

# SPI Fall 2022 Incubator Plans

## Early Research Immersion

### Meeting 1: Friday, September 16

#### Goals of our fall meetings

- Share experiences from the field
- Talk through observations, insights, teaching strategies, and classroom settings in the context of inclusive STEM teaching
- Discuss how we are working on incorporating career readiness and research strategies
- Explore possibilities for collaborative projects that might emerge from SPI

#### Summer Recap - From Exit Ticket

*Is there a practice or idea you gained in this institute that you might institute in your course?*

- Learning empathy and being cognizant about any biases or expectations.
- Exit tickets and all the platforms where you could gain insights from the students
- Instilling that failure is a part of the learning process
- Conversations around participation, grading, different active learning techniques
- It is important that as an instructor I continue to be aware of ways in which students can be excluded even if it is not done intentionally.
- Sending out a survey before the first day of class to gauge student goals
- Deploying active learning as well as evidentiary models
- Helping students apply to research opportunities beyond just providing them links--have drafting an application or email be a part of the course.

#### Reflection & Share: Breakout Rooms

- The start of the semester - how was it?
- What changes or additions did you make in your syllabus for your Fall class?
- How is the class going so far? What inclusive practices, activities, have you used or plan to use?
- How is research going to be incorporated into your course?

#### Discussion: Guiding Questions

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1. What kinds of things have you done at the beginning of the semester that you perceive as inclusive teaching strategies for career readiness?
2. Can you provide specific examples of ways you were able (or not able) to enact inclusive, career-oriented, research-focused strategies? Did you encounter any obstacles or barriers?
3. What factors made it easier to teach those strategies? What factors made it more difficult?
4. What topics should we plan to cover this fall? See below for your exit ticket feedback from June.

*Is there anything that was discussed during the institute that you'd like to learn more about?*

- Doing scaffolding and syllabus planning examples together as a group
- **The peer-centered learning.**
- grant opportunities that will help students to go into STEM
- How to effectively gain and analyze data from the students to produce good models in teaching is also worth exploring
- Grading (/ungrading) techniques.
- historical context to STEM learning.
- Preparing STEM students for employment, updated links on STEM employment
- **Best practices in the recruitment and retention of students with disabilities**
- Integrating more portfolio preparation into my course.

#### **For our Next Meeting**

- Please read Hanauer, D. I., Graham, M. J., Arnold, R. J., Ayuk, M. A., Balish, M. F., Beyer, A. R., ... & Sivanathan, V. (2022). **Instructional Models for Course-Based Research Experience (CRE) Teaching**. *CBE—Life Sciences Education*, 21(1), ar8.
- Discussion of SPI Teaching Resources [Guide](#) - did you find it helpful?



## Meeting 2: Friday, September 30

### For today's meeting

- Read: Hanauer, D. I., Graham, M. J., Arnold, R. J., Ayuk, M. A., Balish, M. F., Beyer, A. R., ... & Sivanathan, V. (2022). **Instructional Models for Course-Based Research Experience (CRE) Teaching**. *CBE—Life Sciences Education*, 21(1), ar8.
  - <https://www.lifescied.org/doi/10.1187/cbe.21-03-0057>
- Reading from Ji: inquiry-based lab activity for non-science majors.
  - Production of Biodiesel from Waste Cooking Oil: A Guided Inquiry Chemistry Laboratory Activity at a Two-Year College  
<https://doi.org/10.1021/acs.jchemed.2c00265>

### Guiding questions

- *What sections, models, practices would you like to discuss?*
- *What qualities make “CRE pedagogy...different from the pedagogy of other undergrad science courses”?*
- *Which of the suggested instructional models or practices could be / are enacted in your course?*
- *(How) might these models and practices “[increase] inclusivity and persistence in science” for your students?*
- *“Being a CRE instructor requires a flexible richness in addressing individual students and the work they are doing.” What opportunities and challenges does this produce?*
- *Other questions?*

### Reflections on the Reading

Write here ...

### Accessibility Workshop: The Accessible Lab

- *Monday, October 10th, 7:00-8:30pm on Zoom*
- *Patrick Smyth (TLC/STEM Pedagogy Institute)*
- *Zoom Registration Link:*  
[https://gc-cuny-edu.zoom.us/meeting/register/tZ0pfu-ppj0tGdeg7tTDbntFqjzZSd\\_Wcnbo](https://gc-cuny-edu.zoom.us/meeting/register/tZ0pfu-ppj0tGdeg7tTDbntFqjzZSd_Wcnbo)

### Exit Ticket

<https://forms.gle/rRerfpkQytnXkr8Q7>

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**Next Meeting: Friday, October 14**

- Discussion of SPI Teaching Resources [Guide](#) - did you find it helpful?
- Spring Funding for Collaborative Project Work
- **Best practices in the recruitment and retention of students with disabilities**
- **Peer-centered learning**



## Meeting 3: Friday, October 14

### Welcome & Check-in

- Was anyone able to attend?
  - Accessible Lab [Workshop](#) Monday, October 10th
  - [Racial Health Equity Seminar](#) at QCC - Wed, October 12th
  
- Is this information about your current course correct? If not, change it. And, everyone, fill out the rest of the row for your course...

Name	Fall 2022 Course	# of students	Describe the type of course (lab, lecture, non-major...)
Meru	Chem 26200 - Organic Chemistry Laboratory	12	Organic Chemistry Laboratory (13 basic organic experiments) I for non chemistry major students: Pre-med major undergraduate students
Elizabeth	Introductory Psychology (PSY100)	50	General requirement course for non-majors. Lecture covers general psych topics.
	Foundations of Psychological Research Methods (PSY201)	35	Lecture course for majors that goes over research methods, APA style writing.
Claudette	SCB101 - Topics in Biological Sciences	24	Biology course for non-majors; includes lecture and lab
Inayah	CHEM 10600	18	Introductory chemistry (lab only) for all students; pre-req for most STEM and pre-med majors
Ji	Intro Chemistry	14	Lab and lecture, nonscience majors
Devorah	Multimedia Databases, Game Design and Development		Both are advanced electives for CS majors. The Game class is run as part lecture, part lab.
Rusia	Bio300 - Biochemistry Lab		
Rishi	CS 496	9	Research seminar
Katie	BIOL 20700 - Organismic	24	I TA a lab section of a required



	Biology		course for biology majors. First-year students in the CUNY School of Medicine take this course in their first semester. Students work on hands-on experiments, computer simulations, do three presentations, and write a research paper.
Joekeem	CHM121- General Chemistry	15	Introductory laboratory course on Chemistry taken by both major and non-major students.

**Reflect & Share: In your course how do you...**

### 1. Encourage participation and belonging in scientific community

### 2. Foster Learning for all students

How do you decide how deep of “core learning” you want your students to have? Is there a level just below surface level that can be worked with for those students who are non-major or have other responsibilities?

### 3. Encourage independence & responsibility

### 4. Offer research mentorship and career guidance

## Resources

Podcasts on peer learning

- <https://teachinginhighered.com/podcast/peer-mentoring/>
- <https://teachinginhighered.com/podcast/peer-instruction-and-audience-response-systems/>
- <https://teachinginhighered.com/podcast/inclusive-teaching/>

Think-pair-share <https://derekbruff.org/?p=3117>

Active learning <https://derekbruff.org/?p=3666>

Motivation <https://derekbruff.org/?p=2704>

<https://derekbruff.org/?p=808>

Growth Mindset

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- [Summary](#) of growth and fixed mindsets
- [Video](#) on Teaching a Growth Mindset
- [Developing a growth mindset](#) by Carol Dweck
- Growth Mindset [Scale](#)
- [Learning module](#) at Purdue Uni
- Developing a growth mindset module by [Microsoft](#)
- Growth mindset [toolkit](#) at Transforming Education



## Meeting 4: Friday, October 28

### Welcome & Check-in

- What's been going on in the classroom?
- Announcements
  - Lauren Klein on Data Feminism talk
  - In-person meeting in winter session
  - Spring 2023 plans

### Explore

- Fostering growth mindset in the classroom
  - <https://soeonline.american.edu/blog/growth-mindset-in-the-classroom>
- Motivating Students
  - <https://cft.vanderbilt.edu/guides-sub-pages/motivating-students/>

### Guiding questions for reflection

- How do you enact these ideas and principles? What are spaces that show up in your teaching? How does their work come into your pedagogy?
- How can you transfer these ideas to your classroom? To CUNY context?
- What are some pros and cons of these practices?

### More to Explore Later

- [Summary](#) of growth and fixed mindsets
- [Video](#) on Teaching a Growth Mindset
- [Developing a growth mindset](#) by Carol Dweck
- Growth Mindset [Scale](#)
- [Learning module](#) at Purdue Uni
- Developing a growth mindset module by [Microsoft](#)
- Growth mindset [toolkit](#) at Transforming Education
- Growth mindset [activity](#) for STEM
- Limeri, L. B., Carter, N. T., Choe, J., Harper, H. G., Martin, H. R., Benton, A., & Dolan, E. L. (2020). Growing a growth mindset: Characterizing how and why undergraduate students' mindsets change. *International Journal of STEM Education*, 7(1), 1-19. <https://doi.org/10.1186/s40594-020-00227-2>
- Motivating Students <https://derekbruff.org/?p=2704>
- Social Pedagogies for Motivation <https://derekbruff.org/?p=808>
- How to encourage students to [pursue STEM degrees](#)

### Q&A

- Next Meeting - November 11th
- [Exit Ticket](#)

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## Meeting 5: Friday, November 11

### Check-Ins

- What's been happening in the classrooms?
- Data Feminism Talk
- AACU 2022 Transforming STEM Higher Education Conference
- Events at ASRC
  - IlluminationSpace Hub Launch Dinner - Kendra Krueger  
<https://asrc.formstack.com/forms/cagregistration>
  - [An Afternoon with Malcolm Gladwell](#)
- Announcements

### [Experiential Learning Conference at CUNY](#)

### Growth Mindset and Undergraduate Research Experience

*“How can we address the two different mindsets (growth vs. fixed) whether we are working with students in the classroom or working in our research laboratories?”*

Free Write...

### [Genomics Education Partnership](#) - Course-based Undergraduate Research Experience

Lopatto, D., Rosenwald, A. G., DiAngelo, J. R., Hark, A. T., Skerritt, M., Wawersik, M., ... & Elgin, S. C. (2020). **Facilitating growth through frustration: using genomics research in a course-based undergraduate research experience.** *Journal of microbiology & biology education*, 21(1), 40. <https://doi.org/10.1128/jmbe.v21i1.2005> PDF

### Q&A

- Next Meeting - December 9th
- [Exit Ticket](#)

### Reflection Questions

- How do you enact these ideas and principles? What are spaces that show up in your teaching? How does their work come into your pedagogy?
- How can you transfer these ideas (ex: formative frustration) to your classroom? To CUNY context?
- What are some pros and cons of these practices?

### More to Explore Later

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Burnette, J. L., Billingsley, J., Banks, G. C., Knouse, L. E., Hoyt, C. L., Pollack, J. M., & Simon, S. (2022). A systematic review and meta-analysis of growth mindset interventions: For whom, how, and why might such interventions work? *Psychological Bulletin*. Advance online publication. <https://doi.org/10.1037/bul0000368>

Macnamara, B. N., & Burgoyne, A. P. (2022). Do growth mindset interventions impact students' academic achievement? A systematic review and meta-analysis with recommendations for best practices. *Psychological Bulletin*. Advance online publication. <https://doi.org/10.1037/bul0000352>

Yeager, D. S., & Dweck, C. S. (2020). What can be learned from growth mindset controversies?. *American psychologist*, 75(9), 1269. <https://doi.org/10.1037%2Famp0000794>

Limeri, L. B., Carter, N. T., Choe, J., Harper, H. G., Martin, H. R., Benton, A., & Dolan, E. L. (2020). Growing a growth mindset: Characterizing how and why undergraduate students' mindsets change. *International Journal of STEM Education*, 7(1), 1-19.

#### Growth Mindset Interventions

- <https://www.mindsetworks.com/science/Default>
- <https://evidenceintopractice.wordpress.com/2015/02/19/growth-mindset-what-interventions-might-work-and-what-probably-wont/>
- <https://www.structural-learning.com/post/growth-mindset>
- <https://soeonline.american.edu/blog/growth-mindset-in-the-classroom>



## Meeting 6: Friday, December 9

### **FREE WRITE**

#### **Our own teaching accomplishments and “failures”**

1. What worked well for you this semester? What strategies/assignments/ideas would you like to explore or refine?
2. What did not work so well? What would you like to improve?
3. Moving forward, What would you want to explore more/try in the future?



## **DISCUSS**

- Mid-winter Symposium (optional)
- January 11, 2023; 10am-2pm, Graduate Center
- **Is anyone willing to share their work at the winter symposium?**
  - Short presentation
  - What do other groups have planned?
- Do not have to share work, can attend to hear about other projects and network with possible collaborations

***From the last exit ticket: As the semester comes to an end and we are all grading....***

What are methods of providing efficient feedback? How do we provide feedback without burnout? (How much feedback do we give?)

## **UPDATES**

- Payment coming in March
- Email me with questions

