TA Bootcamp:
Preparing graduate students to teach to a diverse student body and get the most out of their teaching experience

May 6\textsuperscript{th} Group Meeting
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MIT Drennan Education Lab
Acknowledgements

Prof. Cathy Drennan
Beth Vogel Taylor, PhD
Chemistry Education Office
Jennifer Weisman, PhD
Brandeis University
Prof. Melissa Kosinski-Collins
Our overall goal is for the TAs to become *teacher scholars*.

Graduate Students’ Teaching Experiences Improve Their Methodological Research Skills

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*Corresponding author.

![Graph showing experimental design quality by group](Science 333, 1037 (2011))
Confidence!

Enthusiasm!

Community!

Collaboration!
Bootcamp for Intro Chem TAs
- 10 TAs
- 5 days (~20 hr)

Scaled up Bootcamp for all Chemistry Dept. TAs
- ~35-50 TAs/year
- 5 days (~20 hr)

Brandeis BioLab TAs
- ~15 TAs/semester
- ~4 hr

Modified Bootcamp for all Biology Dept. TAs
- ~35 TAs/semester
- ~5 hr
Group Meeting Outline

1. Comparing the three versions of the Drennan Ed Lab TA Bootcamp
2. Understanding the training assessment and feedback
3. Implementing a TA training bootcamp in your department or course
Participants
- First year Chemistry Dept. graduate students (35-50/year)
- 2010-2012
  • >138 graduate students, 36% female, 11% URM-status

Purpose
- Welcome and Introduction to MIT (students and resources)
- Celebration of great teaching from the previous year’s TAs
- Overview of course-specific TA responsibilities
- General preparation for teaching and TAing in a diverse classroom

Time
- ~20 hrs over 5 days (lab not chosen yet)
• Importance of learning how to teach on research:  
  -- *Science* 333, 1037 (2011)

• Active learning resource, “182 Interactive Techniques”

• MIT teaching resource, “The Torch or the Firehose”

• Stereotype-threat reading, “But I don’t Like Beer…”
Welcome and discussion of goals of training
Presentation of TA Awards
Meet Your Teaching Team
Learning and Cognitive Theory and Interactive Teaching as Performance
Lunch with your TA Team
Challenges in Teaching Recitations/labs
Addressing Stereotype Threat in the Classroom
Graduate Institute Welcome and Lunch
Research Group Selection Advice
Stellar Training
Getting Ready for Microteaching
Microteaching
Meet Your Teaching Team

Goals of session:

• Be able to articulate teaching goals and answer the question, “what kind of teacher do I want to be?”
• Develop a good working relationship with your teaching team
• Become familiar with course policies and faculty expectations
1. Introduce yourself and describe your undergraduate institution. Is it a big place, small place? Number of Chemistry majors?

2. Did you ever have a TA when you were an undergraduate student? Prior to this training, what job description did you have in mind for a TA? (example: TAs grade only)

...
Cognitive Theory and Interactive Learning & Teaching as Performance

Goals of session:
• Be able to apply research on how students learn to one’s own teaching.
• Be able to describe specific strategies for active learning.
Challenges in Teaching Recitations/Labs

Goals of session:
• Become familiar with common challenges specific to your course assignment
• Be able to apply best teaching practices developed by former course TAs.
Challenges in Teaching Recitations/Labs

1. **Balancing classwork, lab selection and TAing.**

2. **Strategies for getting off to a strong start in recitation.**

3. **The “advanced” student that is constantly challenging you or questioning your authority or expertise.**

4. **Handling questions that you don’t immediately know how to answer.**

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1. **Balancing classwork, lab selection and TAing (led by ____________)**. A discussion of how to balance your own time during the first semester and how to deal with the stress of trying to teach while simultaneously taking classes and deciding on a lab.
Teaching in a Diverse Classroom/Laboratory

Goals of session:
• Be able to define stereotype threat and identify who can be affected by it
• Explain how stereotype threat can lead to poor performance in a class or lab
• Apply strategies to overcome the negative effects of stereotype threat.
Hold on, what was the question again?

I think I know, but what if I’m wrong?

I guess, he’ll think he was right to think I couldn’t do well

Maybe this class is too hard for me

As the only X in the room, if I’m wrong, they’ll think all Xs are stupid.

I want to do really well!
Exercise

Recall a time that you felt judged by someone in a classroom setting for a superficial characteristic

or when you worried about confirming a negative stereotype.

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Kleck & Strenta 1980
Getting Ready for Microteaching
aka The Art of a Good Presentation

Goals of session:
• Be able to describe presentation pitfalls and best practices for application in Microteaching.
Microteaching

Goals of session:
• Practice giving and receiving wise criticism in the context of teaching a five-minute recitation lesson.
Modified Bootcamp for Biology Dept. TAs

- **Participants**
  - Second and fourth year Biology Dept. graduate students

- **Purpose**
  - Advanced introduction to MIT (students and resources)
  - Overview of course-specific TA responsibilities
  - General preparation for teaching and TAing in a diverse classroom

- **Time**
  - 5 hrs
Biology TA Training Schedule

Welcome and Discussion of Goals of Training
Lunch and Meet Your Teaching Team
Logistics and Challenges
Teaching in a Diverse Classroom/laboratory
The Art of a Good Presentation
Evaluation of Training

Time (hr)
“So, does anyone know if my class has a recitation section?”

- Inconsistent preparation among course professors
- Former course TAs invited back to help with training
  - 35 current TAs: 11 experienced TAs
  - Scheduled time early in training with former TAs
Modified Bootcamp for Brandeis BioLab TAs

• Participants
  – Second year graduate students and selected upperclassmen UTAs

• Purpose
  – Advanced introduction to Brandeis (students and resources), BioLab course content and TA responsibilities
  – General preparation for teaching and TAing in a diverse classroom

• Time
  – 3 hrs
Goals of session:
1) To leave today with concrete teaching strategies.
2) To see fellow TAs as a resource when real challenges arise.
Group Meeting Outline

1. Comparing the three versions of the Drennan Ed Lab TA Bootcamp

2. Understanding the training assessment and feedback

3. Implementing a TA training bootcamp in your department or course
What our alumni say...

• By talking with former TAs, I know which parts of the course students will have problems with. I prepare lessons thinking about experiences / strategies that the former TAs discussed.

• I now discuss with the other 5.111 TAs how the experience is going. We share experiences...I don't feel alone in facing my teaching responsibilities.

• It allowed my teaching to mature more quickly. It served as a catalyst for my teaching by providing examples of how to think about teaching. Without (this training), I would not be this far along in my teaching.
### Data: What previous TAs have said about the training

Previous Teaching Assistant Responses to TA training (2010-2012); N=138.

<table>
<thead>
<tr>
<th>Effectiveness Ranking</th>
<th>Mean (# out of 7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lunch with your teaching team</td>
<td>6.1</td>
</tr>
<tr>
<td>Discussions with former TAs on “challenges”</td>
<td>6.0</td>
</tr>
<tr>
<td>Meet your Teaching Team</td>
<td>5.7</td>
</tr>
</tbody>
</table>
Data: What previous TAs have said about the training

Previous Teaching Assistant Responses to TA training (2010-2012); N=138.

<table>
<thead>
<tr>
<th>Enjoyment Ranking</th>
<th>Mean (# out of 7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussions with former TAs on “challenges”</td>
<td>6.3</td>
</tr>
<tr>
<td>Microteaching</td>
<td>6.3</td>
</tr>
<tr>
<td>Lunch with your teaching team</td>
<td>5.8</td>
</tr>
</tbody>
</table>
Data: items that contribute to the 2010-2012 diversity scale

<table>
<thead>
<tr>
<th>Statement</th>
<th>Pre-training</th>
<th>Post-training</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Understanding diversity issues in the classroom.</td>
<td>4.21 average; 40% agree</td>
<td>5.93 average; 93% agree</td>
</tr>
<tr>
<td>2. It is important to address diversity issues that might surface in my recitation.</td>
<td>4.79 average; 60% agree</td>
<td>5.88 average; 91% agree</td>
</tr>
<tr>
<td>3. I believe to be an effective teacher, a TA must understand how diversity issues and stereotypes can affect the learning experience.</td>
<td>4.78 average; 57% agree</td>
<td>5.95 average; 90% agree</td>
</tr>
<tr>
<td>4. In addition to my teaching, I can apply diversity training to other aspects of my life.</td>
<td>4.87 average; 58% agree</td>
<td>5.90 average; 87% agree</td>
</tr>
<tr>
<td>5. I can define stereotype threat.</td>
<td>3.43 average; 27% agree</td>
<td>6.10 average; 93% agree</td>
</tr>
<tr>
<td>6. I can recognize stereotype threat.</td>
<td>3.46 average; 28% agree</td>
<td>5.94 average; 96% agree</td>
</tr>
<tr>
<td>7. I am familiar with strategies to alleviate diversity issues in the classroom.</td>
<td>3.61 average; 26% agree</td>
<td>5.53 average; 89% agree</td>
</tr>
<tr>
<td>8. I can send a negative message to some of my students by ignoring diversity issues.</td>
<td>4.54 average; 48% agree</td>
<td>5.54 average; 78% agree</td>
</tr>
</tbody>
</table>

N=120; TAs used a seven-point Likert scale to indicate their level of agreement with each statement.
Coming soon...

Retrospective interviews and survey responses from the ’07 and ‘08 TAs
## Data: What the Students say

### TA Recitation Performance

<table>
<thead>
<tr>
<th>TA Recitation Performance Scale &amp; Items</th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TA Recitation Performance Scale</strong></td>
<td>6.1</td>
<td>1.0</td>
<td>668</td>
</tr>
<tr>
<td>My TA wanted us to do well</td>
<td>6.4</td>
<td>90</td>
<td>675</td>
</tr>
<tr>
<td>My TA was enthusiastic about chemistry.</td>
<td>6.2</td>
<td>1.1</td>
<td>685</td>
</tr>
<tr>
<td>My TA was well prepared</td>
<td>5.9</td>
<td>1.4</td>
<td>673</td>
</tr>
<tr>
<td>Recitation complemented lecture concepts and attitudes</td>
<td>5.8</td>
<td>1.4</td>
<td>671</td>
</tr>
</tbody>
</table>
Group Meeting Outline

1. Comparing the three versions of the Drennan Ed Lab TA Bootcamp
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3. Implementing a TA training bootcamp in your department or course
Tips for implementing a TA-training bootcamp

• Department support
  – Faculty buy-in

• Former TAs
  – Personal, individual requests from organizer
  – Communicate expectations in person (if possible)
  – “Save the horror stories”
  – Provide a facilitator-training model
Considerations for implementing a TA training bootcamp

• **Needs of the TAs**
  – Introductions to the institution? To the course population?
    • Uniformity of TA group?
  – Time commitment
  – Implementation of learning data into training
    • Include active and peer learning instruction

• **Needs of the Department or instructor**
  – Time commitment
  – Assessment
Data collection in smaller groups

<table>
<thead>
<tr>
<th>BEFORE Training</th>
<th>AFTER Training</th>
</tr>
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<tbody>
<tr>
<td>1 2 3 4 5 6 7</td>
<td>1 2 3 4 5 6 7</td>
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<td>1 2 3 4 5 6 7</td>
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<tr>
<td>1 2 3 4 5 6 7</td>
<td>1 2 3 4 5 6 7</td>
</tr>
</tbody>
</table>
When in development, short responses work best

2. Have you attended a diversity training session before? Was this training session different than what you expected? In what way(s)?
   Yes; it was more relatable and less judgmental. The fact it raised awareness more than technicity do this or that is the appeal.

2. Have you attended a diversity training session before? Was this training session different than what you expected? In what way(s)?
   Yes; was nice b/c this training was more data driven & geared towards a scientific audience.

7. Did you know about wise criticism before today (criticism in which you explicitly state your high expectations and belief in the other individual)?
   Yes, but not by that name.

9. Do you think that the company should offer this training again? What would like to see changed if the training was done again?
   Yes, I think it is useful. Next time could take more time for group discussion/interactions & sharing of individual views. Might take longer overall though!
Thank you!

Please go to our site for more information:

http://drennan.mit.edu/education/

Sample schedules and challenges are available upon request:

aniqueom@mit.edu