Learning and Teaching
Graduate School of Education
Rutgers, The State University of New Jersey
10 Seminary Place
New Brunswick, NJ 08901-1183

www.gse.rutgers.edu/lt
LT@gse.rutgers.edu

848-932-0789
Fax: 732-932-7552

RUTGERS
Graduate School of Education

Rutgers, The State University of New Jersey

05:300:342:01 SUPERVISED UNDERGRADUATE TUTORING IN MATHEMATICS
Spring 2021
ONLINE
GSE 25B

Instructor: Keith Weber	Email: keith.weber@gse.rutgers.edu
Phone Number : 848-932-0804	Location: GSE 233
Office Hours: Tuesday 2:00-4:00; appointment recommended	Prerequisites or other limitations: 01:640:250, 01:640:251
Mode of Instruction: ___ Lecture ___ Seminar _ _ Hybrid _X__ Online ___ Other	Permission required: X_ No __Yes Directions about where to get permission numbers:

Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentations: hhttps://ods.rutgers.edu/students/documentation-guidelines. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form on the ODS web site at: https://ods.rutgers.edu/students/registration-form.

Course catalog description:
Develop teaching strategies, an interactive style, and an approach to high school mathematics content in a one-on-one tutorial or small group setting. Students work with high school students or other undergraduates in lower-level, E-credit mathematics courses.

Course Description

Learning goals:
Normally, this course is based nearly entirely on reflections on peer tutoring. However, this year, due to COVID 19, the opportunities to interact with students will be limited due to difficulties with student placement.

The course will be revamped this term as follows. The course will still have a field component upon which you will reflect, but the field component will be more observation based. You can do your field component either at *JP Stevens High School* by attending virtual classes. Or alternatively, you can attend a Rutgers College Algebra Course virtually. In both cases, you will have limited opportunities to meet with students to study materials. These options will be discussed during a virtual course meeting, or an individual meeting with me if you cannot attend the virtual meetings.

The remainder of the course will be to provide assistance and preparation with skills that students often struggle with during their student teaching periods. These topics are:

- Using questioning during teaching to create student-active classrooms
- Using students' responses to guide instruction
- Teaching for equity
- Meeting "academic language" learning objectives

We will apply these ideas to four lessons from actual curriculum:

- A lesson on plotting functions
- A lesson on teaching negative and rational exponents
- A lesson on writing basic proofs in geometry

Class structure:
Courses meetings will be asynchronous and on-line. Each week, there will be one or two on-line discussions with one designated leader. Your role is to offer a substantive comment to the discussion and to offer responses to two other students.

One discussion will involve a course reading. I will pose an initial question about the reading, from which your discussion will emerge.

For some weeks, a second discussion question will be how we can apply the themes of the reading to a concrete lesson—for instance, how can we use ideas about questioning to frame an interactive lecture about plotting points? Or how can we build students' reasoning when we introduce students to negative and rational exponents?

Grading policy:

Remember that in both J.P. Stevens and your college algebra courses, you are representing Rutgers University's Graduate School of Education and are expected to behave with a high level of professionalism. Improper behavior in your fieldwork experience will result in a substantial penalty for your final grade, including the possibility of failing the class. This includes being on time for all of your appointments, treating your supervisor with respect, using appropriate language, and so on.

Your grade in the course will consist 60% based on your active discussion about the readings, 20% on a journal entry in which you synthesize what you have learned from your observations, and 20% on a final course reflection paper.

Academic Integrity Policy:
Any violation of academic honesty is a serious offense and is therefore subject to an appropriate penalty. Refer to http://academicintegrity.rutgers.edu/integrity.shtml for a full explanation of policies.

Web site: Materials for class will be posted on the class sakai website.

Course Requirements

On-line participation policy: All course meetings are on-line and asynchronous (that is, you will have a one to three day window to post your responses). Barring serious illnesses or some exceptional circumstances, you are expected to complete these on-line discussion posts in a timely fashion. Forgetting to hand in even a single assignment can negatively impact your grade.

Summary of Requirements

We will attempt to meet Thursday, January 21 to discuss the course.

By February 1, you should send me an e-mail confirming that you have a field placement to do your observations.

You will submit a journal entry based on your observations. The instruction for the journal entry will be given two weeks before it is due.

The final reflection paper is a critical analysis that highlights your educational growth as a student-teacher. The paper will be an integration of one of the topics that are covered in the course (e.g., teacher questioning or equity), your observations, and your plans for future teaching. For instance, you might describe how your teacher used questions to promote student participation, highlighting what ideas you might use in your future classrooms and what you might do differently.

Course Schedule by Week

Week	Reading	Assignments
1: January 18		
2: January 25	Meet with me if need be	
3: February 1	Questioning: Danielson	E-mail on successful placement
4: February 8	Questioning: Manhouchehri	
5: February 15	Questioning: Hellman-Thrasher	
6: February 25	Building on Students: Maher	
7: March 1	Building on students: Johnson	
8: March 8	Building on students: Rhodes	Journal Entry
Spring Break		
10: March 22	Equity: Bartell	
11: March 29	Equity: Choike	
12: April 5	Equity: Bieda	
13: April 12	Academic language: EdTPA	
14: April 19	Academic language: Staples	
15: April 26	Participation: Hand	Reflection/Feedback Due

References

Questioning:

Danielson, C., & Meyer, D. (2016). Increased participation and conversation using networked devices. *The Mathematics Teacher*, *110*(4), 258-264.

Manouchehri, A., & Lapp, D. A. (2003). Unveiling student understanding: The role of questioning in instruction. *MATHEMATICS TEACHER-WASHINGTON THEN RESTON VA-*, *96*(8), 562-573.

Hallman-Thrasher, A., & Spangler, D. A. (2020). Purposeful Questioning with High Cognitive–Demand Tasks. *Mathematics Teacher: Learning and Teaching PK-12*, *113*(6), 446-459.

Building on students thinking:

Johnson, H. L., Olson, G., Gardner, A., & Smith, A. (2018). From soliciting answers to eliciting reasoning: Questioning our questions in digital math tasks. *Colorado Mathematics Teacher*, *51*(1), 2.

Maher, C. A., Martino, A. M., & Friel, S. N. (1992). Implementing the Professional Standards for Teaching Mathematics: Teachers Building on Students' Thinking. *The Arithmetic Teacher*, *39*(7), 32-37.

Rhodes, S. (2020). Eliciting Critical Thinking through Purposeful Questioning. *Mathematics Teacher: Learning and Teaching PK-12*, *113*(11), e71-e77.

Equity:

Bartell, T. G., & Meyer, M. R. (2008). Connecting Research to Teaching: Addressing the Equity Principle in the Mathematics Classroom. *The Mathematics Teacher*, *101*(8), 604-608.

Bieda, K. N., & Staples, M. (2020). Justification as an Equity Practice. *Mathematics Teacher: Learning and Teaching PK-12*, *113*(2), 102-108.

Choike, J. (2000). Teaching strategies for algebra for all. *The Mathematics Teacher*, *93*(7), 556-560.

Academic language:

Hand, V., Kirtley, K., & Matassa, M. (2015). Narrowing participation gaps. *The Mathematics Teacher*, *109*(4), 262-268.

Staples, M., Truxaw, M. P., & Cruz, V. (2020). Developing and Writing Language Objectives. *Mathematics Teacher: Learning and Teaching PK-12*, *113*(10), 828-834.

New Jersey Professional Standards for Teachers (2014)[1]:

Standard Four: Content Knowledge. The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches, particularly as they relate to the Common Core Standards and the New Jersey Core Curriculum Content Standards and creates learning experiences that make these aspects of the discipline accessible and meaningful for learners to assure mastery of the content.

ii. Essential Knowledge

1. The teacher understands major concepts, assumptions, debates, processes of inquiry, and ways of knowing that are central to the discipline(s) he or she teaches;
3. The teacher knows and uses the academic language of the discipline and knows how to make it accessible to learners;
5. The teacher has a deep knowledge of student content standards and learning progressions in the discipline(s) he or she teaches;
7. The teacher understands the concepts inherent in numeracy to enable students to represent physical events, work with data, reason, communicate mathematically, and make connections within their respective content areas in order to solve problems.

iii. Critical Dispositions

1. The teacher realizes that content knowledge is not a fixed body of facts but is complex, culturally situated, and ever evolving. He or she keeps abreast of new ideas and understandings in the field;
5. The teacher shows enthusiasm for the discipline(s) they teach and is committed to making connections to everyday life.

Standard Eight: Instructional Strategies. The teacher understands and uses a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections, and to build skills to apply knowledge in meaningful ways.

i. Performances:

1. The teacher uses appropriate strategies and resources to adapt instruction to the needs of individuals and groups of learners;
3. The teacher collaborates with learners to design and implement relevant learning experiences, identify their strengths, and access family and community resources to develop their areas of interest;
5. The teacher provides multiple models and representations of concepts and skills with opportunities for learners to demonstrate their knowledge through a variety of products and performances;
6. The teacher engages all learners in developing higher order questioning skills and meta-cognitive processes;
7. The teacher engages learners in using a range of learning skills and technology tools to access, interpret, evaluate, and apply information

[1] http://www.state.nj.us/education/code/current/title6a/chap9.pdf

8. The teacher uses a variety of instructional strategies to support and expand learners' communication through speaking, listening, reading, writing, and other modes; and
9. The teacher asks questions to stimulate discussion that serves different purposes (for example, probing for learner understanding, helping learners articulate their ideas and thinking processes, stimulating curiosity, and helping learners to question).

ii. Essential Knowledge:

1. The teacher understands the cognitive processes associated with various kinds of learning (for example, critical and creative thinking, problem framing and problem solving, invention, and memorization and recall) and how these processes can be stimulated;
2. The teacher knows how to apply a range of developmentally, culturally, and linguistically appropriate instructional strategies to achieve learning goals;
3. The teacher knows when and how to use appropriate strategies to differentiate instruction and engage all learners in complex thinking and meaningful tasks;
4. The teacher understands how multiple forms of communication (oral, written, nonverbal, digital, and visual) convey ideas, foster self-expression, and build relationships;
5. The teacher knows how to use a wide variety of resources, including human and technological, to engage students in learning; and
6. The teacher understands how content and skill development can be supported by media and technology and knows how to evaluate these resources for quality, accuracy, and effectiveness.

iii. Critical Dispositions:

1. The teacher is committed to deepening awareness and understanding the strengths and needs of diverse learners when planning and adjusting instruction;
2. The teacher values the variety of ways people communicate and encourages learners to develop and use multiple forms of communication;
3. The teacher is committed to exploring how the use of new and emerging technologies can support and promote student learning; and
4. The teacher values flexibility and reciprocity in the teaching process as necessary for adapting instruction to learner responses, ideas, and needs