Course Content and Goals

The main goal of the seminar is for you to become reflective mathematics teachers. This involves understanding the ways in which mathematics teaching and learning are problematic and developing a vision for how to deal with the problems you will encounter as a mathematics teacher. We will focus on problems that are particular to mathematics, rather than more general teaching issues like classroom management. The first step to developing a vision is to determine why it’s important for students to continue learning mathematics in secondary school. Then you will need to articulate a philosophy of mathematics—a philosophy that is anchored in why students should learn mathematics. You will investigate what mathematics is, why students should learn it, and how teachers can engage students in “doing mathematics.” Finally, you will identify a mathematical problem and conduct a self-study, anchored in your philosophy and research on mathematics learning. Class discussions, presentations, and videos shared throughout the semester will support the development of your mathematics philosophy, as well as your self-study.

The second purpose of this course is to help you prepare for the Praxis II (5161: Mathematics Content Knowledge) examination that you should take in November. We will conduct two practice exams in class, and some peer presentations in class could be related to Praxis II topics. Virginia requires a passing score of 160. There is no penalty for guessing. The third purpose of this course is to help you prepare for graduate school. Course discussions and activities will help you prepare for the transition from undergraduate to graduate studies. We will talk about the graduate studies application process.

Seminar Format

Class meetings will frequently involve working in small groups on challenging problems or discussion topics, presenting your thoughts during whole class discussion, and providing others with questions and comments on their presentations. It will also involve seminar discussions in which each person is expected to meaningfully and respectfully engage. It is your responsibility as a learner and as a member of this class to participate, rather than being just a passive observer or note-taker. In addition to working together in class, you are encouraged to find study partners or to form study groups outside of class, as needed. Any student who feels that he/she may need an accommodation because of a disability (learning disability, attention deficit disorder, psychological, physical, etc.), please make an appointment to see your instructor.

Prerequisites

MATH 3124.

Text and Resources

There is no textbook for this course. The resources needed for the course will be available on Scholar. These resources include practice Praxis II tests, articles for class discussion, and documents to aid in the application to graduate school.

A graphing calculator is required for the Praxis II test. I would recommend a TI-83, 84, or 89 for use on the test. However, it’s important to remember that you should use a calculator that you are comfortable using. Also, ETS recommends that you take two calculators to the examination — one of them will act as a backup.
TI-84 calculators are available from the MIPAC room in the Math Emporium and can be used for the examination. There is a computer graphing calculator at the testing center as well.

Finally, each seminar participant is expected to become a member of NCTM. Student membership to NCTM (www.nctm.org) costs $40 and will give you access to professional journals that you will use in class.

**Seminar Assignments**

Being a contributing member of the seminar includes completing seminar assignments in a timely and thoughtful manner. In addition to the aforementioned philosophy statement and self-study, you will be expected to contribute in the following ways:

- Write short summaries and reflections on course readings
- Lead the class in a short review of a set of mathematics topics on the Praxis II
- Write a weekly blog post (at least 100 words) about anything related to the course, and comment on at least one other person's blog weekly. This is in coordination with the Technology course
- Contribute to the course's Google Doc on helpful websites. We can also be flexible and creative with the Scholar wiki.

**Important Dates**

- September 8 – Register for the Praxis II (exam 5161). Go to [https://www.ets.org/praxis](https://www.ets.org/praxis) and click on “register for a test.” The closest testing location is Prometric Testing Center, 2149 Electric Road, Roanoke VA, 24018, 540-344-3688.
- September 15 – Betti Kreye visiting to discuss the MAEd program
- October 15 – deadline for MAEd program applications, for spring admission
- November 3-8 – the date window that I recommend and assume you will take the Praxis II
- December 8 – philosophy statements and self-studies due

**Attendance Policy**

Regular attendance is required and will factor into your participation grade. Because we only meet once a week, no unexcused absences are permitted without penalty. Please notify me by email ahead of time if you know you must miss a class; you must provide documentation of absence for it to be considered excused.

**Evaluation**

Final grades will be determined on the strength of your final paper and on your participation in the seminar all semester. The grade “B” represents performance that meets all expectations. The grade “C” or lower indicates that one or more expectations were not met. “A”s will be reserved for especially insightful work and/or unique contributions to the seminar. Pluses and minuses will be assigned at the instructor's discretion based on each participant's contributions to the class.

**Academic Integrity**

The Virginia Tech Honor Code applies to all graded work in this course. Students are responsible for understanding and adhering to the Honor Code. Among other things the Honor Code prohibits giving or receiving unauthorized aid, assistance, or unfair advantage on academic work, and it prohibits plagiarism. Under the Honor Code it is the responsibility of each student to consult with his/her teacher, if necessary, to ensure that the student understands exactly how the Honor Code applies to each piece of graded work.

[http://www.honorsystem.vt.edu/](http://www.honorsystem.vt.edu/)