Winter 2016   Math 499S
Bouillon 106, 12:00 - 12:50 TTh

Instructor: Dr. Jim Bisgard   **Office:** Bouillon 118

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                                          and by appointment.

Course Goals: The goal of this class is to give you an opportunity to assemble a portfolio demonstrating various types of proofs, as well as to reflect on what you have learned as a Mathematics Major. In addition, you will read a mathematical article and prepare a written and oral summary.

Grading: You will be required to complete the following assignments:

- Complete a portfolio demonstrating a non-trivial example of each of the following types of proof: (20%)

  1. Direct Proof
  2. Contrapositive Proof
  3. Proof by Contradiction
  4. Proof by Cases
  5. Proof by Mathematical Induction

- A 3-5 page paper on "An Application of Mathematics" (20%).

  The application should be at the calculus level or higher, and may come from any area of mathematics. As you look for a topic, I suggest that you talk to faculty, either in the math department or in another department!

- A 3-5 page paper on "What is Mathematics?" (20%)

- A paper summarizing a mathematical article (15%)

  A good place to begin looking for an article is the mathematics faculty and mathscinet!

- A presentation summarizing a mathematical article (15%)

- Class Participation (10%) (being in class and writing a one-paragraph summary for each speaker)

Deadlines

- The portfolio must be completed by March 17 by 4 pm.

- The application paper has the following due dates (at beginning of class):

  Topic: January 19

  Draft: February 4

  Final Draft: February 18

- The "What is Math?" paper has the following due dates (at beginning of class):

  Draft: February 25

  Final Draft: March 10

- The article summary paper has the following due dates (at beginning of class):

  Choice of article: February 4

  Draft: March 3

  Final Draft: March 17

- The presentations of the articles will occur on the last two class days and during the final exam period, so you should be prepared to present beginning March 8.

You must send your entire portfolio (including the proofs, the application paper, the "What is Math?" paper, and your article summary paper) in a single email no later than 4 pm on March 17.

Failure to do this will result in not passing Math 499S and not graduating in the spring!

Speakers and Participation: We will try to have a speaker occasionally, typically on Thursdays. Attendance for these talks is mandatory, and you are expected to type a one-paragraph summary of each talk. This summary is due at the beginning of the following class. In preparation for your presentations, you should also write down two things that you liked about the talk, and two things you didn't like about each talk. Your participation grade is based on attendance at these talks, as well as your one-paragraph summary!

Disability Support:
Central Washington University is committed to creating a learning environment that meets the needs of its diverse student body. If you anticipate or experience any barriers to learning, discuss your concerns with the instructor. Students with disabilities should contact Disability Services to discuss a range of options to removing barriers, including accommodations. Student Disability Services is located in Hogue 126. Call (509) 963-2214 or email `ds@cwu.edu` for more information.