CASE STUDY

An update to the design and delivery of an introductory statistics subject for a large student cohort with diverse educational backgrounds and chosen qualifications

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Abstract

This is a case study update on the design, delivery and performance of a first-year undergraduate statistics subject (or course/unit/module), entitled Making Sense of Data, at La Trobe University. This subject is taught both face-to-face and online to a large cohort of students across a number of domestic and international campuses. In order to support the diverse educational backgrounds and chosen qualifications of students, Making Sense of Data contains both a solid foundation of core statistics content, and a stream-specific component. All students cover the core content, and the stream content that best aligns with their chosen qualification(s). This flexible, accessible structure helps ensure that the subject's intended learning outcomes are met whilst highlighting the relevance of statistics for each student's field of study and allowing for stream-specific lectures, assessments and statistical software to be used. In this paper we discuss various feedback-based refinements implemented iteratively in Making Sense of Data in recent years, including adjustments to classes, learning content, assessments, and student support, as well as adjustments made in response to the emergence of Generative AI. We evaluate how these changes to the subject have impacted student outcomes in terms of engagement, satisfaction and performance.

Keywords: Higher education, undergraduate statistics, flexible curriculum, diverse educational requirements, assessment.

1. Introduction

In the era of Big Data and Artificial Intelligence (AI), introductory statistics has become an increasingly essential component of many higher education courses (Tishkovskaya and Lancaster, 2012; GAISE College Report, 2016; Hsu, 2024). Students from all fields of study can benefit from developing statistical literacy, and the abilities to parse data and conduct data-based critical thinking and decision-making are rapidly becoming necessary skills for effectively navigating modern life (Wild and Pfannkuch, 1999; Rumsey, 2002; Fielding, Makar and Ben-Zvi, 2025).

However, the effective delivery of a first-year undergraduate statistics subject (or course/unit/module) remains challenging and complex. Student cohorts are becoming larger and more diverse, and students undertaking their first tertiary statistics subject may exhibit significant variation in terms of their prior mathematical knowledge, familiarity with data, confidence using statistical software, and in their understanding and appreciation of the relevance of statistics within their chosen discipline. These variations can affect student performance, confirming the need for suitable learning environments that offer adequate scaffolding, flexibility and contextual relevance (Bakker and Gravemeijer, 2004; Garfield and Ben-Zvi, 2007). Students' confidence and perceptions toward quantitative subjects such as statistics can also be negatively impacted by prior experiences (Zeidner, 1991; Paechter et al., 2017). Indeed, statistics anxiety is known to be widespread among

first-year cohorts and is typically associated with reduced persistence, lack of confidence, and lower academic success (Onwuegbuzie and Wilson, 2003; Chiesi and Primi, 2010; Macher et al., 2012). To help counteract these issues, research emphasises the value of teaching statistics conceptually and in real-world, discipline-relevant contexts, rather than as procedural instruction, and highlights the benefits of promoting early help-seeking behaviours and effectively addressing and normalising common concerns like statistics anxiety (Cobb, 2007; GAISE College Report, 2016; Vicente et al., 2025).

Assessment structure and type also play a key role in shaping students' early experiences with statistics and in mitigating statistics anxiety. Timely assessment and constructive, supportive feedback can substantially enhance learning, build confidence, and allow students to monitor their progress (Black and Wiliam, 1998; Gibbs and Simpson, 2005; Nicol and Macfarlane-Dick, 2006). In particular, early assessment can be highly beneficial in large cohorts where students may otherwise struggle to measure their understanding of content or may not actively seek individual support. Given the known link between statistics anxiety and procrastination (Onwuegbuzie, 2004), early assessment, for example in the form of weekly quizzes, has been recommended as a useful strategy to disrupt and mitigate this procrastination-anxiety cycle (Chew and Dillon, 2014).

The recent emergence and rapid global adoption of Generative AI (GenAI) large language models further compound the inherent difficulties in teaching statistics effectively. GenAI has created new opportunities and introduced new challenges for subjects across all disciplines in tertiary education, including statistics (Jin et al., 2025; Dunn, 2025). GenAI tools, such as ChatGPT and Microsoft Copilot, can be used as genuinely beneficial tools to enhance students' learning. However, there is a serious risk that without appropriate guidance and support from teachers, these tools can be vulnerable to misuse, leading to issues such as academic integrity violations, over-dependence on GenAI, and the atrophying or lack of development of critical thinking and reasoning skills (Cotton et al., 2023; Kasneci et al., 2023; Sallam, 2023). Therefore, in order for a modern introductory statistics subject to effectively support student learning, it is vital to integrate explicit guidance on the responsible and ethical use of AI into the curriculum (Borenstein and Howard, 2021).

These complexities and challenges highlight the need for first-year statistics subjects that are flexible, adaptable and supportive.

Making Sense of Data (with subject code STM1001) was initially designed in 2020-2021 to meet the requirement for a flexible, scalable university-wide first year undergraduate statistics subject at La Trobe University. The subject needed to support the learning requirements of students with diverse educational backgrounds and chosen qualifications and effectively address statistics-specific teaching challenges such as statistics anxiety. STM1001 also had to satisfy institutional requirements, such as the structural parameters of the university-wide course restructuring that was occurring at this time, and the needs of various stakeholders from numerous departments. These departmental needs were often discipline-specific, and included, for instance, requirements for certain introductory statistical topics and statistical software to be covered, in order for students to gain the requisite statistical knowledge assumed by subsequent subjects in their various courses. These sometimes-disparate requirements needed to be assimilated into the new subject while ensuring that the overarching structure of STM1001 had a core foundation that was robust and adaptable enough to withstand and accommodate unforeseen or emerging challenges such as GenAI. More background regarding the subject development process, including the contextual university requirements and stakeholder needs, can be found in Kuveke, Shaker and Prendergast (2024).

STM1001 was first delivered in 2022, and has now been in existence for four years. At the La Trobe face-to-face and online campuses, it is offered in both of the 12-week semesters of the Australian

academic year. It is also offered as an online 6-week intensive summer term which is mainly for students who need to repeat the subject after unsuccessfully attempting the subject during one of the semester offerings. In addition, STM1001 is offered at partner institutions both nationally and internationally.

STM1001 consists of two components: a core component and a stream component. The core component accounts for approximately 70% of the subject content and assessment, and is taken by all students. It covers typical foundational statistics content including descriptive statistics, hypothesis tests, confidence intervals, *t*-tests, chi-square tests, ANOVAs, and linear regression. The stream component accounts for the remaining 30% of the subject content and assessment. Currently two stream components are offered: the Science/Health (SH) stream and the Data Science (DS) stream. Students are assigned to the stream that better aligns with their chosen qualification(s). Within the stream content, SH students predominantly learn about study design, while DS students learn coding, machine learning, and interactive data visualisation skills. This versatile structure permits stream-specific lectures, computer labs and assessments, as well as allowing for students to learn stream-specific statistical software packages, namely jamovi (The jamovi project, 2025) and R (R Core Team, 2025) for SH and DS students respectively. Table 1 and Figure 1 display the composition of SH and DS students in the Semester 1 (S1) and Semester 2 (S2) instances of STM1001 throughout the years. Student numbers by discipline group over time are shown in Table 2 and Figure 2. To date, over 4900 students have completed the subject, with student numbers growing steadily each year.

Table 1. Overview of STM1001 students by stream over time. Semester 1 and Semester 2 are referred to as S1 and S2 respectively

Stream/Year	S1 2022	S2 2022	S1 2023	S2 2023	S1 2024	S2 2024	S1 2025	S2 2025	Total
Data Science	19	62	44	83	63	108	82	92	553
Science/Health	126	392	464	564	571	750	599	882	4348
Total	145	454	508	647	634	858	681	974	4901

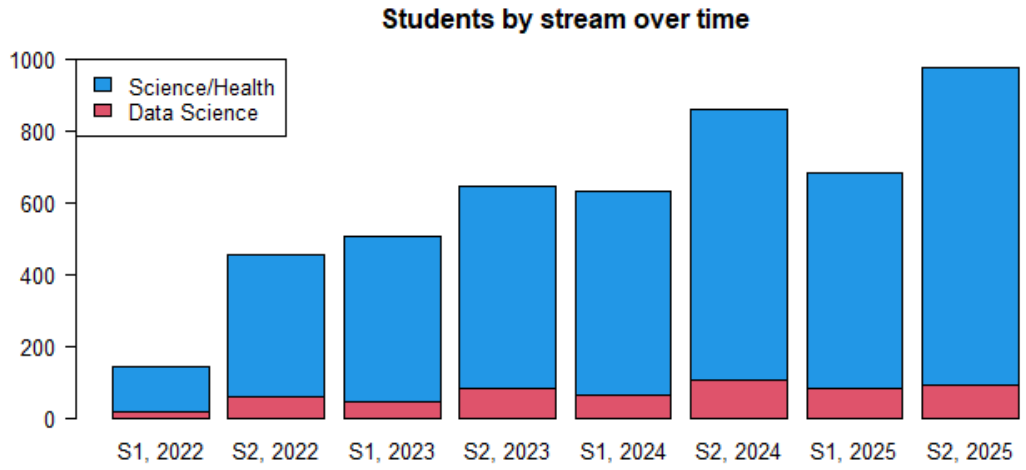


Figure 1. Bar chart of STM1001 students by stream over time. Semester 1 and Semester 2 are referred to as S1 and S2 respectively.

Table 2. Overview of STM1001 students by discipline group over time

Discipline group/Year	S1 2022	S2 2022	S1 2023	S2 2023	S1 2024	S2 2024	S1 2025	S2 2025	Total
Health Sciences	1	22	218	218	302	366	313	431	1871
Life and Applied Sciences	86	266	172	255	162	250	146	278	1615
General Science	48	136	91	119	105	124	93	107	823
IT-related disciplines	8	24	22	47	39	71	47	65	323
Business	1	0	4	4	3	8	15	5	40
Other	1	6	1	4	23	39	67	88	229
Total	145	454	508	647	634	858	681	974	4901

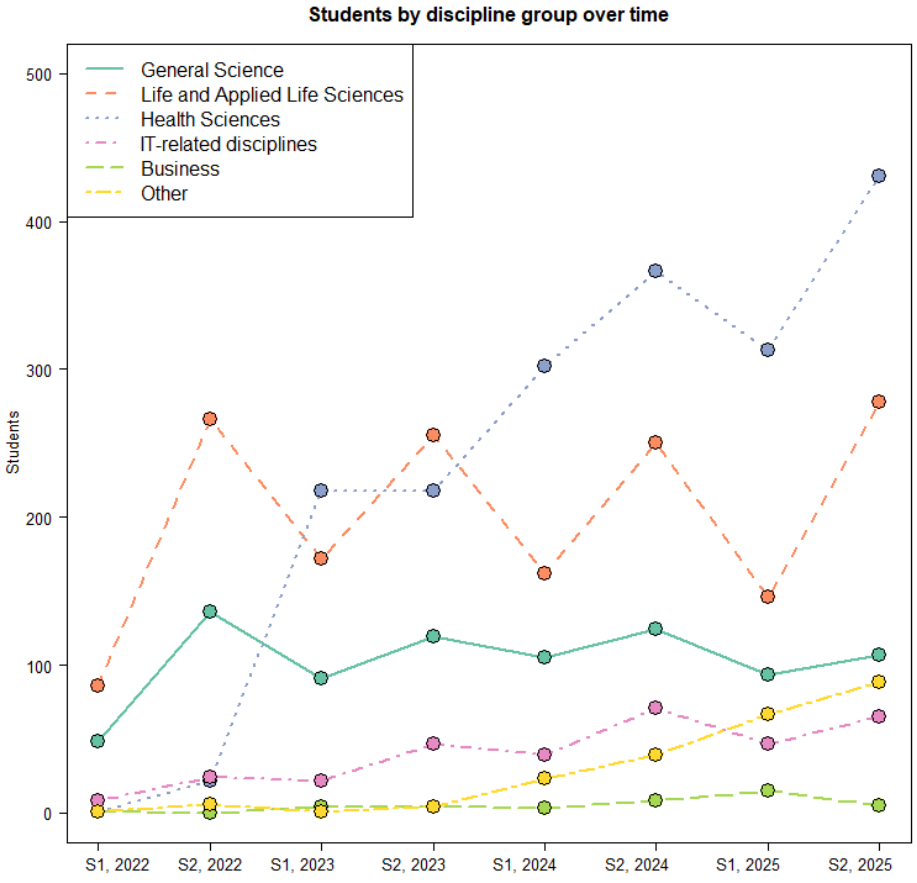


Figure 2. STM1001 student enrolment numbers by discipline group over time.

We previously reported on the design and initial implementation of and results for Making Sense of Data in Kuveke, Shaker and Prendergast (2024). Readers are referred to this paper for further details and discussion on the core and stream-specific design of the subject, the methods used to address

and mitigate statistics anxiety, the open-access nature of the subject's learning resources, and the pedagogical grounds for these design choices.

In this case study update we focus on the adjustments and enhancements made to STM1001 since 2023. These iterative refinements have been driven by student and staff feedback, recent pedagogical developments, institutional requirements, and the ever-evolving higher education landscape in an era of GenAI ubiquity. We outline the adjustments to content delivery, classes, support mechanisms, and assessment structure, and present an evaluation of these adjustments in terms of student engagement, satisfaction and performance.

2. Adjustments

Since we last reported on the design and delivery of STM1001 in Kuveke, Shaker and Prendergast (2024), the subject has undergone a number of further iterative feedback-based adjustments which we present and discuss in this section. Where information is available regarding the evaluation of individual adjustments, it will be provided within this section. An overall evaluation of the adjustments considering student performance and feedback over time will then be provided in Section 3.

2.1. Lecture and Computer Lab Restructure

There has been a significant adjustment to the structure of scheduled synchronous learning activities in STM1001 in recent years.

Originally, in 2022, weekly content was introduced via scheduled 1-hour interactive workshops, following Bergmann and Sams' (2014) 'flipped learning' approach. The workshops were supplemented by two 1-hour computer labs each week. Students were expected to also augment their learning with self-directed study, using the extensive open-access bespoke online resources provided through the subject's Learning Management System (LMS). However, feedback from students and staff highlighted that further direct guidance was required, particularly for topics involving theoretical statistics concepts. Therefore in 2023 we began gradually introducing core and stream-specific lectures to the subject curriculum, while concurrently reducing the amount of content for some topics.

In 2024 we further restructured the scheduled synchronous learning activities by combining the weekly workshops and existing lectures into a set of integrated, interactive weekly lectures. As part of this restructure, new lecture materials were developed for both core and stream content. In 2025, following student feedback, we created two additional DS-specific lectures, which involve interactive elements including collaborative R coding and error debugging, in order to further support students with learning and developing R coding skills.

The weekly lectures are 2-hour synchronous sessions, delivered online via Zoom and recorded, to maximise accessibility for all students across both physical and online campuses. Typically, the first 1-1.5 hours of each session consist of a lecture on core content. This is then generally followed by a shorter lecture on stream-specific content. However, the structure is designed to be flexible such that the length of the core and stream-specific lectures can be adjusted as necessary, dependent upon the specific content covered that week.

Lecture slides are provided to students in pdf format, and are also available publicly on RPubs.com, to cater for various accessibility needs. As part of our ongoing efforts to help address, normalise, and mitigate students' feelings of statistics anxiety (see e.g. Onwuegbuzie and Wilson, 2003; Macher et al., 2012; Marshall et al., 2017), in Weeks 1-7 we include slides with strategies for combating statistics anxiety (Riach et al., 2025), whilst highlighting available support options. We also incorporate Kahoot (an online game-based classroom polling platform, kahoot.com) quizzes into

each lecture to help promote and support student engagement and learning throughout the semester (Shaker, Hurst and Marshall, 2021). Evaluations of incorporating both the Kahoot quizzes and the slides for combatting statistics anxiety have shown a significant, positive impact on students' perceptions of statistics, as discussed in Riach et al. (2025).

In conjunction with the workshop/lecture restructure, the structure of the computer labs was also refined in 2024, with the two 1-hour sessions merged into one 2-hour session. This simplified structure helped further streamline the student experience, with students now required to simply allocate to a 2-hour lecture session and a 2-hour computer lab session each week. This is in contrast to the original, more complicated allocation requirement of a 1-hour workshop, a 1-hour lecture, and two 1-hour computer labs.

The benefits of this comprehensive restructure are five-fold. From the student perspective, (i) the online format of the lectures provides a consolidated forum for the subject coordinator to facilitate and support student learning, and ensures consistency of content delivery for all students; (ii) the study burden on students is reduced, with a more streamlined timetable and less reliance on unstructured self-directed learning; and (iii) students are now guaranteed the same lab demonstrator and classmates for all content throughout the semester, supporting the valuable development of rapport and engagement between students and staff (Mattanah, 2024), whereas previously they could potentially have allocated to two computer labs running on different days with different demonstrators and peers. Meanwhile, from an institutional perspective, (iv) the new lecture format eliminates the need for multiple room bookings and hiring of casual staff to run the workshops, offering significant cost-savings, and (v) the new lecture and computer lab structure supports administrative planning and workload allocations, the volume of which is non-trivial given the cohort size.

2.2. Fostering student interest in statistics

Following student feedback, we identified that some SH students struggled to understand the link between statistics and their chosen qualification. Students who develop a deeper understanding and appreciation of the importance of statistics tend to persevere with their studies and achieve positive outcomes despite feelings of statistics anxiety, as discussed in Marshall et al. (2022). Therefore, to further contextualise the importance and relevance of statistics for students, in 2025 we created 15 short interview-style videos featuring experts from various fields discussing the importance of statistics in their discipline. These videos were integrated into the SH computer labs alongside a reflective activity, and have assisted students in understanding the relevance of statistics to their context.

2.3. A bespoke GenAI Chatbot and other student support implementations

To better understand and meet the diverse and evolving needs of STM1001 students, we have embedded a variety of supports within the subject, including those noted above and in Kuveke, Shaker and Prendergast (2024). Additional, post-2023 implementations and refinements are discussed below.

In Semester 1 2024 we introduced a short survey during Week 3, in which students reflect on their initial progress and experience with the subject. Completion of this survey is required to gain access to the weekly quiz during Week 3. The survey helps us to identify at-risk students and to direct them to the appropriate support services. Based on feedback from the Semester 2 2024 survey, we identified that many students required additional maths skills support. In response to this feedback, we developed an online book with scaffolded maths skills specifically required for STM1001. Students have greatly appreciated this additional open-source resource, which has had significant engagement of over 10,000 views by 2,200 users to date.

In addition to the short Week 3 survey, at-risk students are also identified by their engagement, or lack thereof, with the LMS, alongside their performance with the weekly quizzes (see Section 2.4). Beginning in 2023, an email outreach program has been implemented whereby students are sent personalised emails via either the Student Relationship Engagement System (SRES, Lui et al., 2017) or mail merge. This proactive support mechanism is designed to assist at-risk students to access relevant support, and to also encourage students who are performing well while providing helpful reminders about available support services.

In 2024, to both support students in their transition from secondary to tertiary education, and to help reduce administrative workload, we developed an extensive set of Frequently Asked Questions (FAQs). These FAQs are provided on the STM1001 LMS and cover details on enrolment, class allocation, extension processes for assessments, and available support resources. Streamlined versions of these FAQs are also integrated into autoreplies for the subject email account, and are updated throughout the semester with current relevant information. In 2025 we extended this support resource by introducing a bespoke GenAI chatbot (Cogniti, nd) for dynamic interaction with these FAQs. To humanise and help promote engagement with the chatbot we named it Kit, and suggested students think of Kit as a past STM1001 student offering guidance. Also in 2025, questions were added to the first three weekly quizzes (see Section 2.4) relating to information available in the FAQs. Interestingly, only about 9% of students have chosen to make use of Kit, with evaluations to date indicating that students prefer to use other options for support or finding information, such as the FAQs resource, the new questions related to the FAQs within the weekly quizzes, or directly referring to the information provided on the LMS.

To further promote and incentivise consistent engagement with the administrative-related content provided within the FAQs and the LMS, we also introduced a "badges" system in 2025, with a gamification element. By completing certain tasks within the subject's LMS, such as downloading the Subject Learning Guide or watching the Welcome Video, students earn digital badges, each of which has a specific design and points value. While these points do not contribute to the students' marks for the subject, friendly competition between the two streams is encouraged, to help foster a sense of community, and the accumulation of badge points is promoted in lectures and subject announcements throughout the semester. At the end of the semester, an awards ceremony is held during which students who have received full points are acknowledged and small prizes are awarded. Evaluations so far indicate that students have enjoyed the badges, rating their overall experience at 4.0 on average in response to a Likert scale question asking "*What was your overall experience of the badges?"*, from 1; very negative, to 5; very positive (59 responses across the 2025 combined cohort of 1655, 3.56% response rate).

2.4. Changes to Assessment to support student learning and adapt to GenAI

Since inception, STM1001 has been designed to have scalable, authentic assessments that align with and account for the diversity and size of the student cohort.

In 2024 we refined the STM1001 assessment structure to support student learning, by reducing the number of assessments and increasing the weighting of weekly low-stakes early assessments (EA). The number of assignments was reduced from 4 to 3, with assessment of software skills from the (previously) first assignment integrated into the early weekly quizzes. The number of weekly quizzes was also reduced from 8 to 6, whilst the weighting of each quiz increased from 2% to 6%. The exam weighting was reduced slightly from 30% to 25%, to accommodate the other adjustments. The assessment changes between 2023 and 2024 are summarised in Table 3 below.

Table 3. Overview of STM1001 assessment structure in 2023 versus 2024.

Year/Assessment Type	Quizzes (Best 5 results kept)	Assignments	Final Assessment (Exam)
2022-2023	8 Quizzes (2% each, 10% overall) Due weekly Weeks 1-8	4 Assignments (15% each, 60% overall) Due Weeks 6, 8, 10, 12	30%
2024 onwards	6 Quizzes (6% each, 30% overall) Due weekly Weeks 1-6	3 Assignments (15% each, 45% overall) Due Weeks 7, 10, 12	25%

This feedback-based restructure was guided by pedagogical, student-centric considerations, and offers several benefits over the original assessment structure. Previously, students were not formally assessed on their statistical software skills until Week 6, meaning that students who were not engaged with the computer lab material early in the semester were at much higher risk of falling behind. To address this concern, the early quizzes now incorporate questions in which students must download and analyse data in jamovi/R. These questions assess higher-order critical thinking skills and thus allow us to more swiftly identify and support at-risk students (Nicol and Macfarlane-Dick, 2006). The content is scaffolded to nurture students' confidence in their technical skills (Folwell and Brennan, 2025), and to support their performance in subsequent assessments (McArthur, 2023). Together, these EA weighting adjustments mean that students now can obtain substantially more marks sooner – for example 30% of the subject marks by Week 5, as opposed to only 10% prior to 2024. This ability to achieve more marks more quickly helps foster students' self-efficacy in learning statistics, and galvanises their motivation to do so, which in turn helps to mitigate feelings of statistics anxiety (Chew and Dillon, 2014; Trassi et al., 2022).

Results suggest that the increase in the weighting and cognitive level of early assessment in STM1001 since 2024 has contributed positively to students' motivation, confidence and performance in learning statistics, and has concurrently reduced students' levels of statistics anxiety, in particular anxiety towards the use of statistics software. Further details on the assessment restructure's pedagogical rationale, implementation, and results can be found in Shaker et al. (2025).

In addition to the restructure of the assessments in 2024, and given the emergence of GenAI, some assessment questions were also updated in 2024 and 2025 to incorporate evaluative judgement (Bearman et al., 2024) of GenAI outputs. In particular, in some updated questions students are provided with output from GenAI to a specific question. Their task within such questions is to then critically evaluate this GenAI output. This question type requires students to demonstrate higher-order thinking, and also supports students in developing the important skill of critical thinking, particularly in the context of GenAI usage. Further detail regarding the pedagogical considerations, examples, and practical considerations regarding these changes can be found in Shaker (2025).

2.5. Staff Support and Training

While significant time and effort have been devoted to continual feedback-based adjustments and refinements for the benefit of the students in STM1001, it is important to also acknowledge and support our staff, without whom the subject could not operate. Furthermore, considering the results of Riach et al. (2025), which showed that the human elements of teaching (i.e. attitudes and approachability of teaching staff) are most important to students when considering what helps to

improve their feelings towards statistics, we consider that staff support and training is essential, particularly in the context of large student cohorts and teaching teams. The size of the STM1001 student cohort has grown steadily each year, as highlighted in Table 1 and Figure 1, and this has been matched by a concomitant increase in staffing. The teaching team currently consists of 15-20 sessional staff and 2-5 full-time staff, across multiple campuses. Sessional staff are sourced from a pool of current PhD students and more experienced casual staff. Therefore, each semester typically brings some sessional staff turnover, necessitating ongoing training, mentoring, and support for the team.

In order to foster a supportive staff environment and to help ensure consistency in teaching standards across campuses and teaching periods, we provide staff with professional development and guidance in the form of a formal 2-hour training workshop and a peer observation program. The training workshop was first offered in 2023 and has run at least once per year since. It is held prior to the start of the semester, and covers effective teaching practices, including applying constructivist learning theories (see e.g. Ertmer and Newby, 1993), building rapport and using immediacy behaviours, creating a positive and inclusive classroom environment, marking and feedback techniques, and advice specific to online teaching. To further support staff facilitating online classes, we also provide evidence-based weekly lesson plans. Staff have rated the training as extremely useful, with an average agreement score of 4.75 out of 5 on its usefulness (based on 20 responses from 31 attendees across 2023-2025, 65% response rate). The peer observation program was introduced in 2024 and runs at least once per year. STM1001 staff are paired up and observe their partner's early computer lab classes, and subsequently provide supportive feedback via a structured template. Each staff member concludes the program by writing a short reflection summarising the feedback received, their planned adjustments, and any outcomes of feedback-based changes they have already implemented in their teaching. In combination, these programmes have significantly improved teaching quality consistency, as reflected in the continued improvement in student feedback from 2023 onwards, which is discussed in Section 3.

3. Evaluations

In this section we present data starting from STM1001's inception in 2022, with a focus on evaluating how our sustained, iterative, feedback-based adjustments and refinements implemented since 2023, and discussed in Section 2, have contributed to further improvements in student pass rates, engagement, and satisfaction. For reference, a timeline of these changes is presented in Figure 3 below.

Figure 4 below shows STM1001 pass rates and student feedback scores over time. Specifically, Figure 4A highlights how the pass rate has continued to increase since S2 2023 (78%), with S1 2024 (80.8%) and S2 2024 (82.5%) showing a steady increase before pass rates stabilised in 2025 (S1 (85.5%) and S2 (84.2%)). This consistent improvement in pass rates is linked with a steady improvement in student satisfaction. Figure 4B displays institutional data from Student Feedback on Subject (SFS) surveys, specifically the mean score (out of 5) for responses to the question "*Overall I was satisfied with the quality of this subject*". This score has steadily improved from 3.97 in S2 2023 (114 student responses), to the most recent score of 4.33 in S2 2025 (213 student responses). Given the subject's early undergraduate level, quantitative nature, large cohort size and compulsory status for many students – all factors known to negatively impact student outcomes and satisfaction (see e.g. Neumann, 2001) – the observed changes in SFS and pass rates are non-trivial.

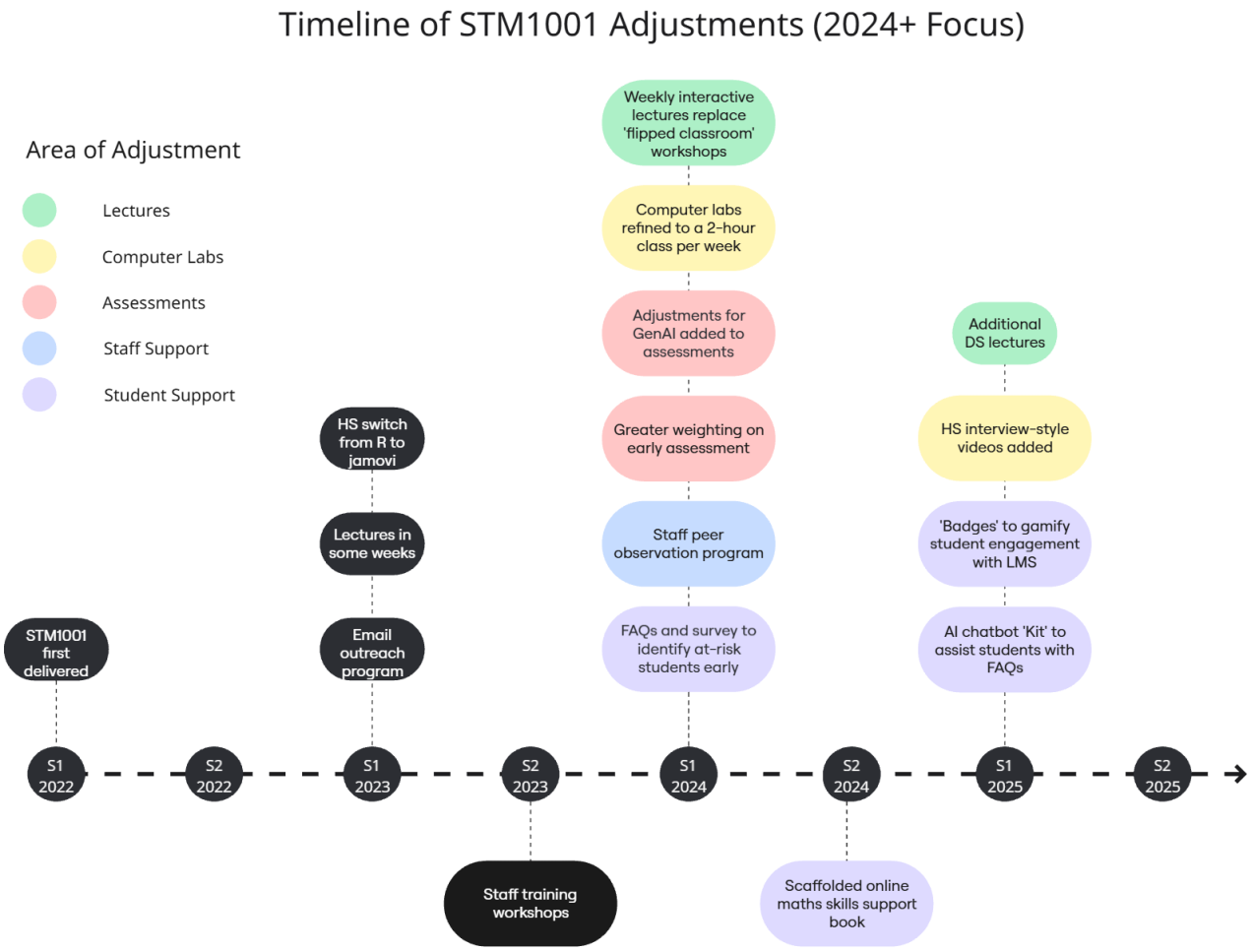


Figure 3. A timeline highlighting the major adjustments and refinements made to STM1001, with a focus on recent adjustments introduced from Semester 1 2024 onwards. Earlier adjustments are noted in black and white.

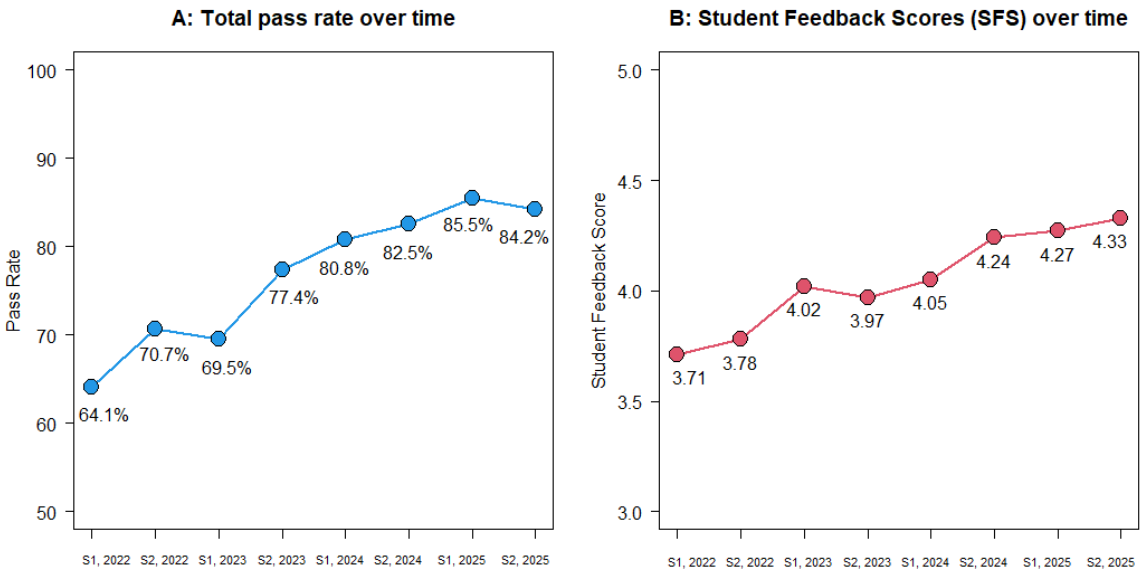


Figure 4. STM1001 pass rates (A) and feedback (B) over time. The Student Feedback score is a mean score (out of 5) in response to the question “Overall I was satisfied with the quality of this subject”.

Given the number of adjustments that have been made from 2024 onward, it is difficult to identify which adjustment (or combination of adjustments) may have led to the observed increases in both student performance and satisfaction. However, based on either formal or anecdotal evidence, each individual adjustment has improved the delivery and student experience within STM1001. We therefore posit that collectively; they have each contributed to the observed outcomes.

4. Conclusion

In this case study update we have outlined the iterative, feedback-based adjustments made to STM1001 following on from the initial design and adjustments discussed in Kuveke, Shaker and Prendergast (2024). A main focus of discussion in Kuveke, Shaker and Prendergast (2024) was the novel, stream-based design of STM1001, which allows the subject to efficiently meet the needs of students from diverse chosen qualifications. As discussed previously, while this structure can introduce additional complexity, along with additional administrative and workload burden for subject coordinators, it can also provide significant efficiency gains from an institutional perspective. With careful design and reflective delivery, this structure can work successfully from both a student and staff perspective.

In summary, the adjustments made from 2024 onwards that we have discussed here include (i) restructuring the class requirements to a simplified 2-hour interactive lecture + 2-hour computer lab weekly schedule, (ii) creation of discipline-specific videos to foster interest amongst the SH cohort, (iii) introducing various additional support mechanisms, (iv) increasing the amount of early assessment to support student confidence and learning, and (v) extending our staff support and training programme. Together with the adjustments made prior to 2024 discussed in Kuveke, Shaker and Prendergast (2024), the most significant of which was changing the statistical software program from R to jamovi for the SH cohort, these adjustments have resulted in sustained, positive impacts in terms of both student satisfaction and performance.

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