

WINNER
UNIVERSITY
OF THE YEAR

THE AWARDS
2017

Using IT to support effective run-time assessment judgments.

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Project supported by the NTU Trent Institute for Learning and Teaching (TILT) Sabbatical Scheme

Marginal gains or 'big ticket' initiatives?

- Marginal gains (effective working/administration)
 - Very small, low cost adjustments – **big impact**
 - Think global, act local – **valuing mundane actions**
 - anti-'big-initiative' – most impact from doing regular stuff better
 - This is NOT rocket science
- Individual feedback on examinations
 - Shown it can be done, effectively, for large cohorts
 - For all exam types (MCQ, short answer, long answer (essay-based))
- Now working on presentations and lab competency assessments

Practical Techniques:

- First year Term 1 module which is taken by **all** students on Bioscience Courses:
 - Biomedical Sciences, Biological Sciences, Microbiology, Biochemistry, Pharmacology and Ecology and Environmental Management
- Academic Year 2018-19 there were **375 students** registered on this module
- In week 15 there is the **Essential Skills Practical Assessment**
 - Pass requirement by the Professional, Statutory or Regulatory Body (PSRB)
 - Takes place in the Rosalind Franklin building
 - Assessment takes 1:5 hours
 - Need to assess approx. 50 students within the time frame
 - Assess how competent they are using microscopes, pipettes and preparing serial dilutions

Essential Skills Practical:

- Students have access to the protocol on their tablets
- Worksheets are completed by the student
- Originally we created a marking sheet to grade the students individually

Problems:

- Cannot remove paper from the lab
- Over 300 students each year
- Paper based marking is slow
- Time restricted which increases stress
- Results need to be on an electronic database – manual input increases chance of error
- **Students want personalised feedback**

Essential Practical Skills assessment sheet

Method 1: Microscope and cell counting using a haemocytometer

For staff:

- Can cells be seen clearly with minor focus adjustments (e.g. is correct magnification used)?
 Yes/ pass No

If no, can student rectify the problem after a couple of questions?
 Yes/ pass No
- Has the student accurately calculated the concentration of *Fusarium culmorum* cells?
 Yes/ pass No

Method 2: Pipetting, serial dilution and preparing a standard curve

For staff:












- Has the student demonstrated the correct use of (the staff chosen) pipette (including correct volume adjustment, use of the correct tip, plunger and pipetting of solution)?
 Yes/ pass No
- Do the absorbance values in Table 2 compare well with the photograph on the tablet?
 Yes/ pass No
- Is the standard curve of sufficient quality and presentation?
 Yes/ pass No
- Is the predicted value of the sample of unknown concentration within range?
 Yes/ pass No

Using the system:

- 10 Tablets available today
- Log in to the sharepoint site
- See "Grade All Students"
- Identify the student name or number
- Touch the indicated icon
- This loads the assessment page
- Complete the form and press submit
- Repeat for the next student
- All results are collected and updated instantly

BIOL10272_Practical

EditGrades - Grade All Students

Edit	S_Name	S_No	Marker	Sect1	Sect2	Ref_calc
	Arandom Student	N0XXX01	-	-	-	Ref
	Brandom Pupil	N0XXX02	-	-	-	Ref
	Crandom Learner	N0XXX03	1	Pass	Pass	Pass
	Drandom Worker	N0XXX04	-	-	-	Ref
	Erandom Listener	N0XXX05	-	-	-	Ref
	Frandom Writer	N0XXX06	-	-	-	Ref
	Grandom Grafter	N0XXX07	-	-	-	Ref
	Hrandom Undergrad	N0XXX08	-	-	-	Ref
	Irandom Postgrad	N0XXX09	-	-	-	Ref
	Jrandom Firstyear	N0XXX10	-	-	-	Ref
	Krandom Tuttee	N0XXX11	-	-	-	Ref



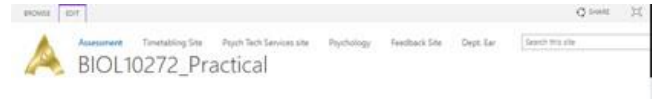
Assessment and Feedback:

Assessment Page:



Feedback:

- Module Leader spends time creating feedback with positive comments about areas for improvement
- “Well done, you have passed all sections. You needed a few hints with the microscope part so keep working hard at this in the future to improve your skills”
- “You have failed both sections. We will be in touch to tell you the details of when you need to retake this assessment”



Arandom Student **NOXXX01**

Method 1: Microscope and cell counting using a haemocytometer

1) Can cells be seen clearly with minor focus adjustments? (e.g. is correct magnification used?)
 Yes Pass No

1b) If no, can student rectify the problem after a couple of questions?
 Yes Pass No

2) Has the student accurately calculated the concentration of *Fusarium culmorum* cells?
 Yes Pass No

Method 2: Pipetting, serial dilution and preparing a standard curve

3) Has the student demonstrated the correct use of (the staff chosen) pipette (including correct volume adjustment, use of the correct tip, plunger and pipetting of solution)?
 Yes Pass No

4) Do the absorbance values in Table 2 compare well with the photograph on the tablet?
 Yes Pass No

5) Is the standard curve of sufficient quality and presentation?
 Yes Pass No

6) Is the predicted value of the sample of unknown concentration within range?
 Yes Pass No

Arandom Student **NOXXX01**

m1	m2	m3	m4	m5	m6
JD	AR	CD	FDC	NM	SS

Submit

A	B	C	D	E	F	G	H
Fill out the blue cells on the left with up to 8 grading criteria. Fill out the cream matrix with the descriptions of the performance levels on each criterion. Use 'comments' to add detail to any cell.							
Matrix1	Marking criteria						
4	Rating (PG has no 3)	a	b	c	d	e	f
5	PG perf levels:	Exceptional Distinction	Distinction	Commendation	Pass	Fail	Fail2
6	UG perf levels:	Exceptional 1st	1st	2.1	2.2	3rd	Fail
7	PG codes:	Exc	Dis	Com	Pass	Fail	Fail2
8	UG codes:	Exc	1st	2.1	2.2	3rd	Fail
9	Criteria Labels						
c1	Presentation of a clearly argued and evidenced answer which fully addresses the question. Notably definitions and application of 'truth' and 'transparency' and public confidence in the context of this Inquiry	Well done, you have passed all sections of the Essential Practical Skills assessment for BIOL10272 Practical Techniques.	Well done, you have passed all sections of the Essential Practical Skills assessment for BIOL10272 Practical Techniques. You needed a few hints with the microscope part of the assessment, so keep working hard at this in future labs to further improve your microscope skills.	You have passed the 'pipetting, serial dilution & preparing a standard curve' part of the Essential Practical Skills assessment for BIOL10272 Practical Techniques. However, you failed the 'using a microscope and haemocytometer' part of the assessment. We will be in touch to tell you details of when you need to retake the failed part of the assessment.	You have failed both sections of the Essential Practical Skills assessment for BIOL10272 Practical Techniques. We will be in touch to tell you details of when you need to retake the assessment.	You have passed the 'using a microscope and haemocytometer' part of the Essential Practical Skills assessment for BIOL10272 Practical Techniques. However, you failed the 'pipetting, serial dilution & preparing a standard curve' part of the assessment. We will be in touch to tell you details of when you need to retake the failed part of the assessment.	You have passed the 'and haemocytometer' part of the Essential Practical Skills assessment for BIOL10272 Practical Techniques. However, you failed the 'pipetting, serial dilution & preparing a standard curve' part of the assessment. We will be in touch to tell you details of when you need to retake the failed part of the assessment.

Advantages and risks:

Advantages:

- Very efficient process to assess large number of students
- Results are immediately transferred to an electronic database
- Time saving and less stressful for both student and staff
- Paperless
- Feedback takes time to set up but is time saving in the long term

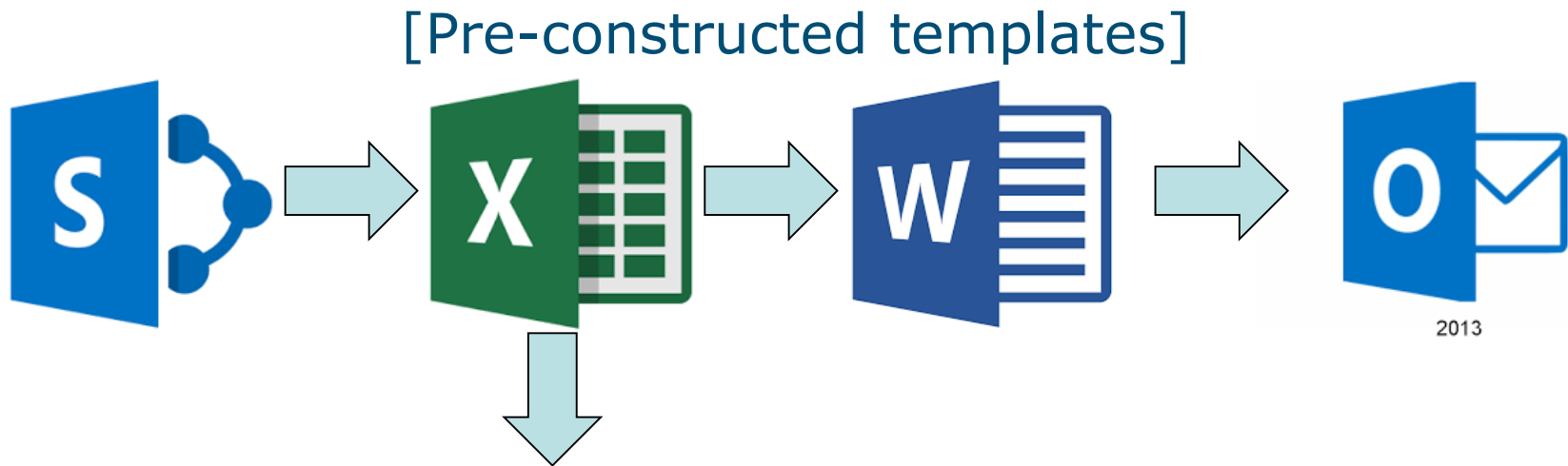
- When all students have been assessed, personalised feedback is sent directly to them via email
- Very few email queries following the release of results
- I couldn't have completed this assessment without this system

Risks:

- Staff training is quick, simple and marking is consistent however it relies on staff completing the form

What happens next?

- Data downloaded from SP
- Exported to pre-constructed excel spreadsheet template
- Descriptive stats emailed to ML
- Mail merge used to email the feedback to students



Diagnostic stats for course/module leaders, to support evaluation of module, of assessment tasks, moderation, and grades formatted for submission

What the student receives

- Email addressed to them using given name (Eckstein *et al.*, 2007; Sandstrom, 2017)
- Pass/fail judgment for each of the two main sections of the task
- Clear advice about what this means
 - Pass and continue
 - Fail and details of what needs to be redone and when
- We can make this feedback as detailed as we want, with regards to the judgments that markers record

Dear [student_given_name],

You recently attended the 'Practical Techniques' lab assessment for BIOL10272.

There were two sections to the assessment. Here is how you did on each of them:

Section 1: Using a microscope and haemocytometer: **Pass**

Section 2: Pipetting, serial dilution & preparing a standard curve: **Pass**

Well done, you have passed all sections of the Essential Practical Skills assessment for BIOL10272 Practical Techniques.

Regards

The module team

(This email is sent from an unmonitored account, so please don't reply to it. You don't need to contact anyone about this assessment. If you need to do any of it again you will be contacted by the module team.)

Dear [student_given_name],

You recently attended the 'Practical Techniques' lab assessment for BIOL10272.

There were two sections to the assessment. Here is how you did on each of them:

Section 1: Using a microscope and haemocytometer: **Pass**

Section 2: Pipetting, serial dilution & preparing a standard curve: **Fail**

You have passed the 'using a microscope and haemocytometer' part of the Essential Practical Skills assessment for BIOL10272 Practical Techniques. However, you failed the 'pipetting, serial dilution & preparing a standard curve' part of the assessment. We will be in touch to tell you details of when you need to retake the failed part of the assessment.

Regards

The module team

(This email is sent from an unmonitored account, so please don't reply to it. You don't need to contact anyone about this assessment. If you need to do any of it again you will be contacted by the module team.)

Using grading matrices

Criteria - Q1	Your performance level (out of 5)	
Presentation of a clearly argued and evidenced answer which fully addresses the question. Notably definition and application of 'trust' and 'transparency' and public confidence in the context of this Inquiry	5 (1st)	<i>Excellent knowledge and understanding of the subject. You are able to relate concepts together (synthesise) and you can apply what you know to different contexts.</i>
Accurate, informed representation of -public accountability -Public service principles, Trust, Transparency Nolan, Lawton etc. -Functions of Public inquiries and this one specifically.	4 (2.1)	<i>Evidence of appropriate selection and application of sources. Very good command of the subject although the analysis could be strengthened in places.</i>
Demonstration of an appreciation of the wider management considerations relevant to the question. Awareness of the specific circumstances leading to this inquiry. e.g. victim's perspective.	4 (2.1)	<i>Very good demonstration of relevant skills; strong research and analysis of the subject. Highly competent.</i>
Ability to construct a competently written and structured answer appropriate to examination conditions	3 (2.2)	<i>Competent demonstration of relevant skills to advance argument and evidence. Mostly effective communication of the subject with some aspects requiring more work</i>

Specific content-relevant statements

Expected content	Did you cover it effectively?
Effect of soluble factors on T-cell DC interaction	Mostly yes
Costimulation/costimulatory signals (CD28)	Mostly yes
Signals delivered by DC and effect on immune responses	Somewhat
CD4 T-cell subsets (TH1/TH2 paradigm)	Mostly no
Difference between CD4 and CD8 regarding activation of immune responses	Somewhat
Cytokine secretion by effector T cells	Mostly yes

1 = Mostly yes; 2 = Somewhat; 3 = Mostly no

Statements contingent on mean scores

- Overall, you achieved low scores for **answering the question** fully. To increase your exam grades, make sure you include information for every aspect of the question and try to add more depth and detail to your answers. A summary of what was expected for each essay question is provided in Part 3 below.
- You achieved intermediate scores for **essay structure**. To increase your exam grades spend a few minutes making a plan for each essay, and use subheadings to organise each answer. Use of tables and diagrams is also recommended as a quick way to show your understanding of complex concepts.
- You achieved high scores for **additional reading**. There was evidence of reading beyond the module materials in one or more of your essay answers, showing that you had a high level of engagement with the topics covered in this module. Very well done.
- **NB easy to link to contingent activities**

A vision for contingent, electronic feedback...

Dear Raj,

Your provisional grade for your recent exam was a **mid 2:1. Congratulations.**

[contextualising text...]

This is how you did on Qu.3.

social model of disability – you scored **5** on this criterion, which is excellent. Have a look at [this resource](#) which might take your thinking even further.

constructing an argument – you scored **3** on this criterion. There are good web resources that give advice on structuring essays. [Here's one from MIT.](#)

etc. etc.

Dear Sam,

Your provisional grade for your recent exam was a **high 3rd. Well done for passing this module.**

[contextualising text...]

This is how you did on Qu.3.

social model of disability – you scored **2** on this criterion, which means you need to work on your understanding of this area. Have a look at [this resource](#) which might help.

constructing an argument – you scored **2** on this criterion. There are useful web resources that give advice on structuring essays. [Here's a good resource from Sussex.](#)

[etc. etc.]

Costs of this approach

Administrative and up-front planning

- ❖ Front-ended setting up costs (with enduring benefits)
- ❖ Current system is a 'proof of concept' – not a portable package

Current work

- Currently being piloted around the university
 - *I love the portability of it*
 - *feeds into the University policy of supporting flexible working and those individuals who use this policy to fit in caring responsibilities...feeds into our Athena SWAN application*
 - *I am really impressed with how this looks, and the amount of information students receive...I hope this is something we can consider for next year... we are likely to have a larger cohort so time implications could be important*
 - *Getting through the scripts efficiently after the scripts being delayed by nearly a week in getting to us is in big part thanks to the online form being easy to use*
 - *I love it!!!!!! It is so excellent, I am really pleased...is soooooo efficient and easy*
 - *I just wanted to let you know, that [the external examiners] are very impressed with the feedback and online marking and will put it forward as best practice*
- Enhancing interactivity, dialogue, 'contingent teaching'