Marshall University Syllabus

Course Title/Number	**MTH 589: Graduate Mathematics Seminar**
Semester/Year	Spring 2016
Meeting Day/Time	Monday 4:00pm – 5:00pm
Location	Smith Music Hall 115
Instructor	Carl Mummert
Office	Morrow Library 110
Office Phone	304 696-6156
Email	mummertc@marshall.edu
Office Hours	I have an open door policy – you are welcome to stop by my office any time. My scheduled office hours are: Monday, Tuesday, Wednesday, and Thursday 9:30am – 11:00am
University Policies	By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy be going to www.marshall.edu/academic-affairs and clicking on "Marshall University Policies." Or, you can access the policies directly by going to http://www.marshall.edu/academic-affairs/policies. *Policies:* Academic Dishonesty / Excused Absence Policy for Undergraduates / Computing Services Acceptable Use / Inclement Weather / Students with Disabilities / Academic Dismissal/ Academic Probation and Suspension / Academic Rights and Responsibilities of Students / Affirmative Action / Sexual Harassment.

About the course

Math 589 is the "Graduate Mathematics Seminar". The goal of the course is to include topics that are not included in mathematics content courses but are still very important to graduate students, such as teaching, conducting research, and applying to graduate programs and jobs. I have revised the course over time to focus on a variety of these topics, emphasizing different topics each semester.

In Spring 2016, I am going to try focusing a little more on fundamental skills for college teaching. One change you will notice is that each student will have a presentation during the semester. We will still talk about non-teaching topics as well; the schedule is posted on MU Online.

I am available any time to listen, answer questions, or give advice. My office door is always open.

– Carl Mummert, January 4, 2016

Course Catalog Description

A seminar on topics relevant to graduate students in mathematics, including college-level teaching, conducting research, professional ethics, and mathematics careers. This course does not satisfy any degree requirements, but is required for mathematics graduate assistants. CR/NC; 1 credit hour.

MU Online

It is important to visit MU Online regularly for up-to-date information about the course. It hosts all course materials including announcements, handouts, assignments, and reading materials.

Student Learning Outcomes

The table below shows how each student learning outcome will be practiced and assessed in the course.

Objective	**How objective will be practiced and assessed**
Students will produce written reflections on their experience in graduate school and, as applicable, experiences with college-level teaching and mathematics research.	Class discussion, Low-stakes writing, Seminar reflection assignment
Students will produce documents using LaTeX publishing software.	Class presentation, Personal statement
Students will examine case studies related to teaching, research, and ethics; produce written summaries of their opinions; and discuss these opinions with the class.	Class discussion, Low-stakes writing
Students will observe a freshman-level class and produce a written reflection.	Class observation assignment

Grading Policy

The course is graded on a CR/NC system (credit or no credit). *To receive credit, you must complete all required activities assigned during the semester.* These include class attendance, seminar attendance, and the assignments described below.

Attendance Policy

Attendance at all class meetings is expected, with the same general standards as absences at a place of employment. If you cannot be present at a class, please email me to let me know. I will require additional make-up activities, such as reading and summarizing papers on topics related to the class, to compensate for unexcused absences.

Assignments

The following assignments are due during the semester. All assignments that you submit will be uploaded on MU Online. I will provide full details on MU Online.

- **Presentation.** You will give a 20 minute presentation on an undergraduate-level mathematical topic. These presentations are meant to help you improve your skills in preparing and delivering lecture-style classes, as well as to teach the Math 589 class about topics of interest.

  The department is planning to take students to the MAA Ohio Section Spring Meeting at Ohio Northern University on April 8–9. If you give a presentation there, it will replace your presentation in Math 589.
- **Class observation.** You will observe a freshman-level class taught by another instructor, and then write a short reflection on it. The course can be Math 121, Math 127, Math 130, or Math 160. The course cannot be taught by a graduate student. Due date: March 18, 2016.
- **Research seminars.** The department will host several research seminars during the semester (see below). You are required to attend these as part of Math 589.
- **Class attendance.** Attendance at the weekly Math 589 class meetings is required.

Due dates

Each assignment will have an associated due date which is visible on MU Online. I will announce these dates in class near the beginning of the semester.

I will send one email after the due date of each assignment to remind all students who have not submitted it. There will be a one week (168 hour) grace period from the original due date (n.b. *not* from the date of the email). The assignment must be submitted by the end of the grace period.

Policy for Students with Disabilities

Marshall University is committed to equal opportunity in education for all students, including those with physical, learning and psychological disabilities. University policy states that it is the responsibility of students with disabilities to contact the Office of Disabled Student Services (DSS) in Prichard Hall 117, phone 304-696-2271, to provide documentation of their disability. Following this, the DSS Coordinator will send a letter to each of the student's instructors outlining the academic accommodation he/she will need to ensure equality in classroom experiences, outside assignment, testing and grading. The instructor and student will meet to discuss how the accommodation(s) requested will be provided. For more information, please visit http://www.marshall.edu/disabled or contact Disabled Student Services Office at Prichard Hall 117, phone 304-696-2271.

Audio/visual recording policy

Because we may discuss confidential or private topics, audio/visual recording is not permitted in Math 589, unless specifically authorized by an office such as the Office of Disability services.

Course schedule

The following schedule is subject to change. An updated schedule of the topics to be discussed each class session will be posted on MU Online. The class meeting that is missed due to Martin Luther King, Jr. Day will be rescheduled for Tuesday, January 19. Additional events, particularly research seminars, may be announced during the semester.

January 11	Math 100/102 - Beginning of semester discussion. Led by Dr. A. Mummert
January 19	**(Tuesday)** Semester intro
January 25	Talk topics. Advice for for giving a short talk/lecture
February 1	Mathematical writing: papers and theses
February 8	Talks #1
February 15	Job interviews
February 22	Talks #2
February 29	Teaching a class: semester and daily plans, lectures
March 7	**ARI Colloquium**
March 13	Talks #3
March 21	**Spring Break**
March 28	Talks #4
April 4	Teaching a class: inquiry and discovery based teaching
April 11	Talks #5.
April 18	Talks #6.
April 25	Talks #7. End of semester checklist.
May 7	**Graduation**

Departmental seminars

Attendance at at least four of the following departmental seminars is required. If you are unable to attend, you must contact me well in advance so that we can arrange a substitute assignment.

- Wednesday, January 27, 4:00pm
- Wednesday, February 24, 4:00pm
- Monday, March 7, 4:00pm
- Tuesday, March 8, 4:00pm
- Wednesday,April 6, 4:00pm

After each seminar, you will need to fill out a short seminar reflection form on MU Online.

Last updated: January 19, 2016

Presentation assignment

Description and Goal

The goal of this assignment is for you to practice developing and presenting material in an undergraduate classroom setting. The only way to become better at presentations is by practice.

Experience shows that it is not always productive to have graduate students present extremely elementary material to each other. Therefore, you will be assigned a sophomore or junior level topic to speak about. You may not already be familiar with your topic – that's OK. I will choose topics that are commonly encountered in the undergraduate math curriculum, so many references are available. You are also welcome to meet with me to talk about your topic.

You will prepare a 20 minute presentation on the topic. The presentation should be delivered in exactly the way you would deliver a lecture to a class you are teaching. You need to think carefully about what you want to include in your presentation, because time is limited. In general, you will be able to state and explain a definition or theorem, and work an example, but not much more.

Topics

You will be assigned a topic. Several possible topics are:

- Cramer's rule
- Computing line integrals in the plane
- Green's theorem
- The basic concept of an ODE and its solution
- The method of integrating factors for ODEs
- The concept of a dual basis of a vector space
- The notion of a group action, with examples
- Constrained partial derivatives

Format and preparation

The presentation will use a whiteboard or blackboard only – no projector or slides. You should prepare a written plan for your presentation, including precise statements of any theorem or definitions you want to state, precise work for any examples you want to talk about, etc. Minimize the amount of material for which you need to rely solely on memory. Be prepared to answer reasonable questions about what you have presented.

Presentation date

You will be assigned a presentation date. On the days that we have presentations, two students will present. The presentation dates are spread throughout the semester.