Blended learning in Cell Biology:
A first year unit of study in Veterinary Science

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Outline
• Learning context
• Student demographics
• Learning and teaching needs
• Changes to cell biology
• Impact on student learning and 1st year experience
• Reflections

Learning Context – Veterinary Science
Veterinarians service
• pet animals and their owners
• farm animals, animal production & public health

Required skill set includes
• application of scientific knowledge and skills in the field of veterinary medicine
• communication with clients and the public
• manage small business and work in a team

Five-year professional degree
New curriculum
• 7 semester on main campus
• 1 semester at Camden campus
• final year intra/extramural rotations

Cell Biology 1A /1B
Cytology and Biochemistry
• 4 credit point units in semester 1&2
• provide a bridge between chemistry and anatomy & physiology
• P. Sheehy, R. Taylor, I. Tammen

Learning activities
• lectures, tutorials and practical classes (microscopy and PCR)

Assessment
• final exam (MCQ + short answer questions)
• two intra-semester essays
• microscope
• WebCT quizzes (formative)

Students
1st year students: 135 students/year
• high achieving (mean UAI 98.8)
• highly motivated by love for animals (91%) and desire to help them
• diverse demographics:
  • 77% female
  • 65% city background
  • 53% recent school leavers
  • 47% prior university experience
  • 35% international students

Learning & teaching needs
• identified by USE, curriculum review and student and staff feedback
• gap in teaching generic attributes in 1st year (oral communication, research enquiry & team work)
• need to create a learning community
• need to introduce students to WebCT (intensively used through the degree)
• improve students’ preparation for practical classes
• workload for students and staff
Changes to Cell Biology 1A/1B

• Cell Biology 1A
  - replaced essay assignment with WebCT supported preparation for cytology classes in 2005 (formative and summative assessment)

• Cell Biology 1B
  - replaced essay assignment with group learning activity in 2003 (peer assessment & feedback, summative assessment)

Evaluation

- preparedness of students for tutorials increased
- students were introduced to WebCT within the first 3 weeks of the degree
- students started to build a learning community (group work and discussion forums-1228 messages)
- blended approach allowed for immediate student feedback (online & face to face)
- workload for students and staff has not increased (excluding development)
- utilisation of other WebCT resources in the same year have increased (1130 messages on Year 1 WebCT site)
- further quantitative and qualitative evaluation planned for next year

Student feedback

‘I thought the assignment was really valuable and found WebCT a really effective and efficient way of completing assignments as well’

‘As an initial research and communication exercise, I think the assignment was valuable. I’m sure it also sparked interest and involvement in the broader discussion boards.’

‘Good exercise in gathering information and group communication, introduced us to others in the class we had not met before’

‘It really assisted me in expanding the people I know and making new friend’.

Cell Biology 1A: WebCT activities

Week 1
- On-line Task 1
  - WebCT assignment
  - Links to tutorial material

Week 2
- On-line Task 2
  - WebCT assignment
  - Links to tutorial material

Week 3
- On-line Task 3
  - WebCT assignment
  - Links to tutorial material

Week 4
- On-line Task 4
  - WebCT assignment
  - Links to tutorial material

Lectures 1-4
- Introduction to WebCT
- Task 1
- Cell organelles 1 Cell organelles 1

Lectures 4-6
- Cell organelles 2
- Cell organelles 3
- Cell inclusions

Lectures 7-8
- Cell Processes
- Intercellular contacts

On-line Task 1
- The microscope

On-line Task 2
- Tissue Preparation – Discussion Board

On-line Task 3
- Cell types and organelles

On-line Task 4
- Case study

Prac. Class 1
- Preparation for task 1

Prac. Class 2
- Preparation for task 2

Prac. Class 3+4
- Cell organelles

Student feedback

Students develop skills in
- professional autonomy through peer feedback and assessment
- oral communication
- group work
- research enquiry

understand the importance of research in vet science

develop a deeper understanding of DNA diagnostics performed in prac class

provided positive feedback
Student feedback

‘Found it valuable as it helped me learn how to read/interpret scientific research papers.’

‘Liked this activity as it required research into the topic we had chosen to present’

‘Especially the DNA diagnostics as it helped me understand bits of the prac classes that I didn’t get the first time around’

‘Didn’t necessarily learn as much if written an assignment, but what was learnt was better understood.’

General reflections

• scholarly approach to developing new learning activities considered educational literature, peer and student input
• ‘teaching team’ with common goals and standards: all three lecturers completed Grad. Certificate in Education, are members of the L&T committee and are research active in ReproGen
• stepwise introduction of new activities
• consideration of student feedback
• new activities are linked to formative/summative assessment tasks
• student and staff workload

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