

Faculty of Science

Hiring of Graduate Students as Teaching Assistants

Recommendations and Best Practices

Purpose

The Faculty of Science aims to establish a set of recommendations and best practices for the use of graduate Teaching Assistants (TAs) to support the education and learning missions of each Unit. At the same time, Faculty wants to ensure that Units without graduate programs are adequately resourced to fulfill their undergraduate teaching commitments.

Background

Graduate TAs play a significant role in assisting Units to deliver and manage their undergraduate curriculum effectively. Full-time qualified graduate students are eligible to receive paid teaching assistantships (a maximum of 260 hrs/student/year). These positions benefit the supervisor by reducing their contribution towards the student's salary. However, TA commitments can contribute significantly to a Unit's expenses if not managed carefully. In 2015, a high-level review revealed a broad range of expenditure levels and practices across Units on offering teaching assistantships to students.

There are eight graduate programs in Science that provide a partial to full TAship to graduate students:

- Biology
- Chemistry
- PNB
- GES
- Kinesiology
- Physics and Astronomy
- Mathematics and Statistics
- Medical Physics

In addition, there are three interdisciplinary programs offered jointly with other Faculties:

- Neuroscience (MINDS)
- Chemical Biology

- Computational Science and Engineering (CSE)

Analysis and Results

Each Unit supplied their TA assignment for the fiscal 2015/16 that was actually in place, along with any policy document. The Labour Distribution report for graduate students was analyzed to ensure that all students were captured. The financial statement for each Unit was used to determine the cost associated with TA activities. The data was processed using the following benchmarks and sent to each Unit for verification.

- TA cost/teaching unit
- TA hours/enrolled student
- TAs in graduate and undergraduate courses
- Courses < 50 students with TA
- Courses < 25 students with TA

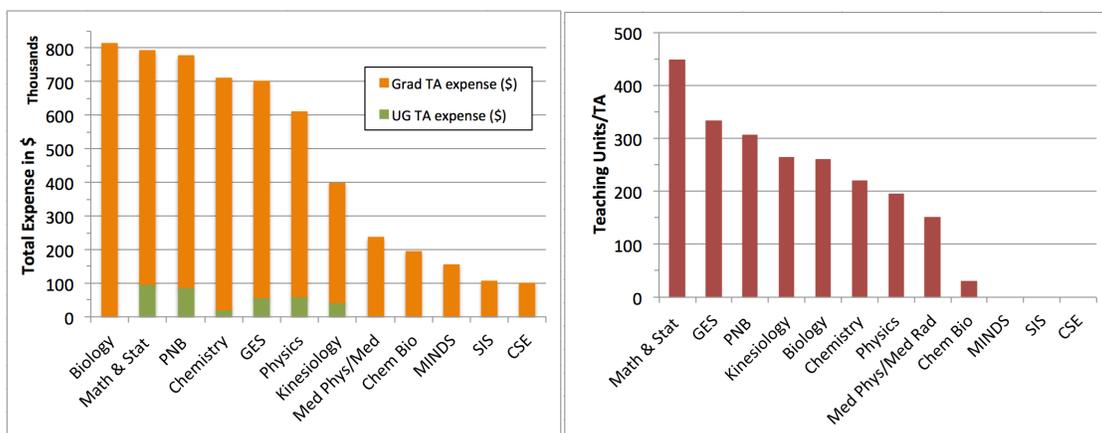
Key findings include,

- Total TA expenditure in Science in 2015/16 was roughly \$5.5 million. Nearly all of the money (> 90%) was used to hire graduate students (see the chart).
- Average Teaching Units (TUs) per TA, an indirect measure of effective TA usage, varies widely between Units (see the chart).
- TAs are assigned to all levels of undergraduate classes, including those with low enrolments (< 25).
- Although the majority of TAs contribute to undergraduate classes, some Units utilize TAs in graduate courses as well.
- Some TAs are assigned to courses outside of their home Unit. The top three Units that hire such TAs are SIS, Chemistry, and Physics & Astronomy (in terms of money spent).
- Few TAs are engaged in activities beyond their 'traditional' duties (i.e., tutorials, labs, invigilation, and marking exams).
- Some Units have developed formal policies to assign TAs.

Also, discussions with Units and the Faculty of Science Graduate Student Association (Scientist Association at Mac, SAM) uncovered the following issues:

- International students are not always fluent in communication. Some have a significant language barrier, which makes it difficult to carry out TA duties effectively.
- Overtime graduate students are occasionally offered TAships, possibly due to the unavailability or lack of expertise of in-time students.

- According to a recent SAM survey of Science graduate students, TAs are not always fully prepared to do their job. This lack of preparation is significant in the case of new, Year 1, graduate students.
- There are several instances of little or no communication between instructors and TAs in courses. A lack of coordination affects the learning experience of undergraduates.
- How Units track TA evaluations and performance is not entirely clear.



Plots showing TA expenditures and average teaching units per TA for the 2015/16 year

TA Allocation Plan Proposal

A fundamental challenge associated with the current system for allocation of TA resources to Units is that they are driven by the number of graduate students in programs rather than by undergraduate teaching needs. In some Units, there may be a match between these two quantities, but in others, there is certainly a mismatch. In the extreme, the School of Interdisciplinary Science (SIS) has thousands of undergraduate students and no graduate program to serve as a resource for graduate teaching assistants. The Faculty requires a mechanism to address potential imbalances in graduate TA availability and undergraduate teaching needs. The following proposal is forwarded to address this issue.

Each Unit will develop an allocation plan for assigning TAs from their graduate program(s) to cover the undergraduate teaching needs of their undergraduate program(s), to be submitted to Dean's office by June 15 of each year. The allocation plan should briefly describe the Unit's standard practice for assigning TAs to courses, and then highlight how that practice results in either a shortfall or surplus of TA resources within their Unit. In the case of a shortfall, the Unit may submit a proposal for the hiring of undergraduate TAs to cover teaching needs, whereas in the event of a surplus the Unit

should propose the number of graduate TAs from their Unit available to perform TA duties in another Unit within the Faculty. In addition, each Unit will also submit actual enrolment numbers and TAs to all courses for the previous academic year. By the end of June the Dean's Office will respond (approve, or recommend changes) to each Unit's allocation plan, allowing the remainder of the summer term to plan TA allocations within Units accordingly.

TA Allocation Recommendations

The standard practice for assigning TAs to courses should be guided by the following recommendations. Any assignment practice not in line with these recommendations in any given year should be described explicitly in the allocation plan.

1. TA allocation to undergraduate courses should be based on historical enrollment data and not on enrolment caps.
2. TAs should normally only be assigned to undergraduate courses.
3. Although the nature of courses and content delivery varies widely between Units, there is a need to carefully consider TA assignment to courses with low enrollments. TAs should not normally be assigned to courses with enrollments of less than 25.
4. TAs should assist mainly with academic activities, such as work in tutorials and labs, evaluation of assignments and exams, and meeting with students to discuss course content. Any significant work by TAs on non-academic activities should be described in the allocation plan.
5. Overtime and out-of-time students should normally not be offered TA positions.

TA recruitment/training – Best Practices

1. Units should develop a mentorship plan for new TAs so that there is a resource available to help them prepare to perform their job well.
2. Units should encourage regular communication between TAs and instructors during the course term.