Looking back on six years of GTA preparation

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Physics GTA Preparation

- One-semester course offered every Fall semester since 2013
  - 134 graduate students have participated to date
- Mandatory for first-time GTAs (usually first-year PhD students)
- Fully integrates pedagogy, physics, and professional development
- Goals:
  - Develop and apply learner-centered teaching practices
  - Explain physics concepts, address student preconceptions, and facilitate problem-solving
  - Give and receive feedback
  - Manage classroom dynamics
  - Identify transferable skills useful for future career
  - Produce GTAs who are motivated and effective teachers

Alicea-Muñoz, Subiño Sullivan, Schatz (in preparation)
Structure and Content

- Course **structure** remains unchanged across six years
  - **Orientation**
    - Series of 2- or 3-hour intensive workshops
    - Approximately 15 hours total contact time
    - Before semester begins and GTA duties start
  - **Follow-ups**
    - One-hour sessions every 2-3 weeks during the semester
    - Approximately 5 hours total contact time
  - **Classroom observations**

- Course **content** has become more comprehensive
  - Yearly revisions based on experience and GTAs’ comments and needs
Consistent over the years

- Microteaching
  first chance to teach in front of a group for many new GTAs; consistently rated as the most useful activity in the class

- Midterm evaluations

- Classroom Management

- Active learning

- Grading

- Time management

- Georgia Tech policies
  added OK/NOT-OK game in 2017

went from 95% pedagogy with 5% physics sprinkles to fully integrating pedagogy within physics context and examples

split into separate sessions for different GTA assignments
False starts

- Peer Observations
  - love/hate; GTAs felt unqualified to give feedback AND wanted feedback from more experienced teachers

- Experienced TA Observations
  - logistics issues

- Leading Discussions

- Being a Physics TA
  - most of our grad students go into industry, so they felt this was not useful to them

- Teaching Philosophy

- Leadership
  - met with a resounding “meh”
Newer and successful

- Teaching Videos
  - watch, discuss, critique; new clips every year; ~500 GB of videos from classroom observations
- Lab Simulation
  - like microteaching but for labs; GTAs take turns to facilitate labs while other GTAs are students; secretly planted bad behaviors are a huge hit
- Successful First Day/Week
  - peer mentoring by senior grad students
- Mentoring
- Teaching and Research/Transferable Skills
  - comparison of academic and non-academic job ads, identifying transferable skills from teaching
Assessments and the Future

- Program assessment with pre/post tests and GTA surveys at various points during the semester
- Assessment data for 2013-2016** reveals that the course increases GTA self-confidence and learner-centered teaching practices (Alicea-Muñoz, et al., PERC Proceedings, 2017)

- What’s next?
  - Curriculum is stable, with only minor changes happening since 2017 (e.g., new GTA videos, new case studies, new examples)
  - Program expansion to support returning GTAs and new/returning UTAs is in the works
  - Finish up data analysis, write it all up, defend, graduate

** Additional data analysis to appear in Alicea-Muñoz, et al. (in preparation)