Some computer notes for the Math computer lab Neckers 258 (or 278). Many of the Math 484 homework problems are also online in the old Math 484 class notes *Multiple Linear and 1D Regression* at (http://parker.math.siu.edu/Olive/regbk.htm). Also see the course webpage: (http://parker.ad.siu.edu/Olive/M484.html).

The computer on button is in the upper left corner while the monitor on button is in the lower right corner. You may need to press a computer keyboard key to get the login and password bars to appear.

computer lab login: If necessary, hit a key such as Ctrl, enter your dawg tag AD\siu8... and your password. Left click the lower left icon to see programs. If you are using a computer in the lab for the first time in several months, it takes about 5 minutes to set up your applications, and this will occur for each computer you use, so you may want to use the same computer when you can.

We use the computers in the back 11–25. *Arc*, *SAS*, and *R* are on most computers. Minitab may be on computers 11–13, 18–21, 23–25. A label on the computer displays some of the programs, but the labels are old.

Click the lower left icon to see programs in the icons Window. You can click on the desktop icon to escape. If you click on something and can't get out of the information window, there is a Windows key that looks like 4 rectangles and is on the lower left of the keyboard near the Ctrl key. This Windows key can get you back to icons Windows.

ARC:

Arc comes with many data files and some demo programs. Often to open file ais.lsp, the commands File>Load>Data>ais.lps will work, but sometimes you need to use the commands File>Load>OSDisc(C:)>Program Files(x86)>Arc>Data>ais.lsp to get ais.lsp.

There are a few ways to get *cbrain.lsp* into *Arc*. i) a) From the web, find the course webpage and the course notes link to *regbk* near the bottom. Open the window and click on *cbrain* which is on the middle right of the webpage. Denote these commands as Firefox>M485>regbk>cbrain. b) A window will appear for the cbrain data file. Click on the upper right corner and save page as Downloads. c) Use the command Arc>File<Load. d))A window will appear and on the right click on Downloads. e) A window will appear and clcik on the lower left corner. Change .LSP to all files. Then cbrain will appear near the top. Click on cbrain and it should appear in Arc.

ii) Another way is to the command Arc>File<Load. A window appears with a File name box on the bottom. Open the cbrain link to get the URL, copy and paste the URL http://parker.ad.siu.edu/Olive/cbrain.txt into the File name box, and click on open, perhaps twice.

SAS: the output window appear after the run>submit command, often after a few minutes. This is quite slow compared to earlier version of SAS. Try highlighting output: hold the left mouse button down at the upper left corner of the output you want two highlight. Then move the mouse to the right and then down. Then copy and paste the highlighted output into Word.

Minitab: Most of the computers have Minitab 19.

You need commands Stat>Regression>Regression>Fit Regression Model

Homework 1 has commands for the residual and response plots. For HW1 C = 2.15cd, use the following menu commands. After Scatterplot a window may appear with a simple scatterplot icon highlighted, then click OK. You may have Fits and Residuals instead of

Fits1 and Resi1.

Graph>Scatterplot>OK

Word: When you click on the Work icon a window may appear, click on "blank document." After pasting a plot or output, you may need to click on the lower right of the output to get the cursor to appear below the output. Then you can paste in more output or type answers.

R is available from the **CRAN** website (https://cran.r-project.org/). The website (https://www.stat.umn.edu/arc/software.html) has useful links for *Arc* which is the software developed by Cook and Weisberg (1999). SAS (www.sas.com) has a free SAS University Edition and free tutorials for SAS programming. You can request materials from the SAS institute as well. They make these available for free for professors to use in teaching. They have some nice examples and data sets. See SAS Global Academic Program (http://support.sas.com/learn/ap/prof/index.html) for information.

Google SAS Statistics 1 for some nice examples. Some SAS courses are at (https://learn.sas.com/). Google SAS e courses

This includes a SAS programming course.

Google SAS OnDemand for Academics

Google SAS User's Guide

The URL (http://parker.ad.siu.edu/Olive/rch17.pdf) has more information on *Arc* and *R* as well as some answers to some HW problems in *Multiple Linear and 1D Regression*. Scroll through the file to see what it has. My office is right by the computer lab, come get me for help. **A flash drive is useful**.

Getting data into SAS with an infile command is below. Getting the path for a flashdrive can be difficult. Below is a program that does all subsets regression with data at a URL.

```
#HW 13.23;
filename cbrain2 url "http://parker.ad.siu.edu/Olive/cbrain2.txt";
options ls = 70;
data cbrain;
infile cbrain2;
input obs x1 x2 x3 x4 x5 x6 x7 x8 x9 x10 sex x12;

proc rsquare;
  model sex = x2 x3 x4 x5 x6 x7 x9 x10 / cp;

proc reg;
  model sex = x2 x3 x4 x5 x6 x7 x9 x10;
  output out = a p = pred r = resid;
  run;
```

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