Python for Economics Graduate Students  
Syllabus  

Fall 2023

Class Coordinates  
- ILCB 112 (map)  
- August 16-17  
- 8:30am - 4:30pm  
  - During the first 30 minutes of the class, our focus will be assisting you in gaining entry to the online course. Please arrive on time to prevent delays.

Teaching Structure  
- Taught in-person  
- Learning support available in the room from multiple teaching assistants  
- Students will learn and practice coding throughout the day  
- 10 minute breaks every hour  
- 1 hour lunch break every day  
- Participation is measured; certificate of participation available  
- Additional optional activities available throughout the course

Requirements  
- Students will bring laptops or keyboard equipped personal computing devices to the class  
- Students use their TAMU NetID to access to the class materials  
- Web Browser (Chrome, Firefox) used to participate in activities

Web Resources  
- Course resources will be made available on the HPRC website  
- Materials will be distributed via a Google Classroom  
- Computing activities are performed using Google Colaboratory web app  
- Students will have the opportunity to access the ACES cluster, also in web browser  
- Microcredentials are available for further learning in Python and Data Science

Learning outcomes  
- Orientation and Introduction  
  ○ Motivate the use of Python for Economics  
  ○ Familiarity with Jupyter IDE via Google Colab  
  ○ Understand general programming concepts  
  ○ Know what Python is, where it comes from  
- Programming skills  
  ○ Core Concepts: Variables, Operators, Functions  
  ○ Data Types: Numbers, Text, Booleans
- Style: Indentation, Multiline statements, Comments
- Control Structure: Loops
- Data Structures: Tuples, Lists, Dictionaries, Arrays, Dataframes
- Object-oriented programming: Slices, Methods, Modules
- Libraries: NumPy, Matplotlib, Pandas, Requests

- Data Skills
  - Data Visualization: Line plot, Scatter plot, Linear Regression
  - Data Handling: Filtering, Sorting, Labeling, Array Operations
  - APIs: HTTP, JSON, FRED

- Individual Research Project
  - Begin and/or Complete a student-led Data Science project
  - Required for Certificate of Participation

## Schedule (overview)

<table>
<thead>
<tr>
<th>Time</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wednesday, August 16, 2023</strong></td>
<td></td>
</tr>
<tr>
<td>8:30am - 9:00am</td>
<td>Announcements, Preparations, Tech Support</td>
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<tr>
<td>9:00am - 12:00pm</td>
<td>Introduction to Python, Elements of Code</td>
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<tr>
<td>12:00pm - 1:00pm</td>
<td>Lunch</td>
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<tr>
<td>1:00pm - 4:00pm</td>
<td>Control Structures, Data Structures</td>
</tr>
<tr>
<td>4:00pm - 4:30pm</td>
<td>Register for ACCESS ID, Helpdesk</td>
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<tr>
<td><strong>Thursday, August 17, 2023</strong></td>
<td></td>
</tr>
<tr>
<td>8:30am - 9:00am</td>
<td>Announcements, Preparations, Tech Support</td>
</tr>
<tr>
<td>9:00am - 12:00pm</td>
<td>Data Libraries (NumPy, Matplotlib, Pandas)</td>
</tr>
<tr>
<td>12:00pm - 1:00pm</td>
<td>Lunch</td>
</tr>
<tr>
<td>1:00pm - 4:00pm</td>
<td>Data Libraries (continued), APIs, Economics Data Project</td>
</tr>
<tr>
<td>4:00pm - 4:30pm</td>
<td>Introduction to ACES cluster, Helpdesk</td>
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