

Webinar Q&A Report:

How to Future-Proof Your Teaching

Teaching Anatomy and Physiology Series 2021

1. How do you take the labs to the students to record their own data?

T. Macknight: That possibility is coming soon. For example, ADInstruments is soon to release USB Lt sensors that will simply plug directly into a computer and record into Lt. So, you won't need extra equipment to record data directly from students. This system is designed especially for health science courses where you don't need to do nerve stimulation and may not have conventional laboratory space available. You can learn more about this at <https://www.adinstruments.com/lt/sensors>.

2. What are 5 skills a teacher wanting to implement this needs to develop? Or which of these types of interventions would you recommend starting with, in terms of highest bang for your buck for teacher time and student learning.

T. Macknight: I'm not sure that I can list 5 skills. But I think that foremost is the confidence to say that you don't know the answer to a question. Because what you are doing now is changing from a "teacher-pupil" model to a "learning together" model. I think the most effective intervention is providing students with a range of questions with immediate feedback that allows them to acquire the basic information in their own time. Then reinforcing this with sessions with staff contact that shows how this basic information is used in problem solving.

3. Do you write your now Lectorial questions for student interaction? What program do you use?

T. Macknight: I wrote them all in our Lt cloud-based active learning platform that is designed specifically for this purpose and is really simple to author in. You can learn more at <https://www.adinstruments.com/lt>.

4. During COVID, human experiments in person, especially about respiratory function, are not possible. Any suggestions?

T. Macknight: If you are using the ADInstruments Lt platform, there are 31 human physiology experiments including 6 relevant to respiratory function with example data for each exercise in the experiment. If students can't do the labs in person, you can give them access to the experiments with the example data that they can then analyse and answer the questions about. So, this is one possibility. See <https://www.adinstruments.com/lt/human-physiology>.

5. Do you have any suggestions for online experiments for endocrine, digestive system, or immune system physiology?

T. Macknight: I wish that I did! But I have the idea of finding some classical experiments in these fields and creating a guided pathway through them so that the students see the data and are asked to interpret it. An alternative for health science students is to give them endocrine, digestive and immune system cases with lab data etc. to work through. I have done some of that and should revisit it and improve on my original efforts. If you have any suggestions, I'd love to hear from you.

6. Lots of universities use their own systems to track grades and assignment submission. Does LT integrate easily with these kinds of systems?

T. Macknight: Lt integrates with Blackboard, Canvas and Moodle at the moment. See <https://www.adinstruments.com/lt/lms-integration> for more information about integrations.

7. What percentage similarity in answers submitted by students online should we accept as normal?

T. Macknight: I assume that this only relates to the short answer or essay type questions as for other types of identical answers would be expected. And for the first group, I just don't know the answer to your question. But perhaps we shouldn't worry too much. If students are getting together online in some way and discussing the questions and then submitting similar answers does that matter if they are actually learning by doing this?

8. What are some platforms that allow you to do some of the methods, such as matching, that were shown in the presentation?

T. Macknight: I'm only really familiar with the Lt platform that I use that was created for me to be able to do the things that I showed you and is very simple to use with no requirements for any computer knowledge. I haven't used any other platform for this. You can find out more about Lt here: <https://www.adinstruments.com/lt>.

9. How do you know that the better performance isn't just because the course is less rigorous? Is there any standardized measure?

T. Macknight: The only standardized measure that I know is the use of the same examination format before and after changing to this approach. The evidence I have seen is that more students are passing and the average grade has gone up by approximately one level.

10. What is the average time allowed for a question on your exams?

T. Macknight: This would depend on the question as some will take less time to do than others. For example, a multiple-choice question will take less time than a category question as there is more reading and thinking required to answer this type of question. And the time taken for labeling questions depends on how many labels need to be added. So, I think that there is necessarily some guess work in deciding this. I would err on the side of having too many questions in a test than too few and would adjust the marks if necessary if I found that most people were not completing it.

11. How do you prevent cheating on virtual exams/tests?

T. Macknight: I think that you must know that the person sitting the test is actually the student so you need some way to authenticate that and prevent anyone else completing it for them. I believe there are programs for this though I am not familiar with them. Otherwise, I wouldn't worry if students google questions to try to find the answers. If you set up the exam with sufficient questions and types of questions, anyone doing this more than once or twice is not going to be able to finish the exam. For example, a category question with say 5 specific statements would require the student to google all five, read possible explanations, then decide on whether or not each statement was correct or incorrect. For example, here is just one statement in a question about synapses "The arrival of an inhibitory action potential from a second neuron decreases the possibility of an action potential firing from the postsynaptic neuron." For fun, try googling that and see how long it would take to read enough to know whether or not the statement is correct.

12. I have a new anatomy course (little to no physiology) and this is obviously more memorization than anything else. What techniques could work with this type of course?

T. Macknight: For anatomy, I think that a lot of the learning could occur through labeling questions and annotation questions where students interact with images. You can see some examples of this in the Lt anatomy lab content <https://www.adinstruments.com/lt/anatomy>.

13. In small learning groups, we often see that some students work very hard and others barely contribute. Do you see differences in the exam performance of these different kinds of students with your methods?

T. Macknight: I agree completely with your observation. In my experience, this was not necessarily linked to student performance in exams though as often it reflected student shyness and also their reluctance to speak when English was not their first language. However, what this method does do is to prepare the students properly for the group work. Having worked through the questions, they know that if they say what they have learnt, it will be correct and they won't seem foolish to their class mates. What people are finding is that the small group discussions are now able to explore questions to a greater depth because students are arriving with a better grasp of the basic information they need.

If you have additional questions for [ADInstruments](#) regarding content from their webinar or wish to receive additional information about their products and laboratory services, please contact them by phone or email:



ADInstruments, Inc.

77 Vogel Street, PO Box 587
Dunedin, New Zealand, 9016

<https://www.adinstruments.com>

Email: sales@adinstruments.com

