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 MWF 9:30 - 11:00...or by appointment

Text: None
Software: Maple, TI- NSpire or NSpire CAS
Prerequisites: Successful completion of Math 181 (Concurrent)

Topics we will cover this year:

Career Exploration	I
Web-based Portfolios	I and II
Introduction to Research	I and II
Technology and Math Programming	I and II
History of Mathematics	I and II
Mathematical Organizations	I and II (attendance)

Grading:

	A	B	C	Don't even think about it
• Class Attendance	13	12	11	
• PME Attendance	90%	80%	70%	
• Webpage begun and presented <i>Submitted until accepted</i>				
○ Background sections and favorite sites				
○ Course work				
○ Bio page				
• Group (?) Presentation on career <i>Submitted until accepted</i>				
• Presentation on mathematician/ history (to include some mathematics)				
• In-class Technology project <i>Maple, Minitab, Excel, TI-InterActive, SMARTboard, TI-nSpire...</i>				
• In-class review of literature presentations...				

Conference Attendance

Note: One of the requirements for the entire year will be to attend a mathematical or Math Ed conference. You need to attend one during the academic year. Proof of attendance and a short presentation of what happened at the conference will be required.

Upcoming Conferences...

- NCTM's regional conference Not yet announced
- MUMC <http://michmaa.org/events.html> TBA
(Michigan Undergraduate Math Conference)
- [DACTM Annual Conference:](#)
- Rose-Hulman Undergraduate Math Conference Spring Terra Haute, IN
- EMU - Math Ed Conference/MCTM spring
- MI MAA Annual Spring Meeting May

	01/13	01/27	02/03	02/10	02/17	02/24	03/10	03/17	03/24	03/31	04/07	04/14	04/21	04/28
Class Attendance														
PME Attendance														
Webpage														
Career Presentation														
Historical Perspective														
Technology Project														
Review of Literature														

History Presentation Examples/Ideas...

1. History of Numbers -
-Arabic, Babylonian, Egyptian, Mayan
-zero, pi, e
2. Greek Mathematics
3. History of Algebra
4. History of Calculus
5. History of Statistics... etc.
6. Famous Mathematicians
-Riemann, Galois, Euler, Fermat, Tukey, ...
7. Eccentric Mathematicians
-Paul Erdos, Archimedes, Conway, Newton, John Nash,
Charles Babbage, ...

Places to begin:

- [About.com brief biographies](#)
- [Women mathematicians](#)
- [An Index of the History Of Mathematics](#)

Course Description: In my estimation, a better title for this course is "**math outside of the classroom.**" In the 6 semester seminar series, we strive toward 3-fold goals in research, career and service. There are no tests or quizzes. The focus here is on individual or small group **projects and activities** tailored to your interests and career goals. Each individual or small group will give **oral presentations (including poster board displays of your slides)**

In Math 396, you will begin research for your senior thesis projects and the integration of prior course work. Research proposals and annotated bibliographies will be completed. Detailed planning for graduate school or professional employment begins. Professional resumes and employer interviews will augment scholarly portfolios.

Learning Outcomes:

The Mathematics Department has identified the following five learning outcomes to be achieved by majors and minors in its program.

1. Students will read and understand mathematics, differentiating between correct and incorrect mathematical reasoning.
2. Students will effectively communicate mathematics to others, both in writing and speaking.
3. Students will demonstrate abilities to work independently and in-groups to develop mathematical models using appropriate technologies.
4. Students will demonstrate a mathematical maturity leading to independent investigations, increased responsibility for learning, and participation in the professional mathematics community.

Students will demonstrate mastery of the content of the courses required for the major including the calculus, foundations, algebra, and analysis.

Mathematics Seminars Overview

Through five semesters math majors will have opportunities to show their mastery of concepts and skills and to demonstrate having achieved the mathematics department outcomes expected of graduating seniors. Beginning with the sophomore seminar students' achievement will advance as shown in the following chart:

Outcome indicators	Sophomore Year	Junior Year	Senior Year
Portfolio	Begin the web based portfolio. Include a biography and a page for math links. Upload history of mathematics projects.	Develop web based portfolio. Include projects and papers from major mathematics courses such as calculus, differential equations, mathematical modeling, linear algebra, etc.	Present a polished and complete web based portfolio that indicates achievements while a student and is suitable for demonstrating achievements to future employers. Download completed portfolio to a CD or DVD for portability.
Comprehensive reading of mathematics	Read material on the web, analyze it, and use it to complete vignettes in history of mathematics. Read journal articles and sections of books in history of mathematics and prepare an annotated bibliography.	Study a complete journal article and present it to the seminar. Read journal articles and sections of books in mathematics or mathematics education and prepare an annotated bibliography on topic of senior research project.	Read journal articles and sections of books in mathematics or mathematics education as needed for senior project.
Clear exposition of mathematics and its history	Write two term papers on topic in history of mathematics. One paper is a multifaceted web project. Post well written mathematics on the web.	Write a project proposal on topic of senior research project that includes an annotated bibliography, a statement of the problem to be solved, discussion of assumptions and variables, a description of the methodology to be employed, and a timeline for completion of the project. Post well written mathematics on the web.	Write project report paper on topic of senior project. Post well written mathematics on the web.
Oral presentation	Lead seminar session. Oral presentation of term paper for PME meeting.	Present information from a mathematics or mathematics education journal article to the seminar.	Oral presentation with media aids to SHU community and at student mathematics conference.

		Oral presentation of project proposal to SHU community.	
Poster presentation	Prepare and present poster about history of mathematics topic.	Prepare and present poster mathematics or mathematics education topic.	Prepare and present poster about senior project.
Professional affiliation	Be an active participant in the math club and join PME if eligible. Attend at least one mathematics conference.	Be an active participant in the math club and join PME if eligible. Attend at least one mathematics conference.	Assume a leadership role in the math club and in PME if eligible. Present senior project at least one mathematics conference. Join MAA, NCTM, SIAM or other professional mathematics organization.
Service	Participate in service projects that provide mathematics outreach to the wider community. Participate in the service activities of PME and WAM.	Participate in service projects that provide mathematics outreach to the wider community. Participate in the service activities of PME and WAM.	Participate in service projects that provide mathematics outreach to the wider community. Take leadership in PME and WAM.
Teamwork and Modeling	Participate on a Mathematical Contest in Modeling team.	Participate on a Mathematical Contest in Modeling team.	Participate on a Mathematical Contest in Modeling team.
Career Exploration	Explore potential career opportunities in field of choice.	Explore potential career opportunities in field of choice. Interview several people who hold jobs similar to that anticipated.	Explore potential career opportunities and apply for positions in field of choice.