Math 619 Advanced Perspectives (3 s.h.) **Spring 2023**

Professor: Dr. Tyrone Washington (he/him/his)

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Office Hours: Monday 11:00 am to 12:00 pm
Monday 2:00 pm to 3:00 pm
Tuesday and Thursday 2:00 pm to 3:30 pm

Course Description:
Pre-service secondary mathematics teachers (middle and high school) will explore the nature of the mathematics that they will teach through the lens of the undergraduate mathematics courses that they have taken as part of their required program. Mathematical topics will include number systems, functions, number theory, trigonometry, geometry (Euclidean and non-Euclidean), calculus, and statistics. The course will include an examination of concept analysis, problem analysis and mathematical connections between standard secondary mathematics content and post-secondary mathematics coursework.
The course will actively involve pre-service teachers in a productive dialogue about and rigorous investigation into the mathematics that they will teach.

Course Objectives: Upon successful completion of this course students should exhibit mastery of certain knowledge and basic skills. Students should be able to successfully:

- Analyze concepts of mathematics from previous undergraduate mathematics courses in order to gain a broader understanding of the mathematics that they will teach their future students.
- Analyze secondary mathematics tasks for problem solving strategies, generalities, and possible extensions.
- Connect the standard secondary mathematics content that they will teach to post-secondary mathematics content and other mathematical topics.
- Summarize the connections of mathematical problems to applicable secondary and post-secondary mathematics.
- Complete, with clarity and precision, problems in the 7-12 mathematics curriculum and demonstrate how they connect to postsecondary mathematics content.
- Provide justifications, verbally and in writing, for problem solutions.

Required:

- Text: The Mathematics that Every Secondary School Math Teacher Needs to Know, 2nd edition, Sultan & Artzt. ISBN: 9781138228610.
    - Note, this is a GREAT reference. It is highly recommended that you do NOT rent it.

Attendance, Participation:

- Regular class attendance (see University Policy) and active engagement/participation is expected.
- This includes being ON TIME for class and being actively involved. If you have to be absent or there are extenuating circumstances, please let the professor know ASAP.
- PLAN to participate! **You are part of the class, and we need you to participate.**
- **Be prepared for class with notes, paper, calculator, book, etc.**
- **Participation and Off-task Technology use:** Active engagement/participation is expected. This includes being ON TIME for class, NOT sleeping, NOT using your cell phones (or texting, checking email on laptops, using iPods etc.) during class unless for class purposes. Failure to do so may result in a request to leave the class and/or a deduction of up to 10% of points earned at the end of the semester (do not expect a warning or an additional announcement). Please do not put the professor in the position of having to enforce this.

Weather issues:

- University policies will be followed in the case of inclement weather. Watch the MU website/alerts, and then check D2L for further details if it is unclear.

Course Assessment

Note: Late work will not be accepted without penalty unless you have a qualified excused absence.

The following represents the distribution of graded materials for this semester:

- **Participation**/Presentations of classwork/homework as requested (10%)
- **Writing Assignment Project** (aka Content Portfolio) (10%)
- **Quizzes** (10%)
- **Content Mastery Exam Prep** (15%)
- **Geometry Project** (10%) + presentation
- **Tests (2)** (30%)
- **Final exam** (15%)

Letter grades will be based on a standard plus/minus grading scale with standard rounding—see table below. There is no extra credit. All assignments and exams will be announced, and late work (except in rare circumstances with proper documentation) will not be accepted.

		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		

Assessment Details:

Classwork/Participation/Presentation: You will be expected to attend all classes, participate in discussions and "present" or share solutions to classwork and homework on a regular basis. It will be said a lot in this class – you MUST be an active learner/participant. It is not going to be a lecture/take notes experience all the time. Homework from the textbook will be assigned daily. You need to make sure to keep up, ask questions and share – regardless of whether or not your response is correct.

Writing Assignment (aka Content Portfolio): Due on or before April 3rd. Upload to appropriate Assignment Folder on D2L. If you have a grade of "unsatisfactory" for any of the 11 areas, you will revise and resubmit. Details will be posted on D2L in the *Syllabus and Course Information* folder.

Quizzes: Quizzes will be given each week. Topics are usually from the prior classes and assignments. The quizzes will be available each Thursday after class and will be due Saturday before 6 pm. Once opened, students will have one hour to complete the quiz and submit their scanned work.

5 Content Mastery Exam Prep (Pre-algebra (number/operation), Algebra, Algebra 2, Pre-calculus, and Trigonometry). Varying due dates.

- You will be assigned specific content for each of the core content areas indicated. You will be selecting or creating test questions, the number may vary depending on the unit.
- You will need to provide detailed answer keys – be sure to double check them carefully.
- You MUST cite any sources used.
- These will be uploaded to the D2L assignment folder AND posted to D2L on a Discussion Board.
- A random sample of the questions will be selected (and slightly altered) for in-class exams.
- You will want (and are required) to review all classmates' postings to prepare for your own exams.
- It is suggested that you create a Khan Academy account to review/study and to get good examples.
- Bonus points will be awarded to students who identify errors or inconsistencies in other students' posts (this will be done anonymously).

Geometry Project: See assignment description. Due on April 27. You will "present" it to the class. Details will be posted on D2L in the *Syllabus and Course Information* folder.

Tests: Two exams (text/class/homework content + student-prepared problems). Approximate dates (subject to change): February 23, March 30.

Final Exam: May 2nd 10:15 am – 12:15 pm.

Academic Honesty Statement:

Academic integrity is expected at all times. Given the nature of the course, it is critical that you recognize that you must only submit work that is your own – Unless the assignment explicitly permits it, the use of internet searches for solutions, quiz/test answers, or copy/paste from a classmate are all considered cheating. Doing so will earn you **a minimum of a zero on the assignment,** and potentially failure in the course depending on the severity of the infraction. Given the nature of the course in your degree path, this could also jeopardize your progress

and/or completion of certification.

The university's policies on academic honesty and dishonesty will be strictly enforced in this course (e.g., policies related to cheating, academic misconduct, etc.). Review these policies in your student handbook and in the Academic Honesty and Dishonesty brochure.

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.

Student Assistance Resources:
Students sometimes face mental health or drug/alcohol challenges in their academic careers that interfere with their academic performance and goals. Millersville University is a caring community and resources are available to assist students who are dealing with problems. The Counseling Center (717-871-7821) is an important resource for both mental health and substance abuse issues. Additional resources include: Health Services (871-5250), Center for Health Education & Promotion (871-4141), Learning Services (717-871-5554), and Campus Ministries.

Accommodations & Student Assistance*:*
Academic Assistance: For standard questions and course help, your primary resource should be the instructor! Please seek out help as soon as you realize that you need it. Waiting will only complicate the problem and make it harder for you to be successful. Work together when possible (and permitted).
Accommodations: 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 Notification

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

University officials and faculty members must continue to ensure that victims of sexual violence know where and with whom complaints of sexual violence may be filed and notified of the counseling and health care services that the University makes available to them so that such matters can be addressed confidentially. Additionally, disclosure of sexual violence against a child (a person under 18 years of age when the incident(s) occurred) is not exempt from the faculty member's Title IX reporting obligations.

For questions about Title IX, please contact Elizabeth Swantek, Title IX Coordinator, at Elizabeth.Swantek@millersville.edu or 717-871-4100, or the Deputy Title IX Coordinator responsible for complaints involving employees, Ms. Diane Copenhaver, at Diane.Copenhaver@millersville.edu or 717-871-4950.

MATH 619 Weekly Class Meeting Schedule – Tentative Topics

NOTE: Time spent on each mathematical content area is subject to change as time/interest permit.

Week of:	**Course content**	**Quizzes/Tests**	**Assessments due**
January 17	*Class Intro Chap 1*		
January 23	*2.1-2.4*		
January 30	*2.5-2.8*		***Pre-Alg Q***
February 6	*2.9-2.10; 3.1-3.3*		
February 13	*3.4-3.7*		***Alg1 Q***
February 20	*3.8; 8.1-8.4*	***Exam 1***	
February 27	*8.5-8.8*		
March 6 ***(spring break)***			***Alg2 Q***
March 13	*8.9-8.10; 10.1-10.4*		
March 20	*10.5-10.7; 12.1-12.3*		***PreCalc Q***
March 27		***Exam 2***	
April 3	*12.4-12.8*		***Writing Assign***
April 10	*13.1-13.5*		
April 17	*13.6-13.8*		***Trig Q***
April 24	*13.9-13.11*		***Geometry Project***
May 1			***Geometry Presentations***
May 2		***Final Exam***	***Geometry Presentations***