

Discrete Mathematics (MAT 4522) Fall 2020

Day/ Time: MWF Periods 11-12 (12:55-1:45)

Instructor: Dr. Michael Niemeier

Email: meniemeier@bsu.edu

Office Hours: Monday 10-11 and 3-4

Tuesday 10-12

Wednesday 10-11 and 3-4

Thursday 10-12

Friday 10-11 and 3-4

Or by appointment. (To make an appointment stop by my office or send me an email.)

*Office Hours will be held virtually via a Zoom session. A link to the office hours zoom meeting will be posted on canvas (See Office Hours tab) and you should connect to this zoom session during my office hours for help.

Classroom: BU 204

Office: Elliot Hall 007

Phone Number: (765) 285-7416

Required Text:

- Epp, *Discrete Mathematics with Applications*; 4th edition; Brooks/Cole; 2011.

Prerequisite:

- Pre-Calculus for Advanced Placement 2 or the equivalent.

Course Content:

| | | |
|------------|--|------------------|
| Chapter 1 | Speaking Mathematically | 1.1-1.3 |
| Chapter 2 | The Logic of Compound Statements | 2.1-2.3 |
| Chapter 3 | The Logic of Quantified Statements | 3.1-3.4 |
| Chapter 4 | Elementary Number Theory and Methods of Proof | 4.1-4.7 |
| Chapter 5 | Sequences, Mathematical Induction and Recursion | 5.1-5.4, 5.6-5.8 |
| Chapter 6 | Set Theory | 6.1-6.3 |
| Chapter 7 | Functions | 7.1-7.4 |
| Chapter 8 | Relations | 8.1-8.3 |
| Chapter 9 | Counting and Probability | 9.1-9.9 |
| Chapter 10 | Graphs and Trees | 10.1-10.5, 10.7 |

Grading:

Grades for the course and assignments are assigned by the following percentages:

| | | |
|------------|------------|------------|
| | 100-92 — A | 92-90 — A- |
| 89-87 — B+ | 86-83 — B | 82-80 — B- |
| 79-77 — C+ | 76-73 — C | 72-70 — C- |
| <70 — D* | | |

The final grade in the course will be determined by the following factors:

| | |
|----------------|----------------|
| Homework: | 10 % |
| Quizzes: | 10 % |
| Midterm exams: | 45% (15% each) |
| Project: | 15% |
| Final Exam: | 20% |

Assignments:

Homework

There will be a homework assignment for nearly every section, given in class and also posted on Canvas. Homework will be collected on a regular basis and checked for both completeness and accuracy.

Quizzes

There will be weekly short quizzes over the material covered the previous week with problems similar to homework questions. Depending on the number of quizzes, I will drop up to the lowest two quiz scores from consideration for the overall quiz grade.

Exams

At the end of each chapter or couple of chapters, there will be a midterm exam covering that material. The exams will not be cumulative in the sense you will see questions directly from previous test material, but mathematics is cumulative so that you may need to apply knowledge from previous test material in order to solve new problems.

Project

There will be a project covering chapter 10 material that will be given in the last two weeks of class.

Final Exam

Finally, near the end of the course, you will have a cumulative final exam split into two days that covers all material presented in chapters 1-9. The final exam will replace your lowest midterm exam score, provided it would improve your grade. (It will only replace **one** of your midterm exam scores, so be sure to prepare adequately for each exam!)

Tentative Schedule for Exams and Project:

Exam 1 (Sections 1.1-1.3, 2.1-2.3, 3.1-3.4) Wednesday September 9th

Exam 2 (Sections 4.1-4.7, 5.1-5.3) Wednesday October 7th

Exam 3 (Sections 6.1-6.3, 7.1-7.4, 8.1-8.3) Friday October 30th

Final Exam

(Sections 1.1-1.3, 2.1-2.3, 3.1-3.4, 4.1-4.7, 5.1-5.3, 6.1-6.3, 7.1-7.4, 8.1-8.3, 9.1-9.9)

Wednesday November 18th and Friday November 20th

Chapter 10 Project Friday December 11th

Academic Integrity:

As a firm believer that grades should reflect learning, academic integrity is paramount to the academic experience. Please review the Academy's Academic Integrity policy as it will be strictly adhered to in my class.

Examples of behavior subject to review under the Academic Integrity policy include, but are not limited to:

1. Copying someone's work and turning it in as one's own
2. Use of aids and/or other materials on quizzes and exams without expressed permission.
3. Use of calculators when explicitly forbidden to do so.
4. Copying another person's work or answers on a quiz or exam.

I encourage you to work in groups when doing the homework assignments as much can be learned from your peers that you may not always pick up in class. However, each individual is required to turn in work in their own handwriting accompanied by the requisite work shown to receive full credit.

Technology:

The use of technology is limited to that which will enhance the learning process. Your laptops, cell phones, and other internet-ready devices should be closed/turned off, and put away, or flat on your desk being used as a notebook during class time unless given permission by the instructor for a specific class period. Calculators are **NOT** allowed.

Attendance:

Attendance will be taken at the beginning of the hour. You are responsible to be on time for each class period. Failure to attend class will result in disciplinary action as set forth by Academy policy regarding absences and tardiness. You will be considered absent if you arrive more than 10 minutes late. However, I recommend still coming to class, even if you will be marked absent in order to miss as little critical information as possible.

Late Work/ Make-up policy:

It is my policy not to accept late work/ allow make-up work unless there is an excused absence the day an assignment was due. If you can't be in class the day an assignment is due, please bring it by my office or send me an email with it as an attachment. If you miss a quiz or exam due to an excused absence, it is up to you to schedule a time with me (office hours or other) during which you can take the exam or quiz. You must contact me within a week of the missed assignment and complete the assignment within two weeks of missing it.

*If you must take a quiz or exam online, then it will be proctored while in a Zoom session. You must contact me the week of a quiz or exam to schedule a time to take the exam over Zoom.

Indiana Academy Mask Policy:

- I. Requirement

- II. The Indiana Academy will follow [Ball State University's mask policy](#). Effective July 1, 2020, all people on campus—including faculty, staff, students, vendors, contractors, suppliers, and visitors—should wear face masks (covering nose and mouth) while inside campus buildings. Face masks are specifically required in the following situations:
- a. When in the presence of others (indoors or outdoors) and physical distancing is difficult to maintain, such as in hallways, elevators, stairs, public spaces, and common areas;
 - b. When in a classroom or laboratory;
 - c. When using campus transportation (such as a shuttle bus);
 - d. When multiple individuals are in a University vehicle.

Students, faculty, and staff are encouraged to bring their own mask. Masks will be provided to anyone who is unable to bring a mask or their mask is damaged.

III. Non-compliance

If a student declines to wear a face mask as required, the student will be referred to the Director of Academic Affairs or the Director of Residential Affairs. If the situation occurs in a classroom or other academic setting, it is considered a classroom management issue, and the teacher will remind the student of the requirement and give the student a chance to comply with it prior to referring the matter to the Director of Academic Affairs or the Director of Residential Affairs. Wearing masks is crucial to preventing the spread of COVID-19 to others.

Diversity Statement:

Ball State University aspires to be a university that attracts and retains a diverse faculty, staff, and student body. We are committed to ensuring that all members of the community are welcome, through valuing the various experiences and worldviews represented at Ball State and among those we serve. We promote a culture of respect and civil discourse as expressed in our Beneficence Pledge and through university resources found at <http://cms.bsu.edu/campuslife/multiculturalcenter>.