GTA/Instructor Orientation and Training Program

Welcome! This program has been designed to help you on your path to becoming a successful teacher here at Penn State. It will consist of lectures from experts, online discussions, and written assignments. Participating in all three are required for first-year graduate students and strongly encouraged for new post-docs and instructors.

If you have any technical difficulties, please email Sara at sxj937@psu.edu. For all other questions, **please email your group leader**.

Lectures and Piazza Discussions

All lectures will be in 114 McAllister and begin at 5:45pm. Please be on time.

Over half of the weeks, we will have a lecture from an invited expert. Please be on time for these lectures and give the speaker your full attention.

By the Friday after each lecture, you are expected to post a response on the Piazza website under the appropriate heading. Your response can cover whatever you wish. To help you with your response, we have provided a question with each lecture to get you started. You may also consider any of the following questions:

- What did the speaker present? In what ways will the information inform your future teaching?

- Do you agree or disagree with the assertions/material presented by the speaker? If you disagree, explain what you think is a better alternative.

- What methods did the speaker use to deliver the information? What did you think about their technique?

If you notice that another student discussed ideas you were considering, you may post a response instead. Responses should be substantial and detailed, much like a stand-alone post.

You will be graded for participating in the discussion. Remember: You have until Friday to post your response. We suggest you do it immediately after the talk or the following day.

Assignments

No late assignments will be accepted.

For each assignment, you will turn in a write-up in the appropriate Angel folder. The early write-ups will ask you to answer a set of questions. Later write-ups will ask you to create mock teaching materials that apply the techniques you have learned from the lectures and reading.

All assignments are due on Angel. The assignments are mandatory for graduate students. They will be graded as pass/fail. Remember, no late assignments will be accepted. We encourage you to complete the assignments as early as possible.

Schedule

1. **Lecture 1 (8/26)**: James Sellers on Teaching Mathematics at Penn State

   - **Piazza Activity (Required)**: For this response, we ask that you include a mind map that describes teaching mathematics at Penn State and post it on Piazza. Feel free to use outside information in addition to the information provided by Dr. Sellers.

     Here is a sample mind map that describes the field of mathematics. As you can see, they can get quite complicated.

   - Submit post to Piazza by Friday, 8/29.

2. **Assignment 1 (Due 9/2)**: Mathematics and Mindset

   (a) Watch this video called "Carol Dweck: The Effect of Praise on Mindsets."

   (b) Watch this video, Lecture 2.3 from How to Learn Math by Jo Boaler.

   (c) What do you think of Carol Dweck's research on mindset? How do you think this research applies to university-level mathematics classrooms?

   (d) Watch this video, Lecture 2.4 from How to Learn Math by Jo Boaler.

   (e) Why do you think mindset intervention strategies impact minority populations the most? Put another way, why do you think minority populations tend to have fixed mindsets?

3. **Assignment 2 (Due 9/9)**: Making Mistakes During Lecture

   (a) Listen to the podcast with Jacob Turner where we discuss how he handles making a mistake while lecturing.

   (b) Read "Making Mistakes" from *How to Teach Math: A Personal Perspective* (on Angel)

   (c) Do you remember a time when a professor made a mistake during a lecture? How did it impact your learning?

   (d) What do you think is the best way to handle mistakes in the classroom? Do you agree or disagree with the points made by Jacob and the reading?

4. **Lecture 2 on 9/16**: Chas Brua on Communication in the Classroom

   - **Suggested Piazza Question:** List some of the communication techniques Chas used in his presentation and describe how they kept you engaged.
   - Submit post to Piazza by Friday, 9/19.

5. **Lecture 3 on 9/23**: David Zach on Assessment

   - **Suggested Piazza Question:** How did David assess the audience during his lecture?
   - Submit post to Piazza by Friday, 9/26.

6. **Assignment 3 (Due 9/30)**: Case Study – "Changing Sections"

   (a) Read pages 5 to 9 of *Teaching Mathematics in Colleges and Universities: Case Studies for Today's Classroom*, a case study called "Changing Sections" (on Angel).
   (b) Should Otto have advised Gil to drop the class? Why or why not?
   (c) Should Felicia have let Gil into her section? Why or why not?
   (d) From the reading, it appears that both Felicia and Otto are successful teachers. What are their approaches? How are they different? Which teaching approach do you believe benefits students in the long run?

7. **Lecture 4 on 10/7**: Larkin Hood on Mid Semester feedback and SRTEs

   - **Suggested Piazza Question:** What methods will you use to encourage your students to fill out the SRTEs?
   - Submit post to Piazza by Friday, 10/10.

8. **Lecture 5 on 10/14**: Jackie Bortiatynski on Motivating Students

   - **Suggested Piazza Question:** What techniques have you seen used in the classroom to motivate you? Did they work? If so, why did they work? If not, what could the instructor have done differently?
   - Submit post to Piazza by Friday, 10/17.

9. **Assignment 4 (Due 10/21)**: Practice and Feedback

   (a) Read pages 145 to 152 of Chapter 5 (towards the end) of *How Learning Works*. The sections are titled **Strategies Addressing the Need for Goal—Directed Practice** and **Strategies Addressing the Need for Targeted Feedback**

   Note: The entire chapter is posted on Angel. You are only responsible for the sections listed above, but you are encouraged to read the entire chapter.

(b) Have you seen any of these techniques used in a class before?

(c) Pick three strategies from either section and explain how a math instructor could incorporate them into a math class.

10. **Lecture 6 on 10/28**: Andrew Baxter on In-Class Activities and Nontraditional Methods

- **Suggested Piazza Question:** What techniques have you seen used in the classroom to motivate you? Did they work? If so, why did they work? If not, what could the instructor have done differently?
- Submit post to Piazza by Friday, 10/31.

11. **Assignment 5 (Due 11/4)**: Create a Mock Syllabus

(a) Select a 0-, 100-, or 200-level course and review some syllabi.

(b) Use these models to create a mock syllabus. Your syllabus should include an academic integrity statement and a disability statement.

(c) Along with your syllabus, submit a write up explaining your choices for grading and wording. Cite any syllabi you used. Be sure that your write-up answers the following questions:

- What kind of mindset are you communicating?
- How does homework and feedback work? And how is that system communicated?
- How are you assessing your student performance?
- What in your syllabus motivates your students to try hard in your class?
- Are you using group work? If not, why not? If so, how does your grading structure work? How will you combat social loafing and free-riders?

12. **Lecture 7 on 11/11**: Jim Hager on One-on-One Interactions with Students

- **Suggested Piazza Question:** Tell us about a one-on-one experience you had with a past professor that stands out in your mind. Was it good or bad? How did that interaction impact your performance in the class?
- Submit post to Piazza by Friday, 11/14.

13. (*Optional*) **Classroom Visitations during 11/10 − 11/15** : Visit a 00-, 100-, or 200-classroom.

- You may visit a Penn State Classroom to see what it is like!
- We will provide a list of classes. You do not have to stay for the entire class, but we ask that you enter and leave quietly.

- We strongly recommend this activity for anyone who has never taken an undergraduate course in the US.

14. **Five-Minute Examples on 11/18**: Present an example in five-minutes or less.

    - Each of you will be assigned an example from a 00-, 100-, or 200-level class. You will present the example in 5 five minutes as if you were teaching to students directly.
    - Your performance will be recorded and available for all in the GTA program.

15. **Assignment 6 (Due 12/1)**: Create a Lesson Plan

    (a) Pick a topic from a 00-, 100-, or 200-level course. You can pick something simple like factoring quadratic equations from Math 21 or something as complicated as drawing phases spaces from Math 251. If you need help selecting a topic, speak with your group leader.

    (b) Write a lesson plan for a topic from this course. Your plan should include:
        - What you will write on the board
        - What you will say
        - Where you anticipate questions and why

    (c) Along with your lecture plan, submit a write up explaining your choices. Be sure to cite material we have covered in the class.

16. **Lecture 8 on 12/2**: John Roe on Penn State Teaching Policies

    - **Piazza Activity**: In addition to your response, we ask that you create another mind map on teaching mathematics at Penn State. Does it look the same as your first? If so, why do you think that is? If not, what has changed?
    - Submit post to Piazza by Friday, 12/5.