Pilot Completion Report Template

Report Category	Report Requirement
Overall Rating ***(Fully Delivered)***	
1. Summary	*Please give a summary of what your pilot delivered. With a focus on progress toward the original aims. (Circa 1000 words)*
Deliverables	*Please list your pilot's deliverables*
2. Relevance	*Has the pilot topic and its activities met the information/experience needs of the intended stakeholder groups? To what extent are the completed pilot outcomes still in line with the needs and priorities of the Flexible Learning Programme?*
3. Efficiency	*To what extent did the methods/approaches used in this pilot lead to improvements in efficiency (financial/staffing/resourcing etc)? What other approaches could be considered in light of the pilot - would these be more or less efficient?*
4. Effectiveness	*To what extent did the methods/approaches used in this pilot lead to improvements in effectiveness (learning/outcomes/experience/flexibility etc)? What other approaches could be considered in light of the pilot - would these be more or less effective?*
5. Outcome	*To what extent was the pilot able to meet/exceed its objectives? To what extent has the pilot led to improved outcomes or behaviours in the stakeholder groups? Were there any other unintended positive or negative outcomes from the pilot?*
6. Sustainability	*To what extent has the pilot identified the potential for its activity to lead to the long-term behaviour/operational change? What would need to happen to make these changes happen?*
Financial	*See separate report but use this space for any financial narrative that needs to accompany the report.*
7. Lessons Identified / Learned	*Please Consider enabler and inhibitors in the following areas:* • *Systems and process* • *Incentives and capacity* • *Policy and strategy* • *Student experience* • *Physical Estate* • *Culture*

8. Materials or publications	*Please list all the materials/publication against this evaluation report*
Report approval and comments	*To be completed by a delegated person agreed by the workstream governance group.*

Note that I have completed my report below this table, adhering to the required section headings.

Development of a dual delivery, accessible unit

1. Summary

BIOL10822 Drugs: From Molecules to Man is a large (600-student) first-year module taken by students from the Schools of Biological Sciences and Health Sciences. The unit introduces pharmacological theory, with a focus on cardiovascular disorders and their treatment, alongside the mathematical and chemical principles that underpin drug action.

The primary aims of this project were to deliver BIOL10822 in a dual format, allowing students to choose between a fully online or blended version and to ensure the unit met at least WCAG 2.2 Level A accessibility standards. We also hoped to develop shared teaching resources with other SBS year 1 units.

In this summary section I have referenced sections of this report where topics are dealt with in more detail, with the numbering following that of the report template.

Content structure and delivery

The course content was developed mainly in Articulate Rise and Storyline, with figures created mainly using the online BioRender drawing app. Each week, students studied the equivalent of two hours of lectures and completed one hour of Rise-based active learning. The active learning incorporated elements of gamification, scenario-based tasks and some used the branching features of Storyline to direct students to additional learning resources based on their performance in quizzes.

Online students accessed their lecture content through two Rise eLearning modules (ELMs 1 and 2), plus an additional Rise module containing the active learning. Blended students were given access to ELM 1 (shared with online students), attended a live lecture covering the ELM 2 material, and then completed the active learning during a timetabled, in-person session held 9–11 am each Friday. Attendance at these sessions was mandatory.

All students were also offered a choice of five Special Topics in Pharmacology (STIP) ELMs, from which they were required to complete at least two. If they chose to complete more, their best two marks were used.

Unit enrolment (Appendix 1)

In the first three weeks of the course, students were given access to both delivery formats to help them make an informed decision. They also received details about the assessment structure and the attendance expectations tied to the blended stream. Students were enrolled in the blended stream by default but could opt into the online

version via a Blackboard survey. After the selection deadline, access was restricted to the content for their chosen stream.

Notably, 70% of students chose the online stream. Week 3 survey responses indicated that key reasons included greater flexibility, a preference for prerecorded materials, and concern about meeting the attendance requirements of the blended stream. Those who selected the blended stream cited a preference for live lectures, a desire for fixed study times, and the opportunity to work alongside friends. Some students also cited disability-related support needs. Among DASS-registered students, those with neurodivergence were more likely than average to choose the online stream, while those with mental health challenges were less likely to do so.

Overseas students were less likely to choose the online stream. This may be due to concerns about meeting attendance requirements for Tier 4 visas.

Unit assessment (Section 2.2)

Assessment was divided into 70% in-person MCQ examination and 30% coursework:

- Weekly MCQs (5%)
- Weekly active learning exercises (20%)
- End-of-unit online STIP assessments (5%)

Weekly tasks were marked pass/fail, with full marks awarded to students who met the criteria. Unlimited attempts were permitted until the deadline. The same assessments were used across both streams, but students in the blended stream were required to initially attempt the active learning exercises during the in-person sessions.

Student feedback (Sections 2.1, 2.3)

Evaluation was carried out via focus groups (n=14), two Qualtrics surveys (n=73 and n=62), Mentimeter polls (n=54), and the University Unit Evaluation Questionnaire (UUEQ, n=69). Feedback was overwhelmingly positive. UUEQ scores improved compared to previous years and were the highest among similarly sized first-year SBS units.

Students praised the flexibility of the course, the variety of active learning tasks, and the availability of text-based content. However, some found the unit content-heavy and indicated that certain active learning tasks could benefit from more explanation.

Unit accessibility (Sections 2.1, 2.2.3, 3.1, 3.2, 4.4, 5.2)

A key project aim was to meet WCAG 2.2 Level A accessibility standards, and this goal has been met, with substantial progress towards Level AA. The Rise content was built using a “text-first” approach, meaning each module’s core information was first written as text, which then served as a script for accompanying videos.

This approach was widely appreciated. End-of-unit surveys showed over 50% of students preferred using the text versions as their primary study material, while 25% used video and 25% used a mix of both.

Active learning tasks were made accessible through keyboard- and screen reader–friendly versions where necessary. Alt text, extended figure descriptions, and video captions were created by Student Partner Accessibility Interns. These were third-year SBS students who had previously taken BIOL10822 and completed the W3C Introduction to Web Accessibility course. Six were recruited, with four remaining active for the duration of the project.

AI tools played a key role in enhancing accessibility. ChatGPT-4o was used to refine image descriptions and adjust visual contrast, while systematic AI-based approaches were developed to improve the accessibility of mathematical and chemical content.

To support future content creators, a "Tips, Tricks and Traps" Rise module was produced, outlining the accessibility techniques used in the unit.

Development of shared teaching resources (Section 5.4)

An original goal of the project was to co-develop teaching materials with other SBS coordinators to harmonise overlapping curriculum areas. However, due to workload constraints, these collaborations did not progress. As a result, the project pivoted to focus on developing a repository of unit content to be shared via Canvas Commons.

Deliverables:

- A dual delivery year 1 pharmacology unit: BIOL10822 Drugs: From Molecules to Man
- That BIOL10822 meet the WCAG 2.2. Level A criteria.
- An accessibility training resource for future student partners and academic staff
- A repository of images and active learning resources that can be shared with other staff in FBMH

2. Relevance

BIOL10822 has delivered outcomes strongly aligned with the priorities and principles of the University's flexible learning strategy:

2.1 Greater accessibility and inclusivity

2.1.1 Offering students the choice of studying in a blended or online format strongly enhances accessibility and inclusivity.

Allowing students to choose between a blended or online format significantly improves accessibility. Many neurodivergent students experience challenges in large lecture theatres, and this was reflected in BIOL10822: 82% of neurodivergent students selected the online option (Appendix 1). The online format also supports students from disadvantaged backgrounds who balance study with part-time work, have caring responsibilities, or face long commutes. These factors were frequently cited in survey feedback:

- ***"I think the online structure allowing you to do it whenever before the deadline was great as it allowed me to balance it around my work"***
- ***"Dr Prince has made it flexible and as a commuter student it is so helpful"***
- ***"Flexible for students with other priorities, the move to coursework is also very helpful; this eases the pressure of the exam. I hope to see more coursework incorporated in future units."***
- ***"Can plan my own time to do the work (can do it earlier and balance my study and leisure life better) instead of waiting until the lecture day to do the work"***
- ***"I chose the online version as I commute to uni and with so many other 9am I wanted a day where I don't need to wake up at 5:30am to get to uni. As I leave so early in the mornings I'm usually not very productive at uni and fall asleep during lectures. Additionally online version saves me time in having to rewatch lectures."***
- ***"I'm living quite far away from campus. It would be easier and more fl exible for me to do the work at home."***
- ***"my part time job is inconsistent and it's much easier for me if i can work in my own time and i find lectures too noisy to focus, especially when lectures are just mostly other students chatting rather than focusing on taking notes"***
- ***"I am finding the flexibility of the online content really helpful. It helps with scheduling around other modules. It is more accessible for me (for DASS related reasons) because I now do not need to be on campus on a Friday and can work from home. I know that a lot of my course mates really appreciated having the choice of how to take the course"***

Other students stated that the more structured timetable of the blended course was beneficial for motivation and time-management:

- ***"Having a more rigid structure and face-to-face lectures helps me engage more with material and keep on top of deadlines."***
- ***"I thought I would be too disorganised to work independently if I chose the online one"***
- ***"I prefer that tasks be time-bound so it does not pile up"***
- ***"More motivation to do the work when present in lectures and having a fixed time"***

2.1.2 Our assessment policies enhance unit accessibility

Students studying the online course had complete flexibility over when the completed assessments, providing they met deadline. By contrast, students studying the blended course were required to complete assessments in the face-to-face active learning sessions, which aligns with the preference of some students for tasks to be more rigidly timetabled.

To support all students, we allowed up to two of the nine summative assessments to be missed without mitigation. Students could also remediate a further two missed assessments by completing a revision task at the end of the unit. Additional mitigation was available via formal application. Student feedback showed strong approval: 81% valued the flexibility, 92% found the assessments fair, 89% felt they kept them on track, and 94% believed the format would help them achieve a high mark.

2.1.3 Self-auditing of unit material indicates that we have achieved our aim of Level A accessibility conformance (WCAG 2.2).

A self-audit of unit content indicates we met our target of Level A conformance with WCAG 2.2. For example:

- A text-based media alternative was provided for all video content
- All content was keyboard operable
- Videos included captions
- Alternative formats were available for active learning exercises

A notable example is the BioRender training module. BioRender is not accessible to keyboard users or screen readers, so we piloted an alternative keyboard-operable task using PowerPoint with Servier Medical Art. We also developed a tactile illustration activity for blind or low vision students, allowing them to engage with the visual learning content.

2.1.4 Students perceive BIOL10822 to be accessible.

Although we did not ask disabled students directly, we gauged perceptions of accessibility across the cohort. Students were asked to rate their agreement with the following statements: *"BIOL10822 is accessible for people with disabilities"* and *"On BIOL10822, people care about disability."* The median response for both statements was 5 (*Strongly agree*), with no students disagreeing. In the next academic year, we plan to refine our question design (ethical approval in place) to differentiate responses from disabled and non-disabled students.

2.1.5 Dissemination of accessibility practice

We created and distributed a **"Accessibility: Tips, Tricks and Traps"** guide for content authors in the School of Biological Sciences. This resource brings together the accessibility techniques developed during the BIOL10822 project and has the potential to raise standards more widely across other units.

2.2 Improved student success

2.2.1 Unit marks have increased

To reduce reliance on high-stakes assessment and support deeper learning, 20% of the unit mark was awarded for completion of active learning exercises, marked on a pass–fail basis. This approach led to a 14% increase in the average unit mark compared to the 2024 cohort, and an 8% increase relative to other Year 1 SBS lecture units. The correlation between BIOL10822 marks and overall GPA remained strong ($r^2 = 0.66$), indicating the assessment maintained its discriminatory power. Importantly, there was no significant difference in overall outcomes between students in the online and blended streams.

Although the overall unit mark increase can be partly attributed to the heavier coursework weighting of the unit, the average examination mark improved by 7% compared to the 2025 cohort and the unit improved its ranking relative to the examination marks of comparable SBS units. In 2024 it ranked 8th out of 8 units. In 2025, it ranked 4th.

2.2.2 Authentic assessment.

Several active learning exercises incorporated tools widely used in biological sciences research, providing students with early exposure to relevant software. In particular, students had the opportunity to use GraphPad Prism for statistical analysis and BioRender to produce biological illustrations—both of which are routinely used in research environments. These activities allowed students to develop communication and data analysis skills through the generation of authentic outputs, rather than abstract exercises.

2.2.3 Positive outcomes for the interns

The Accessibility Interns completed the W3C Introduction to Web Accessibility course, supported by funding from this FLP project, and received official completion certificates. This experience is expected to enhance their employability, particularly in roles involving digital education, accessibility, or science communication.

Of the four interns who contributed to the main project phase, three were final-year students and one was a placement student. All final-year interns achieved first-class degrees, and one received a University Outstanding Achievement Award as the second-ranked student in the School. These outcomes suggest that involvement in the project did not adversely affect academic performance—and may even have contributed positively to skill development and motivation.

2.3 Improved student experience

2.3.1 Excellent student feedback

BIOL10822 was highly rated by students, with the highest overall score on the University Unit Evaluation Questionnaire (UUEQ) of the eight large SBS Year 1 lecture units.

	Excellence	Organisation	Feedback	Assessments†	Supporting materials†	Staff approachable†	Mean
BIOL10822	4.26	4.33	3.99	4.2	4.43	4.77	4.33
BIOL10232	4.12	4.44	3.91	4.18	4.38	4.38	4.24
BIOL10832	3.87	4.3	3.73	4.4	4.37	4.57	4.21
BIOL10221	4	4.17	3.67	4.05	3.95	4.26	4.02
BIOL10521	3.86	4.04	3.58	4.16	3.95	4.25	3.97
BIOL10811	3.93	4.11	3.53	4.13	4.04	3.85	3.93
BIOL10532	3.5	4.05	3.71	4.18	3.85	4.2	3.92
BIOL10212	3.45	3.68	3.55	3.9	4.06	4.1	3.79
BIOL10822 2324	3.81	4.14	3.75	N/A	4.05*	N/A	
BIOL10822 2223	3.59	4.16	3.47	N/A	3.96*	N/A	

†School specific questions were: “The assessment activities are well designed and clearly explained”; “The supporting materials for this unit have helped my learning”; “Teaching staff were friendly and approachable” *in 2022-2024 the School specific questions were different. The scores given here for supporting materials are from a question specifically about eLearning materials

2.3.2 Students felt well supported

It was encouraging to see high scores for staff approachability in the UUEQ, reflecting the multiple support mechanisms we put in place. Alongside a monitored Padlet discussion board and prompt responses to email queries, I made myself available for informal support during the blended stream's active learning sessions. I was particularly mindful that online students—or those uncomfortable seeking help in large lecture theatres—might have fewer opportunities to ask questions. To address this, I scheduled eight online drop-in sessions and offered bookable one-to-one appointments. However, uptake of these online support sessions was relatively low.

To explore this further, I conducted a survey toward the end of the unit. Students were asked to rate their agreement with the statement: *"I was able to access help when needed"* on a 5-point Likert scale. The median response was 5 (Strongly agree) for both the online and blended streams, indicating a high overall level of satisfaction.

However, a Mann–Whitney U test revealed a statistically significant difference in distributions, suggesting that a subset of students in the online stream felt less able to access help. This is an area we will address in future iterations of the unit, with the aim of improving the accessibility and visibility of academic support for online learners.

2.3.3 A good sense of learning community

One of my main concerns in delivering a fully online unit was the risk that students might feel isolated. To explore this, the end-of-unit survey asked students to rate their agreement with the statement: "I felt like part of a learning community." The median response was 4 (Agree), with no significant difference between the blended and online streams.

Students who chose the blended option often cited a preference for working with friends in class as a key factor in their decision. However, focus group feedback revealed that students enrolled in the online stream also formed peer connections—for example, collaborating on active learning exercises following tutorial sessions.

These findings suggest that a strong sense of learning community can emerge even outside of timetabled sessions, particularly when students are given opportunities to engage with each other through collaborative or flexible activities.

2.4 Improved staff experience

Before embarking on this project, I was experiencing burnout and seriously considering early retirement. However, the increased interaction with students during the active learning sessions has completely transformed my perspective. I cannot recall another year in my career when I've enjoyed my teaching as much. This experience has also significantly developed my skills in accessible pedagogy and digital literacy more

broadly. Importantly, despite initial concerns, the administrative burden of delivering two parallel streams was relatively low once the initial Blackboard setup was complete.

3. Efficiency

3.1 Leveraging AI to enhance accessibility

A key aim of this project was to embed accessibility deeply into the design and delivery of BIOL10822. To support this, we recruited Accessibility Interns through the Student Partnership scheme. The four interns who made sustained contributions had previously taken the unit, giving them strong contextual knowledge. They also completed the W3C Web Accessibility Foundations course, funded by this project.

The interns were initially tasked with generating alt text, extended figure descriptions, and correcting video captions. They also conducted basic accessibility audits, identifying issues such as illogical focus order, poor heading structure, and low-contrast imagery. Their work was highly valuable during the early phases of the project.

However, as the project progressed, it became clear that emerging technologies—particularly AI tools—could streamline many of these tasks. This has important implications for future accessibility initiatives.

3.1.1 Improved video captioning

The University's deployment of OpenAI Whisper speech-to-text software on the University Video Server marked a step-change in captioning accuracy. Whisper consistently delivered high-quality transcripts, even for content rich in technical language, such as the pharmacological material in BIOL10822.

In parallel, the University's adoption of Canvas Studio introduced a more flexible and user-friendly method for embedding and editing videos. Canvas Studio includes a built-in caption editor, allowing minor corrections to be made directly in the platform—eliminating the need for offline editing.

The current optimal workflow is:

1. Upload the video to the University Video Server to generate captions using Whisper.
2. Export the captions in VTT format
3. Convert the captions to SRT format using an online converter. I have tried various converters and found only one that works: https://www.happyscribe.com/subtitle-tools/subtitle-converter
4. Upload the SRT file and video to Canvas Studio.

5. Make any final edits using the Studio caption editor.
6. Deploy the video using the embedded Studio video player

This approach delivers highly accurate, fully editable captions with minimal manual effort, effectively replacing the need for interns to perform this task. Note that step 3 is essential, because although Studio allows upload of captions in the VTT format used by the University Video Server, it does not allow them to be subsequently edited.

3.1.2 AI-assisted image descriptions

We also found that recent generative AI models—particularly ChatGPT-4o and Microsoft Copilot—can produce accurate, detailed descriptions of technical images, especially when supported with a scaffolded prompt (e.g. a draft description or key features to highlight). In many cases, the output was equivalent to or better than descriptions written by interns.

This method has proven especially effective for complex illustrations in fields such as pharmacology and biochemistry, where clear and structured descriptions are essential for screen reader users.

3.1.3 Screen reader optimization of chemistry and maths content

Another valuable application of AI was in converting chemical names and equations into screen reader–friendly formats. For example, screen readers often ignore punctuation such as dashes or brackets, which can drastically alter the meaning of IUPAC names.

Interns were initially asked to reformat such names manually, but we discovered that AI could perform this task with excellent accuracy. For instance, prompting ChatGPT with:

“Please reformat this IUPAC name so it will be read correctly by a screen reader: N-methyl-3-phenyl-3-[4-(trifluoromethyl)phenoxy]propan-1-amine.”

produced:

“N dash methyl, three dash phenyl, three dash open square bracket, four dash open round bracket, tri fluoro methyl, close round bracket, phenoxy, close square bracket, propan dash one dash amine.”

This output is optimised for screen reader parsing and is generated instantly, reducing manual workload while improving accuracy.

3.1.4 Future roles of Accessibility Interns

As AI tools continue to improve, we anticipate that their role in generating image descriptions, alt text, and high-quality captions will grow—requiring less scaffolding

and oversight over time. Consequently, the focus of future Accessibility Interns (should funding permit their continuation) should shift toward higher-level tasks, such as:

- Detailed accessibility auditing
- Identifying systemic usability barriers
- Supporting staff in inclusive content design

3.2 A text first approach

As part of this project, we adopted a text-first approach to content creation. This involved drafting a complete text version of each lesson before any media was produced. The text included not only the core content, but also embedded images, descriptions of planned Storyline animations, and all required accessibility enhancements such as extended image descriptions.

Once the text version was finalised, it served as the script for video production. To streamline this process, the text was written in a conversational tone that would translate naturally to spoken narration. This method brought several key efficiencies:

- The text version functions as a full media alternative for the video content, supporting WCAG 2.2 Level A compliance.
- The use of a pre-written script accelerated video creation and reduced rework.
- The text version provided a reliable reference for checking and correcting captions, ensuring accuracy and consistency across formats.

These strategies—along with those described in Sections 3.1 to 3.3—are detailed in our Web Accessibility Tips, Tricks and Traps guide: https://rise.articulate.com/share/f0NkSfZseJ4yu2oWXhH0Dtv8fQ9sucNC#/lessons/hMte5HbLFhdItnpmdAmbbQhFvEB8pfys

3.3 Facilitating timetabling agility

Resource efficiency should never be the primary motivation for adopting online or blended learning and we were careful to ensure that the blended delivery of BIOL10822 maintained the same level of contact time as traditional Year 1 SBS lecture units—two hours per week.

Historically, the large size of the cohort (approximately 600 students) meant that BIOL10822 could only be timetabled in the largest available lecture theatre, University Place B – sometimes with overflow theatres also needed. However, the significant uptake of the online stream has changed this landscape. If we assume a typical

enrolment of around 200 students in the blended version (179 in 2025), up to 18 lecture theatres would now be suitable for timetabling the unit.

These logistical efficiencies—while secondary to pedagogical goals—could ease scheduling pressures. From a pedagogical perspective this could also be beneficial as it may allow timetabling in spaces more suitable for active learning. However, they can only be reliably factored into planning once enrolment patterns stabilise over successive years and the balance between streams becomes more predictable.

4. Effectiveness

4.1 Supporting students through dual delivery

To the best of my knowledge, BIOL10822 is the only undergraduate unit at the University of Manchester that offers students a true choice between fully online and blended delivery. While the UCIL unit *Language, Mind and Brain* is available as a 20-credit face-to-face unit in Semester 1 and a 10-credit online version in Semester 2, this is a sequential offering rather than a parallel, student-selected delivery model. As such, BIOL10822 represents a significant milestone in the University's progress toward more flexible study options—options that students can better integrate with part-time employment, caring responsibilities, or long-distance commuting. The value placed on this flexibility was evident in survey data, where it was cited as the most important reason for selecting the online stream (see Section 2.1.1). This was echoed in free-text comments praising the ability to study on one's own schedule.

At the same time, a substantial minority of students reported that they actively preferred the more structured format of the blended stream. These students highlighted the importance of having fixed times to engage with content, noting that it helped them manage procrastination and stay on track with deadlines (see Section 2.1.1).

Ultimately, the effectiveness of this unit lies not solely in its flexibility, but in the **choice** that dual delivery affords. For some students, flexibility enables autonomy and better work–life balance. For others, particularly those who struggle with time management or self-organisation, structure is more beneficial. By offering both, BIOL10822 meets the needs of a broader range of learners—and does so in a way that empowers them to choose the environment that best supports their success.

4.2 Positive student feedback

As detailed in 2.3.1, the UUEQ scores for BIOL10822 have increased markedly from previous years and the unit achieved the highest overall rating of the 8 SBS large lecture units.

4.3 High student engagement

The introduction of the SEAtS system has in general, improved student engagement with lectures. However, attendance is still somewhat lower than might be hoped, with the large SBS semester 2 units BIOL10212, BIOL10232, BIOL10532 and BIOL10832 having mean weekly attendances of 44-72%. By contrast, the blended stream of BIOL10822 had a mean attendance of 81%, with very little variation across the

semester. Attendance at active learning sessions for students on the blended stream was necessary to obtain the marks for those exercises, and this provides the most likely explanation of the improvement in engagement observed with this stream.

4.4 Leveraging the advantages of accessible design

Although the text-first authoring strategy was initially adopted to streamline video production and improve accessibility—particularly for students with visual impairments—it delivered clear benefits for the broader student cohort.

Survey data showed that 77% of students used the text version of the content, with 57% identifying it as their primary study medium. In addition, 61% of students reported using at least some accessibility features, such as extended image descriptions, video captions, and keyboard-navigable active learning activities.

These findings were reinforced by free-text responses to the UUEQ item *"What was good about this unit"*, which highlighted the value students placed on accessible and flexible content formats:

- *"Multiple ways of accessing the content, detailed explanations and diagrams."*
- *"I really like the text version vs videos."*
- *"The options to watch videos or read the text."*
- *"The E-learning modules had the option to watch lecture-like videos or gain all the same information from text."*

These comments illustrate that accessible design choices can enhance engagement and learning for all students—not just those with formally recognised support needs. In this case, the accessible approach not only improved inclusivity but also aligned with broader principles of **universal design for learning (UDL)**.

5. Outcomes

The objectives of this unit have been fully met, and I have described below the outcomes for each of the main deliverables for the project.

5.1 Development of BIOL10822 in a dual delivery (blended and online) format

The unit ran successfully in 2025 and was well received by students (Section 2.3.1). There were no significant differences in unit mark between students taking the two versions, and the unit mark was approximately 8% higher than that in comparable units (Section 2.2.1) with excellent student engagement (Section 4.3). The success of the unit resulted in a School level Outstanding Achievement Award for Innovative Teaching.

5.2 BIOL10822 to meet the WCAG 2.2 Level A criteria

Self-auditing of the unit content indicates that we have successfully met WCAG 2.2 Level A conformance across all materials. In addition, we have made significant progress toward Level AA and work in this area, particularly ensuring that all figures are contrast compliant, will continue.

However, a small number of Level AA criteria are likely to remain unfulfilled, due to feasibility constraints. For example, **Success Criterion 1.2.5** requires synchronised audio descriptions for prerecorded video content. In the context of this unit, the effort required to produce synchronised audio descriptions for all videos would constitute a disproportionate burden, particularly given:

- the very limited number of students likely to benefit from this enhancement, and
- the absence of any current learners who require this level of support.

5.3 Development of a staff and student web accessibility training package

Our Web Accessibility Tips, Tricks and Traps guide:
https://rise.articulate.com/share/f0NkSfZseJ4yu2oWXhH0Dtv8fQ9sucNC#/lessons/hMte5HbLFhdItnpmdAmbbQhFvEB8pfys

has been shared with all staff in SBS, learning technology staff in DASS and colleagues in FES. Feedback so far has been positive.

5.4 Shared unit resources with other SBS units

The original intention for this strand of the project was to co-create content with other SBS unit coordinators, particularly in areas where subject matter overlaps between modules. The goal was to promote curriculum alignment and content harmonisation across the School. However, it quickly became clear that the ongoing transition to Canvas created significant reluctance among staff to revise existing materials, particularly where this added to their workload.

In response, I refocused this aim toward creating a reusable repository of images and active learning exercises that colleagues could access and adapt. This resource will consist of PowerPoint files containing both labelled and unlabelled versions of figures used in BIOL10822, and will be made available via Canvas Commons. Most of the illustrations were created using the BioRender biological illustration app. With SBS recently securing a site licence for BioRender, I am now able to share source files with any staff who wish to customise or incorporate these visuals into their own units.

Some cross-programme adoption of BIOL10822 content has already occurred:

- Material from two BIOL10822 eLearning modules has been repurposed for use in BIOL10832 Excitable Cells, which I also coordinate.
- Three BIOL10822 modules have been adopted by Year 1 of the Manchester Medical Programme.
- The BioRender active learning exercise developed by my final year project student, Eve Kenna, is currently under review for inclusion in several FBMH programmes.
- I designed my teaching of maths and chemistry content to align with, and reference, material students encountered in other units.

A further outcome of developing this image repository has been a renewed focus on student-led resource creation. In particular, requests from students for unlabelled versions of figures have prompted me to ensure these are made available. Unlabelled images are especially useful for creating flashcards and other revision tools, aligning well with the way many students engage with unit materials beyond formal teaching.

6. Sustainability

6.1 The future of BIOL10822

In 2024/25, the blended and online versions of BIOL10822 were delivered within a single Blackboard course space. While this approach supported unified content management, it also introduced logistical challenges. Specifically, the use of adaptive release rules to differentiate access between streams added a layer of administrative overhead and complexity.

To address these issues, the 2025/26 delivery will adopt a split-stream model in Canvas, with separate course spaces and distinct unit codes:

- BIOL10822 (blended)
- BIOL11822 (online)

This separation will streamline content management and improve the student experience by tailoring each space to its delivery mode.

Looking further ahead, I plan to explore the feasibility of offering BIOL11822 in Semester 1. This would expand timetable flexibility but would require adjustments to the current content, as it is built on a “strongly recommended” prerequisite—BIOL10811 Body Systems—which also runs in Semester 1.

I also intend to examine the potential for a bespoke version of BIOL10822/11822 for Cognitive Neuroscience and Psychology students from the School of Health Sciences. While BIOL10822 is currently a compulsory unit for this cohort, its cardiovascular focus is not closely aligned with their programme’s neuroscience emphasis. A more tailored version could better support these students’ academic and professional goals.

6.2 Transferring the lessons and methods from BIOL10822 to other SBS units

Student survey responses indicated some ambivalence about whether other large Year 1 units in SBS should adopt a dual delivery model. This suggests that a diverse teaching portfolio—comprising traditional lectures, blended learning, and fully online units—may better serve the varied preferences and needs of the student cohort.

However, the SBS Teaching Board has approved the adoption of a blended delivery format for my two other units:

- BIOL10832 Excitable Cells
- BIOL21312 Drugs and the Brain

Both units already incorporate some legacy online content from the pandemic period and are well positioned for a pedagogical refresh. While there are currently no immediate plans to offer fully online versions of these units, the development of a robust blended stream would provide a solid foundation should this be considered in the future.

6.3 Transfer of unit outputs to other FBMH units

Some content developed for BIOL10822 has already been adopted in several other contexts across FBMH, with further potential for wider integration over the coming year.

- Three eLearning modules from BIOL10822 have been rebranded and repurposed for use in Year 1 of the medical programme.
- Selected active learning exercises have been incorporated into medical team-based learning sessions.
- There is strong interest in the BioRender training module developed for BIOL10822 by my SBS final year project student Eve Kenna. This resource is currently being considered for use in:
    - the medical course
    - PGT programmes across FBMH
    - the SBS tutorial unit

7. Lessons learned

7.1 Systems and processes

7.1.1 Dual authoring approach

For this project, I developed both the blended and online versions of BIOL10822 simultaneously. This "big bang" approach was essential to ensure students had a meaningful choice between streams from the outset—a core aim of the project. However, for other units considering dual delivery, a stepwise model may be more manageable.

Step 1: Transition from a traditional two-lecture-per-week model to a blended format, comprising one hour of eLearning, one hour of live lecture, and one hour of active learning.

Step 2: Develop additional eLearning materials to replace the remaining lecture, enabling a fully online version to run in parallel.

While this approach still requires front-loaded effort—particularly for developing active learning—it spreads the workload more sustainably than simultaneous development.

7.2 Incentives and capacity

7.2.1 IT equipment for Teaching and Scholarship (T&S)) staff

Many academic staff engaged in digital development are on Teaching and Scholarship contracts and lack access to high-specification equipment. Currently, IT Services provides only a single, low-specification laptop, which is insufficient for tasks such as video editing or interactive content creation. Upgrades often require personal grant or divisional funding, which is inconsistent and inequitable.

In my own case, I purchased a high-spec graphics workstation with personal funds to complete this project. To support innovation in teaching, I recommend a policy change whereby centrally managed funding is made available for T&S staff who require enhanced hardware for pedagogical development.

7.2.2 Device testing for cross platform compatibility

Our students overwhelmingly use Apple devices, with many relying on MacBooks or bringing iPads to lectures. While Articulate Rise and Storyline are marketed as cross-platform, in practice, device compatibility issues persist. Ideally, all content should be tested on:

- a Windows 11 laptop
- a MacBook
- an iPad

I was fortunate that my Head of Division recently approved an upgrade to a MacBook Pro – it is the end of the financial year! However, I chose to personally purchase an iPad and keyboard after growing frustrated with supporting students based on second-hand reports. To avoid similar situations for colleagues, I recommend establishing a **device library** within each Faculty, allowing staff to borrow equipment for testing and troubleshooting.

7.2.3 Recognition of digital teaching in workload models

Many academic staff are already stretched thin by the transition to Canvas. To make meaningful progress in flexible and digital learning, greater recognition must be given to these efforts in workload allocation models. At present, there is little incentive for staff to invest significant time in innovation, particularly in projects that span technical development, accessibility, and pedagogy. Recognising these contributions formally would help to build capacity and sustain momentum in future curriculum development.

7.2.4 Better transcription software for Canvas Studio

The University Video Server was upgraded at the beginning of academic year 24/25 to use Whisper AI transcription. This service is vastly better than the transcription software used by Canvas Studio. On the other hand, Canvas Studio has much better caption editing facilities (the Video Server has none!). At present, it is possible to use a hybrid approach (Section 3.1.1) that leverages the advantages of both systems. However, staff are being encouraged to move away from the Video Server from September 2025, and it seems likely that future use of this system will be limited to lecture capture recordings. Going forward, we urgently need to implement Whisper transcription in Canvas. If this is not possible, the option for staff to upload videos to the Video Server for transcription must be retained.

7.3 Policy and strategy

7.3.1 Accessibility Compliance and Institutional Support

As outlined in our *Web Accessibility: Tips, Tricks and Traps* guide, the software tools available to University of Manchester staff—including Canvas, Articulate Rise, and SoftChalk—do not, on their own, support full compliance with WCAG 2.2 Level AA. While workarounds exist for some of the more common issues, these are often complex, undocumented, or poorly understood by content authors.

By contrast, US institutions—where enforcement of digital accessibility legislation tends to be stricter—have developed more robust support infrastructures. For example, the University of Chicago maintains a dedicated Center for Digital Accessibility, offering guidance, resources, and direct support to staff:

This is an area where the University of Manchester has room to improve. As a UK institution, we are held to the same public sector accessibility regulations, and if we hope to commercialise digital teaching materials or share content with international partners, Level AA conformance may become a critical factor

There is a clear opportunity to strengthen institutional policy and infrastructure, potentially through:

- the creation of a centralised digital accessibility service
- expanded training and documentation for content authors
- improved integration of accessibility checks into course development workflows

Without such measures, there is a risk that accessibility will remain unevenly implemented—relying on the individual efforts of enthusiastic staff and patchy advice on StaffNet— rather than embedded in institutional practice. Other UK universities are already moving in this direction. UCL has centralised Digital Accessibility Services while Leeds has Digital Accessibility at Leeds.

7.4 Student experience

7.4.1 Rethinking the role of video in online learning

Traditionally, prerecorded video has been regarded as the most natural substitute for a live lecture. However, experience from this project has shown that a significant proportion of students prefer text-based content, both for ease of access and for flexibility in how they engage with the material.

On the grounds of accessibility and student experience, there is a strong case for **making comprehensive text alternatives mandatory**, rather than an optional or secondary format.

7.5 Physical estate

7.5.1 Ensuring device access in digitally enhanced teaching spaces.

If we are to fully embrace digital learning—even within face-to-face environments such as active learning sessions—we must ensure that all students have reliable access to suitable devices.

While the University's Digital Equity Fund provides subsidies for students from disadvantaged backgrounds to purchase laptops, and short-term device loans are available via the Learning Commons and University Library, these measures do not address short-term access gaps. For example, students may be temporarily without a functioning device due to theft, malfunction, or repair delays.

In this project, I was able to offer affected students the flexibility to complete active learning exercises outside of class time. However, this meant they were unable to fully participate in interactive elements during the timetabled sessions. To support inclusive participation, I recommend that large lecture theatres and seminar rooms be equipped with a **small number of built-in PC workstations that can be pre-booked by students** for use during teaching sessions.

7.5.2 Expanding campus studio capacity

Much of the video content for this unit was recorded in my home office, as my on-campus workspace was too noisy for high-quality audio recording. Booking time in the SBS eLearning podcast studios was not a viable option given the volume of material and limited availability of studio space.

To support digital content creation at scale—particularly as more units explore online and blended delivery—the University should consider investing in additional sound-treated recording studios, ideally located across multiple Faculties. This would not only ease logistical pressure but also improve the quality and consistency of digital learning materials produced across the institution.

7.6 Culture

If the University is to successfully implement flexible online learning, it must also fully embrace accessibility as a foundational principle rather than a retrofit. As a public sector body, the University is legally required to meet WCAG 2.2 Level AA standards—and yet much of our existing online teaching content falls short of this benchmark.

I've remarked, only half in jest, that **FBMH is one blind student away from disaster.** The truth behind that statement is sobering: across the Faculty—and likely across the University—we are not yet prepared to meet the needs of all students in an inclusive and compliant way. This is not just a risk to individual learning but to the University's ability to fulfil its legal obligations under the Public Sector Bodies (Websites and Mobile Applications) Accessibility Regulations.

It's also important to recognise that although WCAG 2.2 is targeted at web content, it has become the *de facto* standard for all digital materials—including PDFs, PowerPoint slides, and Word documents. This means the expectations of accessibility extend beyond eLearning platforms and apply equally to the resources underpinning traditional face-to-face teaching.

What is urgently needed is a cultural shift in how teaching materials are designed. Accessibility must be embedded from the start—**a 'shift-left' approach** in which inclusive design is seen not as an optional add-on but as an essential feature of high-quality education. Only by embedding accessibility into our core academic practice can we meet both our legal responsibilities and our moral duty to support all learners.

8. Materials and publications

I have provided below links to sample course materials comprising the content from weeks 2 and 3 of the unit, three active learning blocks and a link to the Web Accessibility: Tips, Tricks and Traps guide. I've left the 24/25 version of the Padlet discussion board embedded in the e-learning modules, to give a flavour of how students interacted with me during the semester.

Week 2

Receptors 101 E-Learning Module 1

Receptors 101 E-Learning Module 2

Week 3

Ion Channels 101 E-Learning Module 1

Ion Channels 101 E-Learning 2

Sample active learning material

The drug targets active learning draws on material from both weeks 2 and 3 of the course. I have also provided the active learning from week 6 (Stereochemistry). Both feature blind/low vision adapted versions of exercises that would otherwise be inaccessible to screen reader users.

Drug targets active learning

Stereochemistry active learning

The clinical trial data analysis exercise is from week 5 of the course. It involves students generating data for a hair restorer (check out what I would look like with long, blond hair!) and interpreting log and linear scale plots of the data. This exercise is highly visual, so I have produced an alternative version for blind/low vision students which is available to all students who would benefit from it.

Clinical trial data analysis active learning

Clinical trial: screen reader accessible version

Training guide

Web accessibility: Tips, tricks and traps Rise module

Appendix 1. Unit demographics

The following table was populated using a combination of data from the unit Blackboard site, information supplied by DASS as part of students' support plans and demographic data held by SBS on students registered in the School. Note that the SBS specific data does not include students from the School of Health Sciences studying B.Sc. Cognitive Neuroscience and Psychology, nor students on exchange programmes.

Student group (number)	Percentage selecting the online unit
Overall (594)	70
Home students (357)*	72
Overseas students (184)*	58
DASS registered (73) DASS – Specific Learning Difficulty (15) DASS – Neurodivergent (ASC/ADHD) (17) DASS – Mental health (28)	63 73 82 54
Manchester access programme (9)*	67
Second year students repeating unit*	83

*Data derived from SBS students only

Appendix 2. Draft Accessibility Statement: BIOL10822/BIOL11822 Drugs: From Molecules to Man

Conformance at Level A

I have aimed to bring unit content to a minimum conformance standard **of Level A based on the WCAG 2.2 criteria**. This means you can expect the following features to be in place for all core unit content:

- All core-content videos include fully corrected captions
- All core content is keyboard-navigable, or an accessible alternative is provided
- All non-text content has a meaningful text alternative
- Information is never conveyed by colour alone
- Content is structured using properly tagged headings and presented in a logical reading order
- No content is included that could trigger seizures (e.g. flashing more than three times in one second)
- Weblinks are written to clearly convey their purpose, even when read out of context

Conformance at Level AA

The University strives for all content to conform to WCAG 2.2 Level AA wherever possible. This unit meets Level AA in many areas; however, it is **not fully compliant** in all respects. The following Level AA success criteria are met throughout the unit:

- Good contrast across all text and image content
- Consistent and predictable navigation
- Reasonably sized clickable elements (e.g. buttons)
- Clear and logical use of headings for structure and navigation
- Multiple ways to navigate the content, including menus, continue buttons, and search tools
- Support for zooming text to 200% (with some limitations noted below)
- Alternatives provided for active learning exercises that are not fully accessible
- Text reflows appropriately at 400% zoom without requiring horizontal scrolling (except where present in a Storyline block)

However, some content does not currently meet all Level AA criteria:

1. Audio descriptions for video content (WCAG 2.2 SC 1.2.5 – Level AA)

It is not possible to add audio descriptions to all video content. Most videos include complex figures that cannot be adequately described during the available pauses. To support accessibility, a full text-based media alternative is provided for all video content. This satisfies WCAG 2.2 Level A, but not Level AA.

2. Zoom limitations in Articulate Rise and Storyline (WCAG 2.2 SC 1.4.10 – Level AA)

Due to platform limitations:

- Images, videos, and Storyline blocks can only be zoomed up to **250%**.
- With Storyline, 250% zoom is only possible if the content is embedded using the "small" size option. In some cases, larger default sizing was used, further limiting zoom capacity. However, Storyline block sizes are ultimately constrained by the user's screen dimensions, not the initial embed size.

To partly mitigate this, all images are provided in downloadable PowerPoint files, which allow zooming up to 400%. Where possible, alternative formats for Storyline content have been provided.

However, the unit **does not fully meet SC 1.4.10**, which requires content to be zoomable to 400% without loss of content or functionality

3. Third-party content

Some third-party videos and decorative figures may not meet **Level AA contrast requirements** for text and images. These resources are included only as optional supplementary material and do not form part of the core unit content.

University accessibility recommendations

The University has made a number of accessibility recommendations that go beyond the WCAG 2.2. criteria.

Font selection

The University recommends using a sans serif font as it improves readability for people with dyslexia and other learning differences. I have used the Roboto font for body text, which is a modern sans serif font designed by Google specifically for online use. If Roboto does not meet your accessibility needs, you can install browser extensions such

as Helperbird (https://www.helperbird.com/) which allow custom fonts to be used for main body text.

Background colours

The University suggests using an off-white background. However, I have used a white background throughout my Rise modules, in images and in all video content. My reasons are as follows:

- Rise does not allow customisation of lesson backgrounds
- The use of an off-white background makes it more difficult to achieve the contrast ratios required to meet WCAG 2.2 Level AA criteria
- The specific background colour required varies between users
- There are a variety of third-party browser extensions that allow users to customize screen tint e.g. Dark Reader, Helperbird

I have also made PowerPoint files of all images available, and users can readily change the slide background colours using the Themes or Format Background tools available in the Design tools.

How was accessibility checked?

I carried out a self-audit of the unit content using the WAVE browser extension by WebAIM, alongside manual checks of embedded content to assess keyboard navigation and operability. I acknowledge that this process is less comprehensive than a full audit by a digital accessibility professional.
Feedback is welcome on any areas where accessibility can be improved. Please contact me by email if you have any comments: richard.prince@manchester.ac.uk