

Institute for Health and Society, Medical College of Wisconsin



# Datum

NEWSLETTER  
Division of Biostatistics



## Free SAS for academics: introducing SAS Studio

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### SAS software

SAS® software has been a pillar of statistical programming for decades. However, SAS can be costly since it requires an annual fee. If you do not already have access to SAS, with an MCW affiliation, you can purchase SAS for Windows from the MCW Research Computing Center <http://infoscope.mcw.edu/RCC/SAS-Install.htm>. You can find a lot of useful SAS documentation online at <http://support.sas.com/documentation>.

### Free SAS for academics

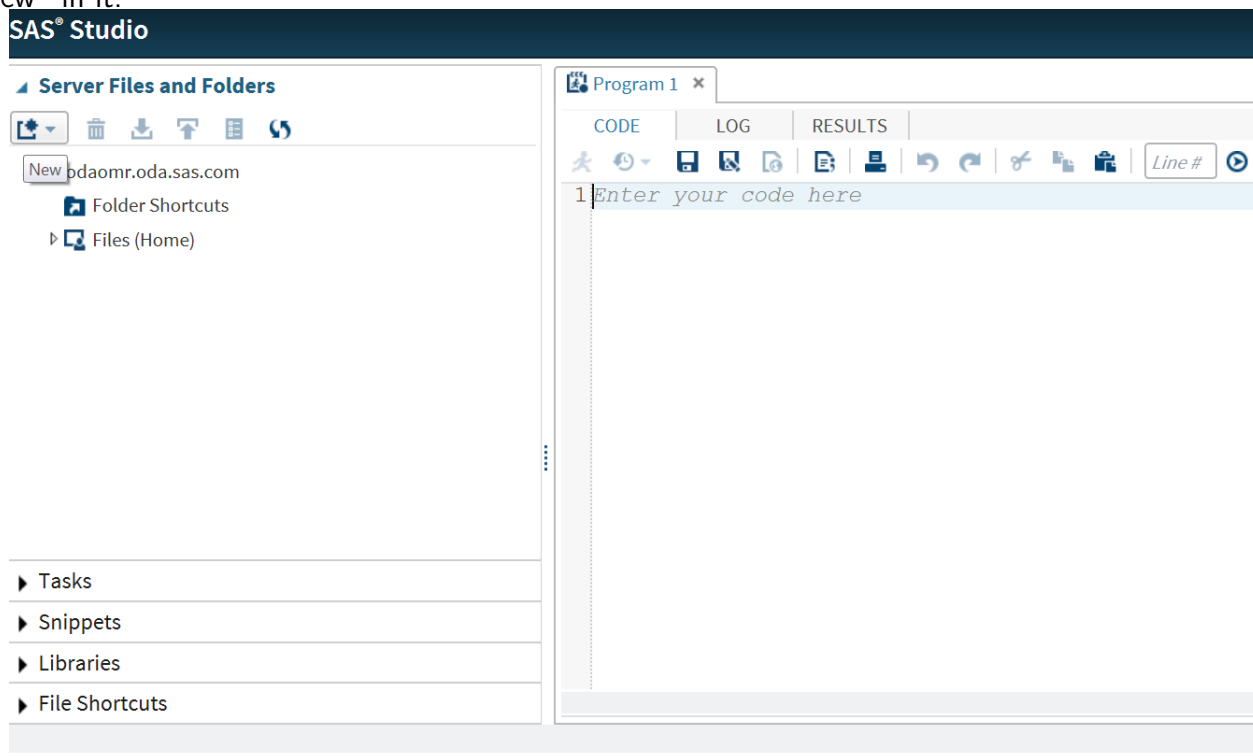
SAS also has a free option for academics called SAS Studio. There are two ways to run SAS Studio: online or as a downloaded application. SAS OnDemand for Academics is the web-based version requiring internet access. You just need to register by creating a user name and password at <https://odamid.oda.sas.com/SASODARegistration>. After registration, you can sign on at <https://odamid.oda.sas.com/SASODAControlCenter> and launch SAS Studio.

The downloadable option is called SAS University Edition. You can get it online for Windows, Mac and Linux at [http://www.sas.com/en\\_us/software/university-edition.html](http://www.sas.com/en_us/software/university-edition.html). This article will briefly discuss an important aspect of SAS Studio before going into more detail about installing SAS University Edition on your computer.

## SAS Studio

SAS is really about data, i.e. analysis, visualization, processing, etc. The main reason to learn SAS with SAS Studio is to work with your own data. So, being able to read and write your own files is an important feature. Now, let's see how to use your own files with SAS Studio.

For SAS OnDemand, you can upload your own files; however, you may have to create a new folder first. In order to avoid any confusion, I recommend that you create a new folder first and use that folder for your files. To see what this looks like, take a look at the following figure. In the the upper left, I hovered over the left most icon, and, as you can see, a tip popped up with the word "New" in it.



Click on that icon to create a new Folder. For example, let's say you created `myfolder` which will you find in your home folder, i.e. `/home/USERNAME/myfolder`. You will be able to access the files you upload there via the following statements.

```
libname mylib '/home/USERNAME/myfolder';  
filename myfile '/home/USERNAME/myfolder/myfile';
```

Similarly, for SAS University Edition, you can access files in your shared folder as follows (we will go into more detail about shared folders in the next section).

```
libname mylib '/folders/myfolder';  
filename myfile '/folders/myfolder/myfile';
```

Beyond files, whether you are using SAS Studio online or via a virtual machine should not be much different. Other uses of SAS are beyond the scope of this article; but just having access to a free version of SAS will give you the chance to learn on your own.

## SAS University Edition

SAS University Edition packages the free SAS Studio software as a virtual machine. A more complete discussion of virtual machines can be found on Wikipedia at [http://en.wikipedia.org/wiki/Virtual\\_machine](http://en.wikipedia.org/wiki/Virtual_machine). But, briefly, a virtual machine is software that runs on a computer which emulates another computer running within it, i.e. a virtual computer. Virtual machines are useful when you want to run software created for a different operating system than your own. For example, SAS University Edition is provided as an image of Linux which you can run on another operating system such as Windows or Mac OS X.

However, you need to have virtual machine software installed on your PC. For the last several years, I have been using the free virtual machine software called VirtualBox from Oracle which can be downloaded from <http://www.virtualbox.org>. I recommend VirtualBox as it is very good software that also happens to be free. Of course, there are other competitors to VirtualBox, but they are generally not free. For this discussion, I am going to assume that you are using VirtualBox.

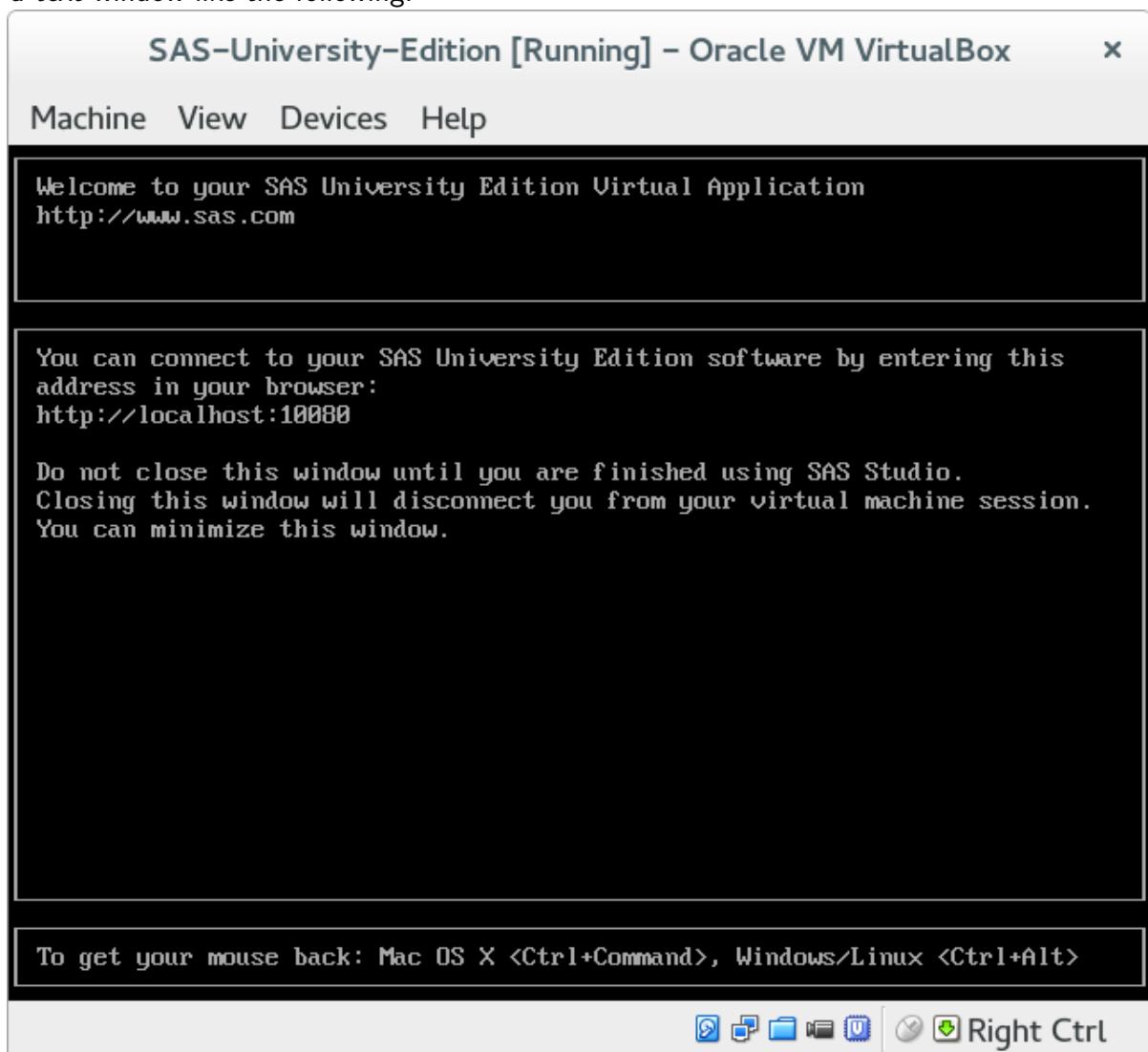
To get SAS University Edition, go to the SAS site:

[http://www.sas.com/en\\_us/software/university-edition.html](http://www.sas.com/en_us/software/university-edition.html). You can download the software there. You will need a profile on the SAS site; if you don't have you one, you can create one quickly. The downloaded file is about 2GB so it will probably take a few minutes. Once you have it, then you need to launch VirtualBox. From the File menu, pick Import Appliance and import the download.

Once the virtual machine is imported, you should see it as an object within the VirtualBox application called SAS-University-Edition. Next, you need to edit the settings. We need to create a Shared Folder. A Shared Folder is a directory on your computer where you can place files which will also be available from within the virtual machine. So select SAS-University-Edition and click on the VirtualBox Settings icon. Open the Shared Folders settings tab. To create a Shared Folder, click on

the folder icon which has a plus sign on it. This will bring up the Add Share dialog box. In the Folder Path: selection, pick Other. That will bring up a File and Directory widget. I created a new folder called “myfolder” with the Create Folder button. Then I selected and pressed the Open button. Now, back in the Add Share dialog, SAS suggests that you click on the Auto-mount and Make Permanent check boxes. You will be able to read and write files in your shared folder by the virtual machine folder “/folders/myfolder”. Now click OK and return to the main VirtualBox window.

Start the SAS-University-Edition machine. It will take a little while load. But eventually, you will see a text window like the following.



Now open your web browser and go to the address it says. For example, here I have: <http://localhost:10080>. From your browser, launch SAS Studio by clicking on the icon for it. That's

it; these last two steps are all you will need to use SAS Studio from now on. Happy free SAS computing!

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