# Statistics 5740
## Introduction to SAS Software
### 12591 (Graduate)
### 12657 (Undergraduate)
### Autumn Semester 2018

**Class Meetings:** Cockins Hall, Room 312, Tu/Th, 12:40pm – 1:35pm
**Instructor:** Nicole Kelbick, PhD
**Contact:** (614)-292-0293, kelbick.1@osu.edu
**Office Hours:** 304-A Cockins Hall (CH), Wednesdays 9:30pm-11am and 1:30pm-3pm or by appointment

**Grader:**

| Name | Pei Yang |
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| Email | yang.1736@osu.edu |

**Prerequisites:** Stat 5302 (530) or equivalent, or permission of instructor.

**Course Description:** To learn and utilize SAS for importing/exporting/merging data, manipulation, formatting, calculation and summarization of data, basic statistical analyses, graphical representations of data, macro programming language, output delivery system (ODS) for presentation and analyses. This course satisfies the General Education (GE) requirement in Data Analysis

**Enrollment:** ADD and SECTION CHANGES will be processed, contingent upon availability, starting at 7am on Monday August, 27th. The rest of the week the time available to add or make section changes is between 7:30am and 4pm. This will be on a first-come first-served basis in 323 Cockins Hall. **The instructor does not sign any Add or Section Change forms.** Check out https://stat.osu.edu/undergraduates/academic-programs/course-enrollment for more detailed information regarding Add and Section Changes.

Closed Section Strategy: If the section you wish to take is closed, consider enrolling into another section that is still open. It is much easier to do a section change (and there are no late add fees either) if a space opens up. It is more complicated to do a late enrollment and the chance of succeeding is not great.

**Text:** *The Little SAS Book (5th edition)* by Lora D. Delwiche and Susan J. Slaughter.

An ebook copy is also available on reserve at the library. Go to https://library.osu.edu/, then select Course Reserves under Recommended Links then continue to select the appropriate links until you can reserve the ebook version of this text.

**Optional Text:** *SAS Essentials: Mastering SAS for Data Analytics, (2nd edition)* by Alan C. Elliott and Wayne A. Woodward

**Website:** Homework assignments and other relevant material will be posted on http://www.carmen.osu.edu. Please check the website regularly.

**Software:** PLEASE BRING A LAPTOP TO CLASS! The room used for class does not have computers. We will review and run code during class.

SAS University will be used in this course. This is a cloud-based software that SAS offers. SAS University Edition includes SAS Studio, Base SAS, SAS/STAT, SAS/IML, SAS/ACCESS and several time series forecasting procedures from SAS/ETS.

For installation directions please check out http://support.sas.com/software/products/university-edition/docs/en/SASUniversityEditionQuickStartVirtualBox.pdf to get started on your own. I will set aside time during the first class to help with installation. The expectation is that SAS University will be available for use by the 2nd class.

The basic steps are as follows:

1) **Choose the platform** you will be using (Windows, OS X or Linux)

2) **Set Up:** download virtualization software (e.g. VirtualBox) and create the "*myfolders*" folder on the computer. This is where code and data will be stored for use by SAS Studio.

3) **Download:** download SAS University Edition

4) **Configure:** Import SAS University Edition into VirtualBox and share *myfolders* with VirtualBox.

5) **Use:** Use VirtualBox to Start the SAS University vApp then enter http://localhost:10080 into your browser.

**NOTE**: You may use SAS 9.4 software provided by The Ohio State University at https://ocio.osu.edu/software/directory/slwin. Select the SAS T&R (Workstation) option. It is extremely challenging to download due to file size and therefore highly recommended to be installed by professionals at one of the various tech support locations around campus (e.g. Tech Hub). This software will contain all SAS 9.4 components, not just the ones in SAS University Edition. The code used in class will be the same except when it involves directing SAS where to read your data files. If you

have a Mac, virtualization software will be required in order to install SAS 9.4, since it is a Windows-based software.

**Important Dates:**

| Weekday(s) | Date | Reason |
|---|---|---|
| Monday | September 3rd | Labor Day (no classes) |
| Friday | September 14th | Last day to drop a course |
| Thursday/Friday | October 11th-12th | Autumn Break (no classes) |
| Friday | October 26th | Last day to withdraw without petitioning |
| Friday | November 12th | Veteran's Day (no classes) |
| Weds/Thurs/Friday | November 21st-23rd | Thanksgiving Break (no classes) |
| Wednesday | December 5th | Last day of classes |
| **Friday** | **December 7th** | **Final Project Due by 4pm.** Early submission is acceptable. |

**Grading:** Your grade will be based on homework assignments and a final project which will be determined according to the following weighting scale:

| | |
|---|---|
| Homework | 70% |
| Final Project | 30% |
| Due Fri, Dec. 7th by 3pm | 100% |

**Homework:** There will be 8-10 homework assignments throughout the semester that will involve programming over a variety of topics in SAS. Homework assignments will be posted on Carmen. All homework will be submitted via Carmen. Any late homework will lose points.

**Final Project:** In lieu of a final exam, a final project will be assigned that will entail analyzing a data set (to be provided) using the methods presented in the course. Additional information regarding this project will be given in class. **It is due Friday, December 7th, 2018 by 4pm.**

**Office Hours:** While questions are welcome and expected during class sessions, all students should feel free to visit office hours for individual assistance with the course material. Questions regarding grades or scores will only be answered during office hours. Students unable to attend office hours may easily make an appointment to see the instructor at another time.

**Email Correspondence:** In order to protect your privacy all email correspondence must be done through a valid OSU name.# account; any email from a non-osu.edu account will be ignored. Please make sure to include "STAT 5740" in the subject line. You may also contact me through Carmen. Please allow up to 48 hours for responses to other inquiries made via email. In addition, I will not respond to questions which can be answered by looking at the syllabus or Carmen, by a quick search on osu.edu or Google, and/or were announced in class.

**Communication Devices:** Cell phones, PDAs and other communication devices must be either turned off or put on vibrate during class. **Please refrain from texting (and web-surfing) during class as a courtesy to those sitting around you.** If such behavior continues after being warned, your instructor reserves the right to hold onto the device until the end of class, where it will then be returned to the student. **During class, laptops will be used for programming purposes only.** PLEASE BRING A LAPTOP TO CLASS.

**Academic Misconduct:** Although you are encouraged to work together, you are expected to produce independent work for homework and/or exams. Academic misconduct of any sort will not be tolerated. If students are caught indulging in dishonest activities with respect to submitted homework and final projects, they will be reported immediately, without any exception. Please review OSU's policies at http://studentaffairs.osu.edu/csc/.

**Special Accommodation:** Students with ADA-documented physical, sensory, emotional or medical impairments may be eligible for reasonable accommodations. Veterans may also be eligible for services. All accommodations are coordinated through the Office of Disability Services (ODS) in Room 150 of Pomerene Hall, (614) 292-3307. Please contact the ODS as early in the semester as possible. You can also contact the instructor privately to discuss your specific needs.

**Disclaimer:** The schedule and procedures contained in this syllabus should be taken as a general guide for the course content. They are, however, **subject to change at the instructor's discretion**. Any changes will be announced in class as well as posted on CARMEN.

**Tentative Schedule:**

| Week | Chapters | Topic |
|---|---|---|
| 1 | 1 & 2 | SAS University Installation<br>Using SAS Software<br>Reading Data Into SAS |
| 2 | 3.1 – 3.7 | Manipulating Data |
| 3 | 4.1 – 4.12, 9.3 | Summarizing Data (PROC SORT, PROC FREQ, PROC MEANS) |
| 4 | 9.1 – 9.2 | Summarizing Data (PROC UNIVARIATE) |
| 5 | 6.1 – 6.13 | Stacking (Concatenating), Merging and Restructuring Data Sets |
| 6 | 3.8 – 3.9 | Date, Numerical, Character Functions |
| 7 | 4.13 – 4.17 | The PUT STATEMENT and PROC TABULATE |
| 8 | 5.1 – 5.7 | Output Delivery System (ODS) |
| 9 | 5.8 – 5.13 | Customizing Output |
| 10 | 8.1 – 8.12 | ODS Graphics |
| 11 | 7.1 – 7.8 | Macros and Macro Variables |
| 12 | 9.4 – 9.13 | Basic Statistical Procedures |
| 13 | | PROC SQL |
| 14 | | Other topics if time allows. |
| 15 | | Final Project due Friday, December 7th at 4pm. |