# Looking back on six years of GTA preparation

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Georgia Tech | School of Physics
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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*

Pedagogy

GTA Preparation

Physics

Professional Development
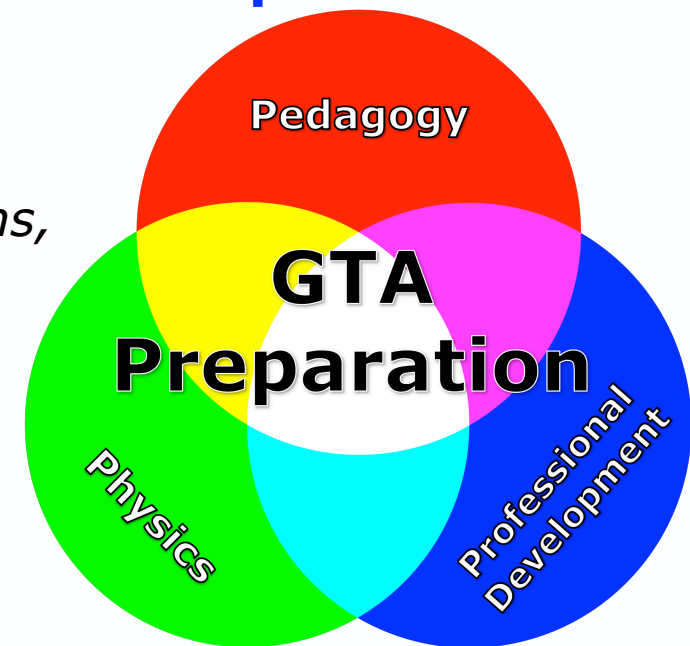
Structure and Content

- 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
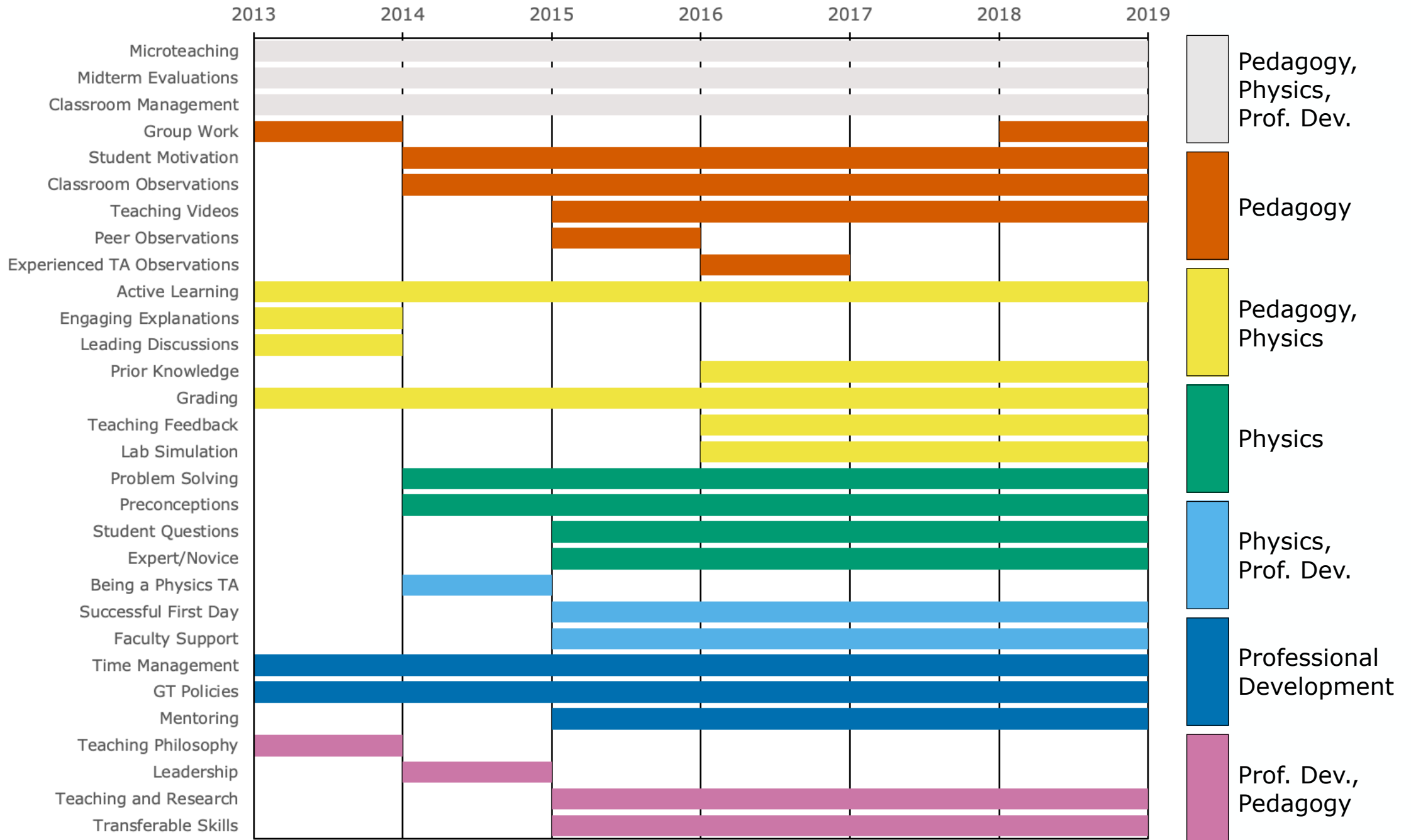 - *Yearly revisions based on experience and GTAs' comments and needs*
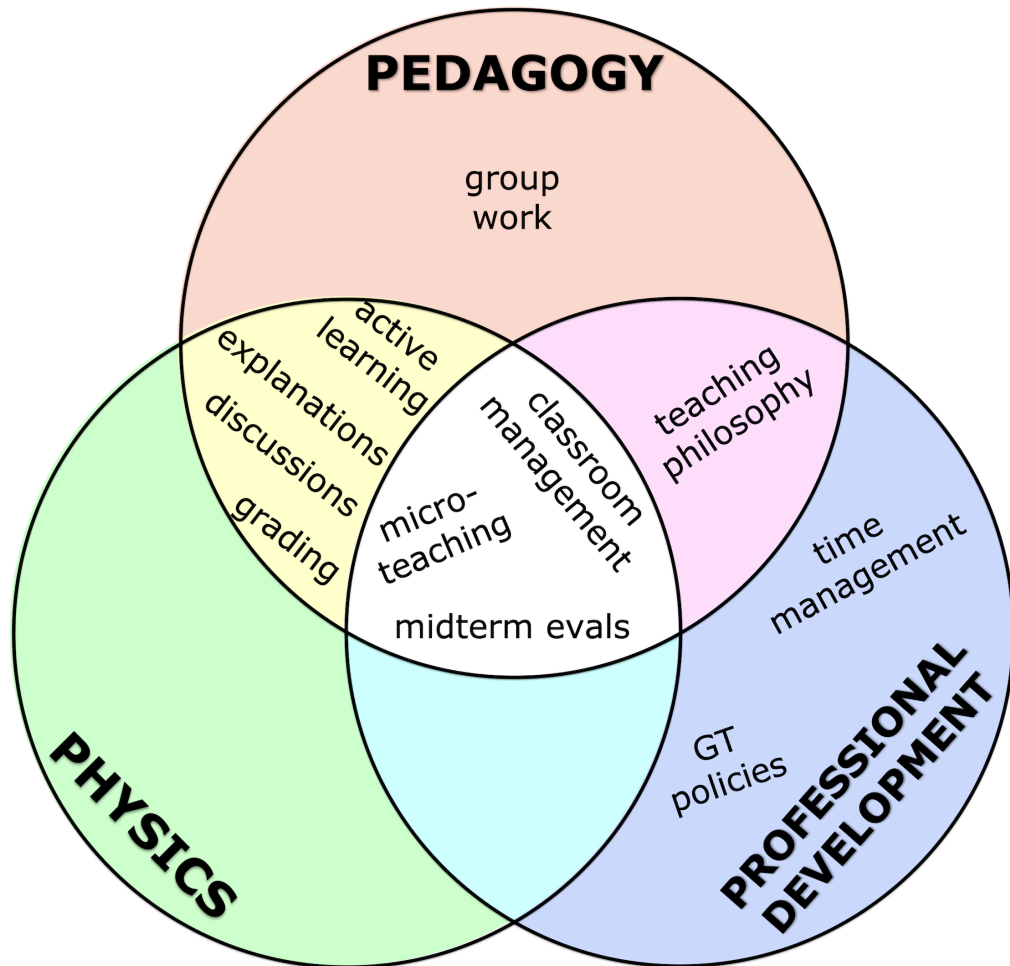
2013
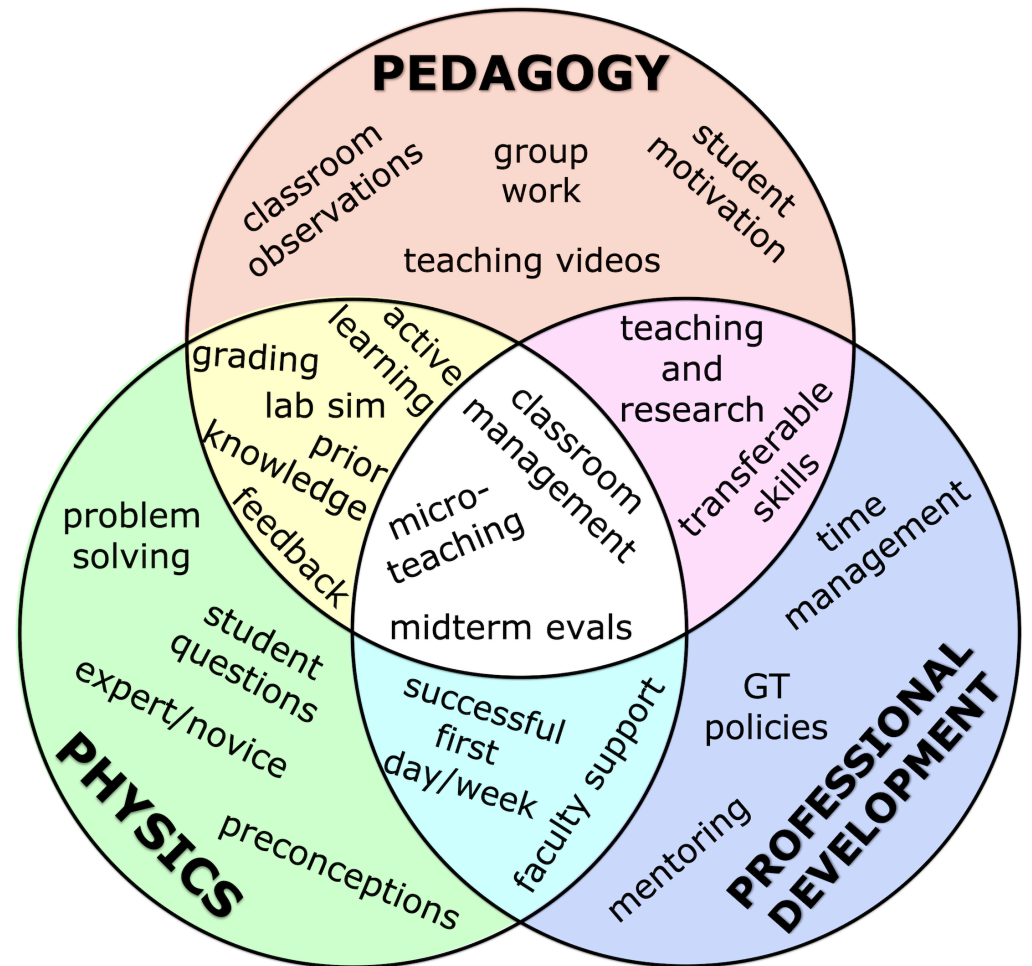
2018

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

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

- Grading

  split into separate sessions for different GTA assignments

- Time management

- Georgia Tech policies

  added OK/NOT-OK game in 2017

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

- Mentoring

peer mentoring by senior grad students

- 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)