Physics & Astronomy

Teaching Assistant
Professional Development Program

TAPD Coordinators
Sophie Berkman, Kathryn Crowter, Amanda Parker & Philippe Sabella Garnier
phas_ta@phas.ubc.ca

All training information, including module slideshows can be found at:
www.phas.ubc.ca/~phas_ta/programs.html
# Program Overview

## For New TAs

1. Core Workshop
2. Mentor Program
   - Mentor observation
   - Peer observation

## For New & Returning TAs

1. Course-Specific Training
   - All large first year courses in physics and astronomy
2. Ongoing mini-workshops for continued TA professional development
   - Work in progress

---

Relatively well established and effective program

Needs work to make training more effective.
Core Workshop

- Developed by graduate students for graduate students
- The workshop is paid mandatory training for all new TAs
- All graduate courses are cancelled for the duration of the workshop to ensure participation
- Now hold two workshops to accommodate undergraduate TAs
The professional aspect of a teaching assistantship is introduced through presentations detailing departmental and union expectations of the TAs

- The Department Head presents an overview of the department’s expectations including:
  - Responsibilities inside and outside the classroom
  - Expected TA work hours and nominal duties

- Important job information from the TA union (CUPE 2278) is highlighted
TAs explore their own positive and negative learning experiences to determine the important aspects of teaching

- Introduction to active learning through discussion of the difference between learner-centred and teacher-centred learning
- Includes data on effectiveness of learner-centered methods to help TA buy-in to active learning and the rest of the workshop.
Core Workshop

Teaching By Questioning

TAs watch and critique recordings of real TA-student interactions and imagine what they would do in these situations

- Introduces the use of Socratic questioning techniques in the classroom
- Videos are from the University of Maryland PER group
Core Workshop

Learning Goals in the Lab

TAs are given a learning goal from a first year course, and discuss Socratic questions they might ask their students to see if they have understood the main points of the lesson.

- Motivate the importance of learning goals in a lab or classroom setting for both teaching and learning purposes
- TAs learn to use learning goals to inform the questions they ask their students and to assess if their students understand the main points of the lesson
Core Workshop

Course-Specific Training

TAs attend a training session specific to the course they will TA in the upcoming semester. The training is coordinated by the courses’ Head-TA(s) and provides all the necessary tools and training TAs will need to comfortably lead their first lab or tutorial.

- Allows TAs to practice delivering a lab or tutorial introduction
- Provides a platform for receiving and giving constructive feedback and evaluation
- Focuses on skills specific to courses, such as marking, working with large groups, and problem solving
Core Workshop

Formative Evaluation

TAs learn effective techniques for obtaining constructive feedback from students

- Highlights the different roles of feedback in the classroom, such as
  - Improving one’s performance as a TA
  - Assessing the students’ understanding as new concepts are introduced

- Refers to techniques and questionnaires that TAs have already seen and participated in throughout the workshop
Core Workshop

Creating Inclusive Classrooms

TAs explore the impact of their identity/culture on their teaching and learning experiences and discuss sensitive situations presented via several case-studies.

- Fosters an open and interactive environment ideal for discussion of complex gender and diversity issues
- Introduces stereotype threat as an example of an issue that may arise in physics classrooms, and as a motivation for the module.
- Case studies focus on issues that could be encountered in a classroom, which are relevant to the TA positions

Note: TAs in leadership roles also receive formal training from the Center for Inter-Cultural Communication (CIC) so that diversity can be incorporated into all elements of the training program
Course-Specific Training: Weekly Meetings

- Meetings are run by head TAs
  - New and returning TAs in large first year courses attend
  - Emphasis is on “how to teach” rather than “what to teach”.
  - e.g. identify teaching strategies that will address common student misconceptions, misinterpretations of activities, etc.

- New pilot meeting format this year:
  - TAs explicitly identified possible student misconceptions, Socratic questions or teaching techniques for each of the activities that the students would perform in the next week’s lab or tutorial.
  - Prompted TAs to think meta-cognitively about how they, as instructors, can facilitate the student activities, and allowed the meetings’ focus to switch from the activities to teaching techniques.
  - Will be implemented by the Head TAs in all courses starting next year.
Mentor TA program

Each new TA is paired with a single Mentor TA for their first semester as a TA in the Physics & Astronomy Department, and participates in a series of peer-review sessions.

- All mentors participate in a peer review training session offered by the Center for Teaching Learning and Technology (CTLT).

- The program is facilitated by a Mentor Coordinator whose main responsibilities are to:
  - communicate with and support the mentors
  - coordinate the pairing of mentors with mentees
Mentor Program Overview

1 - Introductory meeting
Discuss mentee’s teaching goals and skills they would like to improve

2 - In-class observation
Mentor observes the mentee in the classroom

3 - Post-observation debrief
Pair discusses the mentor’s observations

4 – Follow-up observation
a) Peer Review between mentees  
b) Second mentor observations

5 - Follow-up discussion
Post observation discussion facilitated by the mentors
Program is run by senior TAs

<table>
<thead>
<tr>
<th>Coordinators</th>
<th>Head TAs</th>
<th>Mentors</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Fall workshop development &amp; delivery</td>
<td>• Development &amp; delivery of course-specific training</td>
<td>• Peer review training</td>
</tr>
<tr>
<td>• Facilitation of all TAPD programs</td>
<td>• Peer mentoring</td>
<td>• Mentoring &amp; role model experience</td>
</tr>
<tr>
<td>• Funding &amp; budget</td>
<td>• Course administration &amp; development</td>
<td>• Observing other teaching styles</td>
</tr>
<tr>
<td>• Peer mentoring</td>
<td>• Culture &amp; diversity training</td>
<td>• Culture &amp; diversity training</td>
</tr>
<tr>
<td>• Culture &amp; diversity training</td>
<td>• Formative evaluations for program assessment</td>
<td>• Effective use of feedback from observations &amp; discussions</td>
</tr>
<tr>
<td>• Formative evaluations for program assessment</td>
<td>• Formative evaluations to tailor training</td>
<td></td>
</tr>
</tbody>
</table>
The TA Handbook covers topics relevant to both new and experienced TAs:

- Job expectations, responsibilities and position details
- Important departmental and external contacts
- Tips and tricks to improve one’s teaching, as well as links to additional resources and contacts
- Classroom problems and resolutions
- Culture and diversity; techniques to create an inclusive classroom environment
- Creating and using formative evaluations
- First day checklist

This book was distributed electronically to all TAs, or in paper format by request.
Asked new TAs about their confidence teaching before & after core workshop

Average responses from 2014 workshop:
1/3 = have TAed before
2/3 = have not TAed before

- Core workshop brings those who have not TAed before onto par with those who have TAed before.
- Core workshop may not be effective for those who have TAed before.
  - Currently thinking about ways to better include people who have TAed before (bringing up experiences? role playing with experienced TAs as students?)

I feel confident in:

- leading a student discussion
- my ability to instruct students
- my ability to illustrate physics concepts to students
- implementing active learning strategies

Average responses from 2014 workshop:
1/3 = have TAed before
2/3 = have not TAed before

0 1 2 3 4 5

Haven't TA'd before POST
Haven't TA'd before PRE
Have TA'd before POST
Have TA'd before PRE
Ongoing TA Professional Development

- Motivation:
  - Other than weekly course-specific meetings, ongoing TA professional development is not provided at this point.
  - The training that has been implemented seems to be most effective for people who have never TAed before, potentially not reaching some TAs.
- Hope to implement a first pass at ongoing professional development this year.
- Hold short (~1 hour per year or semester?) training sessions on teaching and learning in physics.
  - Materials will be prepared by the TAPD coordinators in advance, and informed by Dr. Rachel Sherr’s case based “video workshops”
  - Training sessions will be run by experienced TAs (though not necessarily TAs in other leadership roles such as head/mentor TA)
  - Training groups will be small ~5 TAs to encourage accountability & participation
  - Need to coordinate with instructors to build this time into TA hours

We are still in the planning stages. Ideas & suggestions are welcome!
Program Assessment

- Survey responses about the workshop are generally positive
- Began evaluating attitudes about teaching & learning before and after the workshop this past year
  - Plan to also evaluate at the end of the first semester teaching starting next year
- Student TA evaluations
  - Hope to look at student TA evaluations to see if we can see the impact of the training program on how students rate their Tas
  - Objective measurement of program efficacy