

MIDDLE TENNESSEE STATE UNIVERSITY

DEPARTMENT OF COMPUTER SCIENCE

CSCI-3080 DISCRETE STRUCTURE

OLA2: Formal Logic & Proofs, Induction

Instructor: Dr. Xin Yang

Due date: Feb 25th, 2022 (23:59 PM) Friday

February 17, 2022



1. Download and Install Anaconda

Windows users: <https://docs.anaconda.com/anaconda/install/windows/>

Mac users: <https://docs.anaconda.com/anaconda/install/mac-os/>

Linux users: <https://docs.anaconda.com/anaconda/install/linux/>



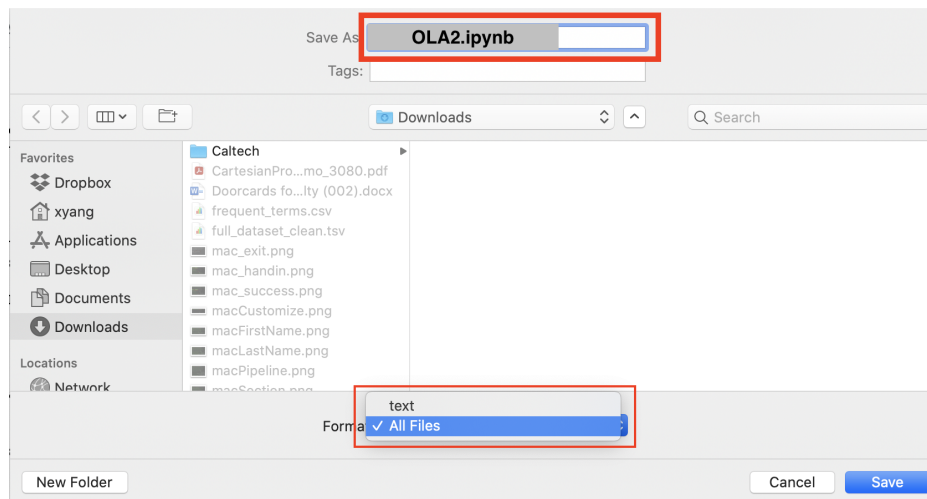
Figure 1: Anaconda: Data Science Platform

2. Download the Starter Jupyter Notebook

Please download the starter Jupyter Notebook (OLA2.ipynb) from my course calendar:

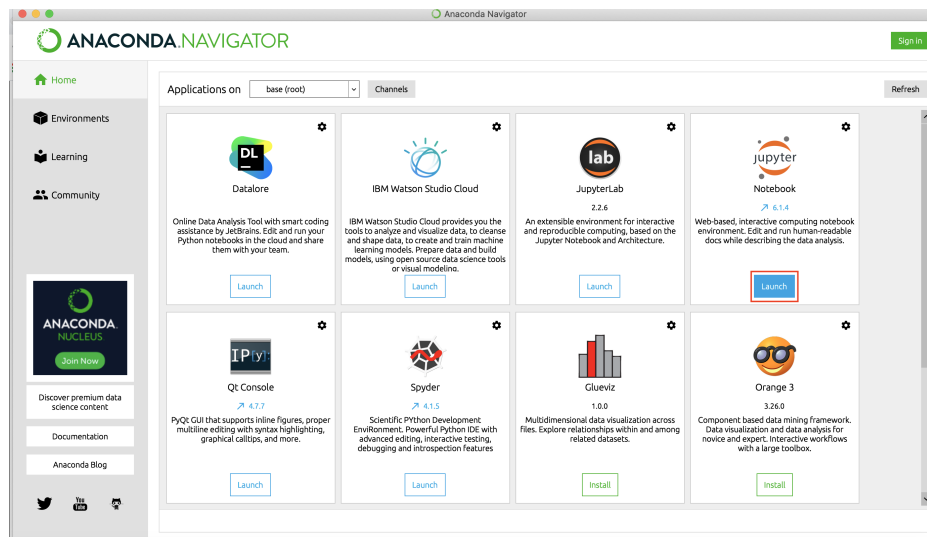
<https://www.cs.mtsu.edu/~xyang/3080/OLA/OLA2.ipynb>

- **Right click** the page.
- Click: “**Save As**”
- Select Format: **All Files**
- **Remove** the extension **.txt**.



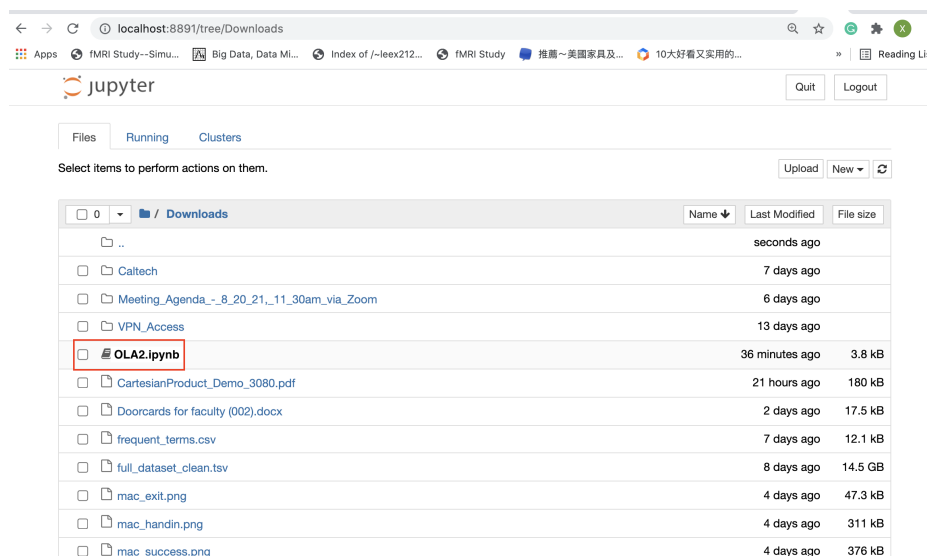
3. Launch Jupyter Notebook

- (1) Open Anaconda.
- (2) Launch Jupyter Notebook through Anaconda.



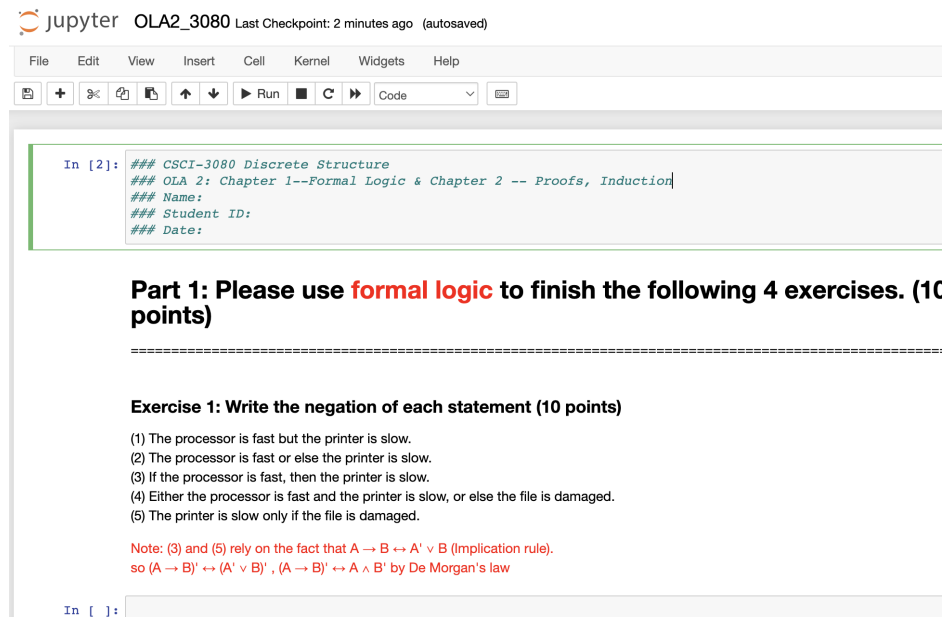
4. Open Jupyter Notebook OLA2

(1) Locate OLA2.ipynb in your Download Folder.



(2) You should see the following page after you click

OLA2.ipynb :



The screenshot shows a Jupyter Notebook titled "OLA2_3080" with a last checkpoint of 2 minutes ago. The interface includes a menu bar (File, Edit, View, Insert, Cell, Kernel, Widgets, Help) and a toolbar with icons for file operations, cell navigation, and execution. The first cell is a code cell containing a header for "CSCI-3080 Discrete Structure" and "OLA 2: Chapter 1--Formal Logic & Chapter 2 -- Proofs, Induction", followed by fields for Name, Student ID, and Date. The second cell is a text cell containing the instructions for "Part 1: Please use formal logic to finish the following 4 exercises. (10 points)". Below this, "Exercise 1: Write the negation of each statement (10 points)" is listed with five statements. A note at the bottom of the exercise section explains the implication rule and De Morgan's law.

```
In [2]: ### CSCI-3080 Discrete Structure
        ### OLA 2: Chapter 1--Formal Logic & Chapter 2 -- Proofs, Induction
        ### Name:
        ### Student ID:
        ### Date:
```

Part 1: Please use formal logic to finish the following 4 exercises. (10 points)

=====

Exercise 1: Write the negation of each statement (10 points)

(1) The processor is fast but the printer is slow.
(2) The processor is fast or else the printer is slow.
(3) If the processor is fast, then the printer is slow.
(4) Either the processor is fast and the printer is slow, or else the file is damaged.
(5) The printer is slow only if the file is damaged.

Note: (3) and (5) rely on the fact that $A \rightarrow B \leftrightarrow A' \vee B$ (Implication rule).
so $(A \rightarrow B)' \leftrightarrow (A' \vee B)'$, $(A \rightarrow B)' \leftrightarrow A \wedge B'$ by De Morgan's law

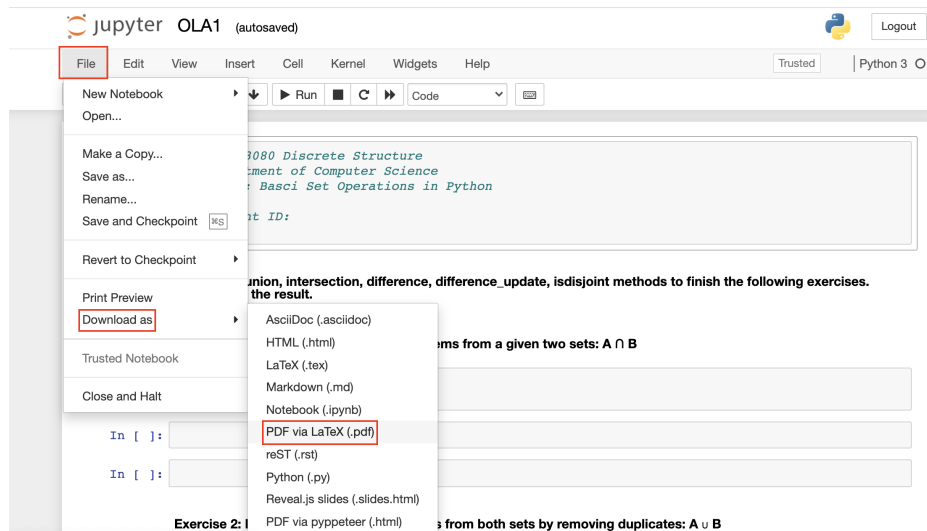
In []:

(3) Please fill in your Name, ID, and Date.

(4) Please finish all 10 exercises in Jupyter Notebook.

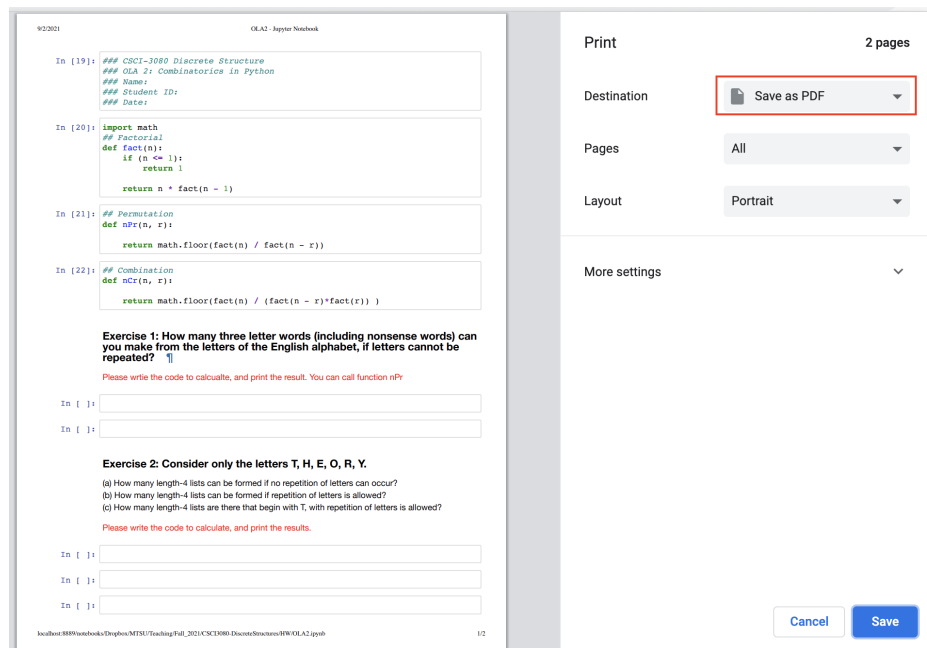
4. Save OLA2 as a PDF

(1) Please save your OLA2 as a PDF after you finish all the exercises.



(2) If the above download as PDF doesn't work, please **right click** the Jupyter Notebook, then click **Print**, and **save as PDF**.





5. Submission

1. log in the gus sytem using your **cNumber** and **Password**:

<https://www.cs.mtsu.edu/cgi-bin/gus/gus.py>

← → ↻ cs.mtsu.edu/cgi-bin/gus/gus.py

Apps fMRI Study--Simu... Big Data, Data Mi... Index of

GUS: Homework repository system start screen.

Please enter your C-number and Password below:

C-number:

Password:

2.

- Select **ola2** from the drop-down menu.
- Click **Submit**
- Click **Perform Action**

Action options:

Select an assignment from the dropdown menu and check an action on right:

☒ Submit ☐ Status/Retrieval

List of current valid assignment identification codes, followed by (if applicable) time stamp and graded status.

Assignment:	Time Stamp:	Status:	Due Date:	Deadline:
ola1	Aug 27 11:08	.	2021-09-03-23:59	2021-09-03-23:59
ola2	2021-09-10-23:59	2021-09-10-23:59

handin command finished.

3.

- (a) click **Choose File** to attach your OLA2.pdf
- (b) click **Upload**.

To submit ola2, upload these required files:
OLA2.pdf

Choose File

OLA2.pdf

OLA2.pdf

Upload

(↔Once pressed, wait for next screen. A succesful upload can take a few moments.)

Reset

Back

Close

4. Congratulations! You are done with OLA2!