

# CPSC 440/550 Assignment Submission Instructions for 2024W2

## 1 The assignments

- The code and data for assignment X is in `aX.zip` on the course website, linked from the schedule.
- Make sure to do the version of the assignment from the current semester.
- Modifications/updates/clarifications after the assignment is first put online will be marked in **red**. Any major updates will be announced on Piazza.

### 1.1 Groups

- You can work on your own or in a group of 2, **except for the first assignment** which must be done alone.
- You can have different groups on different assignments.
- If you work in a group, check how to submit as a group on Gradescope in Section 4. Make sure you do this!

### 1.2 Grading

- All homework assignments have the same weight.
- If you think there is a problem with your grade, you have one week to raise a concern from the time that your grades were posted. After that, your grade is final.
- To raise a concern, use the **regrade request** on Gradescope.

## 2 Submission format

- Put your name(s) and student number(s) on the first page, as a backup.
- Your submission needs to be organized sequentially using the (sub-)section numbers in the assignment.
- Figures AND relevant code need to be placed in the appropriate location in the document.
- If you use information from students outside your group or from other sources, cite this at the start of each question. **You will receive a mark of 0 for the assignment (and possibly further consequences) if you are found copying from other sources without citation.**
- Make sure your answers are easy to find, clearly written and easy for the TA to understand. Write your answers in  $\text{\LaTeX}$ .  
TAs can reduce your mark if your answers are difficult to understand (even if correct).
- To reduce the chance of this happening, you can fill your answers in to the  $\text{\LaTeX}$  file used to generate the assignment PDF on the webpage.  
The file is, e.g., `a1.tex`. You can use the `\begin{answer}` environment, or the slightly-shorter `\ans{}` command, to write your answers (appearing in green).  
Here is an example of a legible answer format:

Figure 1: Short answer example

## 1.2 Matrix Algebra Rules

Assume that  $\{x, y, z\}$  are  $n \times 1$  column vectors and  $\{A, B, C\}$  are  $n \times n$  real-valued matrices,  $0$  is the zero matrix of appropriate size, and  $I$  is the identity matrix of appropriate size. State whether each of the below is true in general (you do not need to show your work).

1.  $x^T y = \sum_{i=1}^n x_i y_i$ .

Answer: 234567

2.  $x^T x = \|x\|^2$ .

Answer: 234567

3.  $x^T x = x x^T$ .

## 2.1 Including code

There are several options for including the code into your answer file. When you submit code, **please only submit the code you wrote** (minimal context is okay if it's easier, of course); do not include the full provided “boilerplate” code that we wrote for you.

### 2.1.1 minted

The nicest option is the `minted` package (package documentation, Overleaf’s description). If you’re compiling your document on Overleaf, it should Just Work™ to add `\usepackage{minted}` to your preamble, then include something like

```
\begin{minted}{python}
import numpy as np

def sort_really_really_fast(ary):
    while not np.all(np.diff(ary) >= 0):
        np.random.shuffle(ary)
\end{minted}
```

which will end up looking like

```
import numpy as np

def sort_really_really_fast(ary):
    while not np.all(np.diff(ary) >= 0):
        np.random.shuffle(ary)
```

You can also use `\inputedminted[firstline=12,lastline=23]{python}{code/filename.py}` to pull code in directly from your code file – but double-check that you’re including all the relevant bits and not too much boilerplate if you do it this way.

To use `minted` locally, you’ll need to `pip install pygments` and run `latexmk/pdflatex` with the `-shell-escape` flag. Getting the paths right might be annoying if you’re using an IDE instead of the command line, so you might want to consider another option below. If you do this, you should probably **comment out the `\usepackage{minted}` in the preamble** (or else you’ll still get an error about requiring `-shell-escape`).

### 2.1.2 listings

If you're having trouble with `minted`, a less-nice but easier-to-get-working option is the `listings` package (Overleaf description). To use this, just put `\usepackage{listings}` in the preamble, then use

```
\begin{lstlisting}[language=Python]
import numpy as np

def sort_really_really_fast(ary):
    while not np.all(np.diff(ary) >= 0):
        np.random.shuffle(ary)
\end{lstlisting}
```

which will end up looking like

```
import numpy as np

def sort_really_really_fast(ary):
    while not np.all(np.diff(ary) >= 0):
        np.random.shuffle(ary)
```

It's fine, but not as pretty as `minted` was. If you want, you can add some colour to it; see Overleaf's example.

You can use `\lstinputlisting[language=Python, firstline=12, lastline=23]{filename.py}` to include a whole file (again, double-check you're including all your code and not too much boilerplate).

### 2.1.3 Screenshots

If you prefer, it's okay to just include a screenshot with `includegraphics`. It's nicer for us to get it in text format in case we want to run your code, though.

Figure 2: An example of code included via screenshot.

```
import os
import sys
import random
import math
import numpy as np
import skimage.io
import matplotlib
import matplotlib.pyplot as plt

# Root directory of the project
ROOT_DIR = os.path.abspath("../")

# Import Mask RCNN
sys.path.append(ROOT_DIR) # To find local version of the library
from mrcnn import utils
import mrcnn.model as modellib
from mrcnn import visualize
# Import COCO config
sys.path.append(os.path.join(ROOT_DIR, "samples/coco/")) # To find local version
import coco

%matplotlib inline

# Directory to save Logs and trained model
MODEL_DIR = os.path.join(ROOT_DIR, "logs")

# Local path to trained weights file
COCO_MODEL_PATH = os.path.join(ROOT_DIR, "mask_rcnn_coco.h5")
# Download COCO trained weights from Releases if needed
if not os.path.exists(COCO_MODEL_PATH):
    utils.download_trained_weights(COCO_MODEL_PATH)

# Directory of images to run detection on
IMAGE_DIR = os.path.join(ROOT_DIR, "images")
```

### 3 Signing up on Gradescope

- The easiest way to set up for Gradescope is to just follow the link from Canvas. This should work even if you're not officially enrolled in the class yet; get to the Canvas page via the link from the course website.
- If that's not working for you, make a private post on Piazza. If you didn't try until right before the assignment deadline and we didn't respond in time, post your assignment privately on the same Piazza post.

### 4 Submitting on Gradescope

- **Submit your assignments as a single PDF to Gradescope.** See Fig 3
- When submitting, you will be prompted to indicate which page contains which question. See Fig. 4
  - For each question, make sure to indicate **all** pages that correspond to that question.
  - Make sure all questions are assigned to at least one page.

**If you fail to do so, that may result in having a score of 0 for that question.**

- If you work in a group, **only hand in one assignment.** Use Gradescope's group feature. See Fig. 5  
<https://help.gradescope.com/article/m5qz2xsnjy-student-add-group-members>
- You can submit each assignment multiple times. We recommend submitting a preliminary version early.

Figure 3: When uploading the file

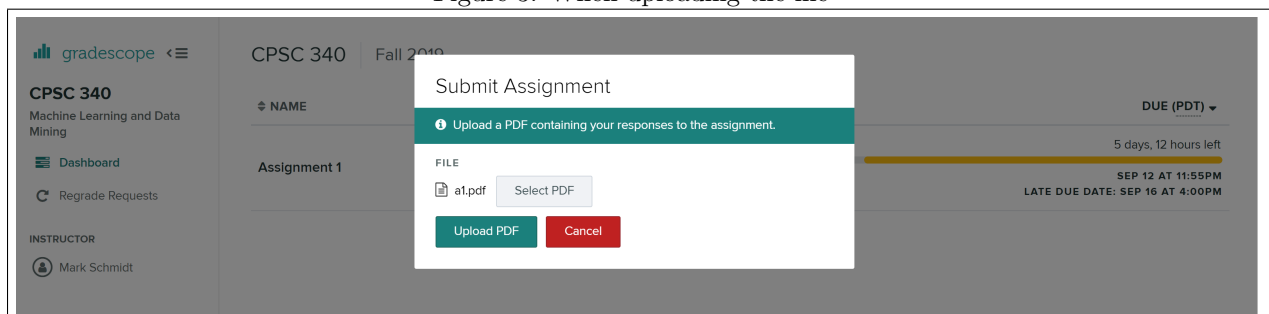


Figure 4: Assigning questions to pages

**Assignment 1 | Assign Questions and Pages**

SUBMITTED AT: SEPTEMBER 7, 11:37 AM  
 Select questions and pages to indicate where your responses are located. Use **esc** to deselect all items and hold **shift** to select multiple questions.

**Question Outline**  
 Select pages to assign to Question 1.1.

TITLE	POINTS
1 Linear Algebra Review	2.0 pts
1.1 Basic Operations	1.0 pt
1.2 Matrix Algebra Rules	1.0 pt
2 Probability Review	2.0 pts
2.1 Rules of probability	1.0 pt

Figure 5: If you are working in pairs, *submit your assignment first* and then configure your group using the “Group Members” button. Select your partner using the dialog box. Make sure your partner has a valid email address.

**Group Members**

Add or remove group members for this submission.

Your instructor has allowed you to submit as a group of up to **any number of people**. You can change the group below. Students added or removed will be notified via email.

STUDENT	REMOVE
Test student	<span style="color: red;">✖</span>

ADD STUDENT

Search students by name or email...

Test Student 2