Getting started

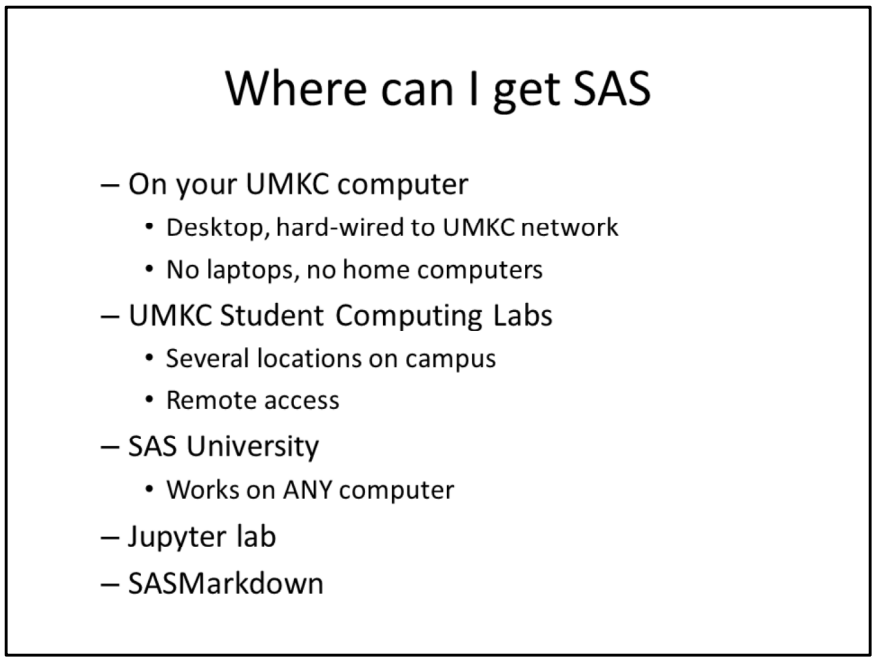
Steve Simon

Documentation

This PowerPoint presentation was written by Steve Simon in 2018-08-29 and was last modified on 2019-06-10. It uses R Markdown, though the actual R code is fairly minimal. You can find the file that created this presentation on my github repository.

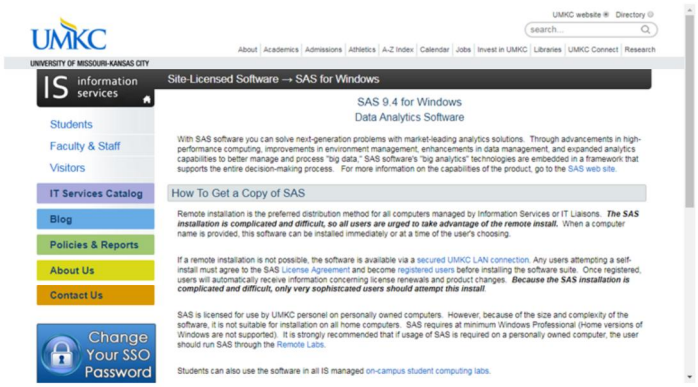
Greetings! My name is Steve Simon and I am the instructor for the class, MEDB 5507, Introduction to SAS.

Course instructor, Steve Simon



There are several ways that you can get access to SAS software. One of these three options should work for you.

SAS on your UMKC computer



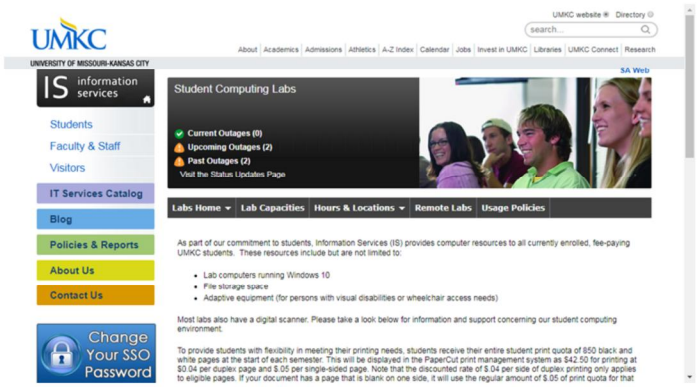
Screenshot of UMKC IS page on SAS software

This screenshot may be too small for you to read, but you can find the proper link on the recommended readings list for this week on the Canvas website. This works for any desktop computer on the UMKC campus that is hard-wired to the UMKC netwok. By hard-wired, I mean that there is an ethernet cable connecting your computer to a socket on the wall.

If you are fortunate enough to have access to a hard-wired computer, you can get SAS installed easily. It may already be sitting on your computer.

With a very few rare exceptions, you cannot get UMKC to load SAS on a laptop computer or a home computer. The license agreement that UMKC signed wih SAS Institute does not allow this.

SAS at the UMKC Student Computing Labs



Screenshot of UMKC information page on computing labs

Again, the image on your screen may be too small to read, but go to the recommended readings page on Canvas to call this up on your computer.

There are several student computing labs on campus that already have SAS installed on them.

You can visit the labs in person, or you can connect to those labs using Remote Desktop Connection.

SAS using SAS University

[Screenshot of main page for SAS University]

SAS Institute recognized that their licensing terms sometimes prevented students from having access to SAS software, and they dearly want you to learn SAS so that you'll demand access to SAS when you get your big job in the corporate world. So they developed a system, SAS University, that you can use for free for educational purposes. I have SAS University installed on my laptop computer and it is very nice. The user interface is slightly different, but only slightly, and it seems to have just as many capabilities as the commercial version.

Installation is a bit tricky, but do try it. It is a very nice system. I will do much of my work in preparing teaching examples using SAS University.

SAS using Jupyter notebooks

[Screenshot of SAS blog entry on Jupyter]

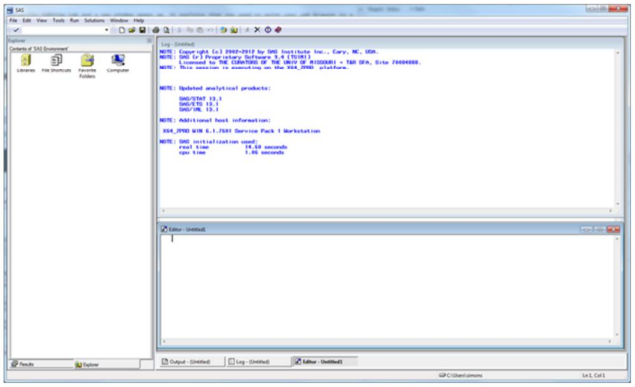
If you are adventurous, you can run SAS within a Jupyter notebook. This works easily with SAS University, but I believe you can also run the commercial version of SAS in a Jupyter notebook. I will not talk about Jupyter in this class, it is beyond the scope of this class. But if you want to explore SAS and Jupyter, I can work with you informally on this.

SAS using SAS markdown

[Screenshot of SAS markdown web page]

Also beyond the scope of this class is running SAS within R. It uses an R library called SAS markdown.

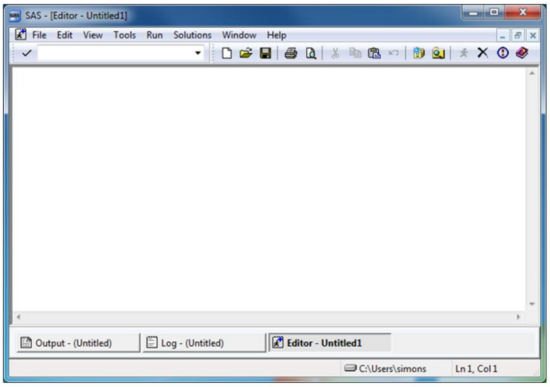
Opening screen - SAS commercial version



Opening screen of SAS with multiple windows

If you are running the "regular" version of SAS, here's an image of what the opening screen looks like. For the benefit of this presentation, I am going to resize everything, close some of the windows, and maximize the one window of greatest importance, the program editor window.

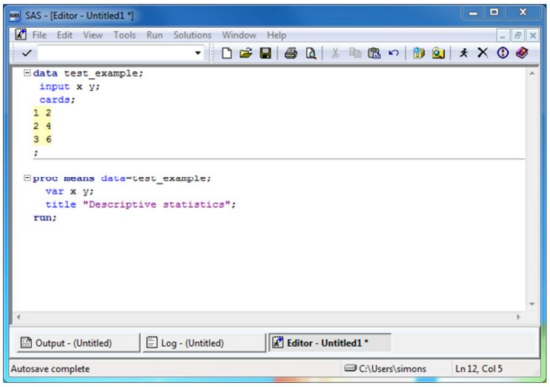
SAS program editor (1 of 2)



Maximized view of empty SAS program editor window

This is the program editor window. You type in your program in this window, or read an existing program from another window. The other two remaining tabs, the log window, and the output window, are also important.

SAS program editor (2 of 2)



Program editor window with simple SAS program

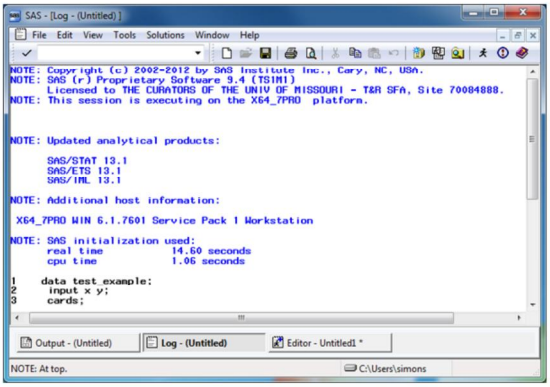
Here's a simple test program. After you type this program in, click on FILE | SAVE and store your program somewhere safe.

SAS Test program

```
data test_example;
 input x y;
 cards;
1 2
2 4
3 6
;

proc means data=test_example;
  var x y;
  title "Descriptive statistics";
run;
```

After you type this program in, click on FILE | SAVE and store your program somewhere safe.

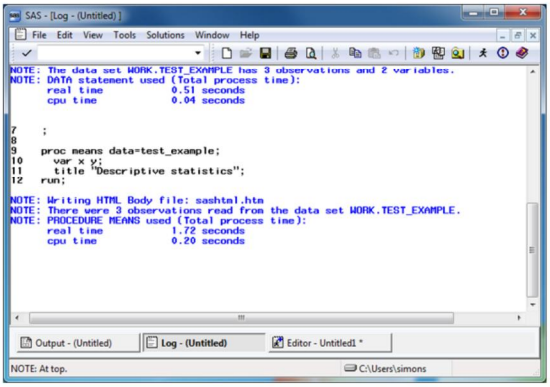
SAS log window (1 of 2)



Maximized view of SAS log window

The font here is a bit small, but notice that there are no red messages indicating warnings or errors.

SAS log window (2 of 2)



Maimized view of SAS log window, second page

Always start looking for error messages at the top. The very first error or warning message is most likely to be helpful, and later errors/warnings are often of less value.

Log messages (1 of 2)

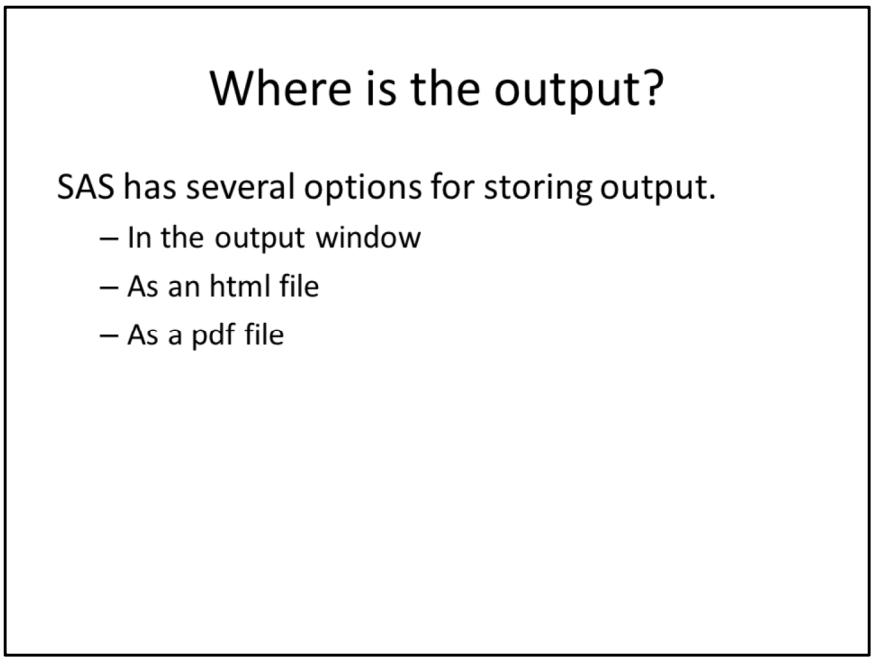
```
1    data test_example;
2     input x y;
3     cards;

NOTE: The data set WORK.TEST_EXAMPLE has 3
observations and 2 variables.
NOTE: DATA statement used (Total process time):
      real time           0.51 seconds
      cpu time            0.04 seconds
```

Always watch the log to see that you have read in the proper number of observations.

Log messages (2 of 2)

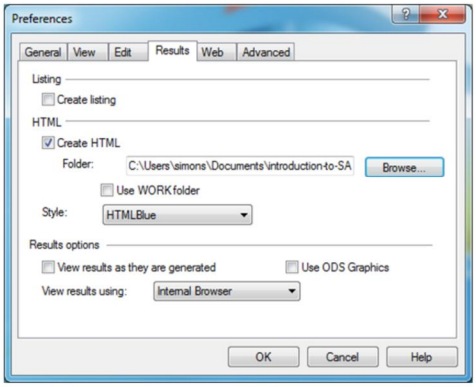
```
9    proc means data=test_example;
10     var x y;
11     title "Descriptive statistics";
12   run;

NOTE: Writing HTML Body file: sashtml.htm
NOTE: There were 3 observations read from the
data set WORK.TEST_EXAMPLE.
NOTE: PROCEDURE MEANS used (Total process time):
      real time           1.72 seconds
      cpu time            0.20 seconds
```

..and that you are analyzing the proper number of observations.



I want to talk in more detail later about this, but you can take the output and save it. There are several ways to do this. If you already have output, click on the CREATE LISTING option box to send the output to the output window. Click on the CREATE HTML option box to send the output to an html file. Click on the BROWSE button to select a default folder for your html file.

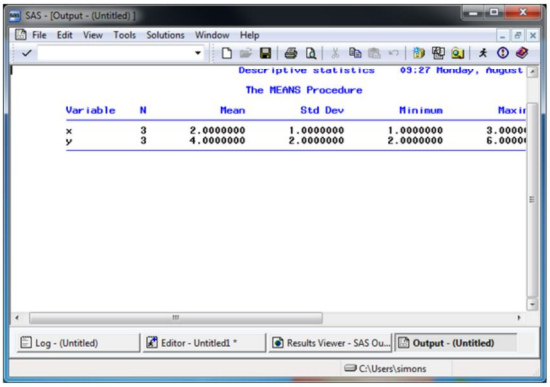
Preferences window



Preferences dialog box

There are additional options for storing graphics, which I will talk about later. You control where SAS places its output in the results tab of the preferences dialog box. Select TOOLS | OPTIONS | PREFERENCES from the menu and click on the RESULTS tab.

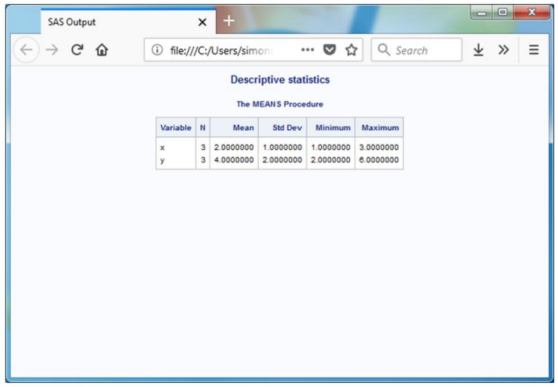
SAS output window



Maximized view of default SAS output

Here's what the output window looks like. Notice that SAS uses a monospaced font here.

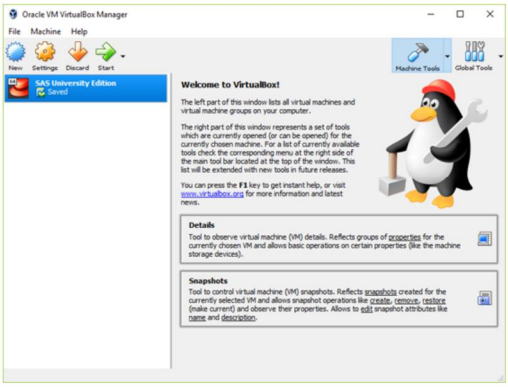
SAS html output



Maximized view of html output

Here's what the html output looks like. Notice variety of font sizes and colors.

Getting started with SAS University edition (1 of 4)



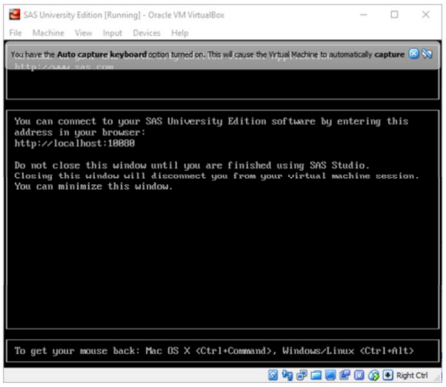
View of virtual box, your entry point to SAS University

If you are using SAS University, you start by opening Oracle Virtualbox.

Installation instructions are available.

http://support.sas.com/software/products/university-edition/docs/en/SASUniversityEditionQuickStartVirtualBox.pdf

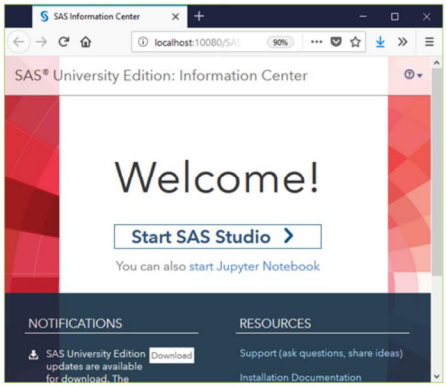
Getting started with SAS University edition (2 of 4)



Second step in starting SAS University

Click on the SAS University Edition tab and a new window opens up. It explains that you need to point your web browser to a particular location. It also warns you to keep this window open.

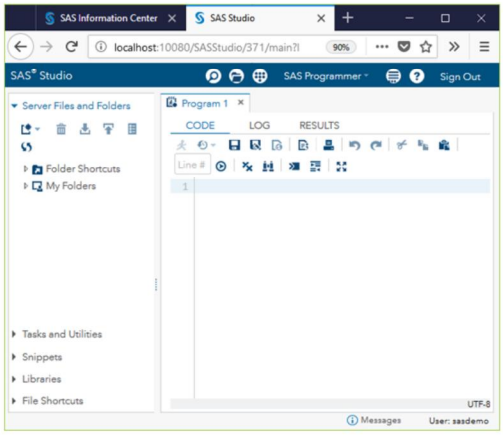
Getting started with SAS University edition (3 of 4)



Third step in staring SAS University

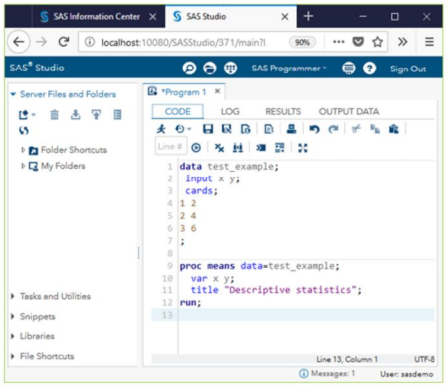
When you open your web browser to http://localhost:10080, you get the option of starting with SAS Studio or with a Jupyter notebook. I have not had much luck with Jupyter, but you are welcome to try this on your own.

Getting started with SAS University edition (4 of 4)



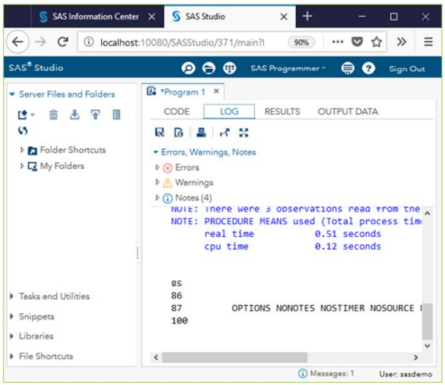
When you open your web browser to http://localhost:10080, you get the option of starting with SAS Studio or with a Jupyter notebook. I have not had much luck with Jupyter, but you are welcome to try this on your own.

SAS University program window



SAS University program window

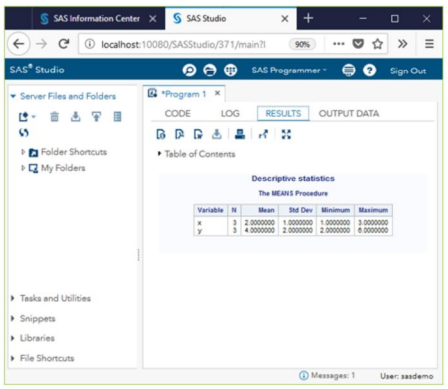
You will notice a slightly different appearance with SAS University. Here is the program window.



SAS Univesity log window

Here is the log window. Notice that the counts for errors, warnings, and notes appear at the top, and a missing count means zero errors and zero warnings. Hooray!

SAS University results



SAS University results window

Here is the results window. The icons near the top offer a variety of export options, among other things.

Conclusion

You can run the commercial version of SAS using

- Your UMKC computer
- UMKC Student Computing Labs

You can run a free version of SAS using

- SAS University

You can run the commercial version of SAS or SAS University and I've shown some screenshots of what this looks like. Try this on your own and let me know if you have been able to get SAS running successfully.