Transforming 1st year Anatomy and Physiology into a blended online/inlab practical format

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Background

Anatomy Laboratory at UOW under increasing demands due to increase in undergraduate 1st year Anatomy and Physiology student numbers (nearly doubled in 5 yrs)

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Background

High demand for anatomy laboratory space has resulted in:

- Reduction in available revision times in anatomy laboratory for undergraduate students
- Restructuring of 1st year Anatomy and Physiology Subjects
- Previously:
  - MEDI111 – Introduction to Anatomy and Physiology I (590 students)
  - MEDI100 – Human Structure and Function (70 students)
- In 2017:
  - MEDI111 – Access to Anatomy & Physiology Laboratories (280 students)
  - MEDI100 – Access ONLY to Physiology Laboratory (400 students)

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Restructured timetable

Students enrolled into either:

- Stream A practicals
- Stream B practicals
- Alternating between inlab and online practicals
- Online practicals had associated assessment tasks

Stream A Practicals	Stream B Practicals
-	-
In-lab Practical 1 - Skeletal System I *(41.G74)*	**Online Practical 1** - Skeletal System *(Moodle)*
Online Practical 1 - Skeletal System *(Moodle)*	**In-lab Practical 1** - Skeletal System I *(41.G74)*
In-lab Practical 2 - Skeletal System II & Articulations *(41.G74)*	**Online Practical 2** - Skeletal Muscle *(Moodle)*
Online Practical 2 - Skeletal Muscle *(Moodle)*	**In-lab Practical 2** - Skeletal System II & Articulations *(41.G74)*
-	-
In-lab Practical 3 - Muscular System *(41.G74)*	**Online Practical 3** - Nervous System *(Moodle)*
MID-SESSION RECESS PUBLIC HOLIDAY: EASTER MON 17/4	
Online Practical 3 - Nervous System *(Moodle)*	**In-lab Practical 3** - Muscular System *(41.G74)*
In-lab Practical 4 - Nervous System *(41.G74)*	**Online Practical 4** - Respiratory System *(Moodle)*
Online Practical 4 - Respiratory System *(Moodle)*	**In-lab Practical 4** - Nervous System *(41.G74)*
In-lab Practical 5 - Cardio-vascular and Respiratory Systems *(41.G74)*	**Online Practical 5** - Cardio-vascular System *(Moodle)*
Online Practical 5 - Cardio-vascular System *(Moodle)*	**In-lab Practical 5** - Cardio-vascular and Respiratory Systems *(41.G74)*
In-Lab Anatomy Revision *(41.G74) Stream A - Thursday 1st June Normal Lab time*	**In-Lab Anatomy Revision** *(41.G74) Stream B - Friday 2nd June Normal Lab time*

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Inlab practicals

Inlab practicals involved:

- Anatomy model revision
- Physiology activities
- Mnemonics whiteboard
- Practice quiz in revision prac

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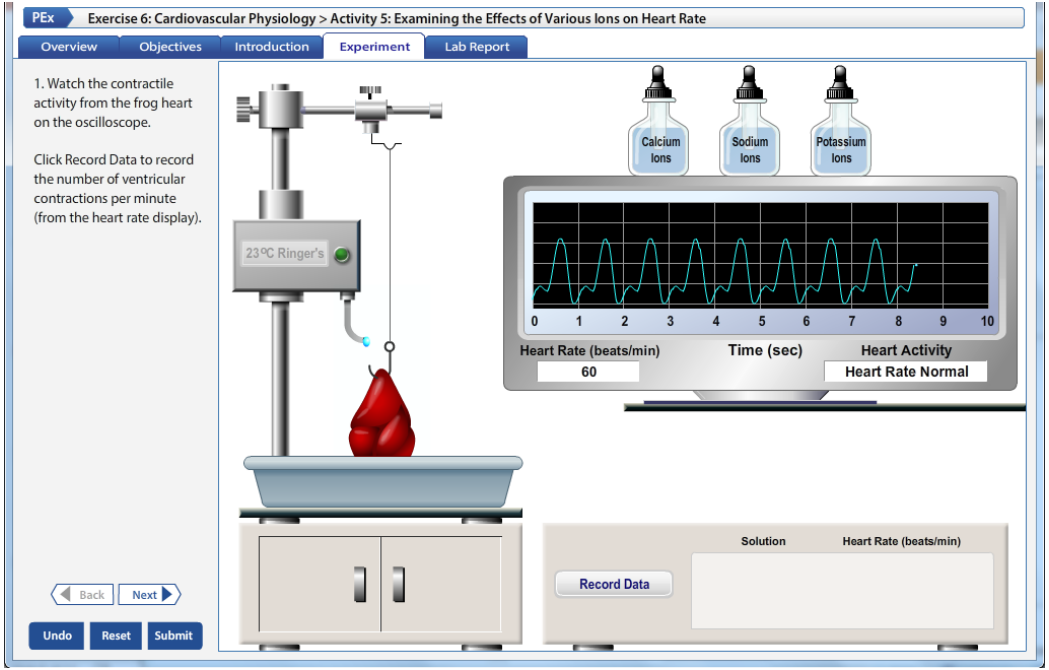
Online practicals

Online practicals involved:

- Lecture note revision
- PhysioEx activities
- Animations
- Prac manual activities
- Anatomy glossary
- Practice quiz based on Subject Outline
- Moodle quiz (4% of assessment, 5 x quizzes = 20% total)



Example PhysioEx Activity
(Mastering A&P platform) Pearson publishing

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Online study tools

Virtual Anatomy Laboratory

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What worked well in this format?

- Students enjoyed the ***flexibility*** of doing the online assessment tasks in their own time
- More ***opportunity to attend a make up practical class*** if students are unwell due to same topic running for a fortnight
- ***Consolidation of knowledge*** through the design of linked lecture and laboratory related online assessment tasks
- Inclusion of animations and simulations provided a ***variety of ways to learn***
- ***~4% lower failure rate*** than the previous years cohort

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What didn’t work well in this format?

- Only 260 out of 400 students purchased access to mastering A&P platform
- Online assessments open for 7 days (closed 10pm Sundays) however Pearson support only available Mon-Fri
- Virtual Anatomy Laboratory under-utilised and not as user friendly as it could be
- Some students did feel the need for more lab time
- Tutorials only ran on Fridays, more flexibility/different days would be better

What improvements could be made?

- Changing opening times for online assessments to Mon-Fri
- More laboratory time
- Virtual access to cadaveric material customised to relevant subject content
- More consolidation/recognition activities to assist with learning a large amount of content

Virtual access to cadaveric material

Microsoft HoloLens?

- Augmented reality
- Livestreaming to multiple venues
- Multimedia resource building for online study tools

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Virtual access to cadaveric material

Microsoft HoloLens trialled in MEDI112 in 2017 (Spring session Anatomy and Physiology subject)

- 500 students enrolled in subject, 186 students completed survey (36%)
- 7 point Likert scale assess enjoyment, learning benefit and engagement
- Free text field available to justify Likert scale choice and add extra comments

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Preliminary results of HoloLens Trial

- 70% of respondents answered that they ***enjoyed*** (either somewhat, agreed or strongly agreed) viewing the HoloLens
- 67% answered that it ***helped them to learn***
- 66% answered that it helped them be ***more engaged*** in their learning
- ***Removed issues*** surrounding ***overcrowding*** around demonstrators
- All structures viewed by students from the same angle
- Potential for ***development of online resources*** (Virtual lab, Moodle activities)
- Improvements suggested by students centered around practical issues such as lighting, steadiness and user practice

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Where to now?

- Faculty is investigating anatomy software providers – institutional licence
- Nursing re-instating Anatomy and Physiology content 2019
- Continuing to update Virtual anatomy laboratory. HTML5 upgrade for compatibility with more devices

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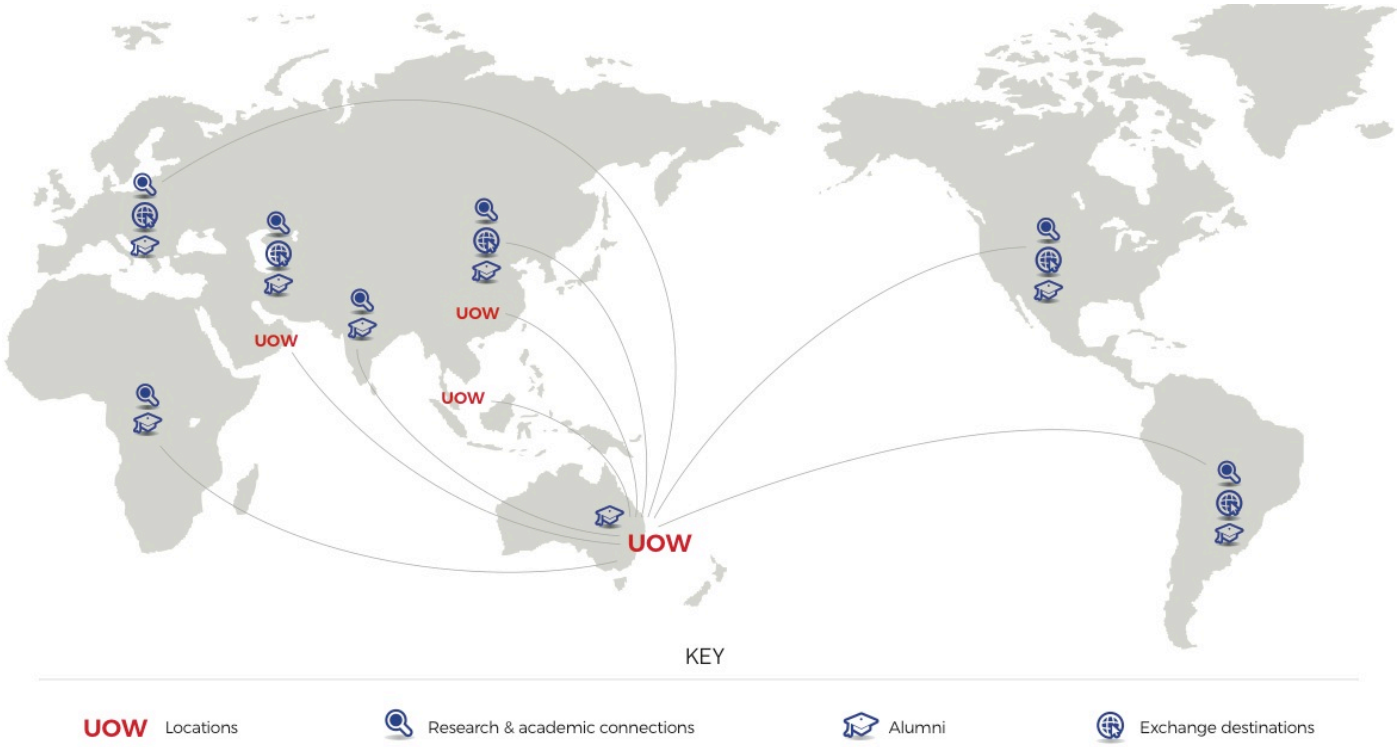
Our global presence



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