

**The George Washington University**  
Department of Statistics

STAT 6197 – Spring 2020

Week 14 – April 17, 2020

Major Topic: SASPy and Other Python Packages/Modules

Detailed Topics:

- 1) JupyterLab
- 2) SAS Kernel
- 3) SASPy
- 4) Pandas

## **SASPy and Jupyter Notebook**

[A Complete Introduction to SASPy and Jupyter Notebooks. By Jason Phillips, 2019](#)

[Python-izing the SAS Programmer. By Mike Molter. PharmaSUG 2019 - Paper AP-212](#)

[Connecting to Datasets through Python and SAS® By Matise, J. MWSUG, 2019](#)

[Integrate Python with SAS® using SASPy for a Simpler, More Effective Script By Vickery J. SESUG Paper 152-2019](#)

[Everything is better with friends: Executing SAS® code in Python scripts with SASPy. By Lankham, I and Slaughter, M. WUSS. 2019](#)

[Machine learning with SASPy: Exploring and preparing your data \(part 1\) SAS Blogs, Sep 9, 2019](#)

[Machine learning with SASPy: Exploring and preparing your data \(part 2\), SAS Blogs, Sep 27, 2019](#)

[Learning Data Science with SAS® University Edition and JupyterLab \(SGF, 2019\)](#)

[STEPPING UP YOUR SAS® GAME WITH JUPYTER NOTEBOOKS \(SGF, 2019\)](#)

## JupyterLab

- A product of an integrated environment for interactive programming - single interface that can tie many things including
  - Code
  - Text (markdown)
  - Equation
  - Output
  - Visualization, etc.
- A product of Project Jupyter
- A successor of Jupyter Notebook (formally known as IPython Notebook) with more functionality
  - originally supporting open source scientific languages like **Julia, Python and R**
  - now supporting **SAS** via SAS kernel and many other languages
- Web-based and typically used from a single machine
- An alternative to the SAS Studio Interface in SAS University Edition
- An alternative to the SAS Windowing Environment Interface

[See JupyterLab User Cheatsheet here.](#)

[See JupyterLab Documentation here.](#)

## SASPy

- Python Application Programming Interface (API) to the SAS System
- Can load a SAS data set into a Pandas dataframe by using the SASPy module
- Can load a Pandas dataframe into SAS data set
- Communicates between Jupyter and SAS when using the SAS kernel
- Can create a SAS session and send code to it for execution provided you have SAS installed in your local machine
- Can generate SAS code
- Can imitate the SAS macro facility
- Can map many SAS procedures to Python methods

[See the SASPy Documentation here.](#)

## Important Notes:

If you are using a licensed version of SAS, you need to install

- SASPy
- SAS Kernel
- Anaconda Distribution of Python that includes JupyterLab

Here are the instructions for [Installing SASPy Kernel for Jupyter Notebooks and Jupyter Lab](#).

If you are using the SAS University Edition, you don't need to install the above Python packages, they are already included.

[Here is SAS University Edition: Help Center](#).

## Loading a SAS data set into a Python

- Import saspy
- Create a connection with SAS, authenticating and spinning up a SAS session
- Create python object
- Run descriptive statistics

If you have installed SASPy, SAS Kernel, and Jupyter Notebook for Licensed SAS in your computer, use the following codes

```
import saspy
sas = saspy.SASsession(cfgname='winlocal')
iris = sas.sasdata("iris","SASHELP")
iris.describe()
```

If you are using "JupyterLab in SAS University Edition", use the following code block. Notice the null argument in the second line of the code block below.

```
import saspy
sas = saspy.SASsession()
iris = sas.sasdata("iris","SASHELP")
iris.describe()
```