Ma 480 ~ Capstone Experience Mathematics I
Fall Semester 2020-21

Instructor:	Dr. David Brown
Office:	Al 74
Office Hours:	12;30 MTWF in Al 301 and other times 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:

CG1: Develop mathematical maturity and independent thinking. MM1
CG2: Learn to read and digest mathematical literature. MM1
CG3: Learn to evaluate mathematical works to determine their value and application. MM1, MM4
CG4: Improve the student's ability to communicate foundational philosophy. MM1, MM4

Course Objectives: The student will

1. Gather information about mathematically related careers.
2. Gather information about graduate schools, be ready to take the GRE and the Math Subject GRE, and be ready to apply for graduate school. CG1 (Assessed by GRE Sample Test and Grad School report)
3. Evaluate mathematical work from a biblical perspective. CG1, CG3
4. Select a topic for research in Ma 481. CG2, CG3

Course Requirements and Evaluation: In short the major assignment is a Philosophy of Mathematics paperl

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 (details for each assignment are available on the course webpage)
   a. Complete the graduate school review (includes determining GRE requirements)
   b. Complete the career review
   c. Complete the following reading:

      Is God a Mathematician By Mario Livio   Chapter 1 and 2
      Philosophy of Mathematics by Barker, Chapter 1 introduction
      Mathematics, Is God Silent? By Nickel   Part 1
      Mathematics in a Postmodern Age by Howell and Bradley Introduction and Chapter 1

   d. Submit a Biblical philosophy of mathematics
   e. Receive Research Topic approval and submit a Research Outline

Key dates:

      9/28   Read the assignments above

      10/7   Discuss with at least 2 professors topics for potential research(research will take place next semester).

      10/16 Have a topic formulated for research

      10/23 Rough Draft of Philosophy Paper returned

      10/30 Choose a topic for research

      11/16 Submit final copy of Philosophy Paper

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.

3. University attendance policy is in effect (see http://home.bju.edu/life/policies/class-attendance-policy.php for details).

4. 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.

   Projects: You are encouraged to discuss the general ideas of data analysis as discussed in this course with your classmates, but are **not** permitted to "work together" on your project. Your projects must represent your own ideas and your own work.

   If you have a question about any source you are considering using, please gain your professor's approval before using it. You are always permitted to ask your professor for help. Any help they choose to provide is acceptable.