

CSE Learning & Teaching

Current On-Campus Students Edition

Understand how some subjects are being refreshed from 2027



Table of Contents

Key Messages for Current Students	2
Why are we refreshing how we deliver some subjects?	3
Which subjects are changing, and when?	4
What does this mean for continuing students?.....	4
How does the refreshed delivery model work?	5
What will a typical week look like?	6
Frequently Asked Questions	7
Further Reading and References	9

Key Messages for Current Students

- **The refresh is designed to increase opportunities for meaningful interaction with teaching staff and peers, not reduce them.**
- **Face-to-face learning is not being removed from CSE.** Practicals, laboratories, field trips, workshops and tutorials will continue, alongside new lecturer-led sessions focused on clarifying, connecting and consolidating learning.
- **Academic standards and learning outcomes are not changing.** What is changing is how students engage with learning activities throughout the week.
- **The main change is how foundational content is delivered.** Students will be required to complete preparation activities before class, allowing face-to-face time to focus on interactive discussion, application, feedback, and problem-solving.
- **The refresh begins with Level 1 subjects in 2027, with the model introduced progressively across higher-level subjects over time.** Continuing students already enrolled in CSE programs will largely continue in the mix of delivery models currently used in higher-level subjects. Many subjects already use elements of the refreshed model, and some may proactively adopt elements earlier than scheduled.
- **The model is informed by student feedback, educational research, and successful examples already operating within CSE.**

Why are we refreshing how we deliver some subjects?

An evidence-informed approach

Our goal is to provide students with the strongest possible learning outcomes, informed by contemporary research and evidence. A substantial body of research in science, engineering, IT and veterinary education shows that when student-staff contact time shifts from one-way (traditional) delivery to active, student-centred engagement, students develop deeper understanding, retain more of what they learn, and improve critical thinking.¹ Subjects that are being refreshed are replacing one-way delivery with interactive sessions to help more students realise these benefits.

Equity, access and flexibility

We are committed to ensuring all students have access to high-quality learning from JCU experts. Our students have diverse schedules, commitments and study patterns, and not all students are able to engage with all lectures at the scheduled time. We also want students to have access to the same high-quality learning opportunities regardless of campus or delivery style. Subjects that are being refreshed are providing high-quality materials that introduce the foundational content of each topic. Students can engage with these materials at a time and pace that suits their needs, revisit challenging concepts when required, and continue learning during periods of illness, travel disruption or other unforeseen circumstances. Research suggests that these approaches improve student success and retention.²

Building on our exemplars

Over the last several years, many subjects across the College have already modernised their delivery to use face-to-face time for active engagement rather than one-way information delivery.³ These subjects have largely been well-received by students. We are using lessons learned from these examples to guide our refresh, helping build greater consistency in the student experience across the College.

Making the best use of student-staff time

Across many years of student feedback provided in subject evaluations, students consistently told us that they value face-to-face learning most when it helps them ask questions, work through difficult concepts, interact with staff and peers, and apply their knowledge. Students frequently identified interactive classes as one of the most valuable parts of their subjects because they helped consolidate understanding, build confidence, and clarify difficult concepts. Subjects that are being refreshed will spend more class time on the activities students repeatedly tell us they find most valuable: working through challenging concepts, addressing misconceptions, solving problems, applying ideas to real-world situations, asking questions, and receiving real-time feedback, guidance, and support from teaching staff.

The refresh is designed to increase opportunities for meaningful interaction with teaching staff and peers, not reduce them.

This guide provides information about what is changing, what isn't, what it means for you, and what it means for future students.

¹ See for example: Brito & Terrado (2024); Comez & Ozkan (2025); Dooley et al. (2018); Draughon et al. (2024); Ezech et al. (2022); Gong et al. (2024); Kapur et al. (2022); Karabulut-Ilgu et al. (2018); Rajasekaran et al. (2024); Seery (2015); Serrano Amarilla et al. (2022); Voronina et al. (2017)

² See for example: Flynn (2015); Seery (2015)

³ You may hear some academics refer to this delivery style as “flipped learning” or “flipped classroom”.

Which subjects are changing, and when?

Subjects in CSE currently use a mix of different delivery styles, including traditional and refreshed models. The timetable below provides an indicative transition pathway for undergraduate programs. As part of ongoing curriculum review and continuous improvement, individual subjects may proactively move to the refreshed model (partially or fully) earlier than indicated.

CSE Delivery Model Transition

Subject Level	2027	2028	2029	2030
Level 1	Refreshed model			
Level 2	Mix of models	Refreshed model		
Level 3	Mix of models	Mix of models	Refreshed model	
Level 4	Mix of models	Mix of models	Mix of models	Refreshed model

In 2027, Level 1 subjects are the focus of the refresh. The refresh begins in Level 1 subjects so students commencing their studies can develop familiarity with the learning approach from the beginning of their degree.

In 2027, all Level 1 subjects will be delivered using the refreshed delivery model. New students who commence their undergraduate course in 2027 will experience all of their studies in the refreshed delivery model. New undergraduate students commencing in Trimester 3, 2026 will complete their first trimester under the current mix of delivery models and then transition into the refreshed model as their Level 1 subjects are updated in 2027.

Higher level subjects will typically retain their current delivery model for 2027, unless the subject coordinator chooses to transition earlier as part of continuous improvement. These subjects will transition progressively throughout 2028 (Level 2), 2029 (Level 3) and 2030 (Level 4). Level 5 subjects in the Bachelor of Veterinary Sciences program will remain in a clinically-based delivery model. Level 5 postgraduate subjects will be progressively refreshed throughout 2028 and 2029. This means continuing students already enrolled in the current CSE programs will largely continue in the mix of delivery models presently in use in higher-level subjects.

What does this mean for continuing students?

If you are progressing normally into Year 2 or later, most of your subjects in 2027 will continue to use the same mix of delivery approaches currently operating across CSE.

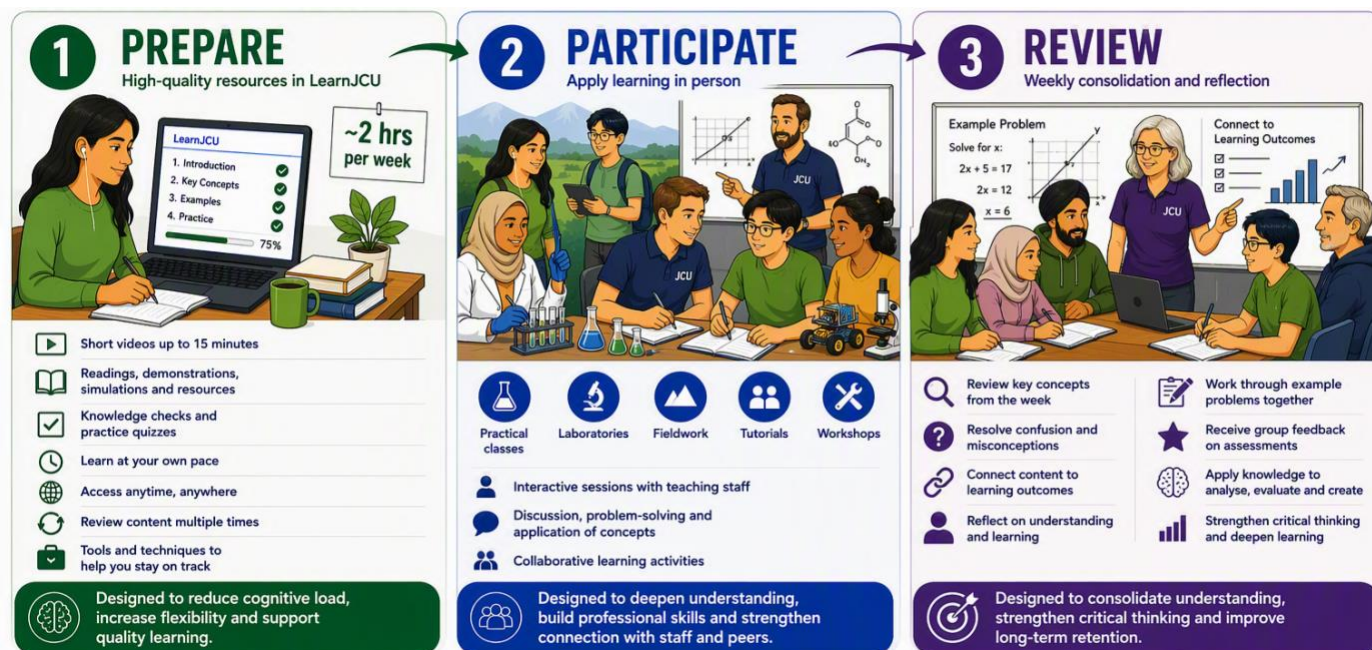
If you are already enrolled in CSE programs and progressing normally into Year 2 and beyond, you should not expect a dramatic change. You will continue your studies within the existing mix of delivery models already used across CSE. Some subjects use traditional lectures, some already use refreshed approaches, and some combine elements of both. The transition has been deliberately phased to avoid a sudden change in expectations or experience for current students.

Students commencing next year will have a somewhat different learning experience to the one you encountered in first year. Although the learning outcomes and academic standards remain unchanged, the learning approach and weekly schedule may differ. If you repeat a Level 1 subject, it may be delivered differently than in your previous attempt.

You may also see improvements in your own subject experience as we continue learning what works well for supporting student engagement and interaction. For example, we are working to modernise and standardise LearnJCU sites across CSE to make them easier to navigate. You may therefore notice more consistent organisation of content and increased availability of supporting materials online. Higher level subjects may also choose to progressively incorporate aspects of the refreshed model to enhance student engagement and learning.

How does the refreshed delivery model work?

Students will continue to have regular face-to-face classes with academic staff each teaching week. Practical classes, laboratories, fieldwork, workshops and tutorials will continue. The main change is that foundational content will be completed before scheduled classes so that face-to-face time can focus on interaction and applying what you've learned. This shift empowers students to engage with foundational content at their own pace while re-focusing in-person sessions on the activities that benefit most from students and staff being together in the same learning environment. By moving foundational content into flexible pre-class learning, more scheduled learning time can be devoted to activities that benefit most from interaction with teaching staff and peers, including practical work, discussion, problem-solving and feedback. To enable this shift, subjects that previously used traditional lectures will introduce new lecturer-led sessions designed to consolidate learning and help students connect ideas across each topic.⁴



The refreshed delivery model is based on a simple learning cycle: **Prepare** → **Participate** → **Review**.

1. Prepare

Preparation activities will use resources on LearnJCU to introduce the foundational concepts for each topic before class. This may include short videos, readings, online simulations, knowledge checks, practice quizzes, and more. These resources are designed to help students build a foundation for the week's learning and arrive at classes ready to make the most of their face-to-face learning activities. Because the materials are available online, students can learn at their own pace, revisit challenging concepts and review content when needed.

2. Participate

Participation activities will occur during scheduled classes and other interactive learning sessions. Depending on the subject, this may include practical classes, laboratories, field trips, tutorials, and workshops. These sessions are where students work with teaching staff and classmates to apply concepts, practice techniques, explore experimental questions, solve real-world problems, and receive real-time feedback.

3. Review

Review activities will help students bring together the ideas, concepts and skills they have encountered throughout the week. This stage includes both lecturer-led sessions⁵ and independent study activities. In the lecturer-led sessions, students will revisit key concepts, clarify areas of confusion, work through common questions and example problems, and connect their learning to the subject outcomes. Together, these activities are designed to deepen understanding, strengthen critical thinking and support long-term retention of knowledge.

⁴ You may hear some academics refer to this approach as “flipped learning” or a “flipped classroom” model.

⁵ You may hear some academics refer to these as “synthesis” or “synthesising” sessions.

What will a typical week look like?

CSE spans a broad array of disciplines, and there is no single structure that will work for every discipline, year level, or subject. Instead, subjects will have common elements aligned to the Prepare → Participate → Review model. The exact implementation will vary, guided by subject coordinator expertise, subject learning outcomes, and course-level consistency.

The common elements that students can expect in a typical week (for a standard, 3 cp trimester-length subject) are:

1. **A Learning Module** in LearnJCU containing all learning materials required for the week or topic.
2. **An Orientation Page** in the module that explains that week's learning outcomes; what students need to do before, during and after class that week; and how the week's activities link to assessment items.
3. **High-quality, self-paced LearnJCU resources** covering the introductory content for the week. Students will be expected to work through these materials *before* attending the face-to-face classes for the week (**Prepare** phase). Staff will not re-teach this content during later sessions, but rather will build on it. Students can expect to spend around 2 hours per week on preparation.
4. **Timetabled participatory learning activities** (practicals, laboratories, field trips, tutorials, and/or workshops) focused on applying knowledge, practicing skills, investigating problems and working with peers and teaching staff (**Participate** phase).
5. **Timetabled lecturer-guided interactive review activities** focused on consolidating learning, revisiting key concepts, addressing misconceptions, reviewing feedback and connecting ideas across a topic (**Review** phase).
6. Self-directed study to complete and prepare for assessments, revisit challenging content, and prepare for the next week's learning cycle (**Review** phase).

In some subjects, steps 4 and 5 are best addressed in unique learning sessions—for example a field trip (Participate) and a workshop (Review). In other subjects, they are best addressed in the same session—for example, an extended workshop with learning activities progressing directly from Participate to Review. Students may therefore see multiple learning sessions on their timetable, or a single extended session that integrates both phases.

Most Level 1 subjects will also include three additional sessions over the course of the trimester. These sessions will be designed to cover some subject content while also helping students transition successfully into university learning, connect with peers, stay on track with preparatory work and assessments, build confidence, and develop the skills and strategies needed for success in the rest of their studies.

Frequently Asked Questions

Will I still have face-to-face classes?

Yes. Face-to-face learning remains a central part of CSE on-campus programs. Practical classes, laboratories, field trips, workshops and tutorials will continue. For continuing students, many of your subjects will continue in their current format through the remainder of your studies. In refreshed subjects that previously used lectures, new face-to-face sessions will be added. The refresh changes how introductory content is delivered, not the importance of in-person learning. Time previously spent in traditional lectures is instead used for interactive learning activities, application, discussion and feedback.

Will I still see my lecturer every week?

Yes. In both refreshed subjects and later-year subjects continuing in their current mode for 2027, students will continue to have regular contact with teaching staff. This includes through practicals, laboratories, tutorials, workshops and the new lecturer-led sessions focused on clarifying, connecting and consolidating learning. These sessions are designed to provide opportunities for discussion, feedback, clarification and deeper engagement with the subject.

Will my contact hours with teaching staff change?

The nature and distribution of contact may change under the refreshed model, depending on the subject. Some refreshed subjects will have fewer scheduled hours, some will have more, and others will have little or no change. The refresh is designed to increase opportunities for meaningful interaction with teaching staff, not reduce them. Time previously used for one-way content delivery is being redirected towards discussion, application, feedback and problem-solving activities involving staff and peers. In addition, all Level 1 students in 2027 will participate in regular lecturer-led review sessions, where they will work with teaching staff to consolidate learning, ask questions and receive feedback. These sessions are an additional opportunity for interaction with staff and peers and are a key part of the refreshed first-year experience. As a result, students should generally expect more active engagement with teaching staff during scheduled learning activities. For most continuing students in Level 2 and higher subjects, no changes to contact hours are expected until those subjects transition to the refreshed model.

Will practicals, laboratories and field trips continue?

Yes. Practical, laboratories and field trips remain a cornerstone of CSE programs and are not being removed by this refresh. These activities continue to provide opportunities for hands-on, experiential learning and professional skill development.

Will tutorials and practicals get bigger as a result of the refresh?

No. The refresh is not intended to change the size of tutorials or practical classes. As with any subject, class sizes will continue to be determined by enrolments, staffing and what is needed to support the learning outcomes.

Why not keep traditional lectures and recordings of them?

The goal of the refresh is not simply to make content available online. It is to change how scheduled learning time is used. Research suggests that students learn more effectively when foundational content is completed before class and face-to-face time is used for discussion, problem-solving, feedback and application of knowledge. Rather than recording long lectures, subjects will provide purpose-designed and interactive learning materials that students can engage with before class and revisit when needed. This also ensures all students receive an equally high-quality introduction to foundational content, regardless of campus, external commitments, accessibility needs or unexpected disruptions.

What if I prefer learning from live lectures?

We recognise that different students learn in different ways, with some students preferring live lectures. The refreshed model is designed to retain the benefits of learning in person with lecturers while changing how face-to-face time is used. The model preserves and expands the aspects of lectures that students consistently tell us they value most: interaction with teaching staff, opportunities to ask questions, discussion with peers, and support to work through difficult concepts. Rather than focusing scheduled class time on one-way content delivery via lectures, students will engage in interactive sessions that are designed specifically for interaction, discussion, feedback and applying concepts, supported by preparatory learning completed beforehand. Research suggests that these more active approaches support stronger learning outcomes than relying on one-way information delivery alone. For most continuing students enrolling in Level 2 and higher subjects, those subjects that currently include live lectures will retain them until the subject transitions to the refreshed model. We will continue to review student feedback as the refreshed curriculum is implemented.

Can I still ask questions in person?

Absolutely. Face-to-face sessions are specifically designed to create more opportunities for discussion, clarification and feedback. Students can ask questions during practicals, laboratories, tutorials, workshops and, for refreshed subjects, in lecture-led review sessions explicitly focused on clarifying, connecting and consolidating learning.

Will the amount of work increase?

The overall workload of a subject will not increase. It will continue to meet university policy that the total volume of learning for a 3-credit subject is 120 hours (including class time, self-directed preparation and study, and assessment-related activity). What changes is how that workload is distributed. Students will spend more time engaging with introductory material before class, allowing scheduled classes to focus on interaction and application.

What if I don't complete the preparation activities?

The preparation activities provide the foundation for the week's learning, which feeds into assessment. Lecturers will build on this foundational content during Participate and Review activities, focusing on the subset of content that students struggle with most, rather than re-teaching all that week's content. Students who complete the preparation activities will gain more value from the face-to-face learning sessions. For new undergraduate students in refreshed Level 1 subjects, teaching staff will introduce specific tools and techniques to help students stay on track with the preparation work.

What if I can't make it to a "Review" session?

This will depend on the purpose and design of the session within the subject. Subject coordinators will explain any attendance expectations and what alternatives are available if you are unable to attend. For example, there may be a recording of the session, a summary of the responses to student questions, an example problem that was discussed, or an interactive discussion board that you can contribute to in your own time. Review sessions are designed to be interactive, allowing students to ask questions, discuss concepts with teaching staff and peers, and apply their learning. While some supporting materials or follow-up resources may be provided, they are not intended to be a direct replacement for participating in the session. If the review session is integrated into another activity such as a practical class, there may be compulsory attendance requirements, and these will be clearly communicated.

Why are Level 1 subjects changing first?

The refresh begins in Level 1 so that students commencing their studies can become familiar with the learning approach from the beginning of their degree. The first year is also a critical transition period, and the refreshed model includes additional features designed to support students as they develop confidence, belonging, self-directed learning skills and effective study habits.

What happens if I repeat a Level 1 subject?

If you repeat a Level 1 subject after it has transitioned to the refreshed model, you should expect the subject to be delivered differently from your previous attempt. The learning outcomes and academic standards remain the same, but the learning activities, timetable structure and delivery approach may differ.

Will academic standards change?

No. The refresh changes how learning is delivered, not what students are expected to learn. Subject learning outcomes, academic standards and assessment requirements remain unchanged.

How will new first year students get to know their peers?

Building connections and a sense of belonging are an important part of the refreshed first-year experience. Most Level 1 subjects will include additional transition-focused sessions, and opportunities for peer interaction are already built into practical classes, workshops, tutorials and other collaborative learning activities throughout the trimester.

Is this just cost cutting?

No. The refresh is being driven by evidence about student learning, engagement, retention and success. The aim is to improve learning outcomes, flexibility, access, consistency and meaningful interaction, not to reduce opportunities for learning.

Why is this necessary?

The refresh responds to two realities. First, there is strong evidence that active learning and flipped learning approaches can improve engagement, learning outcomes and critical thinking in science, engineering, IT and veterinary education. Second, we are committed to ensuring all students have access to high-quality learning from JCU experts, including students who are not able to engage with all lectures at the scheduled time. In working to balance the needs of our diverse cohorts, we have also considered formal student feedback that face-to-face time is valued most when it is used for discussion, problem-solving, clarification and feedback. The refreshed model aims to align teaching practice with both the evidence and student needs.

How were students involved in developing the refreshed model?

The refreshed curriculum has been developed over an extended period through consultation with academic and professional staff, alongside ongoing feedback from students, as elements of the model have been progressively introduced across several subjects. Throughout this process, academic staff have gathered formal qualitative feedback through subject evaluations as well as informal feedback through discussions during teaching activities and with student members on Learning & Teaching committees. This feedback helped refine the design before its broader implementation. As the refreshed curriculum is introduced more widely, we will continue to gather and review student feedback through subject evaluations and other feedback mechanisms and use it to make ongoing improvements.

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