Teaching teams in First Year Biology - facilitating the transition from research student to teacher.

By Joanne Smissen, School of Biological and Chemical Sciences, Deakin University

At Deakin University, First Year Biology is taught to large numbers of students (up to 1,400 in some years), located on between two and four different campuses. The content of the program and the materials supplied to support the program are uniform, but at each campus, lectures, tutorials, and practical classes, are taught by local staff members. In common with many other tertiary science courses, most of the small group, face-to-face teaching in First Year Biology, is delivered by sessional tutors and demonstrators. The organization, training and support of tutors and practical demonstrators are the responsibility of the First Year Biology Campus Coordinator and are customized to the pool of sessional staff at each particular campus.

At the Geelong campus, the tutors and demonstrators in First Year Biology are, with few exceptions, full-time on-campus postgraduate students. Taking advantage of the close proximity, and therefore ease of communication among team members, we have developed a team approach to teaching tutorials and practicals that provides a clearly defined structure within which research students can progress through levels of increasing responsibility as they develop teaching experience. This team approach facilitates the development of knowledgeable and confident tutors and demonstrators, able to present the best possible learning experience to students in our First Year Biology program. In addition, teaching team members become experienced in important academic skills such as teaching, training and mentoring, communication, teamwork and administration, for which they would otherwise receive no formal training.

Novice demonstrators participate in a fully funded training program and gain paid practical experience under the guidance of experienced demonstrators. After this, team members can progress at their own rate through higher levels of responsibility with respect to teaching and assessment. The most experienced team members have the opportunity to give solo tutorials and to participate in other important academic tasks such as reviewing textbooks.

Teaching team structure

The First Year Biology program consists of fortnightly practicals and tutorials that alternate throughout each semester. The students are divided into groups of about 36 (4-8 groups depending on student numbers) and each group is allocated a teaching team of two sessional instructors, loosely referred to as a tutor and an assistant demonstrator.

The responsibilities of the team members vary. Tutors have the highest level of responsibility. Their roles include running solo tutorials, introducing practicals, ensuring efficient classroom management within practicals, and assessment of tasks in, or arising from, tutorials and practicals. Assistant demonstrators are only present in practicals and assist the tutor in all aspects of the practicals and resulting assessment tasks.

The selection, allocation and mentoring of the teams is the responsibility of the First Year Biology Coordinator (Geelong Campus), who is an academic staff member, and one of several lecturers in the program.
Academic and peer support

This team approach allows research students to develop their teaching skills and to become confident teachers in an environment where they have strong academic and peer support.

The coordinator and other lecturers ensure that:

- Teaching team members have a clear understanding of their roles and responsibilities;
- Team members are supplied with adequate and appropriate resources, including those provided for students (text book, Biology notes, access to the web-site) as well as a demonstrators’ set of practical and tutorial notes and solutions to problems;
- Lecturers are readily available for consultation;
- There is a centralised system for record-keeping (attendance and assessment); and
- Payment is regular and equitable.

Teaching team members are encouraged to contribute ideas and to share information, experience and responsibilities. Communication and team building is fostered, and consistency amongst team members is facilitated, through:

- Regular meetings, during which team members are able to consult with the coordinator and other lecturers, run through the practical material, and discuss organisational issues and assessment;
- An "open-door" approach to practicals and tutorials, where inexperienced tutors and demonstrators are encouraged to observe the classes of experienced colleagues;
- "Corridor communication", facilitated by the close proximity of the research laboratories of team members, ensuring that good ideas and solutions, developed by one teaching team, spread quickly to others;
- E-mail messages; and
- Social events that include all academic and general staff involved in the First Year Biology program.

Training Program

New demonstrators participate in a formal training program. The program runs during first semester and specifically targets Honours students as these are our main source of postgraduate students, and therefore, future demonstrators and tutors. It is expected that all new demonstrators participate in the program before being eligible for selection into a teaching team.

The training program consists of attendance at three "skills" workshops followed by paid experience in First Year Biology practical classes, under the guidance of experienced demonstrators. It is also expected that participants attend one of the laboratory safety talks held for new staff and students in the School of Biological and Chemical Sciences. The workshops, one on the teaching skills relevant to small groups and practical classes, and two on specific discipline skills (microscopy and dissection), are timed to fit in with the First Year Biology program so that participants can practice their newly acquired (or revised) skills in a practical class during the week following the relevant workshop. Because the budget for the training program is preset, the amount of practical experience gained by individuals depends on the number of participants in the program, however in most years participants are each able to demonstrate in two practicals during the semester.

As an added bonus the practicals using/teaching microscopy and dissection skills are very labour-intensive and a third team member in the laboratory during those practicals is extremely helpful.
Experience leads to greater responsibility

After completion of the training program, team members can progress at their own rate through the levels of responsibility within a teaching team. After one year an assistant demonstrator is generally recognized as having sufficient experience to become a tutor if he, or she, wishes. We usually find that assistant demonstrators are quick to gain skills and confidence, and soon share the responsibilities of the tutor within practical classes. When both members of a teaching team have the skills and experience to act as tutors, we generally find that the roles are shared, and the team members alternate giving the solo tutorials.

Outcomes for research (postgraduate) students

The First Year Biology teaching teams at Deakin University are grounded in a culture of responsibility and support and place a strong emphasis on communication and teamwork. Informal evaluations and discussions indicate that participation in these teams, leads research students to gain knowledge and skills in biology, and in teaching biology, and to develop the confidence to participate in "higher level" academic tasks, when given the opportunity. Such activities include giving lectures, reviewing textbooks, and the development of a half-day practical program for Year 12 biology students. Team members have contributed ideas and initiatives to improve the First Year Biology program and have, at times, proved invaluable in completing administrative tasks associated with coordinating such a large unit. Team members have also demonstrated the ability to transfer their teamwork skills to other demonstrating teams and to engender the same culture and benefits in situations where they were previously lacking.

Outcomes for First Year Biology students

By providing them with tutors and demonstrators who are knowledgeable and confident teachers, with a consistent approach to teaching and assessment, we are able to provide our First Year Biology students with the best possible learning experience. The research students in our teams present as excellent role models for future young scientists.

Outcomes for Deakin University

Now that the teaching team approach has been in operation for a number of years the entire team has essentially become self-sustaining. With a small turnover of postgraduates each year, and the ease with which experienced team members pass their skills and knowledge to new members, there is continuity from year to year.

There is also a certain level of redundancy in that individuals can easily fill the roles of others and many important activities, like meetings, do not depend on the presence of one particular individual. Even the First Year Biology campus coordinator can take conference leave confident that the program will not stall in her absence!
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