Midterm for CSC2515,
Machine Learning
Fall 2020
Thursday, Oct. 22 11:59am – Oct. 23 11:59am

READ ALL INSTRUCTIONS BEFORE STARTING.

RULES

- This is a open-book, open-note test.

- **You should not use the internet to search for solutions to the questions; this is a form of cheating, and you will be given a mark of zero.**

- You must **not discuss the contents of the midterm** with any other students until the grades have been released.

EXAM PERIOD

- Please answer ALL of the questions.

- During the exam, Piazza will be on exam mode. If you have any questions during the exam, you can make a private Piazza post, and we will try to answer within one hour.

- Any updates or clarifications to the exam will be communicated through Quercus and Piazza.

- The questions are NOT arranged in order of difficulty, so you should attempt every question.

- Questions that ask you to "briefly explain" something only require short (1-3 sentence) explanations. Don't write a full page of text. We're just looking for the main idea.

- None of the questions require long derivations. If you find yourself plugging through lots of equations, consider giving less detail or moving on to the next question.

- Many questions have more than one right answer.

- This examination contains 1 bonus mark. The bonus mark cannot raise your grade above 100%.

SUBMISSION

- Markus submissions will close exactly at Oct. 23 11:59am. We strongly suggest you to upload before Oct. 23 10:59am.

- Scan your exam (exactly 29 pages) as a single PDF named `midterm.pdf`, and upload to MarkUs for grading.

- The page that a question appears on the midterm (using the page number at the bottom of the page) **must correspond** to the page in which your solution appears in your submission. For example, Question 8b must appear in page 15 of your submission.

- We recommend either printing and scanning the midterm, or using an electronic writing device.

- You may also write your solutions from scratch or in LaTeX, but you may need to reproduce figures and add blank pages to your submission.

- Failure to submit a full, ordered, 29-page PDF may result in some questions going unmarked, and a loss of points.

OPTIONAL ADDENDUMS

- If you need extra room, you may submit continue your solutions in a separate pdf file (`supp.pdf`).

- To receive points, you must refer to this file in the original question with the exact page number. For example, *"solution continues on page 2 of supp.pdf"*.

Q1:   _____ /   16
Q2:   _____ /   14
Q3:   _____ /   10
Q4:   _____ /   10
Q5:   _____ /   10
Q6:   _____ /   6
Q7:   _____ /   10
Q8:   _____ /   9
Q9:   _____ /   8
Q10:   _____ /   11
Q11:   _____ /   11
Q12:   _____ /   15
Q13:   _____ /   12
Q14:   _____ /   8
Bonus: _____ /   +1

Final mark: _____ / 150