). *Learning support in mathematics and statistics in Australian universities: A guide for the university sector.* Australian Learning and Teaching Council. https://www.mathcentre.ac.uk/resources/uploaded/guide--altc-learning-support-in-maths-and-stats.pdf

MacGillivray, H. (2009). Learning support and students studying mathematics and statistics. *International Journal of Mathematical Education in Science and Technology, 40*(4), 455–472. https://doi.org/10.1080/00207390802632980

MacGillivray, H., & Croft, T. (2011). Understanding evaluation of learning support in mathematics and statistics. *International Journal of Mathematical Education in Science and Technology, 42*(2), 189–212. https://doi.org/10.1080/0020739X.2010.519801

Marchant, T., & Kennedy, S. (2025). *Year 12 mathematics participation report card: Numbers remain at record lows and female participation declines.* Australian Mathematical Sciences Institute. https://amsi.org.au/?publications=year-12-mathematics-participation-report-card-numbers-remain-at-record-lows-and-female-participation-declines

McMillan, J., & Edwards, D. (2019). *Performance in first year mathematics and science subjects in Australian universities: Does senior secondary mathematics background matter?* Australian Council of Deans of Science & Australian Council for Educational Research. https://research.acer.edu.au/higher_education/62

McNaught, K., & Beal, E. (2012). The NAME four factor model for engaging students in academic support services. In N. Brown et al. (Eds.), *Research and development in higher education: Connections in higher education* (Vol. 35, pp. 191–212). HERDSA. https://herdsa.org.au/publications/conference-proceedings/research-and-development-higher-education-connections-higher-18

Mills, M., Rickard, B., & Guest, B. (2022). Survey of mathematics tutoring centres in the USA. *International Journal of Mathematical Education in Science and Technology, 53*(4), 948–968. https://doi.org/10.1080/0020739X.2020.1798525

National Association of Enabling Educators of Australia. (2019). *Declaration on enabling education in higher education.* https://enablingeducators.org/wp-content/uploads/2019/11/2019-Defining-Enabling-Education-docx5.11.2019_AB.pdf

National Centre for Vocational Education Research. (2025). *Government-funded students and courses: January to June 2025.* https://www.ncver.edu.au/research-and-statistics/publications/all-publications/government-funded-students-and-courses-january-to-june-2025

Nicholas, J., & Rylands, L. (2017). Mathematics support: Promoting student learning and some factors that may work against student learning. In *IMA and CETLMSOR 2017: Mathematics education beyond 16: Pathways and transitions.* Western Sydney University. https://www.westernsydney.edu.au/content/dam/digital/pdf/eds/general/mesh/Mathematics-support-promoting-student-learning-and-factors-may-work-against-student-learning.pdf

Oates, G., Coupland, M., Dunn, P., Evans, T., Galligan, L., & Hernandez Martinez, P. (2024). The teaching and learning of tertiary mathematics. In C. Mesiti et al. (Eds.), *Research in mathematics education in Australasia 2020–2023* (pp. 187–211). Springer. https://doi.org/10.1007/978-981-97-1964-8_9

Oostergo, N., & Axelsen, M. (2025). Data thresholds in learning analytics: Identifying priority students for proactive outreach. In *Proceedings of the 11th STARS Conference (2025).*https://unistars.org/papers/STUDENTSUCCESS2025/05D.pdf

Pitman, T., Trinidad, S., Devlin, M., Harvey, A., Brett, M., & McKay, J. (2016). *Pathways to higher education: The efficacy of enabling and subbachelor pathways for disadvantaged students.*National Centre for Student Equity in Higher Education. https://www.ncsehe.edu.au/publication/pathways-to-higher-education-the-efficacy-of-enabling-and-sub-bachelor-pathways-for-disadvantaged-students/

Postle, G. D., Clarke, J. R., & Bull, D. (1997). Equity programs and strategies reported by the Australian higher education sector. In G. D. Postle et al. (Eds.), *Towards excellence in diversity: Educational equity in the Australian higher education sector in 1995* (pp. 115–150). University of Southern Queensland Press.

Prince, G., & O'Connor, M. (2018). *Crunching the numbers on outoffield teaching.* Australian Mathematical Sciences Institute. https://amsi.org.au/?publications=amsi-occasional-paper-1

Quality Indicators for Learning and Teaching. (2024). *Student experience survey: National report tables.* https://www.qilt.edu.au/docs/default-source/default-document-library/ses_2024_national_report_tables.zip

Reddy, A., Cronin, A., Shearman, D., & Campbell, A. (2025). Diagnosing readiness: Institutional responses to mathematics transitions in higher education. *International Journal of Mathematical Education in Science and Technology, 56*(12), 2336–2352.

Rylands, L., Brickhill, M., Kennedy, S., Ly, F. K., Peate, J., Salmeron, R., & Galligan, L. (2025). Postsecondary school preparation in mathematics for university study in Australia: Bridging and enabling courses. In *Meanjin Delta 2025 Proceedings* (pp. 106–119). https://doi.org/10.14264/e8ffd2a

Salmeron, R., Galligan, L., Howarth, D., & Raj, N. (2024). Academic numeracies framework: A tool to facilitate the systematic embedding of numeracies in university. In *Proceedings of the 15th International Congress on Mathematical Education (ICME15).*

Salmeron, R., Howarth, D., & Galligan, L. (2026). Academic numeracies framework: A tool to embed numeracy in university curricula. *Journal of Academic Language and Learning, 20*(2), 21–44. https://journal.aall.org.au/index.php/jall/article/view/1075

Rathilal, S. (2020). *Planning for numeracy in higher education: A South African university of technology case study* (Unpublished doctoral dissertation). University of KwaZuluNatal.

Taylor, J. A., & Galligan, L. (2002). Relationship between evaluation and program development: Case studies from mathematics support. In J. Webb & P. McLean (Eds.), *Academic skills advising: Evaluating for program improvement and accountability* (pp. 133–166). Victorian Language & Learning Network.

Taylor, J. A., & Galligan, L. (2005). Research into research on adults in bridging mathematics: The past, the present and the future. In *Proceedings of the 12th International Conference of Adults Learning Mathematics (ALM)* (pp. 11–19). https://researchportal.scu.edu.au/esploro/outputs/991012822277802368

Thai, T., Hartup, K., Colbourn, A., & Yeung, A. (2019). Learning from their mistakes: An online approach to evaluate teacher education students' numeracy capability. In G. Hine, S. Blackley, & A. Cooke (Eds.), *Proceedings of the 42nd annual conference of the Mathematics Education Research Group of Australasia: Mathematics education research—Impacting practice* (pp. 707–714). MERGA.

Thomson, S., Wernert, N., Buckley, S., Rodrigues, S., O'Grady, E., & Schmid, M. (2021). *TIMSS 2019 Australia. Volume II: School and classroom contexts for learning.* Australian Council for Educational Research. https://doi.org/10.37517/978-1-74286-615-4

Tout (2020). *Critical connections between numeracy and mathematics*. Australian Council for Educational Research. https://research.acer.edu.au/learning_processes/29

Woolcott, G., Galligan, L., Whannell, R., Marshman, M., Axelsen, T., Schmalz, J., & Sultanova, N. (2021). How are we progressing with academic numeracy at regional universities? Perspectives from firstyear undergraduate studies. *Mathematics Education Research Journal, 33*, 431–468. https://doi.org/10.1007/s13394-020-00312-3

Appendices

Appendix A: List of universities 2025[1]

Twenty-eight universities have collaborated to form four groupings, each sharing similar backgrounds and goals. In 2025 the groupings were:

Group	Universities
Group of Eight (Go8) N=8 The Group of Eight (Go8) (https://go8.edu.au/) consisted of Australia's eight leading research-intensive universities,	The Australian National University (ANU) University of Melbourne The University of Sydney (USyd) University of Queensland (UQ) The University of Western Australia (UWA) The University of Adelaide Monash University The University of New South Wales (UNSW)
Australian Technology Network of Universities (ATN) N=6 The Australian Technology Network (ATN) (https://www.atn.edu.au/) consists of six universities, specifically Australia's leading technology universities.	RMIT University (RMIT) University of Technology Sydney (UTS) University of South Australia (UniSA) Curtin University Deakin University The University of Newcastle
Regional Universities Network (RUN) N=7 (note in 2026 UniSC is no longer a member) The Regional Universities Network (RUN) (https://run.edu.au/) consisted of seven regional universities which collaborate to drive the growth of regional economies.	University of Southern Queensland (UniSQ) University of New England (UNE) Central Queensland University (CQU) Southern Cross University (SCU) Federation University Australia Charles Sturt University (CSU) University of the Sunshine Coast (UniSC)
Innovative Research Universities (IRU) N=7 The Innovative Research Universities (IRU) (https://iru.edu.au/) consisted of seven universities whose focus is upon advancing their communities through provision of higher education, associated resources, research and enterprise.	Griffith University James Cook University (JCU) La Trobe University Murdoch University University of Canberra (UC) Western Sydney University (WSU) Flinders University
Non Aligned Universities (NONA) N=10	Charles Darwin University (CDU) Macquarie University University of Wollongong Australian Catholic University (ACU) Swinburne University of Technology Victoria University Queensland University of Technology (QUT) Edith Cowan University (ECU) The University of Notre Dame Australia University of Tasmania (UTas)
Other Non Aligned Private Universities (Table B) N=4	Bond University Torrens University Australia Avondale University & University of Divinity (not included in this report)

1 At the start of 2026 the University of Adelaide and UniSA merged to form the new Adelaide University.

Appendix B: Notes and acronyms

- **Higher mathematics**: Specialist Mathematics (VIC, QLD, SA, ACT, NT), Mathematics Specialised/Specialist (WA, TAS), Mathematics Extension 1 and Extension 2 (NSW), Mathematics Higher Level (International Baccalaureate).
- **Intermediate mathematics:** Mathematical Methods (VIC, ACT, WA, QLD, SA, NT), Mathematics Advanced (NSW), Mathematical Methods Standard Level (IBO).
- **General mathematics:** Further Mathematics (VIC), Mathematics Standard 2 plus Standard 1 Exam (NSW), Mathematics Applications (WA), General Mathematics A (QLD), General Mathematics (SA, NT), General Mathematics and Mathematics Methods Foundation (TAS), Mathematical Applications and Further Mathematics (ACT), Mathematical Studies SL (International Baccalaureate).
- **Accredited Unit:** An accredited unit is a single component of a qualification, or a stand-alone unit, that has been accredited by the same process as for a whole AQF qualification. In Australia an accredited unit may be called a 'module', 'subject', 'unit of competency' or 'unit'.
- **Program of learning:** A program of learning is a course, curriculum, training package, units of study, or structured workplace learning that leads to the award of a qualification.

AALL	Association for Academic Language and Learning
ACER	Australian Council for Educational Research
AGDE	Australian Government Department of Education
AMSI	Australian Mathematical Sciences Institute
BMN	Bridging Mathematics Network
EFTSL	Equivalent Full-Time Student Load
EFT	Equivalent Full-Time
FFUR	FEE-FREE Uni Ready
FYiMaths	First Year in Mathematics
LANTITE	Literacy and Numeracy Test for Initial Teacher Education
LMS	Learning Management System
MERGA	Mathematics Education Research Group of Australasia
MLC	Mathematics Learning Centre
NAEEA	National Association of Enabling Educators of Australia
NCVER	National Centre for Vocational Education Research
ONC/ONL	On Campus/Online
PASS/PAL	Peer Assisted Study Sessions/Peer Assisted Learning
QTAC	Queensland Tertiary Admissions Centre
SATAC	South Australian Tertiary Admissions Centre
SIG	Special Interest Group
STAT	Special Tertiary Admissions Test
STEM	Science, Technology, Engineering and Mathematics
TAFE	Technical and Further Education
VCE	Victorian Certificate of Education

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AMSI and its members acknowledge the significant contribution of the University of Melbourne as our Lead Agent and host

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