

# A guide to delivering an optimal online assessment experience

Best practice advice for using Pearson digital resources, drawing on research with 13 UK universities.



### **About the resources**

We offer a range of platforms that educators use to manage and deliver online assessment.

**MyLab and Mastering** is the world's leading collection of online homework, tutorial and assessment products. The platforms react to how students are actually performing, offering data-driven guidance that helps them better absorb course material and understand difficult concepts. They're available for an array of quantitative subjects from maths and statistics to accounting and finance.

**Revel** provides an interactive learning environment that allows students to read, practise and study in one continuous experience. Available for a range of courses including law, HR, psychology and research methods.

Our **online simulations** in marketing and strategy enable students to step outside their role as a learner and inhabit another role in order to learn, providing an engaging, gamified learning and assessment experience.

# Introduction

In this guide we provide some helpful tips on introducing Online Assessment into your course or improving its integration.

This study is based on the accumulated findings from various studies with educators who have introduced online assessment into their module using resources that Pearson provide, such as MyLab, Mastering and Revel (see <a href="https://www.pearson.com/uk/educators/higher-education-educators/success-stories.html">https://www.pearson.com/uk/educators/higher-education-educators/success-stories.html</a>). Nonetheless, these findings broadly apply *however* you're starting or expanding your use of online assessment.

Here are 10 ways to deliver effective online assessment, based on our research with over 13 institutions:

- 1. **Credit.** Assigning for credit motivates student engagement.
- 2. **Integration.** Closely integrating, with a clear structure promotes engagement.
- 3. **Good learning design.** Ensuring learning is scaffolded to support knowledge acquisition.
- 4. **Assessment type.** Formative and summative assessment both have a role.
- 5. Class size. Making the best use of automatic marking for managing large courses.
- 6. Cheating. Avoiding collusion when delivering high stakes online assessment.
- 7. **Communication.** Clearly and regularly communicating expectations to your students.
- 8. **Data.** Planning how you will use the gradebook data and feedback helps you make the most of this.
- 9. Authentic assessment. Considering how assessment can help students to develop key skills.
- 10. Value. Demonstrating the value of online assessment in your business case for funding.

We're not suggesting that you need to do *all* of these things to successfully utilise online assessment in your course. However, we encourage you to seriously consider how each of them could help you provide the best assessment experience for your students.



### 1. Assigning for credit motivates student engagement.

Throughout our conversations with academics and learners – across the UK and across departments – the message we receive is unswerving – that most students tend only to do the work that directly contributes to their grades. This may always have been the case but certainly seems true now in a world where time is precious – whether because of work pressures, life responsibilities or a combination of both.

So, our number one recommendation when introducing online assessment into your course is to assign it for credit. There's no rule on how much credit – from 5% to 50% – it depends on your intended outcomes.

### **King's College London**

Dr McFaull sets regular homework in MyLab Accounting, which is worth 5% of the total module mark. Students get marks for completion – this is enough to **incentivises engagement.** He says, "students take it surprisingly seriously". Students also complete a mid-term exam on the platform.

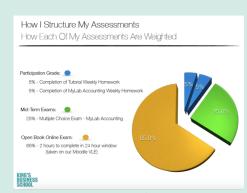


Fig 1a\*

### **University of Essex**

Overall, 95% of students participated in Assignments (compulsory) and 36% participated in Revision (noncompulsory activities).

Compelling students to complete work and offering credit for it is clearly a powerful motivator which encourages engagement with the work.

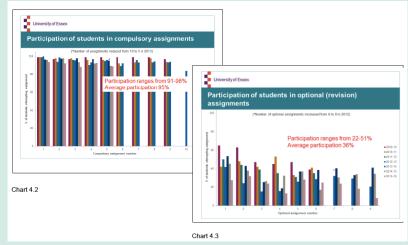


Fig 1b

### **Newcastle University**

In the Maths for Chemistry module, MyLab Math assignments are worth **50% of the final mark**. Module Leader Professor Hofer said, "the aim of this module was to get them up to speed in mathematics". In our study students were successfully doing so, gaining average marks of around 95% (which then had to be rescaled in order to align with University guidelines with a maximum median of 75%).

<sup>\*</sup>Larger versions of figures are provided in the Appendix. See References section for links to all the full studies.



### 2. Closely integrating, with a clear structure promotes engagement.

Clearly and specifically integrating your online assignments into the structure of the module is also a key factor in promoting student engagement. The goal is to make sure that students **understand how the online** assessments fit into the module structure, how they support their learning and how they can help them achieve results on the module overall.

Over the years we have observed lots of examples of clear, defined structures with online assessments built in, along with other useful ideas on blending the online into the offline parts of course delivery.

### **Queen's University Belfast**

MyLab Accounting was integrated into the module in a way that helps students to structure their study time, provides timely access to tutor support and encourages them to work consistently throughout the Semester. For 8 weeks of the course **students are required to complete MyLab Accounting assignments each week: one practice homework and one assessed homework**.

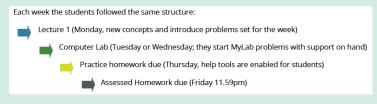


Fig 2a (See also Fig 2b for the course structure from University of Hull)

### **Student survey results:**

- 100% responded that they used MyLab Accounting at least once a week.
- 95% thought the structured integration of MyLab Accounting homework and tests into the module supported their engagement with the subject.

### **Cranfield University**

Over a number of years of usage, the teaching team observed that **a positive impact on student learning came when the MyLab was closely integrated into the course, with clear direction from the module leader**. Embedding it deeply within modules and lectures led to better student engagement and much higher usage.

### Other tips on fully blending online assessment into your course

- MyLab Math was included in the module handbook and linked directly, week-by-week, to the lecture content. (Blended Learning study, anonymous UK institution)
- Mastering Engineering is linked and highlighted in the VLE week by week and questions are also included a printed module book so students can see the online assignments they are about to do. Dr Dobson explained: "It needs to be really explicit. 'This is what we've just covered in the lecture. Now you're going to practise by doing these questions.' Students respond well to structure." (University of Hull)
- It's clearly explained to students that the weekly MyLab Accounting homework prepares them for their Mid-term and the weekly paper-based tutorial homework prepares them for the final exam. Student module evaluations show they **value this defined structure**. (King's College London)



### 3. Ensuring learning is scaffolded to support knowledge acquisition.

We suggest that you review carefully how your chosen platform is designed to scaffold student learning and make the most of it. By taking an *assessment for learning* approach, students can gain confidence by moving from easier to more challenging questions and relying less and less on the in-built support features.

For example, in MyLab why not leave the **help features** on for most of your assignments, perhaps just removing them for an end-of semester assessment that's worth more marks? In Mastering, you can decide whether the **helpful question hints** are on or off too.

Revel's assessed activities range from MCQ quizzes and fill-in-the blanks to open response journal and shared writing questions – think about **starting with the least complex and building up to the more involved activities** that drive higher order skills such as evaluation and critical thinking. The questions in MyLab and Mastering are ranked according to difficulty making it easy to calibrate the level of your assignments.

Plus, for all platforms, you can choose **how many attempts students have for each question** so you can tailor for low-stakes or higher stakes testing scenarios.

### **Blended Learning study (anonymous UK institution)**

Data suggests that:

- Students liked how the structure of questions meant that they **started with easier questions and moved progressively toward a stronger understanding**.
- Having multiple attempts to complete questions helped students to better understand errors.
- Students find the **examples** provided in MyLab Math relevant and helpful.

"I like the fact that it gives you an example and it helps you to solve a problem which is really useful. If you get stuck on a question with that, you can help make your way through the question" – Student

### **Newcastle University**

In order to encourage participation, to motivate students and to help them embed their **learning through practice**, Professor Hofer described how the questions provided on MyLab Math were "*relatively straightforward*". Plus, students were allowed **two attempts** at answering the questions.

### **London South Bank University**

The work students did in Revel on this Research Methods module was formative assessment, so it did not contribute to their final grade. However, it was **designed very specifically to support with writing their assessed written coursework** which makes up 100% of the module grade. If students answered all the assigned writing questions in Revel, they would have the starting structure and content for their coursework.



### 4. Formative and summative assessment both have a role.

You may know already that you want to run formative and summative assessments, but have you thought about how they may complement each other and how you can incentivise students to do both?

Formative assessments can be used to prompt students to understand, practise and apply course content regularly throughout the module, rather than leaving it all to the end. But we know that students are motivated by credit. So, if your desire is for sustained learning activity culminating in one summative (for credit) online assessment, then requiring formative practice homework to be completed before the summative assignment can be accessed is a possible solution. This approach may be especially useful if your university is moving towards fewer assessments overall.

If you plan to run a mid-term test or final exam online, then formative assessments are vital for familiarising students with the platform, as well as providing practice and revision tools for preparation.

### **University of Northampton**

Anna Poole sets both formative and summative assessments through MyLab Accounting and sees different benefits.

### Formative:

- Students tend to like being able to work on an activity **when and where they want to**.
- Students can **repeat the questions** as often as they like.
- When students engage with the activities, they
  have a good idea of their ability where they are
  now, what they have to work on.
- Teaching staff can see student **progress**.

#### Summative:

- Students receive an **instant grade**.
- Students are already **familiar** with layouts, with drop downs etc.
- Teaching staff can quickly and easily see who has completed the assessment.
- Teaching staff benefit from automatic grades and **analysis**.
- Teaching staff can arrange to discuss achievement and next steps in 1–2–1s.

### **INTO University of Exeter**

It's more important than ever for the students on this access course (for business Master's programmes) to work consistently throughout and be prepared for the final exam, because **the university no longer allows resits**. Module leader Mr Astbury found that running 1 formative assessment and 3 summative assessments through MyLab Accounting is **crucial to showing students**, **early enough in the course**, **the regular practice required to develop their accounting skills and achieve on the course**. "I find it's a way of getting the students to hit the ground running and start working in a way that they need to."



# 5. Making the best use of automatic marking for managing large courses.

There are obvious benefits to having your assessments marked automatically:

- Saving lecturer time, especially with large cohorts.
- Easier to set up and deliver assessment in the optimum way to support student learning.
- Meeting student expectations around receiving timely and useful feedback\* is much more feasible.

Even with just 50 students, if you want to set weekly homework during a 10-week module, that adds up to 500 pieces of work to mark. For some of the educators we work with, they're using our platforms to manage large cohorts of 150+ and often multiple concurrent modules.

### **Newcastle University**

Students were set five assignments each with a couple of days window to complete and lasting approximately 20 minutes each. Given that this resulted in 750 pieces of assessed work, automated marking allowed Professor Hofer more time for research activities and provided valuable analytics on class performance: "Let me stress; it would be very difficult for me to teach this module if I didn't have this resource."

### **University of Hertfordshire**

Dr Bryson has found MyLab Math assessments to be time and cost effective.

Across 3 cohorts she is able to set a total of 8594 assignments and with automatic marking students get detailed individual feedback.

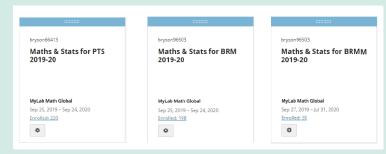


Fig 5a

### **INTO University of Exeter**

Mr Astbury had always wanted to be able to give his students one-to-one, personalised feedback on the work they complete and on their progression during the course but doing that through paper-based homework or through face-to-face sessions proved a significant challenge due to time pressures. MyLab Accounting solves that problem as he explains: "The platform is integral. I wouldn't want to run the course without it."

### **University of Hull**

Dr Dobson emphasises Mastering Engineering's contribution to the successful running of the course stating that, "There's certainly not enough time to do a large volume of marking; this way I can set lots of questions [that are automatically marked]."



### 6. Avoiding collusion when delivering high stakes online assessment.

The two resources primarily analysed in this study as a tool for summative assessment are MyLab and Mastering. There are various of ways in which you can set up your credit-bearing online assessments in these platforms to mitigate against students cheating. Even running high stakes assessment online may be easier to achieve than you think with a few key features, such as:

- Randomised variables no two students have exactly the same problem.
- Question order randomisation and pooling each student has different questions, in a different order.
- Set up options including time limits, restarts verified by educator and the option to lockdown the web browser.

In addition, you can give individual students extra time and can manually adjust any marks that you feel have incorrectly penalised students.

### **University of Hertfordshire**

Dr Bryson suggests all of the above and more in her *Tips for avoiding collusion*.

We can never be certain that what is tested in online assessment is the student's own knowledge. However, strategies that *can* reduce plagiarism and collusion may include:

- Setting questions that test understanding and application of knowledge to specific situations
- Shuffling of questions
- Limiting time availability of tests
- Drawing questions randomly from a larger databank
- Use of questions with different numbers generated for each student within systems such as MyLab

### **Queen's University Belfast**

Dr McConville found that it was easy to make sure the test was set up in a way to **mitigate cheating through the pooling and randomisation of questions**.

The digital solution was found to be both **more efficient** and quite likely **more accurate.** On the latter point, there are limitations when a human marks numeric response test papers like these, they naturally miss the odd mark or occasionally give marks incorrectly – this is avoided by automatic grading.

The test is taken in an invigilated computer lab setting and actually **requires fewer invigilators** than in alternative venues.

In the future McConville plans to run the final course exam through MyLab Accounting and will also get support from her IT team to lock down the computer browsers during the test to help increase the security of the test set up.



# Clearly and regularly communicating expectations to your students.

It will probably come as no surprise that communication is key. It's important to explain clearly; how the online assessments fit into the module structure; why they're valuable; and what you expect students to do and when.

Then you to need to remind them regularly – whether that's by putting a note at the end of every set of lecture slides, telling them in seminars or posting a weekly message on the VLE. You can even add additional notes and reminders for the students within the platforms themselves.

Consider when you introduce students to the resource; at what point in the course? Before they start, in the first lecture or just before their first assignment is released?

### **Newcastle University**

Professor Hofer referenced the assessments Revel guizzes were **reviewed in lectures** to support throughout his lectures in order to remind students the link to course content and messages to to access the resource.

### **Swansea University**

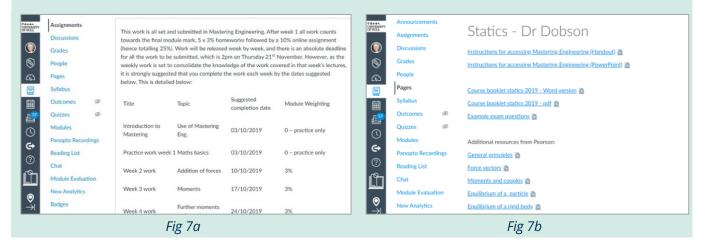
**students within the platform** are useful to prompt student engagement.

### **Queen's University Belfast**

Students are introduced to MyLab Accounting before they even arrive on campus. They registered, and therefore engaged with the course and the resource, very early on – first homeworks are set in Week 2.

### **University of Hull**

The online assessments in Mastering Engineering are accessible directly from the VLE. At the start of the course, students can see all the work they will need to do. In addition, Dr Dobson pulls out resources that will support the students when doing the assessments, such as videos and slide decks from Mastering Engineering and puts them into the VLE.





# 8. Planning how you will use the gradebook data and feedback helps you make the most of this.

It's a good idea to work out in advance how you're going to make the most of the gradebook or dashboard data. You can use it to quickly check on participation and engagement and spot struggling students – especially early in the module. Checking what questions students found most difficult can guide topic choices for weekly tutorials or revision classes.

Having immediate feedback following the submission of their work empowers students to monitor their own progress and focus their study time on the areas where they did less well – advise them to do this when you introduce the online assessments. After getting their marks, they will be able to show you exactly the point at which they're struggling to understand where they went wrong.

### **Swansea University**

Sarah Owens noted the usefulness of the Revel dashboard, which shows overall class assignment scores and individual student scores per assignment, to identify where students are struggling and then tailor the appropriate course of action or support.

### **University of Hull**

The weekly homework provides actionable insights for the teaching team. They can detect patterns of student understanding in different topic areas, monitor their students' achievement and ensure they are continuing to progress, especially in more difficult topics.

### **Queen's University Belfast**

The assessment in MyLab Accounting provided **regular, immediate feedback**, which both students and the lecturer used to support student progress. Students could **track and reflect on their performance**, identifying gaps to focus their own practice, while Dr McConville could **monitor student understanding across the course topics**.

Running the mid-term test via the platform had a positive impact too: "I got more contact about it...they were coming to me and saying, 'I know why I got 50% and I know I got these wrong, but this bit here, I don't understand why this is the case'. So, I've been able to have much more informed conversations with them."

### **INTO University of Exeter**

MyLab Accounting offers multiple ways to deliver regular and personalised feedback. Students get this feedback immediately, rather than having to wait for it to be marked. Mr Astbury uses the results to identify any students who are clearly struggling and intervenes to provide personalised support. In addition, he says; "Quite a lot of my students use the 'Ask my instructor' feature. It means I get useful feedback through the MyLab on what they don't understand as well."



# 9. Authentic assessment – considering how assessment can help students to develop key skills.

There's more and more focus on *authentic assessment* in higher education. Exams are designed with practical constraints such as a maximum time allowed, facilitating swift marking, not requiring specialist equipment etc. Are they really "testing" what students need to master to succeed in their chosen area of study? If some of your learning outcomes now relate to broader professional skills like creativity, teamwork and communication, how can a traditional paper-based, time-limited exam show students' achievement in those areas?

In subjects like Engineering, Strategy or Accounting for example, educators tell us that having students practise what a professional person would do in that field – i.e., creative problem-solving, team-based decision-making or completing an income statement – is a more appropriate way for them to learn and therefore also how they should be tested. Online assignments can bring authenticity to your assessment design – whether it be by giving students the freedom to practise and develop skills at their own pace or by offering experiential learning opportunities via simulations or embedded practical applications.

### **Regent's University London**

The MyStrategyExperience online simulation formed part of Dr Chan's assessment as a way to enable students to reinforce, apply and practise their understanding of strategic **thinking** and develop **teamwork** skills. While the simulation itself provides an automatic competition result, Dr Chan chooses to supplement this with his own additional forms of assessment including:

- observations of each individual student's participation and/or team activity
- short presentations
- students' self-reflection of what they had learned and experienced.

**100% of students** agreed it supported **personal skills development.** 

### **Queen's University Belfast**

Having formative assessment within MyLab Accounting encouraged students to engage with the learning and apply their knowledge rather than memorise something. The teaching team felt this was more authentic assessment for a practical subject like accounting.

### **University of Northampton**

At this institution they have reflected on the role of MyLab Accounting online assessment for different years.

In **Year 1** it's about students **getting started**, **understanding the software**, **learning how to study** and **keeping up** with the course content. In Year 2 it should prompt students to **use the study plan** more actively and they have **more advanced questions** for skill acquisition, to apply theory and develop analysis skills.



# 10. Demonstrating the value of online assessment to build a business case for funding.

Ensuring equal access to the online platform is a must if you're assigning for credit (our number one recommendation) so it's very likely that you'll need to make the case for your department or institution to fund the purchase. To do this you can draw upon the findings around student expectations of feedback and assessment and use of educational technology from the <u>Student Academic Experience Survey 2020</u>:

"This report points to some very encouraging improvements in the student academic experience particularly in assessment. [...] If we are to restore the positive trend we have seen in recent years in value for money, which unfortunately has not been maintained this year, we must up our game in the use of technology."

Use module evaluation data and comments, include anecdotal student feedback, and analyse the data to demonstrate how your online assessment supports participation, engagement and achievement of learning outcomes. (The Pearson team can collaborate with you to develop research studies like the ones referenced in this paper to help support your case.)

Think about ways that online assessment may be supporting your specific student cohort depending on their demographics including age, previous qualifications, nationality, work and care commitments and preparedness for university undergraduate or postgraduate level study. Look at any trends you've seen e.g., in dropping lecture attendance or key skills gaps in literacy or numeracy.

The more you can evidence how the introduction of online assessment is being done systematically to meet the needs of your students and improve specific challenges, the easier it will be to get funding.

### **University of Hull**

Dr Dobson had to make a business case each year to get funding for Mastering Engineering to be provided to all students. The fact that **students often comment on how they find the platform useful in their module evaluations** helps to demonstrate its value and its crucial role in supporting student engagement. It is worth considering whether the value to students and their need to engage through Mastering Engineering is even greater if they do not physically attend sessions (as institutions across the country see lecture attendance decreasing), adding more weight to the justification for investing.

"The fact that they can log on anywhere is really important, plus the online learning resources. Quite rightly students are expecting more because they're paying more."



# References

### **Blended Learning study (anonymous UK institution**

https://www.pearson.com/uk/educators/higher-education-educators/success-stories/2020/07/blended-learning-with-mylab-math.html

### **Cranfield University**

https://www.pearson.com/uk/educators/higher-education-educators/success-stories/2020/06/mylab-at-cranfield-university.html

### **University of Essex**

https://www.pearson.com/uk/educators/higher-education-educators/success-stories/2020/07/mastering-biology-at-university-of-essex.html

#### **INTO University of Exeter**

 $\frac{https://www.pearson.com/uk/educators/higher-education-educators/success-stories/2020/04/mylab-accounting-study-atthe-university-of-exeter.html}{}$ 

### **King's College London**

Webinar Presentation, Aug 2020, Recording: https://heinnovate.co.uk//wp-content/videos/DAO.mp4 (Time: 28:16 - 43:14)

### **London South Bank University**

 $\frac{https://www.pearson.com/uk/educators/higher-education-educators/success-stories/2020/12/revel-at-london-south-bank-university.html}{}$ 

### **University of Hertfordshire**

Webinar Presentation, Aug 2020, Recording: <a href="https://heinnovate.co.uk//wp-content/videos/DAO.mp4">https://heinnovate.co.uk//wp-content/videos/DAO.mp4</a> (Time: 44:20 – 1:01:00)

#### **University of Hull**

https://www.pearson.com/uk/educators/higher-education-educators/success-stories/2020/06/university-of-hull-mastering-engineering-study.html

### **Newcastle University**

https://www.pearson.com/uk/educators/higher-education-educators/success-stories/2019/04/mylab-math-study-newcastle-university.html

#### **University of Northampton**

Webinar Presentation, Aug 2020, Recording: https://heinnovate.co.uk//wp-content/videos/DAO.mp4 (Time: 07:44 - 25:35)



### **Queen's University Belfast**

https://www.pearson.com/uk/educators/higher-education-educators/success-stories/2020/07/mylab-accounting-at-gueens-university.html

### **Regent's University London**

https://www.pearson.com/uk/educators/higher-education-educators/success-stories/2020/04/mystrategyexperience-at-regent-s-university-london.html

### **Swansea University**

https://www.pearson.com/uk/educators/higher-education-educators/success-stories/2019/04/swansea-university--wales--uk.html

**Student Academic Experience Survey 2020** by Advance HE and HEPI. Accessed: <a href="https://www.hepi.ac.uk/wp-content/uploads/2020/06/The-Student-Academic-Experience-Survey-2020.pdf">https://www.hepi.ac.uk/wp-content/uploads/2020/06/The-Student-Academic-Experience-Survey-2020.pdf</a>



# **Appendix**

### Fig 1a - King's College London - MyLab Accounting

How I Structure My Assessments

How Each Of My Assessments Are Weighted

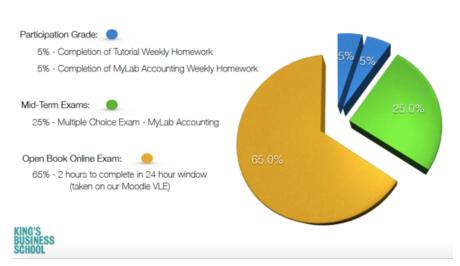


Fig 1b - University of Essex - Mastering Biology

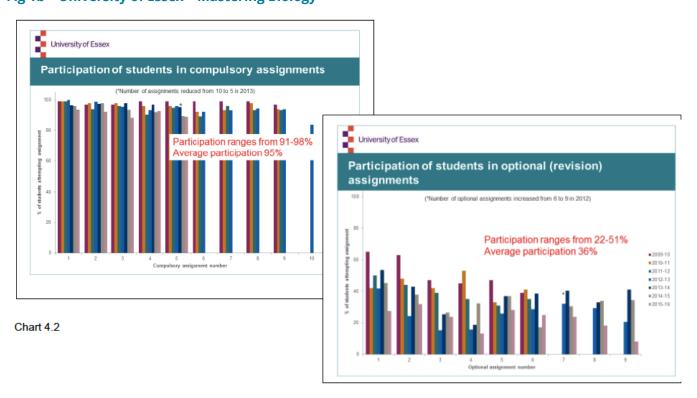
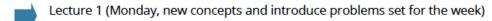


Chart 4.3



### Fig 2a - Queen's University Belfast - MyLab Accounting

Each week the students followed the same structure:



Computer Lab (Tuesday or Wednesday; they start MyLab problems with support on hand)

Practice homework due (Thursday, help tools are enabled for students)

Assessed Homework due (Friday 11.59pm)

### Fig 2b - University of Hull - Mastering Engineering

Lecture 1 (Tuesday, new concepts and introduce problems set for the week)

Problem Class (Tuesday, start problems in PC Lab, support on hand)

Lecture 2 (Thursday, go over last week's problems)

Work Due (Problems due Sunday 11.59pm)

Non-engagers emailed (Monday, identify problem questions)



Fig 5a - University of Hertfordshire - MyLab Math





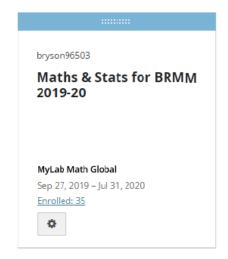




Fig 7a - University of Hull - Mastering Engineering

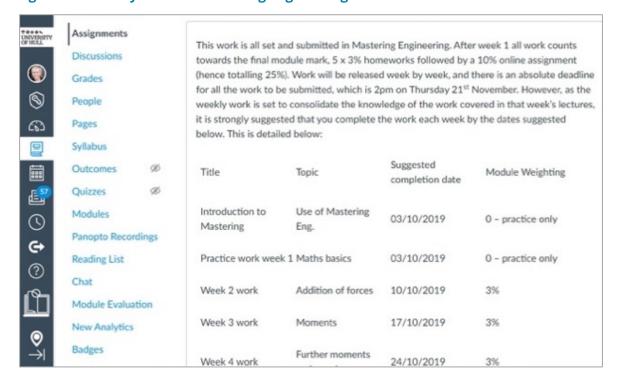


Fig 7b - University of Hull - Mastering Engineering

