TEAM TEACHING FOR BIOLOGY – Craig Franklin

Team teaching in 1st year biology

University: University of Queensland
Faculty: Biological and Chemical Sciences
Subject: Animal Biology (BIOL1012)
Coordinator: Craig Franklin (cfranklin@zen.uq.edu.au)
Size: 900 students (approx. in Semester 1)
Year: 2001

The following case study is based on an interview with the course coordinator of BIOL1012, Dr Craig Franklin, as well as information derived from course materials (such as the web-site, PowerPoint slides, learning guide, prac manual, etc). BIOL1012 has been running at the University of Queensland since Semester 1, 1999 and since this time Craig has played a leading role in the development and design of the course. He has developed an enthusiastic team-approach to course coordination and hence, his management of full-time and sessional staff will be a focal point of this case study. In addition this case study will outline how a significant part of the assessment in BIOL1012 is built into the teaching and learning process. His use of innovative teaching methods and resources will also be briefly discussed.

A brief overview of teaching modes and assessment will be followed by a description of Craig’s coordination and management philosophy of his teaching team

BIOL1012: Teaching modes and assessment:

The teaching team responsible for delivering this course is as follows:

- 8 lecturing staff (including the course coordinator)
- 2 laboratory supervisors
- 20 laboratory tutors
- 3-5 general staff
- 1 educational designer
- 1 PASS coordinator
- 12 PASS leaders

Lectures, laboratories and PASS (Peer Assisted Study Sessions) are used. Lectures are delivered in 3 streams (ie. there are 2 repeats of every lecture). Each stream contains approximately 300 students. Each student is required to attend 3 different lectures per week. The delivery of a total of 117 lectures (including repeats) over 13 weeks is shared amongst the 8 lecturers. The use of lecture notes and lecture templates is discussed below. Lecture and prac schedules can be viewed via the course website.

PASS

PASS is a non-compulsory study scheme offered once per week starting in Week 3. PASS offers the students an opportunity to interact with one another as well as the PASS leaders (2nd and 3rd year students who previously performed well in the subject). The sessions are informal cooperative learning groups based on lecture material content. Evidence from previous semesters has shown a direct correlation between regular PASS attendance and higher results. Around 70-80% of BIOL1012 students attend PASS each semester.

Pracs

Students attend a 1-hour introductory prac (laboratory) at the start of semester and six 3-hour prac sessions after this (ie. every second week). A 134-page prac manual is provided free to all students.
containing notes and exercises which must be completed before, during and after each lab. Pre-lab and lab activities are marked individually by the lab demonstrator in each session. Students undertake ‘mini-quizzes’ at the start of each prac session to test their knowledge of the previous week’s lab. Students are required to complete post-lab exercises from the manual in order to prepare for these quizzes. Usually one of the quiz questions is also based on the current week's pre-lab readings and exercises. In this way, the ‘mini-quizzes’ students are drawing on their emerging knowledge of the new material and consolidating previously learned material at the same time. The incentives for completing the pre- and post-lab exercises are individual grades. While the first 2 of the mini-quizzes serve as formative assessment, allowing students to familiarise themselves with the process, the following 4 mini-quizzes count for 10% each, making up 40% of the final grade. The remainder of the assessment is multiple-choice (MC) exam, accounting for the other 60% of students’ final grades. The MC questions are chosen each year from a bank of over 400 questions. Each semester after the exams have been computer-marked (using Microtest Score II), the questions are analysed for their difficulty level and questions with a very low difficulty level are collaboratively reviewed or removed for future versions of the test.

Other learning materials
In addition to the prac manual, students are provided with a full set of lecture notes (at the start of semester or each lecture?) and are encouraged to purchase the learning guide and set textbook. The textbook Biology is also utilised in 2 other first-year units, thus reducing the pressure on students to pay for separate texts for each course. A dictionary of biological terms is recommended, especially for ESL students.

The lecture notes, provided free to students, are PowerPoint slides in skeletal form. They contain the key concepts included in the PowerPoint slides shown in lectures, and lined spaces are provided next to each slide for students to take extra notes. Questions are actively encouraged from students in lectures and additional examples and explanations are given for students to add to their notes. The lecture notes are also available for students to view or down load via the course web-site. However, since providing students with a complete set of paper notes the course web-site has recorded fewer hits with fewer students accessing them online.

The learning guide is purchased by students for a nominal fee. It is a 116-page document that follows the structure of topics delivered in lectures. It was devised in a collaborative effort from the teaching team (including several PASS leaders) and contains brief outlines of critical concepts, study hints, reminders and test yourself (self-assessment) exercises, as well as suggestion for other available sources of information such as texts, useful web-sites and online labs. It has been designed to act as a personal tutor for students as well as being a major resource during Peer Assisted Study Sessions (discussed earlier). The learning guide also contains interesting, unusual examples that are aimed at stimulating students’ interest and enthusiasm for the subject.

The teaching team
In coordinating such a large course, Craig stresses the importance of fostering an enthusiastic and cooperative team spirit amongst his teaching and administrative staff. During semester he meets regularly with lecturing and laboratory staff to identify and correct any problems or issues that may arise. His decisions about course coordination and use of funds reflect his team-oriented approach. For instance, in designing and structuring the course he utilised departmental resources to conduct a 2-night retreat involving members of the teaching team and general staff in order to concentrate on developing an agree-upon structure and organisation for the course.

In terms of delivery, Craig strongly believes that large lectures are a forum not only for convey ing content but also for conveying enthusiasm for the course material and he pursues this idea with BIOL1012 lecturing staff. In order to maintain the enthusiasm, Craig encourages the lecturers to discuss topics and research of personal interest to them and each lecturer allows 5-10 minutes at the
end of every lecture to highlight topics and examples of interest. However, consistency of teaching is maintained by the use of lecture templates.

**Lecture templates**
Because two lecturers are usually responsible for delivering the same lecture topic, lecture templates have been devised to ensure that all core concepts are covered while still allowing personal input from the lecturer. In designing and structuring the course, all lecturers agreed to the use of PowerPoint slides for presenting lecture materials. They devised templates for each lecture. These are PowerPoint slides that contain the essential information for each lecture, into which lecturers add extra information. An example of a lecture template is as follows:

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Flatworms:

- have gas exchange over general body surface
- have no internal transport system
- have branched organ systems
  - digestion
  - excretion
  - nervous system
  - reproduction
- are size-limited
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Using this basic template, the lecturer/s presenting the lecture simply ensures that all of the points are covered and builds upon the template or creates new ones to highlight each point using relevant examples, photographic images, figures, diagrams, tables and additional text.

**Maintaining enthusiasm**
Craig has maintained an enthusiastic teaching team by carefully selecting lecturing, laboratory and sessional staff. In evaluating his team’s teaching efforts at the end of each semester, Craig is most interested in the comments provided by students and actively encourages them to write comments on teaching and course evaluation forms. He has students view a list of lecturer’s names including the topic taught by each and asks students to comment specifically on lecturers’ strengths and weaknesses. He takes time to read through these comments and distribute them to lecturers for feedback.

He regards the successful management of a diverse group of people involved in Animal Biology (i.e. academics, general staff and post-graduate students) as the key to delivering an excellent course and believes that a crucial role of a coordinator is to provide leadership, advice and support for staff. "Empowering staff and getting the best from them comes from leading by example and getting them to see they are part of a successful team".

Finally, he believes it is important for staff to retain individuality in their teaching style, maintaining that students respond better to variety rather than to “clone” teachers. In lectures, the balancing act between conformity and individuality comes form ensuring that the delivery of core conceptual material (using lecture templates) is the same between lecture streams but the contextual elements which are used to highlight the concepts are left to the individual lecturers. Leaving the contextual information to the individual lecturers allows them to inject some of their own interest, often their own research perspective, into the lectures helping stimulate enthusiasm and excitement for the material being delivered to students.