

2251 TLL 1588 &1590 Teaching & Learning in Secondary Mathematics 2 and TLL 2873 & 2874 Teaching & Learning in Secondary Science 2

Fall 2024 (3 credits)

Professor: Chris Leatherwood cjl8077@pitt.edu

<p>Tuesday</p> <p>8/26/2024 through 12/10/2024</p> <p>4:30 – 5:45 PM</p> <p>Office Hours: by appointment, please email me at cjl8077@pitt.edu.</p>	<p>In-Person Meeting:</p> <p>Posvar Hall</p> <p>Room 5602</p>
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Other helpful links:

<https://app.education.pitt.edu/teacherprep/index>

<https://www.education.pitt.edu/about/equity-and-justice>

Course Description

The course is intended to contribute to your development as a critical, justice and equity-oriented, supportive, reflective, and effective mathematics/science teacher. We will use, in connected ways, readings, assignments, projects, your experiences from your field-placements (if applicable), mathematics and science projects, and our classroom discussions to help you develop knowledge of important issues related to the above course objectives.

Learning Goals

1. **Learn about a) formative assessment, b) performance assessments, c) cognitive demand, d) culturally relevant, responsive, sustaining pedagogy and social justice pedagogy, and d) family engagement.**
2. **Understand how assessment (formative, summative, performance assessment) can support learning goals.**
3. **Adapt and design various forms of assessments that support student learning.**
4. **Use course readings to explore how assessment and pedagogy connect to equity and social justice goals.**
5. **Practice** designing curricula, anticipating student responses and interpretations, and facilitating lessons aligned to standards using high-leverage practices.
6. **Reflect** on your lesson plan designs, facilitation skills, commitment to equity and social justice, learner variability, linguistically responsive teaching, and productive collaboration/feedback with your colleagues.
7. **Contribute respectfully to a professional learning community.**

Core Text

[Educative Assessment by Grant Wiggins](#)

https://pitt.primo.exlibrisgroup.com/permalink/01PITT_INST/e8h8hp/alma99101535964306236

[A People's Curriculum for the Earth](#)

https://pitt.primo.exlibrisgroup.com/permalink/01PITT_INST/e8h8hp/alma99101535964506236

Preservice Science Teachers: [Science Formative Assessment by Page Keeley](#)

https://pitt.primo.exlibrisgroup.com/permalink/01PITT_INST/g3767l/alma99101535964606236

Preservice Math Teachers: [Mathematics Formative Assessment by Keeley and Rose Tobey](#)

https://pitt.primo.exlibrisgroup.com/permalink/01PITT_INST/e8h8hp/alma99101535964406236

Other Possible Texts

Preservice Science Teachers: [Windschitl, M., Thompson, J., & Braaten, M. \(2018\). *Ambitious science*. Boston, MA: Harvard Education Press.](#)

https://pitt.primo.exlibrisgroup.com/permalink/01PITT_INST/g3767l/alma9999803067906236

Preservice Math Teachers: [Boaler, J. \(2015\). *Mathematical mindsets: Unleashing students' potential through creative math, inspiring messages and innovative teaching*. John Wiley & Sons.](#)

https://pitt.primo.exlibrisgroup.com/permalink/01PITT_INST/g37671/alma9998506447906236

We may also refer to the book [Common Formative Assessment: A Toolkit for Professional](#)

University of Pittsburgh Teacher Education Attendance Policy

The teacher education faculty at the University of Pittsburgh view our courses as communities of practice. This means that we gather for collective critical inquiry and reflection that is focused on building shared knowledge over time. To be an active member of our community of practice, it is important to attend face to face courses prepared to engage with the course instructor, course colleagues, and course materials. While we believe course attendance adds value to the community of practice, we also know there may be times when students must miss class to attend to other needs. In these cases, you are afforded up to one absence per course hour. This means that if your course meets three times per week for 50 minutes each session, you are permitted three absences. If your course meets two times per week for an hour and fifteen minutes each session, you are permitted two absences. If your class meets once per week for two hours and thirty minutes, you are permitted one absence. Absences should be reserved for illness or unavoidable personal conflicts.

University of Pittsburgh Teacher Education Course Grade Requirement

You must earn a minimum of a C in all teacher education major coursework. You must complete all coursework in order to pass each course. Pennsylvania Department of Education requires that you must enter a teacher education program with and maintain an overall 3.0 GPA. If you do not maintain a 3.0 GPA, you will be prohibited from student teaching or earning certification.

Grading scale:

94-100% = A

90-93 = A-

87-89% = B+

83-86% = B

80-82% = B-

74-79% = C

69-73% = D

COURSE REQUIREMENTS AND ASSIGNMENTS

Active participation: You will be invited to be an active participant in class by speaking or using the chat function during whole class discussions and in small groups. You will also be invited to participate in reflection journal entries. You will be expected to be thoughtful, reflective, respectful, and generative in class discussions and journal entries.

Assignments

In Class Reflective Writing & Participation (15%)	During class, we will engage in reflective writing, I honor the possible need to unpack ideas privately, as in journaling. Others may instead use this time to analyze specific excerpts or offer responses to lingering questions. Some of this in-class writing will be utilized in your final assignment. At the end of the semester, I will ask you to do some work in tracing your own trajectory--to employ some of the data that you gathered in relation to your own learning, and cite relevant excerpts. It is important that you indicate the dates in your running journal, and are as specific as possible in referencing phenomena, instances and/or texts.
Formative Assessment (15%)	Your task is to write two lesson plans. Both lesson plans will include a formative assessment. The first formative assessment will be conducted in the first lesson plan. You will collect data from the assessment and use your analysis of the data to plan or make adjustments to the second lesson plan. The second lesson plan will also include a formative assessment that will assess students' growth and learning from the first to second assessment. You will then engage in individual reflection after implementing the lessons/ formative assessments.
Performance Assessment (15%)	Your task is to design a performance assessment and feedback rubric. You may use a template to create your performance assessment, or you may choose to ensure that the necessary criteria is easy to identify in your own template. You will turn in a teacher's guide (template or detailed lesson plan), student-facing materials, rubric, and individual reflection. You will each submit the assignment materials and your own individual reflection.
Unit Plan Assignment (15%)	You will work to develop a broad overview of an instructional sequence that builds toward the understanding described in your specific content area standards.
Final Paper (40%)	This Final Course Reflection is your opportunity to reflect on your growth and learning throughout the course

COURSE MATERIALS

This course will draw on a variety of linear texts, videos, and podcasts. There is no one text that can provide a comprehensive overview of the foundations of educational theory. As such, we will be working to add and remove readings from the syllabus as we move forward together and I learn your interests. It is my hope that you too have a say in what you learn.

COURSE GRADES

Your grade will be calculated on standards-based rubric. As long as you receive mostly “meets expectations” and “exceeds expectations” you will receive an A- in the course at minimum. You may revise an assignment if you turn it in on time if you receive a “needs improvement”. Basically, I want everyone to be able to revise assignments to receive an A in the course.

A: Meets Expectations/Exceeds Expectations

B: Meets Expectations

C: Needs Improvement/Meets Expectations

D: Needs Improvement

F: Excessive absences, missing / late assignments

ASSIGNMENT COMPLETION AND SUBMISSION

Assignments are expected to be submitted to Canvas by the due date and time. However, if ***you need an extension please email me before it's due or on the due date at the latest.*** Please read the course grading policy above. Basically, as long as you submit your assignments on time you will have the opportunity to revise any assignment until you receive a meets/exceeds expectations (equivalent of an A). Not submitting an assignment jeopardizes your ability to pass the course, but G grades are also a possibility. Please read below.

G-GRADES

If unforeseen events (such as major illness) prevent a student from timely completion of course work, they may request a meeting with the instructor to discuss the possibility of earning a “G” grade for the term. If both student and instructor agree to the “G” grade, they collaboratively write a document that describes exactly what the student needs to do to complete the required coursework and the time frame within which they must do so.

IMPORTANT NOTE: The federal government’s policies governing educational loans stipulate that a student must be making good progress toward his/her degree in order to continue to be eligible for financial assistance. “Good progress” is measured in part by the student’s completion of at least 2/3 of all credits for which he/she is registered. Thus, receiving a “G” grade—which indicates that the course has NOT been completed—may negatively impact a student’s ability to receive federally-subsidized loans.

Week by Week Sketch (14 week)

WEEK	DATE	TOPIC	READINGS (complete by class meeting date)	ASSIGNMENTS DUE
1	8/26	Purposes of Assessment		
1	8/28		Browse at least 3 websites: STEAMM Teacher Web Resources Pitt 2019-2020	

2	9/2	LABOR DAY	No Class	
2	9/4		[Ch. 1-2] Educative Assessment Book	
3	9/9	Feedback	[Ch. 3] Educative Assessment Book	
3	9/11		Black, P., Harrison, C., Lee, C., Marshall, B., & Wiliam, D. (2004). Working inside the black box: Assessment for learning in the classroom. <i>Phi delta kappan</i> , 86(1), 8-21.	

4	9/16	Formative Assessment Classroom Techniques	NSTA Position Statement on Assessment (S) Assessing 21st Century Skills National Academies Press Chapter 11 NCTM Formative Assessment Position Statement (M)	Bring formative assessment assignment draft for feedback
4	9/18		[Ch. 3] Math/Science Formative Assessment Book by Keeley	
5	9/23	Affirming Learners' Identities	[Framework and Ch. 4 p. 43-55] Impact of Identity in K-8 Mathematics [p. ix-xiv, 1-7, 29-32] A People's Curriculum for the Earth Book	

5	9/25		<p>Browse these sites:</p> <p>National Education Association Ed Justice Black Lives Matter At School</p> <p>Watch Van Jones The economic injustice of plastic [12 min.]</p>	Assignment #1 Due (with presentations if time)
6	9/30		[Ch. 5 p. 57-66] Impact of Identity in K-8 Mathematics	Bring performance assessment project draft and rubric to class for feedback
6	10/2		[p. 79-105] A People's Curriculum for the Earth Book	

7	10/7	Equitable Assessment	<p>[Choose 3 of the 75 strategies to read and try 1 in your classroom]</p> <p>Math/Science Formative Assessment Book by Keeley Chapter [Self Select]</p>	
7	10/9		Student Presentations	Assignment #2 Due (with presentations if time)
8	10/14	Performance Assessment		

			Abolition Science Podcast [listen] [Ch. 6 p. 67-81] Impact of Identity in K-8 Mathematics	
8	10/16	Performance Assessment	Healing-Informed Social Justice Mathematics: Promoting Students' Sociopolitical Consciousness and Well-Being in Mathematics Class by Kokka (M) Teaching to Transform: (W)holistic Science Pedagogy Alexis Patterson & Salina Gray	
9	10/21		[Ch. 6] Educative Assessment Book	
9	10/23		[Choose 3 of the 75 strategies to read and try 1 in your classroom] Math/Science Formative Assessment Book by Keeley Kokka Student engagement in assessments: What students and teachers find engaging	

10	10/28		Darling Hammond Evaluating Teacher Effectiveness: How Teacher Performance Assessments Can Measure and Improve Teaching	
10	10/30		<p>[Choose 3 of the 75 strategies to read and try 1 in your classroom]</p> <p>Math/Science Formative Assessment Book by Keeley</p> <p>[Ch. 7] Educative Assessment Book</p>	
11	11/4		<p>Browse:</p> <p>What does a Performance Assessment Look Like?</p> <p>Strategies for Creative Insubordination in Mathematics Teaching (Gutierrez, 2016)</p>	
11	11/6		<p>SCALE (2016) Evaluating Item Quality in Large-Scale Assessments, Phase I Report of the Study of State Assessment Systems (Science chapter)</p>	

12	11/11	Portfolios	[Ch. 8] Educative Assessment Book	
12	11/13		[Chapter 3] <i>Mathematical mindsets</i> Book (M) [Chapter 2-3] <i>Ambitious Science Teaching</i> Book (S)	Come to class with Assignment #3 as close to done as possible
13	11/18		Alfie Kohn's article on "Rethinking Homework" https://www.alfiekohn.org/articles	
13	11/20		TBD	Assignment #3 Due
14	12/2		Presentations	
14	12/4		Presentations	Final Reflection Due

		Week 15	Any outstanding assignment revisions due no later than 3pm on Wednesday, December 13th! I will be available for of office hours, but we will not meet this week to give you time to wrap up assignments	
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OFFICE HOURS: By appointment. The best way to schedule an appointment will be by emailing me at cjl8077@pitt.edu

COURSE POLICIES

ATTENDANCE: The expectation is that you will be **present, on time**, and **prepared** for every class. Attendance is expected at all scheduled classes, but I understand there may be times and circumstances where you may need to watch the video and complete an alternative task instead. Please contact me if you will not be present in class for any reason.

WRITING CENTER: I highly encourage you to take advantage of the writing center.

<http://www.writingcenter.pitt.edu/graduate-services> They can also be reached at (412) 624-6556.

STATEMENT ON CLASSROOM RECORDING: To ensure the free and open discussion of ideas, students may NOT record classroom lectures, discussion and/or activities without the advance written permission of the instructor, and any such recording properly approved in advance can be used solely for the student's own private use.

ACADEMIC INTEGRITY

As a student, you have the responsibility to be honest and to conduct yourself in an ethical manner while pursuing academic studies. You should cite sources of information for papers, projects, and lesson plans (if, for example, you obtain an activity from a teacher's edition of a text, give the source). Since a major purpose of written course assignments is to give you experience in using various available resources, incorporating ideas from the other sources is encouraged and will not lower the evaluation of your work. In some cases, collaboration with peers will be encouraged/expected. In other cases, you will be expected to work alone. Please ask if you have doubts about what counts as acceptable collaboration. Should you be accused of a breach of academic integrity, procedural safeguards including provisions of due process have been designed to protect student rights. These may be found in guidelines on academic integrity: *Student and Faculty Obligation and Hearing Procedures*. This information may be accessed online at <<http://www.pitt.edu/~graduate>>.

Please note the following academic integrity issues related to plagiarism are especially relevant within the context of this program—

- o **You may not represent ideas, text, or other products/work that was created by others as being your own. This includes adopting worksheets and materials from your mentor teacher**
- o This means that you must provide appropriate and complete citations when incorporating ideas of others. Moreover, you should put the ideas of others into your own words when incorporating them into documents. Even so, it is appropriate to cite the source of the idea (honor intellectual ownership).
- o This also means that you may not represent yourself as having contributed to a project when you have in fact not done so.
- o Related to this, you may not allow another class member to represent themselves as a fully contributing partner on a group project if you have knowledge that their contributions were minimal or nonexistent.
- o Finally, you may not submit work that you have submitted previously (in other courses or professional contexts) to fulfill the requirements of a course without obtaining express permission from the instructor(s).

ACCESSIBILITY

The Canvas LMS platform was built using the most modern HTML and CSS technologies, and is committed to W3C's Web Accessibility Initiative and Section 508 guidelines. Specific details regarding individual feature compliance are documented and updated regularly.

STUDENTS WITH DISABILITIES

If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and Disability Resources and Services (DRS), 216 William Pitt Union, (412) 648-7890 or (412) 383-7355 (TTY), as early as possible in the term. DRS will verify your disability and determine reasonable accommodations for this course. *Please be sure to send your accommodations to your professors via the portal.*

DIVERSITY AND INCLUSION

The University of Pittsburgh does not tolerate any form of discrimination, harassment, or retaliation based on disability, race, color, religion, national origin, ancestry, genetic information, marital status, familial status, age, sexuality, veteran status, gender identity or other factors as stated in the University's Title IX policy. The University is committed to taking prompt action to end a hostile environment that interferes with the University's mission. For more information about policies, procedures, and practices, see: <https://www.diversity.pitt.edu/civil-rights-title-ix-compliance/policies-procedures-and-practices>. I ask that everyone in the class strive to help

ensure that other members of this class can learn in a supportive and respectful environment. If there are instances of the aforementioned issues, please contact the Title IX Coordinator, by calling 412-648-7860, or e-mailing titleixcoordinator@pitt.edu. Reports can also be filed

online: <https://www.diversity.pitt.edu/civil-rights-title-ix-compliance/make-report/report-form>. You may also choose to report this to a faculty/staff member; they are required to communicate this to the University's Office of Diversity and Inclusion. If you wish to maintain complete confidentiality, you may also contact the University Counseling Center (412-648-7930).

STATEMENT ON SCHOLARLY DISCOURSE

It is essential that we approach our scholarly discussions, both in class and out of class (e.g., online), with our minds open to evidence that may conflict with our presuppositions. Moreover, it is vital that we treat each other's opinions and comments with courtesy even when they diverge and conflict with our own. We must avoid personal attacks and the use of ad hominem arguments to invalidate each other's positions. Instead, we must develop a culture of argumentation, wherein all positions have the right to be defended and argued against in intellectually reasoned ways. It is this standard I expect of all of us, and a standard that applies to all inquiry in the university.

TAKE CARE OF YOURSELF

Do your best to maintain a healthy lifestyle this semester by eating well, exercising, getting enough sleep, and taking time to relax. Despite what you might hear, using your time to take care of yourself will help you achieve your goals more than spending too much time studying. All of us benefit from support and guidance during times of struggle. There are many helpful resources available at Pitt. An important part of the college experience is learning how to ask for help. Take the time to learn about all that's available and take advantage of it. Ask for support sooner rather than later – this always helps. If you or anyone you know experiences any academic stress, difficult life events, or difficult feelings like anxiety or depression, we strongly encourage you to seek support. Consider reaching out to a friend, faculty or family member you trust for assistance connecting to the support that can help.

The University Counseling Center is here for you: call 412-648-7930 and visit their website.

If you or someone you know is feeling suicidal, call someone immediately, day or night: University Counseling Center (UCC): 412 648-7930. University Counseling Center Mental Health Crisis Response: 412-648-7930 x1 Resolve Crisis Network: 888-796-8226 (888-7-YOU-CAN). If the situation is life threatening, call the Police: On-campus: Pitt Police: 412-268-2121; Off-campus: 911

SEXUAL HARASSMENT

The University of Pittsburgh is committed to the maintenance of 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 <http://cfo.pitt.edu/policies/documents/policy06-05-01web.pdf> also the previously listed link is helpful <https://www.diversity.pitt.edu/civil-rights-title-ix-compliance/policies-procedures-and-practices>.

DEPARTMENT GRIEVANCE PROCEDURES

The purpose of grievance procedures is to ensure the rights and responsibilities of faculty and students in their relationships with each other. When a student in TLL believes that a faculty member has not met his or her obligations (as an instructor or in another capacity) as described in the Academic Integrity Guidelines, the student should follow this procedure:

1. The student should talk directly to the faculty member to attempt to resolve the matter.
2. If the matter cannot be resolved at that level, the student should talk to the relevant program coordinator, Dr. Michelle Sobalak.
3. If the matter remains unresolved, the student should talk to the associate chair of TLL (currently Dr. Sheila Conway) or the chair Dr. Cassie Quigley.
4. If needed, the student should next talk to the SOE associate dean of students.
5. If the matter still remains unresolved, the student should file a written statement of charges with the dean's designated Academic Integrity Administrative Officer.

Resources:

Social Justice Mathematics and Science Curricular Resources for K-12 Teachers

<https://bit.ly/SJMathScienceResources>

TLL Overall Course Feedback/Rubric/Grade

Area of Growth/ Development	Revisions Suggested/ Needs more attention in this area	Meets Expectations	Exceeds Expectations
(UCC) Understanding Course Content: Equity and Social Justice, Pedagogical and Theoretical Goals	Minimally applies critical analysis of course readings and concepts to assignments and discussions in class and online (discussion board) and/or	Applies critical analysis of course readings and concepts to assignments and discussions in class and online (discussion board).	Clearly and consistently applies critical analysis of course readings and concepts to assignments and discussions in class and online (discussion board). Goes above and beyond to

	misunderstands course content.		seek out additional resources.
(A) Assignments	Assignments are missing listed requirements and write up briefly discusses how what was learned can be applied to one's own teaching. Equity and abolition goals are minimally mentioned.	Assignments meet all listed requirements and write up discusses how what was learned can be applied to one's own teaching. Equity and justice goals are mentioned to ensure reaching all students. Draws on course readings.	Assignments meet all listed requirements and write up discusses in detail how what was learned can be applied to one's own teaching. Equity and justice goals are thoroughly discussed to ensure reaching all students. May draw on readings outside of class in addition to course readings.
(R) Reflections	Minimally reflective in assignment submissions and in classroom discussions.	Consistently reflective in assignment submissions and in classroom discussions. Open to new ideas and critique of own lesson plans, assessments, etc. Draws on course readings.	Highly reflective in assignment submissions and in classroom discussions. Seeks out additional opportunities for feedback (e.g. videotaping classroom, asking cooperating teacher and others to observe, etc.) May draw on readings outside of class in addition to course readings.
(CD) Classroom Discourse/ Participation	Classroom contributions are brief, missing, and/or late. Unaware of how much "space" or "airtime" one takes up (talking too much, or not enough, I will give feedback on this.) Does not refer to specific passages from class readings, relies too much on personal experiences.	Shares thoughtful classroom contributions. Aware of how much "space" or "airtime" one takes up. Refers to specific passages from class readings. Contributions demonstrate that the individual has been following the "flow of the conversation."	Shares comprehensive, thoughtful, thorough classroom contribution Aware of how much "space" or "airtime" one takes up, invites new voices to the conversation. Refers to specific passages from class readings and other sources. Contributions "push" the conversation by adding to, questioning, considering other viewpoints related to concerns of equity, social justice, antiracism, and abolition.
(PC) Professional Community	Does not meet professional obligations (e.g. arriving prepared and	Meets professional obligations (e.g. arriving prepared and on time, turning	Exceeds professional obligations (e.g. arriving prepared and ready to help others, turning assignments

	on time, turning assignments in on time, courteous and professional behavior)	assignments in on time, courteous and professional behavior)	early, courteous and professional behavior). Supportive of classmates.
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