

Math 698 Investigating Secondary Mathematics Methodology (2 cr.)

Fall 2022

Instructor: Dr. Tyrone Washington

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Office Hours: Monday and Friday
Tuesday and Thursday

11:00 am to 12:30 pm
11:00 am to noon

Course Overview: Participants will investigate mathematics teaching and learning from both teacher and student perspectives. Course participants will engage in mathematical problem solving and in the study of mathematics as the foundation for understanding current curriculum and standards. Lesson planning follows from the consideration of different types of mathematical content, including skills and concepts. Looking specifically at the learning of mathematics and questioning to promote higher-level thinking, this course prepares students for field experiences in secondary mathematics classrooms.

Objectives: These are designed to be consistent with the School of Education's Communities of Learners Conceptual Framework. At the conclusion of the course, the mathematics teacher candidates will be able to:

- Demonstrate strong problem solving and reasoning skills,
- Demonstrate good written and verbal communication skills,
- Demonstrate an ability to establish instructional goals and select tasks that allow students opportunities to construct their own mathematical knowledge,
- Demonstrate an understanding of ways to build procedural fluency from conceptual understanding,
- Demonstrate professionalism in all interactions with peers, in-school colleagues and students,
- Design lesson plans which promote the learning of the conceptual knowledge of mathematical ideas (versus procedural knowledge) in the secondary mathematics curriculum; demonstrate creativity and ingenuity; and place the teacher as the guide/facilitator of student learning.

Textbook: *Taking Action: Implementing Effective Mathematics Teaching Practices in Grades 9-12* (2017) by Melissa Boston, Frederick Dillon, Margaret Smith, and Stephen Miller

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|----------|----|-------|--------|-------|-------|-------|
| Grading: | | A | 100-93 | A- | 92-90 | |
| | B+ | 89-87 | B | 86-83 | B- | 82-80 |
| | C+ | 79-77 | C | 76-73 | C- | 72-70 |
| | D+ | 69-67 | D | 66-63 | D- | 62-60 |
| | | | F | 59-0 | | |

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| ATL Reflections | 30% |
| Homework | 20% |
| Task Analysis Assignment | 10% |
| Final Lesson Plan | 20% |
| Papers | 20% |

Analyzing Teaching and Learning (ATL) Reflections: Several times throughout the semester, you will respond to ATL prompts from the text. You are to prepare and submit a response in essay form. These will be graded according to thoroughness, depth of thinking, and evidence-based justification of your ideas. I expect careful attention to grammar and spelling.

Homework: I expect you to thoroughly and thoughtfully complete all assigned readings prior to the class period in which they are “due.” You can expect weekly homework assignments that may include—but are not limited to—reading, viewing videos, meeting in-person or virtually with a group, problem-solving, and writing.

Task Analysis Assignment: You will classify a series of tasks along several dimensions. Then you will generate modifications to some of the tasks to require students to demonstrate higher levels of thinking while still addressing the same concepts.

Final Lesson Plan: You will prepare a lesson plan that reflects the culmination of your learning over the semester. The lesson plan should be creative and represent your own work. It should include all necessary components (introduced throughout the semester) and a level of detail that would allow for a substitute teacher to be able to easily implement your lesson. It should be far more detailed than a lesson plan that would be written by an experienced teacher. You are encouraged to discuss your ideas with classmates to ensure clarity.

Papers: You will submit two papers during the semester (midterm and final). The focus of the papers will be standards and lesson plans. You will use research and practitioner articles to delve deeper into aspects of teaching in a secondary mathematics classroom. Details will be provided.

Attendance: Attendance will be taken daily and is an important part of your success in this class.

Academic Integrity: Please refer to your Student Code of Conduct for details. Cheating or other dishonest behavior may result in course withdrawal as well as other disciplinary action.

Civitas: The academic program at Millersville University requires general civility, respect, and cooperation to flourish. Each member of this class is expected to display appropriate behavior at all times. Any person who exhibits disruptive, uncooperative, or threatening behavior or uses abusive, disrespectful, or obscene language will be dropped from the class.

Students with Learning Disabilities: Millersville University makes every effort to comply with legal requirements for students with learning disabilities. It is, however, the responsibility of the student with a learning disability, who desires accommodations, to make those expectations known to instructors. I recommend that you make an appointment with me to discuss this matter.
<http://www.millersville.edu/learningservices/>

Title IX: *Millersville University and its faculty are committed to assuring a safe and productive educational environment for all students. In order to comply with the requirements of Title IX of the Education Amendments of 1972 and the University's commitment to offering supportive measures in accordance with the new regulations issued under Title IX, the University requires faculty members to report to the University's Title IX Coordinator incidents of sexual violence shared by students. The only exceptions to the faculty member's reporting obligation are when incidents of sexual violence are communicated by a student during a classroom discussion, in a writing assignment for a class, or as part of a University-approved research project. **Faculty members are obligated to report to the person designated in the University [Protection of Minors policy](#) sexual violence or any other abuse of a student who was, or is, a child (a person under 18 years of age) when the abuse allegedly occurred.***

Information regarding the reporting of sexual violence and the resources that are available to victims of sexual violence is set forth at: www.millersville.edu/titleix

[Undergraduate Catalog](#)

[Student Code of Conduct \(Handbook\)](#)

All items are subject to change without notice.