Course Syllabus for Discrete Math (MAT 4522)

General:

Instructor: Joshua Ruark Office: Wagoner 150

Day/ Time: MWF 8 AM Office Hours: MWF 1-3PM, T 2-3PM, R 8-11AM

Phone Number: 765-285-7410 Email: [jjruark@bsu.edu](mailto:jjruark@bsu.edu)

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

Prerequisite: Precalculus for Advanced Placement 2 or the equivalent.

Description: This course is a survey of discrete mathematical topics selected from among logic, set theory, cardinality of sets, number systems, graph theory, combinatorics, recursion, and discrete probability. This course uses various proof techniques including mathematical induction and stresses algorithmic thinking and precise mathematical expression.

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 4.1-4.7

of Proof

Chapter 5 Sequences, Mathematical Induction 5.1-5.3 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 10.1-10.6

Grading:

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

100-93 — 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: 60%

Final Exam: 20%

Assignments:

For nearly every section, there will be a homework assignment. Homework will be collected on a regular basis and checked for both completeness and accuracy. Generally, it will be collected two class periods after it is assigned. Expect quizzes on a near weekly basis that will cover material discussed the previous two weeks in class. Depending on the number of quizzes, I will drop up to the lowest three scores from consideration for the overall quiz grade. At the end of each chapter or couple of chapters, there will be a midterm exam covering that material. Finally, at the end of the course, you will have a final exam that will encompass all the material presented during the semester. As the final exam is cumulative, its score will replace any lower midterm exam scores throughout the semester.

Furthermore, I will post a lesson plan for each section covered on the Canvas page for this course. I highly recommend reviewing and printing off the page before you come to each lecture. Additionally, you will find the homework assignment for each section at the bottom of the posted lesson plan. Warning: these lesson plans are meant as a guide to help you in your note taking, and should nto be considered a substitute for coming to class.

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. Use of laptops is permitted as long as it is not distracting from what is transpiring in the classroom. Calculators, though not required, are welcome to be used for the majority of homework, quiz, and exam assignments. However, there will be instances where calculators are NOT allowed, but you will be informed in advance when these times occur.

Attendance:

Attendance will be taken at the beginning of the hour. You are responsible to be on time for each class period. Arrival within the first 10 minutes of class will constitute a tardy, otherwise you will be marked absent. Failure to attend class will result in disciplinary action as set forth by Academy policy regarding absences and tardies.

Unexcused Absence

It is the policy of the Indiana Academy that any absence from class is unexcused, except for illness, death in the family, college or school-related activities, and extenuating circumstances. When a student is absent from a class, the instructor reports the student absence to the Faculty Attendance Coordinator in the Office of Academic Affairs. Unless the absence is excused by a school official, it is considered unexcused. The decision as to whether an absence is excused is not determined by the instructor.

Any unsubmitted assignment that is due on the day of an unexcused absence is subject to receiving a grade of “0” with no possibility of changing the grade. The only exception is an exam, which will still be recorded as a “0” but may be replaced with a higher percentage attained on the final exam minus ten percent.

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 is due. Even when absent, you can place the assignment in my mailbox before I leave school for the day and it is still considered on-time. If the absence is excused, it is due the day you return to class. If you know you will be absent the day of a quiz/exam, please let me know ahead of time so we can schedule a time outside of class for you to take the quiz/exam. If the excused absence is unexpected and a retake is not possible, the next exam will cover the quiz grade, and the exam grade will not be entered until the final exam percentage replaces the blank.

Personal Responsibility

Learning, by definition, is an individual experience. No one can learn for you, just as no one can eat, sleep, or breathe for you. If you are having difficulties in this course (or any course for that matter), it is your responsibility to seek help. Your first avenue should be to come to office hours, then seek outside tutoring. When seeking assistance, it is not recommended that you say, “I don’t understand this.” This conveys a lack of effort to learn the material and an attitude of giving up. Saying, “Can you help me understand this?” conveys a willingness to learn and put forth the requisite amount of effort to master the material. I am more than willing to help anyone who is willing to put in the time and energy required to learn to the best of their ability.

Institutional Diversity:

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>.

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| Week of | M | W | F |
| 15-Aug | Syllabus/ Sec. 1.1 | Sec. 1.2-1.3 | Sec. 2.1-Q |
| 22-Aug | Sec. 2.2 | Sec. 2.3 | Sec. 3.1-Q |
| 29-Aug | Sec. 3.2 | Sec. 3.3 | Sec. 3.4-Q |
| 5-Sep | No class | Exam Review | Exam 1 |
| 12-Sep | Sec. 4.1 | Sec. 4.2-3 | Sec. 4.4-Q |
| 19-Sep | Sec. 4.5 | Sec. 4.6 | Sec. 4.7-Q |
| 26-Sep | Sec 5.1 | Sec. 5.2-3-Q | Exam Review |
| 3-Oct | Exam 2 | Sec. 6.1 | Sec. 6.2 |
| 10-Oct | No class | No class | Sec. 6.3-Q |
| 17-Oct | Sec. 7.1 | Sec. 7.2 | Sec. 7.3-4-Q |
| 24-Oct | Sec. 8.1 | Sec. 8.2-3-Q | Exam Review |
| 31-Oct | Exam 3 | Sec. 9.1-2 | Sec. 9.3-4 |
| 7-Nov | Sec. 9.5-Q | Sec. 9.6-7 | Sec. 9.8-9 |
| 14-Nov | Sec. 10.1-Q | Sec. 10.2 | Sec. 10.3-4 |
| 28-Nov | Sec. 10.5-6-Q | Exam Review | Exam 4 |
| 5-Dec | Final Exam Review | Final Exam Review | Final Exam Review |
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