

## College of Arts and Science

Division of Mathematical Sciences

##### Ma 480 ~ Capstone Experience Mathematics I

##### *Spring Semester 2023-24*

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| Instructor: | Dr. David Brown |
| Office: | Al 74 |
| Office Hours: | MWF 2:00 pm, T 1:30pm in AL 314 others by appointment |
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### Course Description:

Required of all students majoring in mathematics. Allows students the opportunity for a thorough development of their philosophy of mathematics, exposes them to a variety of mathematical research, and addresses career and graduate school preparedness. Not applicable toward a minor.

### Course Context: This course supports the following goals of the mathematics program:

MM1: Progress logically from premises to valid conclusions in a variety of mathematical contexts.

MM4: Construct a biblically consistent philosophy of mathematics.

### Course Goals:

1. Develop mathematical maturity and independent thinking. MM1
2. Learn to read and digest mathematical literature. MM1
3. Learn to evaluate mathematical works to determine their value and application. MM1, MM4
4. Improve the student’s ability to communicate foundational philosophy. MM1, MM4

### Course Objectives: The student will

1. Develop their own philosophy of mathematics that is compatible with their Christian faith. CG1, CG3, CG4
2. Select a topic for research in Ma 481. CG2, CG3

### Course Requirements and Evaluation:

1. This class is graded on a standard 10 point scale. Your grade will be determined by the grades earned on each assignment (as well as the completion of each assignment).
2. Each student must complete all of the following assignments to pass this course .
3. (50 pts) Complete the following reading: 2 papers from previous students(see email), Philosophy of Mathematics by Barker, Chapter 1 introduction, Mathematics, Is God Silent? By Nickel Part 1, and Mathematics in a Postmodern Age by Howell and Bradley Introduction and Chapter 1, Mathematics through the eyes of Faith by Bradley and Howell, Chapters 1 and 2. Email a statement by Bible Conference indicating you have completed this assignment. 10 pts late for each week or fraction thereof.
4. (50 pts) Rough draft of a Biblical philosophy of mathematics. Due March 31 10 pts off for each week or fraction thereof late.
5. (200 pts) Biblical Philosophy Paper. Due last regular class day of the semester. There is no specific format or length expected but 6 to 8 pages would be adequate. No specific format for documentation of sources but all sources do need to be documented.
6. (50 points) Due April 15. Receive Research Topic approval and submit a Research Outline.
7. Talk to at least 2 math professors(favorite teachers or teachers in favorite math subjects) about potential research projects that you might be interested in.
8. Do an online search about the subjects to see if there are any current papers on the topic.
9. Email me about which professors you have talked to and what topics you have considered.

(iv) Submit at most a 1 – page paper outlining your proposed research topic, which professor you have chosen to assist you, and include an initial literature review of the topic.

e. (50 pts) Complete research into a combination of 3 jobs/grad schools.

**Key Dates:**

1. Feb 19: Have all the reading assignments(see 2a above) completed.
2. March 4: Have discussed with at least 2 professors potential research ideas for next semester.
3. March 18: Have a topic chosen for research before you leave for spring break.
4. April 1: Submit a rough draft of your Philosophy Paper.
5. April 26: Submit final copy of Philosophy Paper
6. April 26: Submit a combination of 3 grad schools/job search
7. Any literal review or other expectations Dr. Carpenter wants in preparation for Math Capstone 2.

### General Policies:

1. Compliance with student handbook policies is expected during class.
2. No assignment will be accepted after the due date without prior permission of the instructor. Work may always be completed early (see your professor if you wish to take a test early).

Exceptions may be granted by your professor in emergencies. Contact your professor asap by email to notify them of the emergency. Requests for exceptions should be made in person asap.

1. University attendance policy is in effect (see <http://home.bju.edu/life/policies/class-attendance-policy.php> for details).
2. University academic integrity policy is in effect (see <http://home.bju.edu/academics/> for more details).

Cheating is defined as any use of unauthorized helps, and plagiarism is defined as taking someone else’s words and/or ideas and claiming them as your own.

Doing your own work brings glory to God. The claiming of someone else's work as your own is cheating and is a sin. All work done for this class needs to be your own. If information is taken from other sources (which is at times appropriate), it always needs to be referenced and credit given where it is due. Use standard referencing techniques as taught in En 102. Solutions found on the internet are not to be copied.

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