

MTH 140: Study Guide for Final Exam



Instructions: The Final Exam is going to contain a mix of free response questions, fill in the blank and multiple choice questions. It will be given on Canvas and will be available for you to take any time from Wednesday May 6th - Tuesday April 12th. You will have one try and a two hour window. The exam is password protected. Your proctor will enter the password for you. You will be allowed to use your own formula sheet and your calculator.

In preparation for the exam, you may wish to do the following:

- Review the concepts learned in each section and as you go, **make a summary, formula sheet**. This will help you have all the things you need to remember in one place so you don't have to flip through your notes as you study.
- Review the exercises used as examples during the lectures.
- Review problems from the homeworks.
- Go over this Study Guide and make sure all the concepts/formulas look familiar and you know when/how to use them.
- Finally, after you have studied, take the practice exam. This assignment is not required. It is there for you to use as practice after you have studied. Do not use the Practice as your only preparation for the Exam; use it as a study tool.

Please read the info posted in the Syllabus: Important exam policies:

- AI tools are strictly prohibited - any use of artificial intelligence assistance will result in academic dishonesty charges
- You may use your own formula sheet only
- Absolutely no make-ups or retakes - plan accordingly (however, your final exam score may replace your lowest or missed exam)
- One attempt only - once the proctor enters the password you begin and that's your final submission
- You will turn in the formula sheet and the work for the exam. I will be giving partial credit. So turn in work on the scratch paper the proctor will give you. Make sure to write the question number and the work corresponding to it. No partial credit will be given if there is no organized, legible work turned in for the problem.

Version A of the final Exam will cover some of Chapter 3, Chapter 4 and some of Chapter 5. **Version B** will cover everything! Refer to Exam 1 and 2 study guides for the other topics.

1. Chapter 3 Probability - Days 18 and 19

- Discrete random variables: what they are and how to find probabilities and mean(expected value).
- Rules of probability distributions.
- Know the notation for mean(expected value) for a discrete random variable X .
- Know the four conditions that an experiment needs to satisfy to be a binomial experiment.
- What the notation $X \sim B(n, p)$ means.
- Know the formulas for binomial probabilities and when each one of them is used.
- Know the formulas and notation for the mean(expected value) of a binomial random variable.

2. Chapter 4 Sets - Day 20

- Know definition of a set and notations involving sets: belongs to set, does not belong to set, cardinality, empty set, natural numbers, integers, etc.
- Know set operations and notations: complement, union, intersection, set difference, subset
- Know how to use Venn Diagrams with 2 and 3 sets to solve problems

3. Chapter 4 Logic - Negation, Conjunction and disjunction: Days 21, 22 and 23

- Know definition of a statement and not statements
- Know what quantified statements are (universal and existential)
- Know how to negate statements
- Know what conjunction is and its truth table
- Know what disjunction is and its truth value
- Know how to make truth tables for compound statements involving, not, and and or.
- Know what a tautology is and what a contradiction is.