NC STATE UNIVERSITY

CROP AND SOIL SCIENCES

CS 590 Special Topics

Programming and Data Science for Applied Research

Course Concepts and Workflow

WHAT DO YOU HOPE TO LEARN IN THIS CLASS?

Underlying Course Concepts in R and Python

- Basic Programming Skills

- Advanced Programming Topics and Packages

- Data Visualizations and Interactive Packages

- Machine Learning (Supervised and Unsupervised) Algorithms

- Section Exercises and Capstone Project

Environment Setup – Anaconda (Prompt)

Objectives

- Install the Anaconda Working Environment
- Install R and Python3 Kernels for Jupyter Notebooks
- Open and Explore Jupyter Notebooks
- GitHub Exercise

Let's Browse the Syllabus!

Anaconda and Jupyter Notebooks

- Anaconda is a distributions of R and Python with working environments for many programming languages – via Jupyter Notebooks

- Jupyter Notebooks is an **I**ntegrated **W**orking **E**nvironment (IDE) that manages multiple programming languages (kernels) under one environment

- Jupyter Notebooks gives programmers the ability to write code, display images, and write markdown notes for future references all in one window

- Jupyter Notebooks is the most popular IDE in data science and it is a great learning tool

Disclaimer…

Jupyter Notebooks is not the only IDE available for R and Python programming

Please feel free to use any IDE for R or Python (e.g. Sublime, TextWrangler, R Studio, Vi/Vim, Visual Studio, Atom, etc.)

It won't hurt my feelings… much

Anaconda Setup and Installation

Determine the Computer for Setup and Installation

- Local Machine (Lab Computer)
- Remote Desktop Connection (IP Address Required)
- Online Only (Binder/Docker Setup)

Let's Download Anaconda!
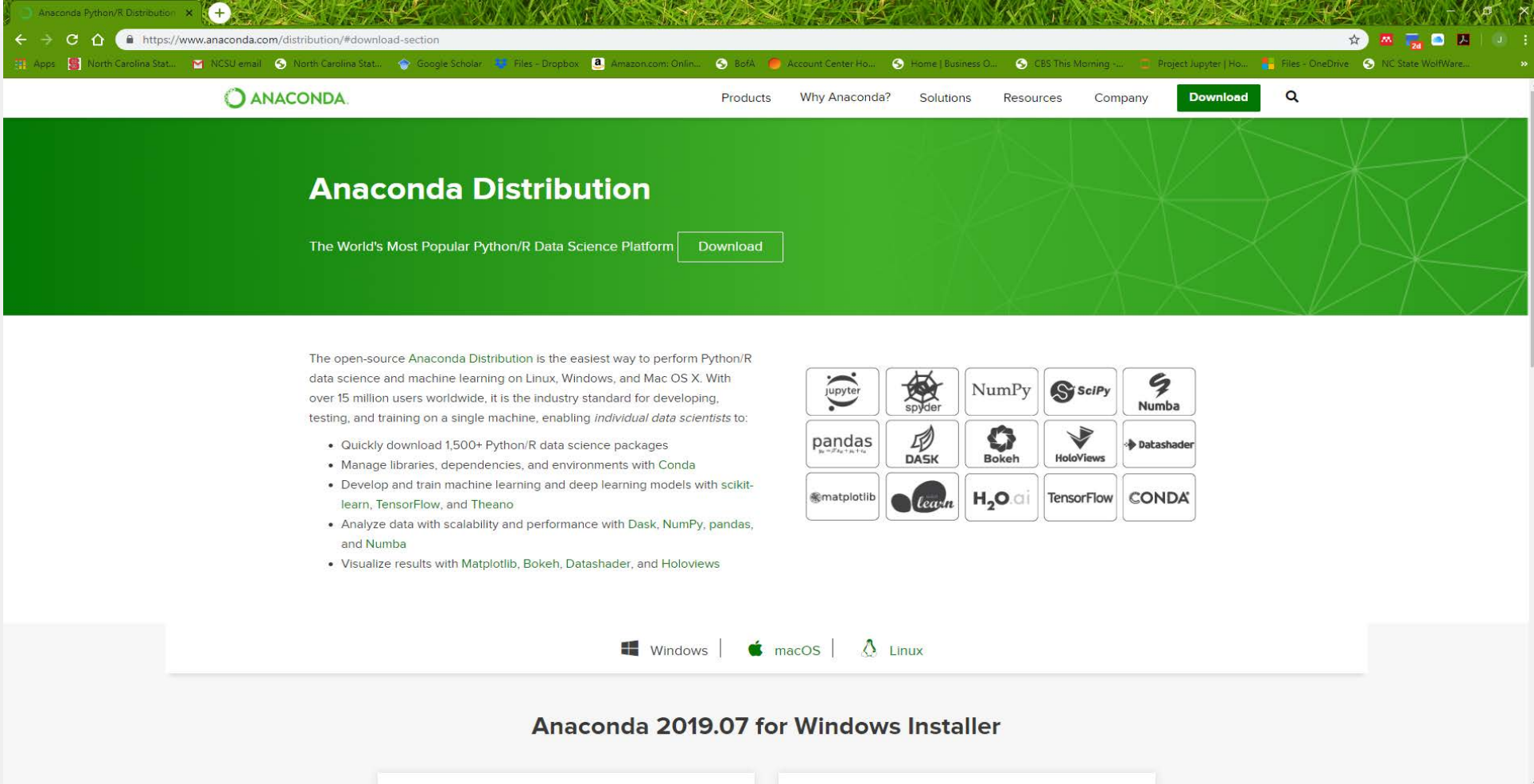
- Go To:
    https://www.anaconda.com/distribution/
- Or Google Search
    Anaconda 3 – Click the first link (Anaconda Python/R Distribution – Free Download)

Download Anaconda 3 – Home Page

Download Anaconda 3 – Home Page

Download Anaconda 3 – Home Page

Download Anaconda 3 – Windows Installer

Download Anaconda 3 – Python 3.7 Version

Download Anaconda 3 – Python 3.7 Version
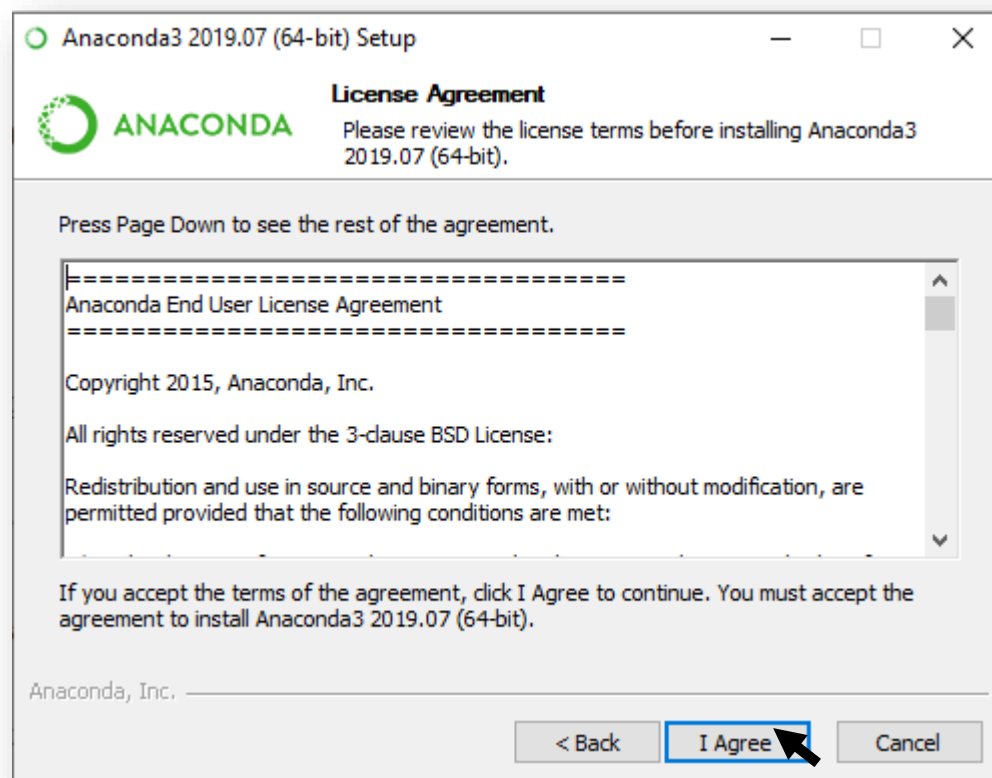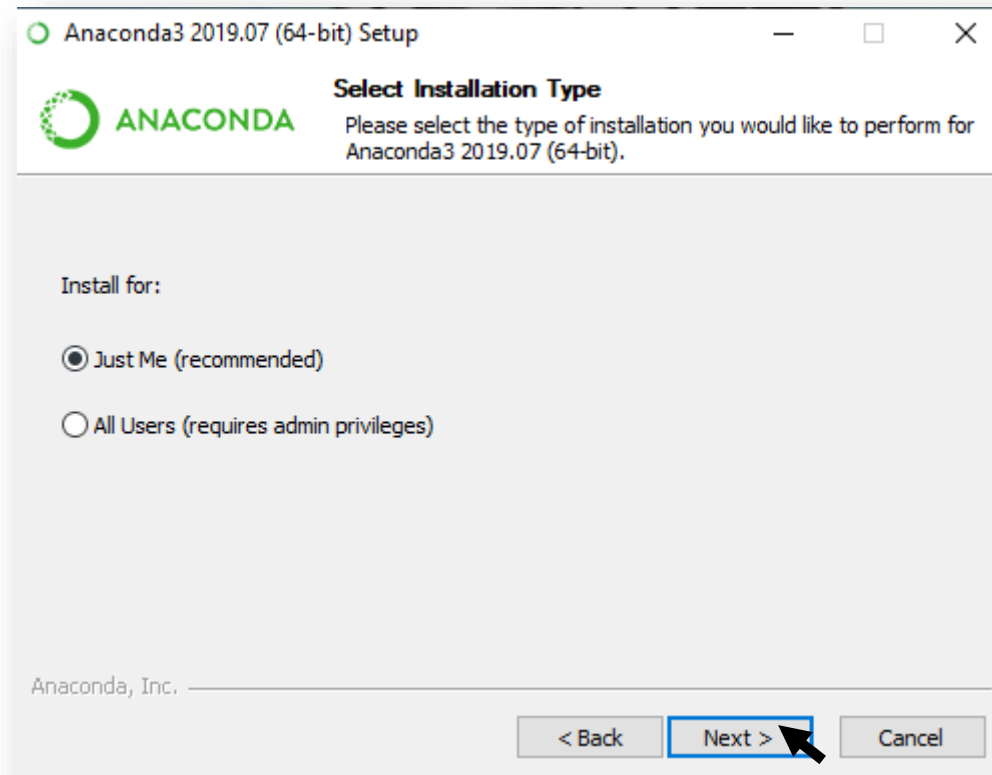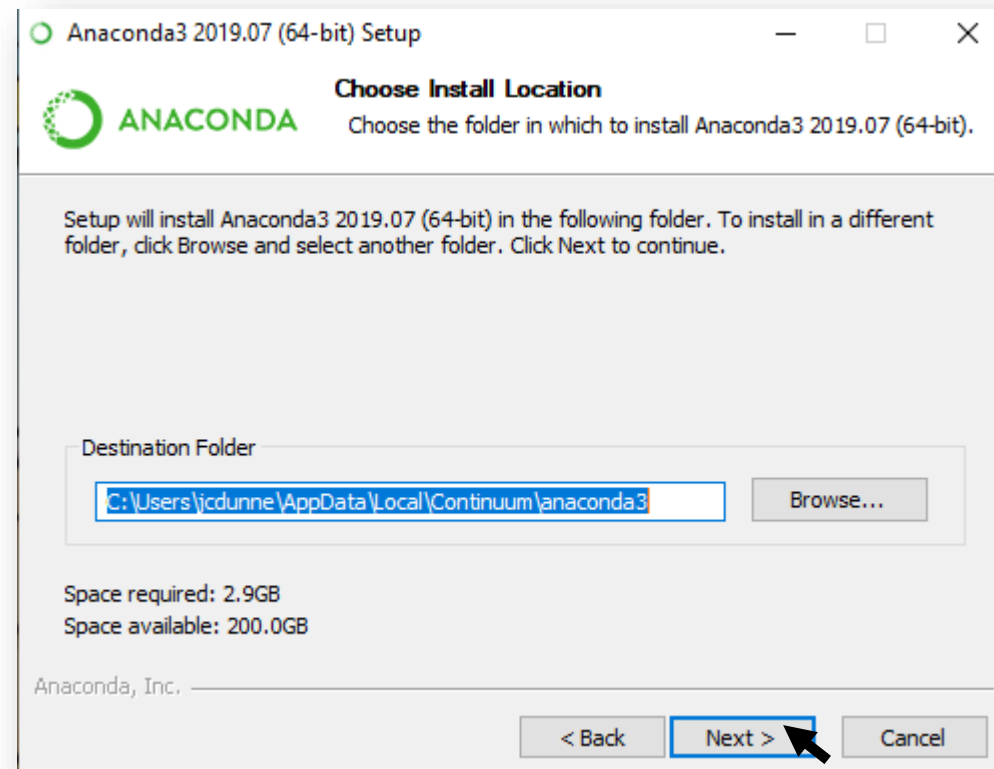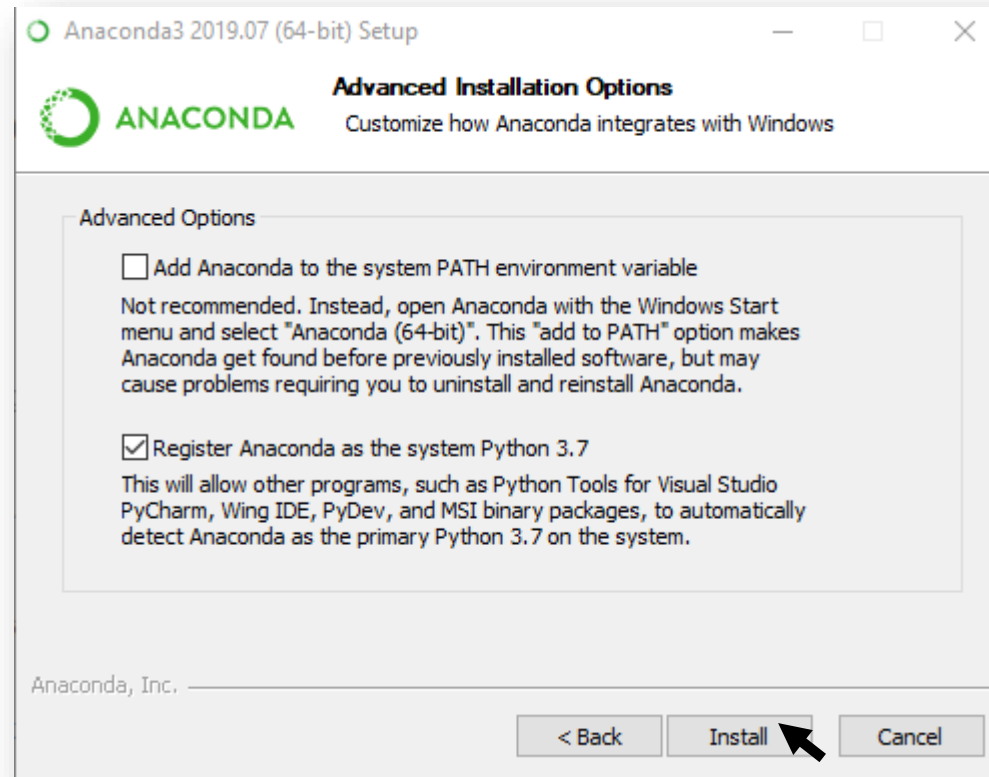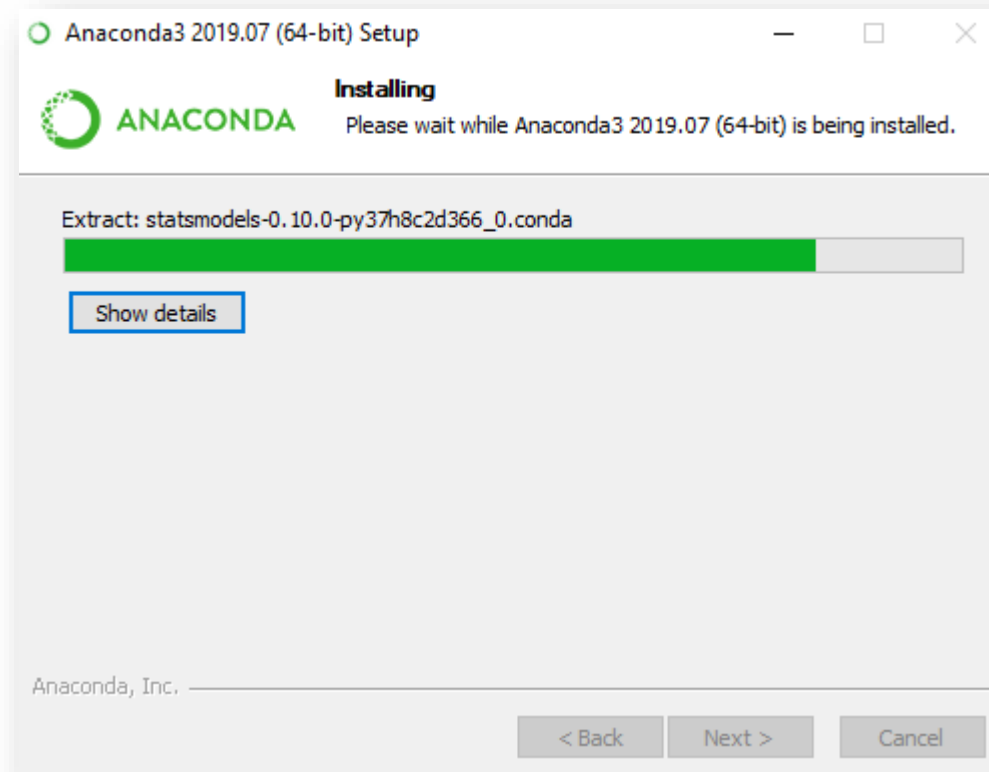
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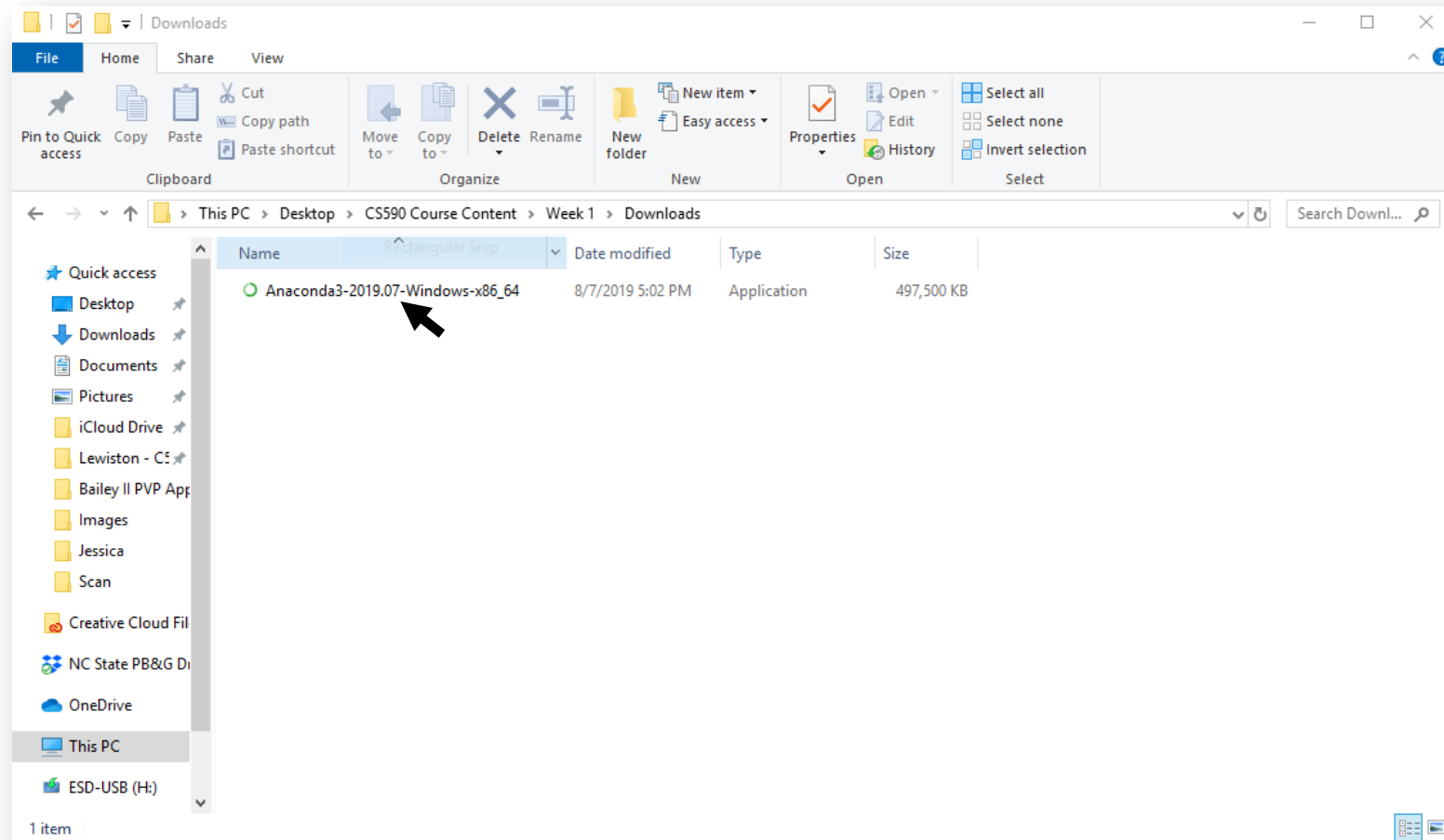
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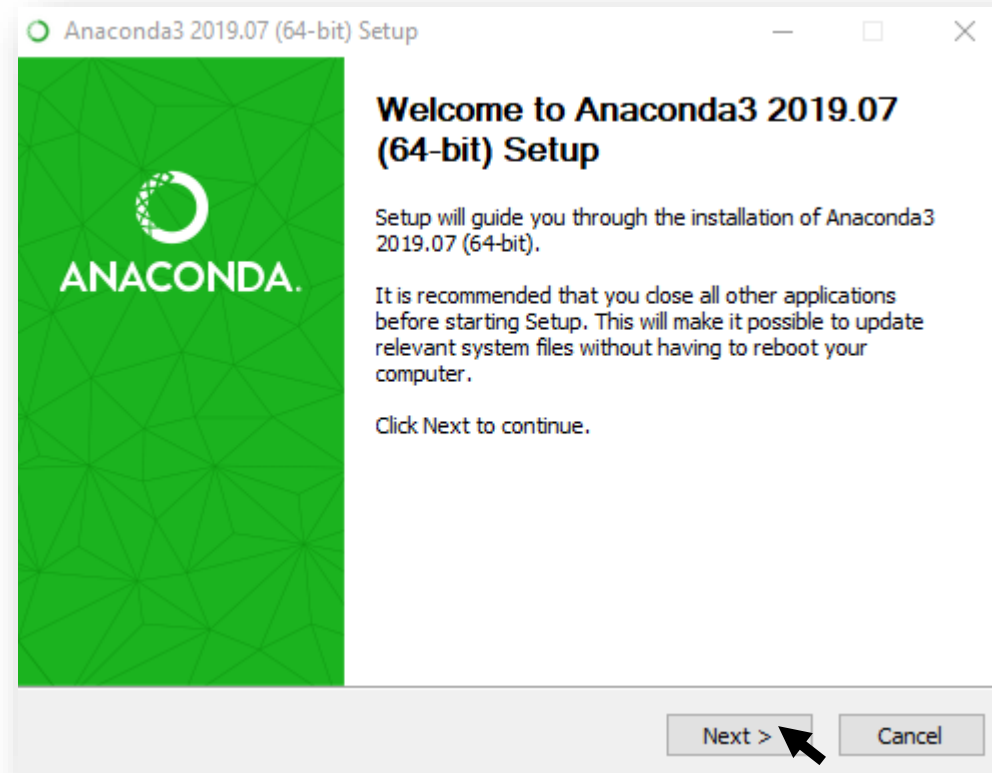
Anaconda 3 Installation and Setup

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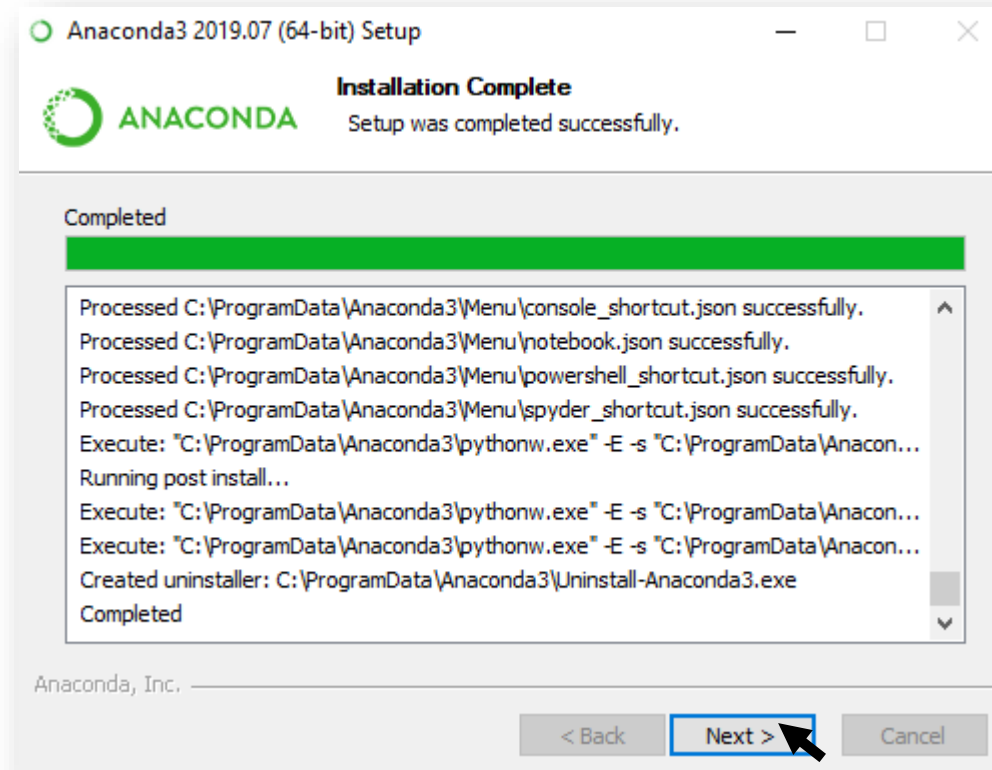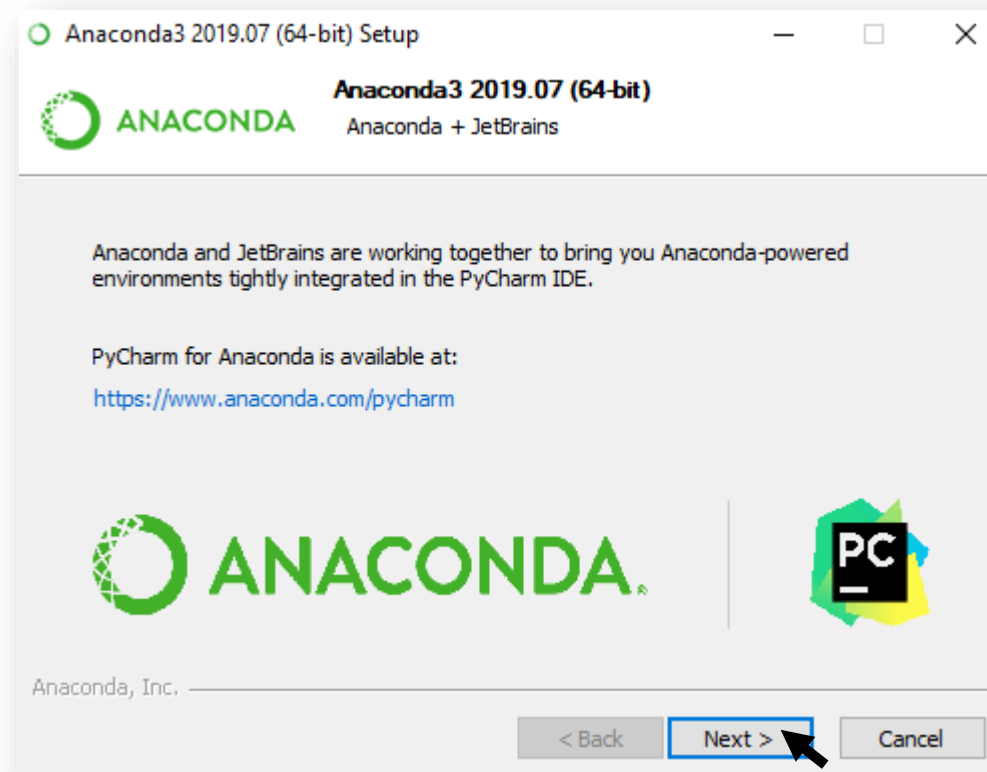# Anaconda 3 Installation and Setup
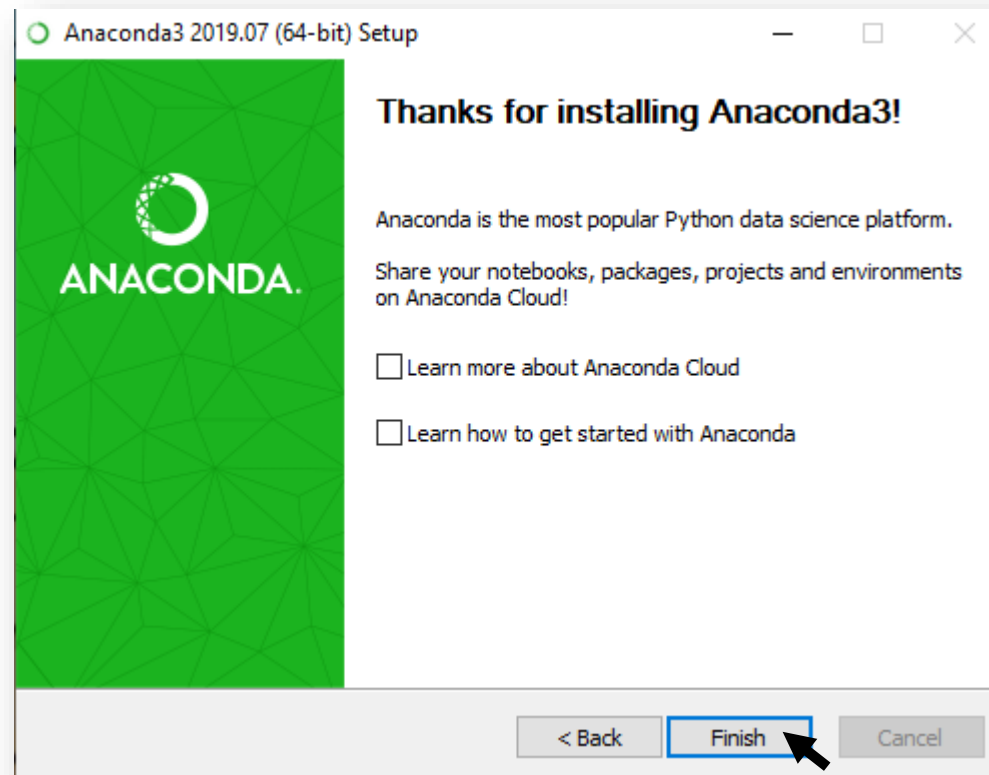
Anaconda 3 Installation and Setup

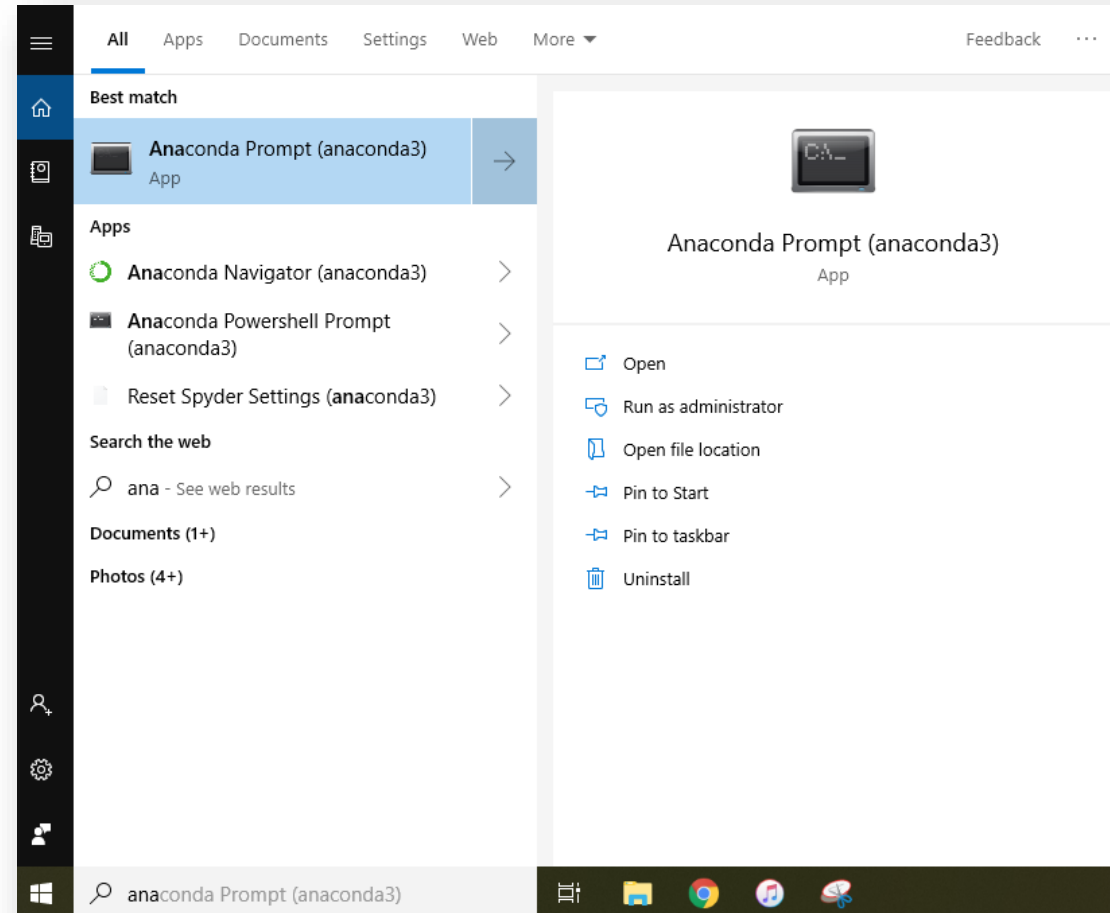# Anaconda 3 Installation and Setup

Anaconda 3 Installation and Setup

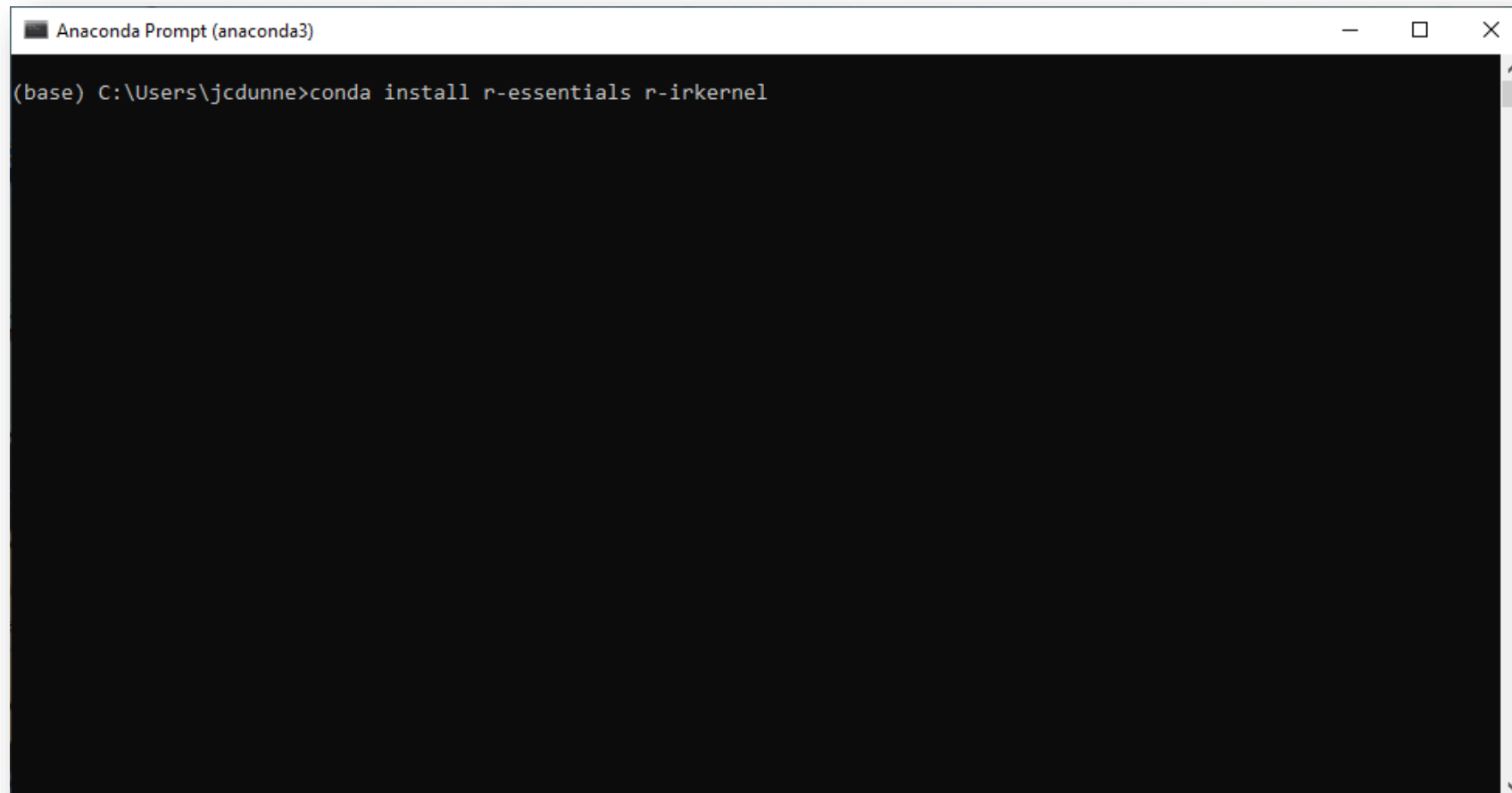# Anaconda 3 Installation and Setup

Installing R / R-Kernel for Jupyter Notebooks

*** MAC Users > Finder > Search "Terminal" > Open Terminal

Installing R / R-Kernel for Jupyter Notebooks

> conda install r-essentials r-irkernel

Installing R / R-Kernel for Jupyter Notebooks

> Proceed ([y]/n)? y

Installing R / R-Kernel for Jupyter Notebooks

> exit

GitHub Exploration
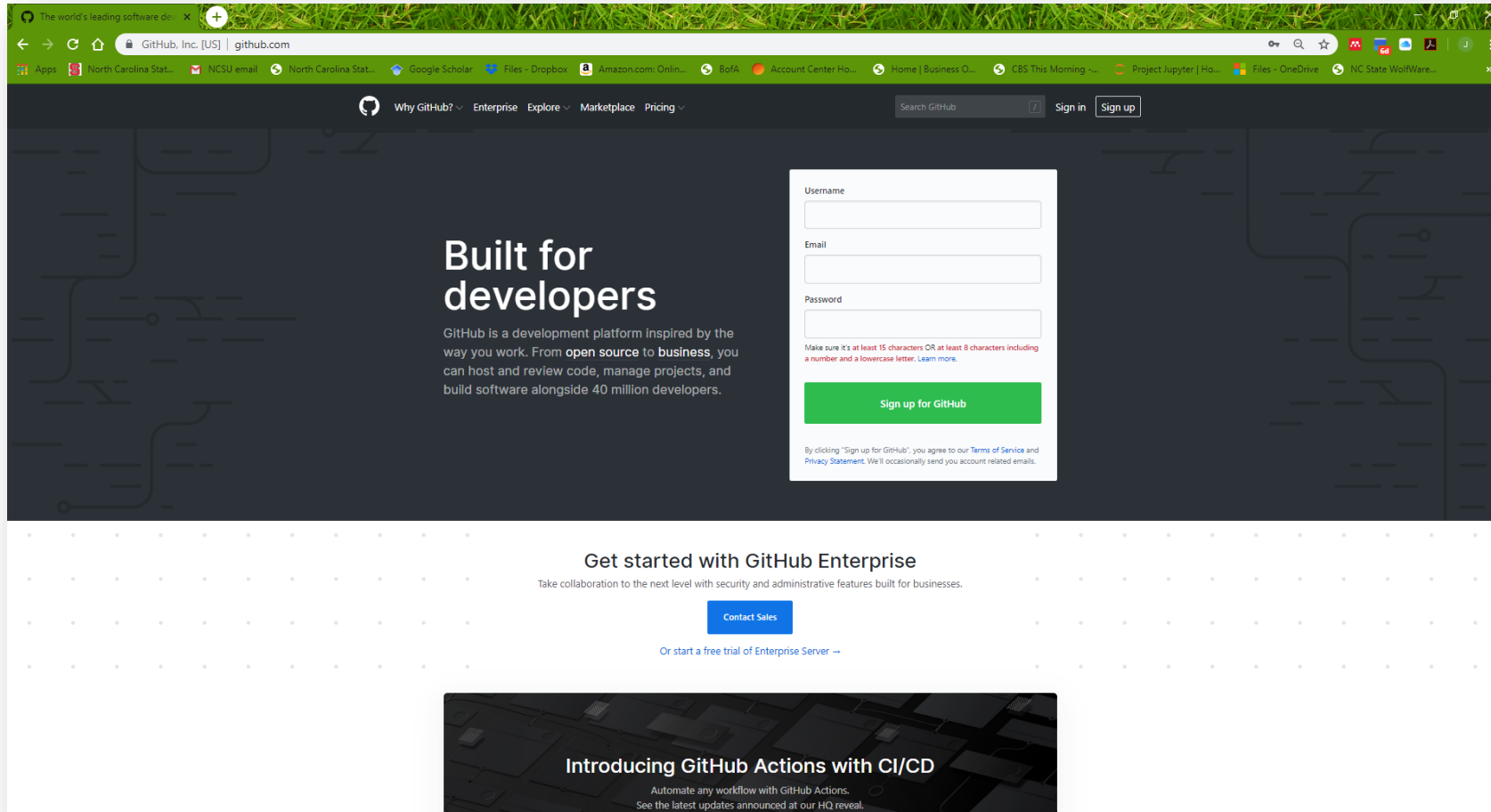
GitHub Repository – CS590
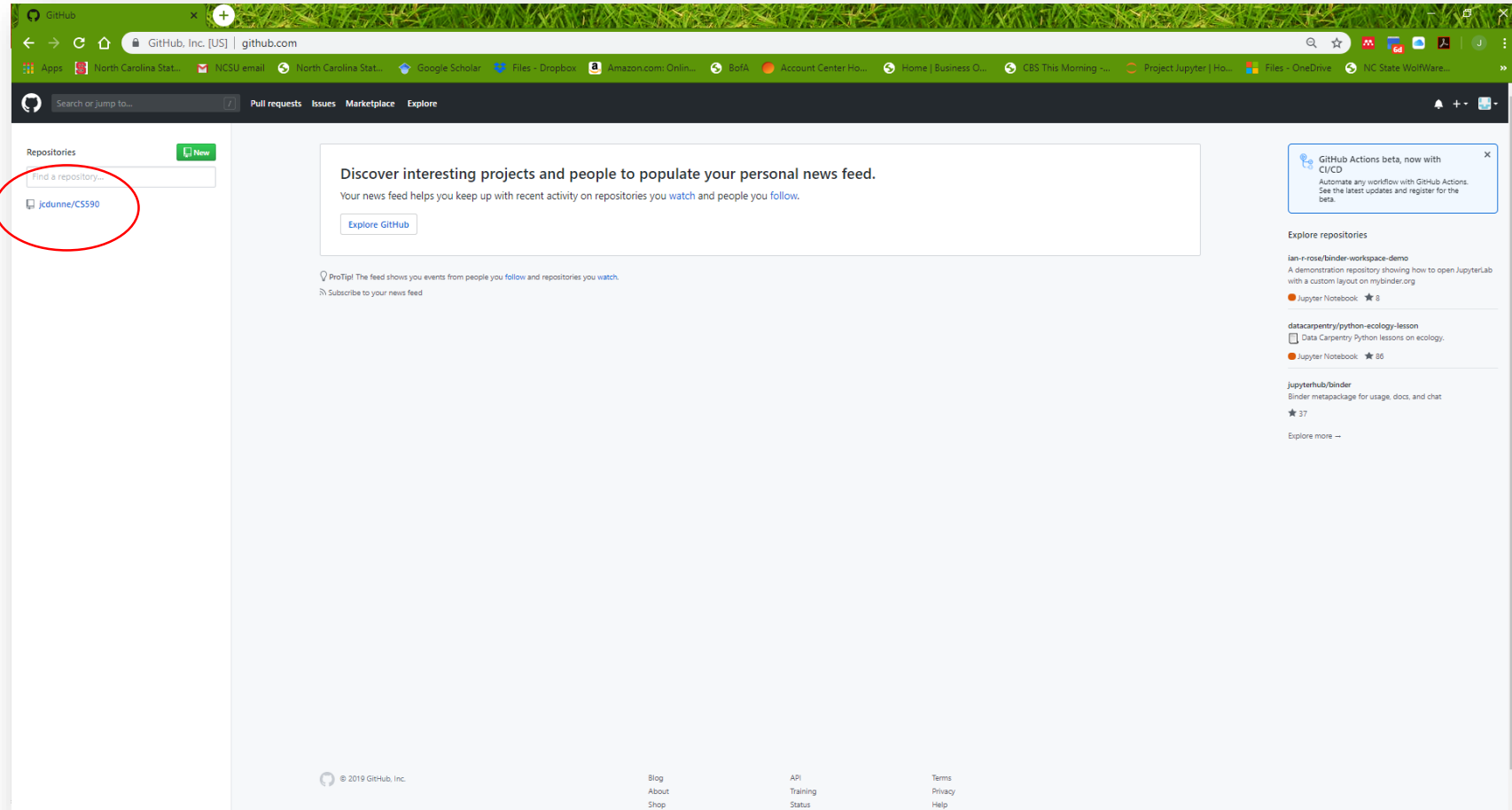
GitHub Repository Search – jcdunne/CS590

Select > jcdunne/CS590 > All GitHub
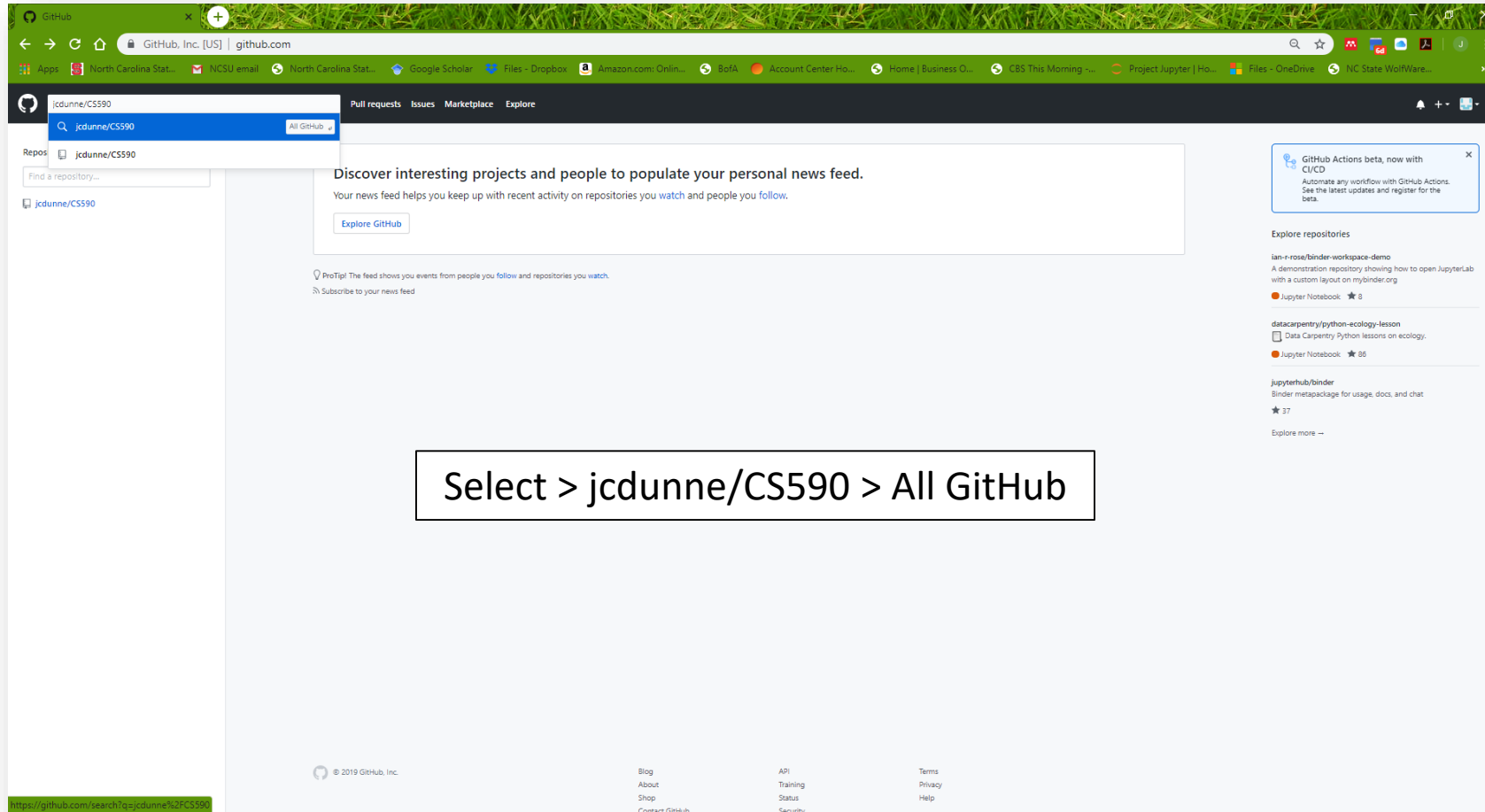
GitHub Course Repository – jcdunne/CS590
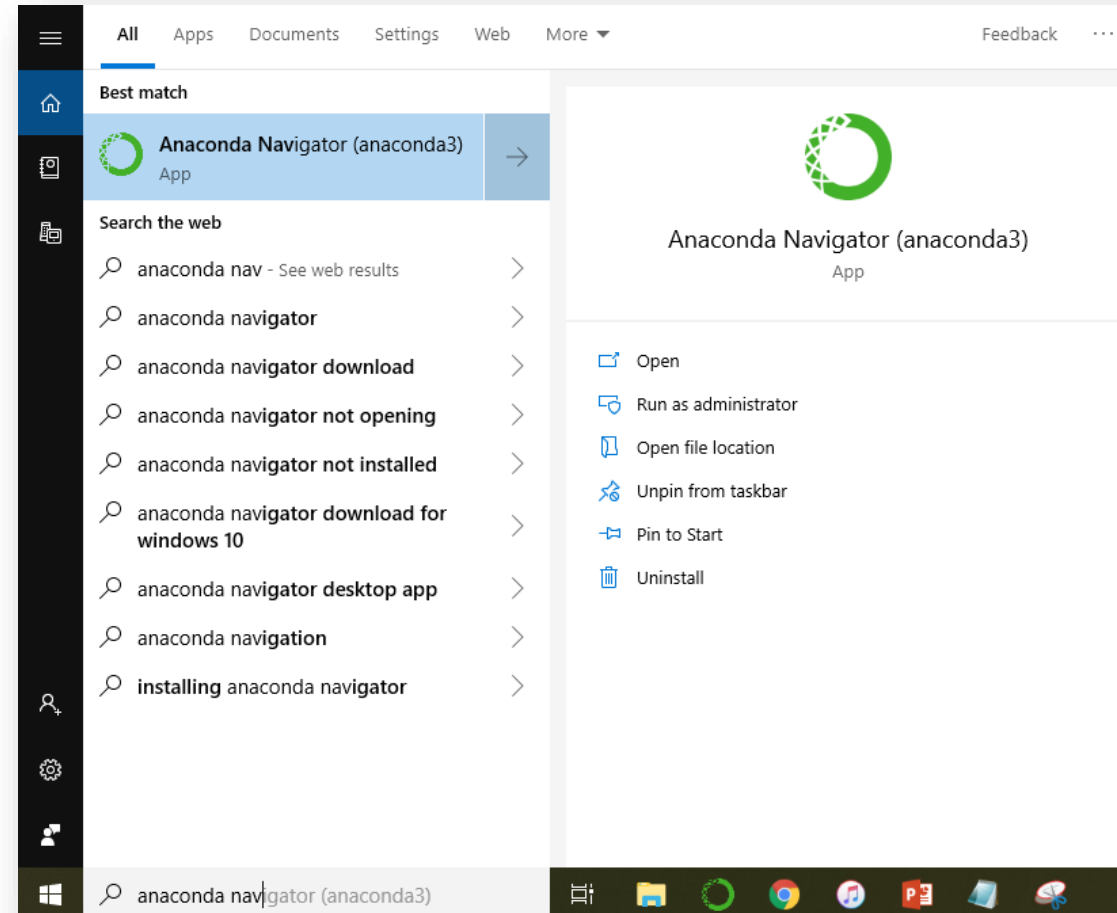

Browse the course repository – jcdunne/CS590
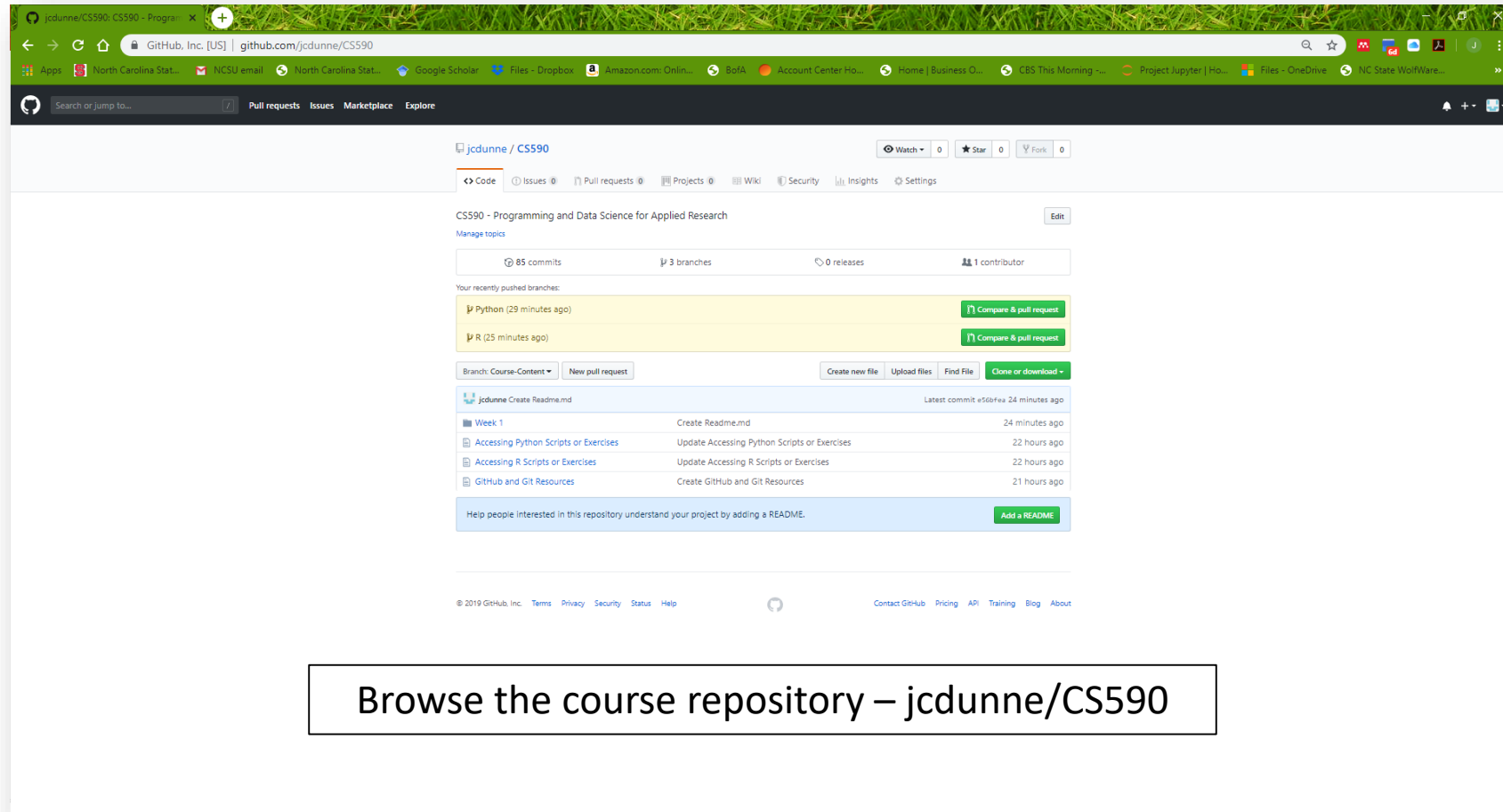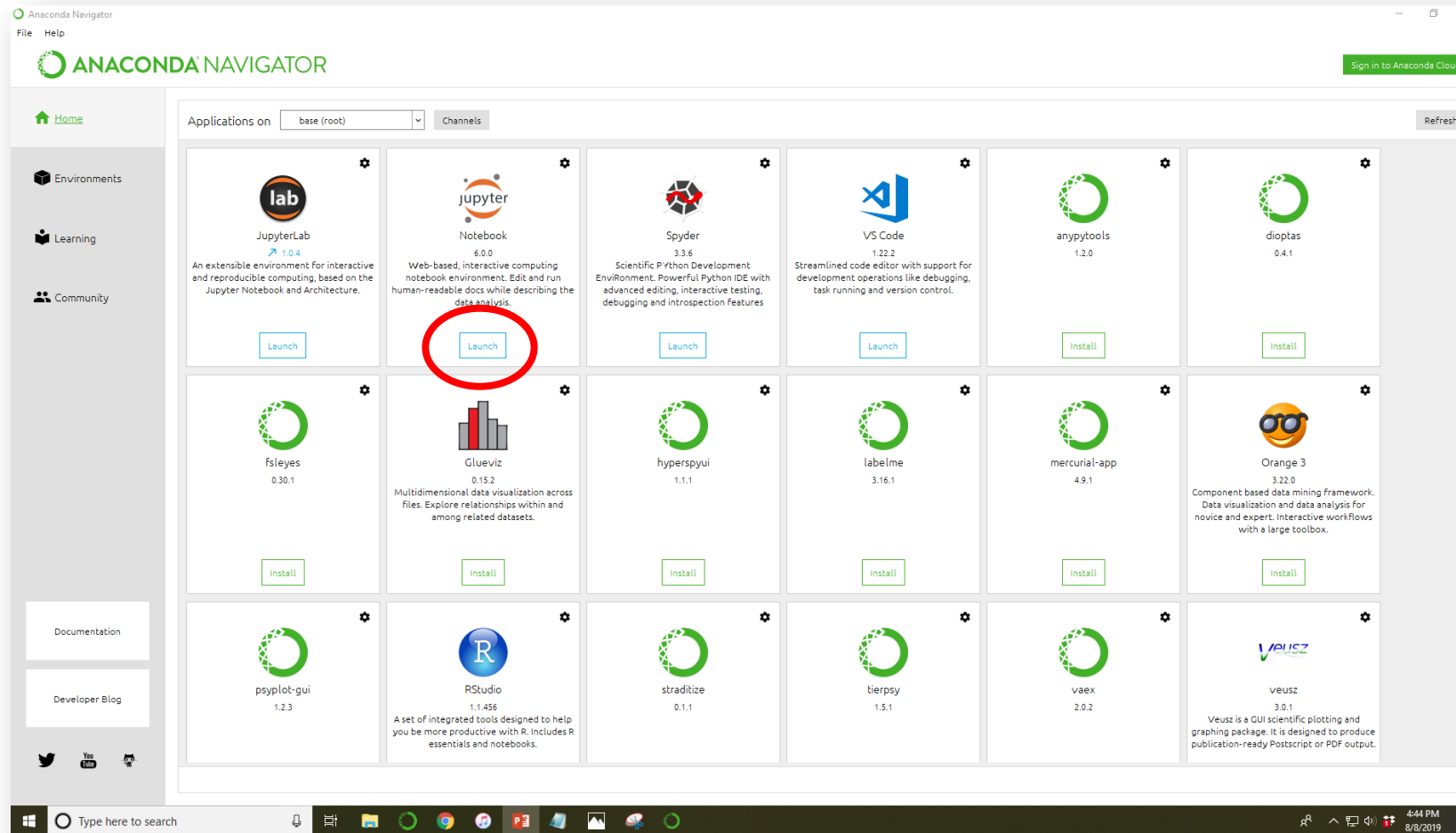
Jupyter NBViewer Exploration
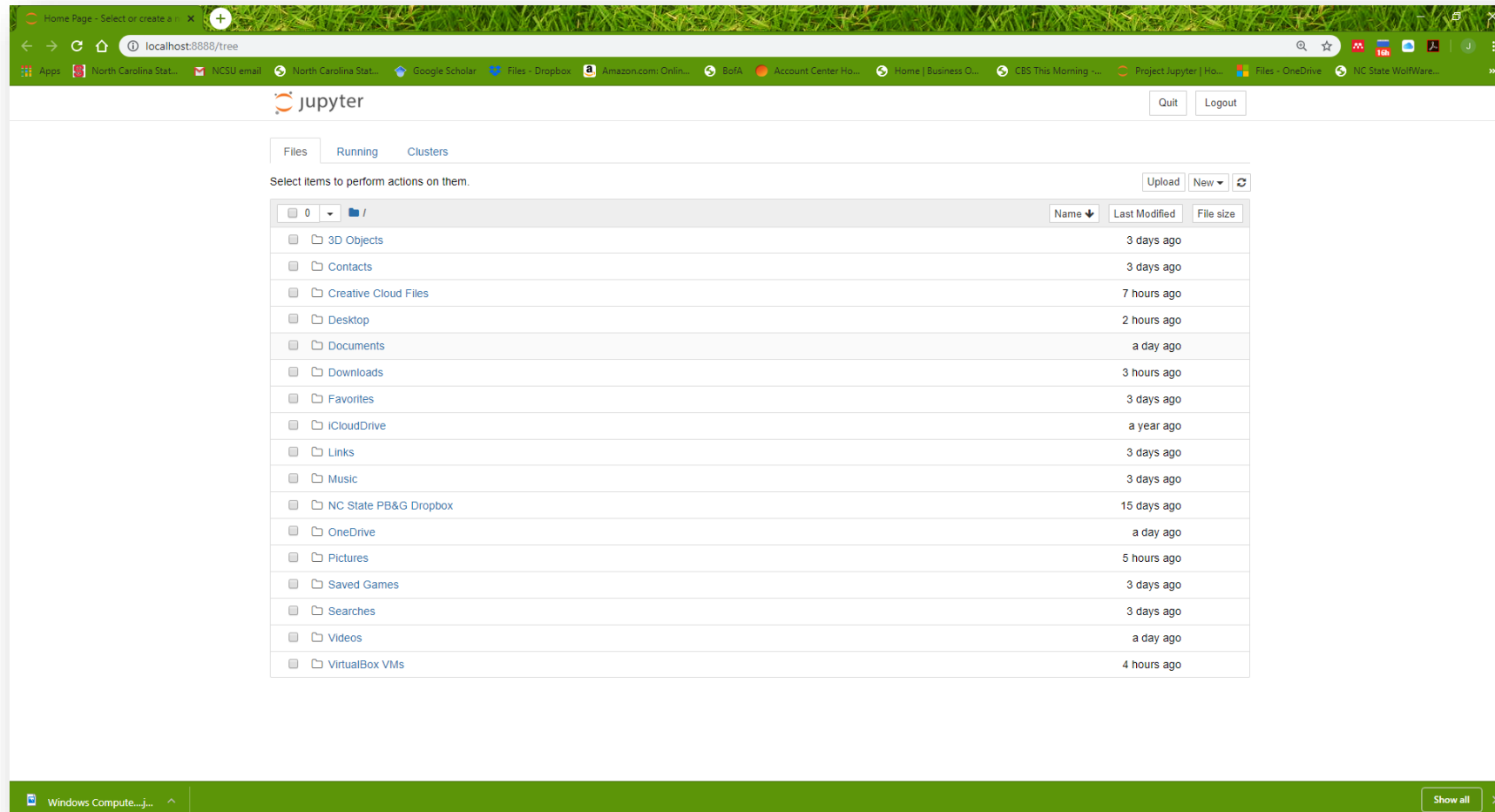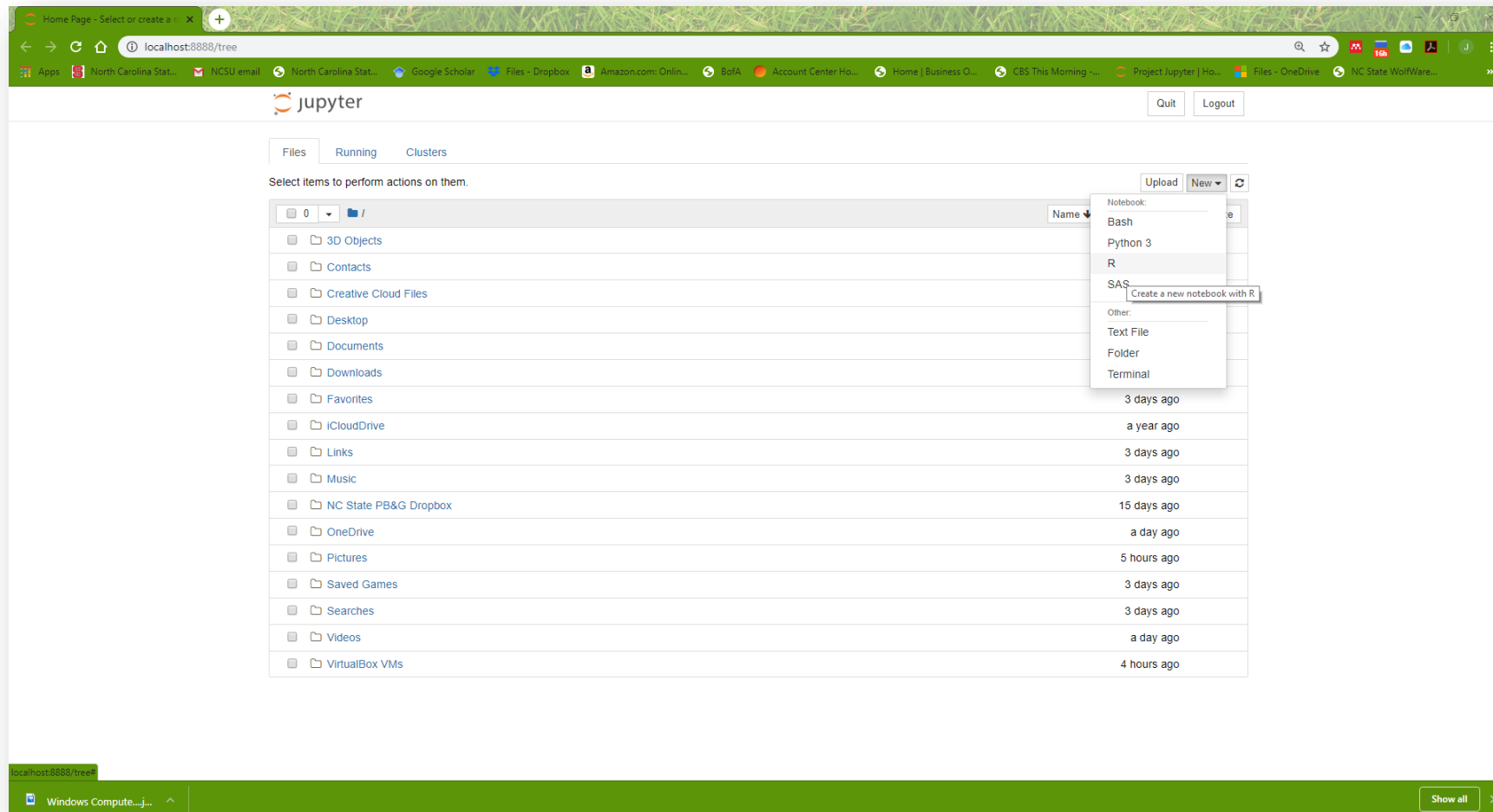
Jupyter NBViewer Search

Launch Anaconda Navigator

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Launch Python or R Jupyter Notebook