

Course Syllabus

Justice and STEM (TLL 3471)

Course Summary

Instructor: Beatrice Dias, PhD (she/her)

Duration: 15 Weeks

Format: Hybrid (monthly synchronous classes & asynchronous Canvas content)

Synchronous Classes: Four Saturdays - Jan 11, Feb 1, Mar 1, Apr 5 (1PM - 5PM EST)

In-Person Class Location: Posvar 5401

Office Hours: By appointment (<https://calendly.com/beadias/15-min>)

Email: beadias@pitt.edu

School of Education Mission-Vision

“We ignite learning. We strive for well-being for all. **We teach.** We commit to student, family, and community success. **We commit to educational equity.** We advocate. We work for justice. **We cultivate relationships.** We forge engaged partnerships. **We collaborate.** We learn with and from communities. **We innovate and agitate.** We pursue and produce knowledge. We research. **We disrupt and transform inequitable educational structures.** We approach learning as intertwined with health, wellness, and human development. We address how national, global, social, and technological change impacts learning. **We shape practice and policy.** We teach with and for dignity. We think. We dream. **We lead with integrity.** We are the School of Education at the University of Pittsburgh.”

About The Course

In this course, we will go on a scholarly journey to investigate principles of justice that can shape a more equitable and liberatory STEM landscape. We will primarily follow the book [*Data Feminism*](#) (2020, MIT Press) by Catherine D'Ignazio and Lauren F. Klein, and investigate how we might apply their teachings to our own places and contexts of practice in STEM.

Abolitionist activist and scholar, Mariame Kaba posits that building a free and just world will take “A million experiments... A bunch will fail. That’s good because we’ll have learned a lot that we can apply to the next ones.” Following her wisdom, throughout the course you will conduct a Justice Experiment of your own, designed iteratively in conversation with core material and our collective discourse. Through this inquiry process, you will grapple with how to cultivate justice in your place of practice in STEM.

This fifteen-week course begins with an introductory module and is followed by three content modules, which will each span 3-6 weeks:

- Introductory Module: Course Intro & Exploring Justice (weeks 1 & 2)
- Module I: Exploring Power in Justice and STEM (weeks 3 through 6)
- Module II: Building a Lens of Justice in STEM (weeks 7 through 12)
- Module III: Contextualizing Justice and STEM (weeks 13 through 15)

Note: spring break will fall between weeks 8 and 9 of the course.

You will likely leave this course with more questions than answers - this is the goal of our journey (destination, unknown). Scholarship is about living in the questions, and engaging in deep inquiry will support us in growing our understanding of justice and STEM.

Course Description

In this course, we will explore the historical and socio-political context of STEM and grapple with how STEM can be relevant to education justice and liberation. Through this process, we will consider how our own practice can be transformed and how we can collectively shape the STEM field and conversations within it. We will engage with critical theories to build our analysis of STEM in a broader context

of education and society. Our inquiry will be framed by principles of justice that work against status quo logics and toward collective liberation. We will follow our questions to discern ways that STEM is complicit in systemic injustices, and explore possibilities for more just STEM futures.

Learning Pursuits

The main goal of this course is to ***deepen our understanding of justice through an exploration of its principles, which we will apply in experimentations with justice-oriented practices in STEM.***

It is my intention that all learners in this course will develop a deeper understanding of how their personal experiences in STEM are situated within the broader context of how justice and injustice manifest in society. Exploring this topic through our personal narratives better equips us to engage in authentic inquiry. This practice also embeds us within our study, so that we recognize our power and responsibility to act on what we learn. Finally, acknowledging our own experiences and perspectives, enables us to start from what we know, recognizing that we have valuable wisdom to bring into the conversation.

Course material is designed such that the graduate learner will:

1. Examine how to challenge and hold power in STEM to facilitate justice;
 2. Discuss how systemic injustices can be countered in STEM;
 3. Investigate how STEM is situated within broader societal contexts.
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Student Expectations

I strive to build a learning community by recognizing the strengths of our collective knowledge, and personal and professional experiences. We can achieve this by sharing artifacts we develop, and our experiences and strategies, as well as contributing to class discussion forums. I know that there are many aspects of our lives (internal and external factors) that distract us, but I hope that we can do what Dr. James Lang urged educators to do - to create our learning environments as classroom retreats, or what Dr. Sabina Vaught described as "retreat spaces." I hope

that this course serves as a retreat to interact with each other and build on our collective wisdom. *(adapted from Sabina Vaught's syllabus)*

Active participation in this course is vital to developing a community of inquiry, practice, and learning. This form of deep engagement entails logging into your Canvas course, interacting with instructional materials, and completing learning activities. Please know that I will work with you to extend due dates if the deadlines are challenging to meet.

Most of this course will be conducted asynchronously through Canvas, but we will meet synchronously four times during the semester - one Saturday a month, from January through April. Saturday classes will be held in-person, unless weather or other issues arise, in which case we will meet via Zoom. Attending our Saturday sessions is vital to building community and engaging in critical discourse about justice and STEM in a dynamic environment. If you are unable to attend any of the sessions, please let me know as soon as possible. You are welcome to communicate with me through Canvas or via email (beadias@pitt.edu). Note that missing more than one Saturday session, would necessitate some form of make-up coursework.

Finally, all scholarly activities are designed to engage learners' authentic voices. Moreover, my approach to grading is not based on dominant standards of writing, but rather on thoughtful and meaningful engagement with course materials. Therefore, I don't believe you will need to rely on artificial intelligence (AI) tools in your work. I hope you embrace this journey and rely on your genuine wisdom in your scholarship. If, however, you do decide to employ AI in any coursework, please disclose this fact along with a reasoning for its use (e.g. perhaps it was part of your inquiry process). Note that I don't intend to police the use of AI in this course, and will rely on your honesty in maintaining our collective scholarly integrity.

Grading with Care Policy

It is my policy that if a learner is actively and authentically engaging with the course material and our learning community, they are fulfilling the goals of this course. Learning happens at your own pace and from your own perspective, and cannot be assessed based on a decontextualized and depersonalized standard of measure. Moreover, grades can cause anxiety that obstructs meaningful learning.

As such, I strive for a more caring approach to grades that supports learning and growth and offers grace. All coursework will be graded as an A or a 'Revise'. If you receive an A, then your work is complete. If you receive a 'Revise', then you have an opportunity to submit a revision that addresses the comments from me and your peers. The revision must be submitted within 1 week of receiving feedback from me. Note that coursework will be graded as complete/incomplete and will typically include dialogic feedback from me - a letter grade will only be assigned for your final grade. I anticipate that many students will receive an A for their active participation in, and meaningful contributions to the course. However, the more meaningful assessments I offer will be through individual feedback and relational conversations.

Rest assured that **you are enough**, and I am deeply grateful for your contributions to our shared learning. My hope is that your participation in this course will enrich your scholarship and practice. I will work with you to help ensure the logistics of grades do not interfere with your learning joy.

Inclusion and Diversity

(adapted from Sabina Vaught's syllabus)

This course aligns with the School of Education's mission to ignite learning and deliver a respectful, inclusive, and equitable learning experience. As such, as a collective, we will behave professionally, and communicate mindfully while feeling free to share contrasting viewpoints and ideas. Together, we create an open learning environment for students from diverse backgrounds and perspectives. The diversity denoted by the intersections of race, gender, disability, sexuality, age, socioeconomic status, ethnicity, and culture that we all bring to this course is advantageous in serving as a strength and resource in our learning community.

I am committed to including the voices of minoritized groups in this class, including those of womxn and other people of color, transgender people, LGBTQIA+ people, disabled people, non-Christian people, non-US citizens, and those who speak multiple languages. If you feel uncomfortable due to your social identities and background or how they are perceived, please let me know. If you do not feel comfortable talking with me, you can contact the [Office of Equity, Diversity, and Inclusion](#).

Preferred Names and Pronouns: You can use the [NameCoach](#) feature in Canvas to indicate your preferred pronouns.

Course Content

Modules

This course consists of an introductory module and three content modules that cover a broad range of topics related to Justice and STEM. The course duration is fifteen weeks. During the first six weeks we will cover the introductory module and Module I. Module II will span weeks 7 through 12, with spring break falling between weeks 8 and 9. The last three weeks of the course (weeks 13 through 15) will focus on our final module, Module III.

Welcome Module (Weeks 1 & 2)

- Course Introduction (Jan 8 - Jan 12)
- **First Saturday Class Session: January 11th (1PM - 5PM - Posvar 5401)**
- Exploring Justice (Jan 13 - Jan 19)

Module I: Exploring Power in Justice and STEM (Weeks 3 through 6)

- MODULE 1-A: Understanding Power (Jan 20 - Feb 2)
- **Second Saturday Class Session: February 1st (1PM - 5PM - Posvar 5401)**
- MODULE 1-B: Navigating Power (Feb 3 - Feb 16)

Module II: Building a Lens of Justice in STEM (Weeks 7 through 12)

- MODULE 2-A: Valuing the Lived Experience (Feb 17 - Mar 2)
- **Third Saturday Class Session: March 1st (1PM - 5PM - Posvar 5401)**
- ******* SPRING BREAK (Mar 2 - Mar 9) *******
- MODULE 2-B: Countering Systems of Oppression (Mar 10 - Mar 23)
- MODULE 2-C: Expanding Ways of Knowing (Mar 24 - Apr 6)
- **Fourth Saturday Class Session: April 5th (1PM - 5PM - Posvar 5401)**

Module III: Contextualizing Justice and STEM (Weeks 13 through 15)

- MODULE 3-A: Examining the Broader Context (Apr 7 - Apr 20)
 - MODULE 3-B: Contending with Accountability (Apr 21 - Apr 30)
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Coursework

Throughout the course, we will engage in scholarly work that helps develop and articulate how we are grappling with the topics we encounter. Coursework includes engaging with core material (readings, podcasts and videos), collectively reflecting on those resources (through discussions, annotations and reflections), and completing a Justice Experiment in your place of practice. The Justice Experiment is the main coursework element that you'll iterate on throughout the course. Additionally, you will complete bi-weekly journal entries to document your reflections about your experimentation with justice in STEM.

All coursework has due dates and times to help keep us on track in the course. If you need more time to complete a specific piece, or are experiencing difficulties with the pace of the course, please let me know as soon as you can. There will be no points/percentages assigned to coursework - submissions will be simply categorized as complete, incomplete or excused.

At the end of the course, each learner will have produced a series of reflections, writings and media that form a cohesive profile of their scholarly journey. Ideally, these '*scholarly artifacts*' will pave the way for new avenues of inquiry, as well as publication and collaboration opportunities.

Justice Experiment

The most involved coursework component will be your Justice Experiment, which is an exploratory endeavor you embark on iteratively throughout the duration of this course. **The goal of this experiment is for you to grapple with how justice might manifest in our everyday practices in STEM.** The scope of the experiment should be small - for example, it could be a little change you make in your curriculum, a shift in your approach to working with students, an adaptation to your way of approaching a problem, etc. You can iterate on this experiment throughout the course—this iterative process includes anything from making

adaptations to your plans or even scrapping them altogether to try a different course of action. How you shape this experiment is completely up to you.

As we encounter principles of justice in conversation with D'Ignazio and Klein, and explore related core material from the STEM field, you will have an opportunity to adapt and reconfigure your experiment. Bi-weekly journal entries will support your process by offering reflective pauses along the way, so you can stop to consider how you want to move forward with your experiment. Additionally, you will receive feedback from me and your peers at different points in the process. During our final Saturday class session, you will have an opportunity to share a presentation on your experiences with your Justice Experiment.

Ideally, this experiment will provide you with valuable insights for formulating and/or adapting your EdD milestones. In particular, during the final module of the course, first-year students will have an opportunity to draft their [Problem of Practice \(PoP\)](#), while second-year students will focus on drafting plans for their [Laboratory of Practice](#).

Community Building

Relational Responsibilities

In order to build a respectful and caring learning community, we will follow an adapted version of Dr. Sabina Vaught's 'Relational Responsibilities,' as guidelines for this course.

Our collective responsibilities are grounded in our interdependent relationships and are expressed through our active engagement with one another and ideas, and through our dedication to learning.

Together, we will undertake relational praxes of:

- Studying deeply
- Contributing meaningfully to one another's learning
- Recognizing one another's experiences and ideas as gifts to the community
- Engaging generously, by:
 - generating possibilities
 - seeking out connection

- deepening of understanding
- practicing complexity over critique
- Responding to one another with care and respect
- Working through disagreement by challenging ideas in a scholarly manner but never insulting or disparaging each other
- Affirming that affective responses are part of a just intellectual project
- Making culturally-specific requests as soon as/if you realize you need to.

As a learning community we are responsible for engaging with difficult core material and ideas as we undertake critical inquiry and exploration. Not all class members will respond to the material in the same manner, and some readings and/or media will upset some students more than others. In light of this, there is no clear way to warn students in advance. As a point of reference, please read Dr. Brittney Cooper's article: [No trigger warnings in my class: Why you won't find them on my syllab](#). I will work with you to navigate challenging conversations and material, and ask that you reach out to me if you need support or guidance with any of the readings and media we engage with through this course.

Positive Response Protocol

Building a learning community requires trust, respect and caring. With these values in mind, I have adapted [Richard Koch](#)'s "PQS: Positive Response Protocol" as a guide for providing meaningful and supportive feedback to each other on our scholarly work. As Dr. Koch points out, "Research clarifies (Hattie and Timperley) that response is more helpful to the writer [or producer of a piece of scholarly work] if we begin by listening to understand and appreciate."

Throughout this course, we will be developing several artifacts of our scholarship - e.g. reflections, free writing, essays, policy, discussions, annotations, and other media. In order to grow our thinking and learning, we will share our work with each other for feedback. Our work, much like our learning, is never truly 'done', so we will consider the pieces we share "works-in-progress" that can be further refined through community reflection.

In responding to someone's work, we will follow this PQS pattern:

1. **Positive Response:** If we "listen" fully to the work that is offered, we can find wisdom within. For example, consider:

- What do you remember best from this work?
 - What resonated with you most from this work, and why?
 - What is most interesting to you about this piece?
2. **Questions:** Through our spirit of curiosity, we can offer our peers new questions to grapple with in their inquiry process. For example, consider:
- What are you curious about in relation to the topic of this work?
 - What are you confused about?
 - What would you like to know?
3. **Suggestions:** We can offer our own wisdom to support the learning journey of our peers. Based on what you think is the purpose of the work, consider offering one or two suggestions, especially for what could be:
- **Added** to the piece - Does it need a new section, or is there a part that should be made longer?
 - **Taken out** of the piece - Is a part unnecessary or repeated?
 - **Changed** in the piece - Is there a part that could be revised with a recommended approach to improve it?
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University Policies and Procedures

Attendance and Observance of Religious Holidays

Pitt guidelines on class attendance and observance of religious holidays:

- The observance of religious holidays (activities observed by a religious group of which a student is a member) and cultural practices are an important reflection of diversity. As your instructor, I am committed to providing equivalent educational opportunities to students of all belief systems. At the beginning of the semester, you should review the course requirements to identify foreseeable conflicts with assignments, exams, or other required attendance. If at all possible, please contact me within the first two weeks of the first class meeting to allow time for us to discuss and make fair and reasonable adjustments to the schedule and/or tasks. (Source: Faculty Assembly, December 2020)
- I interpret this language to apply to cultural and spiritual observances, feasts, dances, ceremonies, etc., not covered by colonial notions of religion and/or culture.
- Please notify me in advance of any anticipated absences related to the guidelines.

Instructor Presence

I will maintain an active role in this online course by logging into the course daily and responding to any queries/concerns posted in the 'Ask Your Professor Discussion Forum' on Canvas. I will participate in the discussion forums as much as possible, and help to make connections between learner responses and instructional content. I will also provide timely feedback on drafts and final assignments. I will respond to student queries within 24 hours of receiving your emails and course messages. Please note that I will typically be more available to address questions and respond to discussion forum comments in the *evenings between 4:00 pm and 5:00 pm*.

Plagiarism and Academic Integrity

Please review the [University of Pittsburgh's Policy on Academic Integrity](#).

Disability Services

Pitt required syllabus statement: If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructors and the Office of Disability Resources and Services, 140 William Pitt Union, at 412-648-7890 or 412-383-7355 (TTY) as early as possible, but no later than the fourth week of the term or visit the [Office of Disability Resources and Services](#) website as early as possible, but no later than the 4th week of the term. The DRS will work with you to provide accommodations.

Please let me know if you need resources or accommodations to complete this course. You may also seek campus-wide support, information, and/or services:

- [Disability Resources and Services](#)
- [Disability Accommodations](#)

NOTE: I recognize that while institutional resources can be useful and important support, interacting with the university can at times be experienced as an invasion of privacy or a source of distress. If you are uncomfortable interacting with the university, please feel free to communicate with me directly about what would be helpful to your learning and participating in the community of the course (Source: Sabina Vaught).

Please review the [University of Pittsburgh Non-Discrimination Policy](#).

Pitt single-occupancy restroom map and information:

<https://www.studentaffairs.pitt.edu/lgbtqia/single-occupancy-restrooms/>.

Accessibility

Canvas is ADA Compliant and has fully implemented the final accessibility standards for electronic and information technology covered by Section 508 of the Rehabilitation Act Amendments of 1998. Learn more about [Canvas accessibility statement](#).

Sexual Harassment

The University of Pittsburgh is committed to maintaining a community free from all forms of sexual harassment. Sexual harassment violates University policy as well as state, federal, and local laws. It is neither permitted nor condoned. It is also a violation of the University of Pittsburgh's policy against sexual harassment for any employee or student at the University of Pittsburgh to attempt in any way to retaliate against a person who makes a claim of sexual harassment. Any individual who, after thorough investigation and an informal or formal hearing, is found to have violated the University's policy against sexual harassment will be subject to disciplinary action, including, but not limited to, reprimand, suspension, termination, or expulsion. Any disciplinary action taken will depend upon the severity of the offense. [For more information, see the Web site](#).

Copyright Notice

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Additional University Resources

(Source: Chris Wright)

- **Education Library Guide:** See this Hillman Library [customized libguide](#), a gateway to education students and faculty resources.
- **Religious Observances:** See the [Provost's annual memo](#) about religious observances.
- **Emergencies:** Do you have Pitt Police saved on your mobile phone? 911 works, or Pitt Police, 412-624-2121.

- **Catalogs:** The University Catalogs have comprehensive information about policies, programs, and courses. There are University-level policies and policies specific to the School of Education. Bookmark these links and review these documents periodically. [Pittsburgh Campus Graduate and Professional Studies](#)
- **Student Mental Health:** Resources to support student mental health and wellness are available here at Pitt: Counseling Center, in the Wellness Center in Nordenberg Hall: <https://www.studentaffairs.pitt.edu/cc/>. Call 412-648-7930, any time.
- **Sexual Assault Response:** 412-648-7856
 - contact Pittsburgh Action Against Rape:
 - 24-hour crisis intervention, counseling, and advocacy for victims of sexual assault
 - Phone: 1-866-363-7273
 - Website: [Home - PAAR](#)
- **Racial violence, discrimination, harassment,** etc., you can access resources and contact at the [Pitt diversity website](#).
- **Care and Resource Support Team (CARS):** Email pittcares@pitt.edu or see: <http://www.studentaffairs.pitt.edu/cars/>.
- **Student Affairs Summary:** [Faculty and Staff Guide for Helping Distressed Students](#).
- **Basic Needs Security:** Some students are unable to afford groceries or access sufficient food to eat every day. Some students lack a safe and stable place to live. Some students experience challenges in balancing school with paid work, childcare, and other family obligations. Those challenges can create considerable anxiety for students and may also affect students' performance in their courses. Students experiencing those challenges are urged to contact the Assistant Dean of Student Engagement, **Andrea Zito** (email: andreaz@pitt.edu and phone: 412-648-1780). If you are experiencing challenges with food, housing, work, and/or family obligations, are also encouraged to let your instructor know if you are comfortable in doing so. This will enable us to assist you in accessing support. In addition, the University maintains a student food pantry and a resource guide compiled by the University Library System with food, housing, health, employment, health, and other resources:
 - [Pitt Food Pantry](#)
 - [Pitt and Community Assistance Resource Guide](#)
 - [Access the Greater Pittsburgh Community Food Bank](#)

- [Pitt Pregnant and Parenting Students](#)
 - **NOTE:** The current Pitt language appears to reflect antiquated gender binary and heteronormative frameworks. It also focuses on harassment. Should you be adopting, fostering, or otherwise significantly shifting your dependent care demands, or should you be a student whose gender is not clearly covered by the policy and is pregnant, etc., and would like accommodations, please let me know as soon as possible so we can work together to establish a fair, respectful, and supportive plan (Source: Sabina Vaught)

A lack of a safe and stable place to live can find

- Affordable housing assistance
 - **Action Housing:** 611 William Penn Place, Suite 800; Pittsburgh, PA 15219 Phone: 412-281-2102. Assists in locating affordable housing
 - **Allegheny County Housing Authority:** 625 Stanwix Street, 12th floor; Pittsburgh, PA 15222 Phone: 412-355-8940. Assists in locating affordable housing

Shelter options

- **Allegheny County Bureau of Hunger and Housing Services Phone:** 412-350-4354 This is an area homeless resource.
- **East End Cooperative Ministry:** 6140 Station Street; Pittsburgh, PA 15206 Phone: 412-361-5549. This emergency shelter provides a refuge for the night, case management, breakfast, dinner, shower, and laundry services for men and women older than 18. Individuals can stay in the Emergency Shelter for up to 60 days.