THE OHIO STATE UNIVERSITY
COLLEGE OF ARTS AND SCIENCES

SYLLABUS: STAT 5740
INTRODUCTION TO SAS SOFTWARE
AUTUMN 2020

Course overview

Instructor

Instructor: Dr. Elly Kaizar
Email address: kaizar.1@osu.edu
Phone number: 614-247-2585
Course website: https://osu.instructure.com/courses/84557
Office hours: Virtual Hours via Carmen Zoom: Tuesdays 2:00-2:55pm and Wednesdays 9:00-9:55am, Eastern time, and by appointment (please email with your availability)
Office Location: 221 Cockins Hall (I do not plan to regularly be on campus this semester.)

Graders

Ruochen Huang and Jiahao Ping will be helping to grade this semester. You can seek their assistance via the Mathematics and Statistics Learning Center: https://mslc.osu.edu/online-tutoring. Their availability will be posted and kept up to date on the Carmen course.

Course description

The course will introduce the audience to the SAS Software. Students will learn how to utilize SAS for importing, exporting, merging, manipulating and summarizing data. In addition, basic statistical analyses, graphical representations of data, macro programming language and the output delivery system (ODS) will be illustrated.

Course learning outcomes

By the end of this course, students should successfully be able to:

- describe data graphically and numerically using SAS;
- perform basic exploratory data analyses using SAS;
- use the SAS macro programming language for simple statistical analyses.

Course materials

Required

The Little SAS Book, 6th Edition by Lora D. Delwiche and Susan J. Slaughter; SAS Institute; 2019. ISBN: 9781642953435 (available in print or electronically)

- No cost access is available to those who set up an O'Reilly account linked to their Ohio State email address. To create an account and access the text, go to:
  - Go to: https://learning.oreilly.com/library/view/-/9781642953435/?ar
  - In the "Select your institution" drop-down, choose the first option: "Not listed? Click here."
  - If you already have an O'Reilly account, click "Already a user? Click here."
  - If you do not have an O'Reilly account, enter your Ohio State email address (name.#@osu.edu)
  - If desired, download the O'Reilly app for your iOS or Android device.

Optional materials

SAS Essentials: Mastering SAS for Data Analytics, (2nd edition) by Alan C. Elliott and Wayne A. Woodward (available in print or electronically)

- No cost access is available to those who set up an O'Reilly account linked to their Ohio State email address. See the required materials section for detailed instrucitons after going to:

  https://www.oreilly.com/library/view/sas-essentials-mastering/9781119042167/?ar

Course technology

For help with your password, university e-mail, Carmen, or other university-related technology issues, questions, or requests, contact the OSU IT Service Desk. Standard support hours are available at https://ocio.osu.edu/help/hours, and support for urgent issues is available 24x7.

- **Self-Service and Chat support:** http://ocio.osu.edu/selfservice
- **Phone:** 614-688-HELP (4357)
- **Email:** 8help@osu.edu
- **TDD:** 614-688-8743

Baseline technical skills necessary for online courses

- Basic computer and web-browsing skills
- Navigating Carmen

Technology skills necessary for this specific course

- CarmenZoom
- Collaborating on Carmen
- Recording, editing, and uploading video

Necessary equipment

- Computer or tablet with high-speed internet connection and browser for which Carmen is fully functional and SAS Studio within SAS OnDemand is fully functional (https://support.sas.com/ondemand/caq_swe.html)
- Microphone: built-in laptop or tablet mic or external microphone

Recommended equipment

- Keyboard for use with your computer or tablet
- Webcam: built-in or external webcam, fully installed

Necessary software

- This class requires you to use the SAS statistical software package (http://www.sas.com/). There are many versions of the SAS software, including a free academic version that utilizes the SAS Studio browser-based interface called SAS OnDemand for Academics. **SAS OnDemand for Academics** is accessed entirely via the internet, and requires stable high-speed internet and a computer or tablet with the current version of a major web browser (Safari, Firefox or Chrome). Instructions for accessing this software are provided on the Carmen course. For technical assistance accessing SAS OnDemand for Academics, follow the three steps listed on this website: https://support.sas.com/en/software/ondemand-for-academics-support.html#get-help

  Accessing this free version **requires you to create a SAS profile** using your Ohio State email; instructions for doing so are on the Carmen course. When creating a SAS profile, you must accept the SAS terms of use and conditions. SAS collects user information that includes data you provide when creating your profile and automated data extraction via your internet connection. SAS uses data internally and shares it with other companies. You can learn more by reading the SAS terms and conditions (https://www.sas.com/en_us/legal/copyright.html) and privacy statement (https://www.sas.com/en_us/legal/privacy.html).

  The SAS programming language is the same for all versions of SAS (including paid licensed versions) use the same SAS programming language, which is the focus of this course. Course content (videos and instruction) will be based on SAS Studio, and

materials will give instructions on using either free version. If you are not planning to use SAS Studio, please contact the instructor as soon as possible.

- o **Note:** SAS also currently offers **SAS University Edition**, which is free and installed locally. ***However, support for SAS University Edition may be limited starting in November 2020 and this product will be discontinued in 2021.*** It requires a 64-bit computer running the Windows, OS, or Linux operating system and with 1GB of RAM. It also requires installation of virtualization software (VMware Fusion or Oracle VirtualBox), the current version of a major web browser (Safari, Firefox or Chrome), and SAS University. For technical assistance downloading or installing SAS University Edition, follow the three steps listed on this website: https://support.sas.com/en/software/university-edition-support.html#get-help

- Microsoft Office 365 ProPlus All Ohio State students are now eligible for free Microsoft Office 365 ProPlus through Microsoft's Student Advantage program. Each student can install Office on five PCs or Macs, five tablets (Windows, iPad® and Android™) and five phones.
  - o Students are able to access Word, Excel, PowerPoint, Outlook and other programs, depending on platform. Users will also receive 1 TB of OneDrive for Business storage.
  - o Office 365 is installed within your BuckeyeMail account. Full instructions for downloading and installation can be found https://ocio.osu.edu/kb04733.

Course delivery

Each week several lecture videos, totaling approximately 1.5 hours of lecture, will be posted on the course website. You are responsible for watching the videos and studying the material that is assigned each week. In addition to the lecture videos, weekly individual assignments will be posted on the class website.

The instructor may elect to deliver live CarmenZoom lectures in place of videos for certain topics. In this case, the lecture will be recorded and posted on the class website soon after. Video and audio recordings of synchronous lectures (including student participation) will be part of the classroom activity. The video and audio recording is used for educational use/purposes and may be made available to all students presently enrolled in the course. Please let me know in advance if you do not want a video or audio recording of yourself to be shared with other students.

The instructor will hold weekly office hours via CarmenZoom. The dates and times are listed above and posted on the Carmen course. Any changes to this schedule will be announced on the Carmen course. The instructor will also initiate and manage active discussion boards, also via Carmen. These boards will be used both for discussing topics as questions arise and for completing group assignments. Students may email questions to the instructor, but questions related to course content (not grades or other private matters) should instead be posted to the

discussion board. The instructor may post appropriate emailed questions to the discussion boards.

The vast majority of the course can be completed asynchronously, meaning that you will be able to study materials and work on assessments according to your own weekly schedule, but you should expect to keep pace with the course and other members of your group(s).

Grading and faculty response

Grades

Assignment or category	Percentage
Check-In Quizzes	5
Homework	60
Discussion	10
Final Project	25
Total	100

See course schedule, below, for due dates

All grades will be stored in Carmen. Students are responsible for regularly checking the grade entries in Carmen. Any grade disputes should be emailed to the instructor within 7 days of the grade assignment.

Assignment information

Check-In Quizzes

There will be many, many quizzes. Most instructional activities (e.g., videos) will be followed by a quiz question. Quizzes are auto-graded for accuracy, and there is typically no partial credit given for any single question. Because there are many, many quizzes, each question response does not contribute very much to your final grade. Also because there are many, many quizzes, the Carmen gradebook can appear quite long and disorganized. I have attempted to organize the grades so that homework, group discussion and project grades are most prominent.

Homework

Homework will be due most weeks. Students must upload three files per assignment.

1. **Main file:** Answers to the homework questions, nicely formatted (MS Word is recommended) and including only **relevant** code snippets, log snippets or output subsets. Unedited code, log files or output are unacceptable. Tables and figures should be numbered and referred to in written answers by number. A table or figure without any accompanying text is unacceptable. The submitted file must be in PDF format. This file must be named **HWX_main_name.number.pdf**, where you replace "X" with the appropriate homework number.

2. **Code file:** Raw executable SAS code. Code should follow coding conventions discussed in the class and be appropriately commented. Comments should indicate correspondence between homework questions and presented code. The instructor or grader should be able to run the code after making any appropriate file path changes. All code snippets presented in the main file must be contained in this file, and all log and output content contained in the main file must be produced by running this SAS code file. This file must be named **HWX_code_name.number.sas**, where you replace "X" with the appropriate homework number. If you are using SAS OnDemand, you can download this file using the "download" button ( )in the Server Files and Folders explorer.

3. **Results file:** The raw output produced by running the SAS code file, saved in PDF format. This file must be named **HWX_results_name.number.pdf**, where you replace "X" with the appropriate homework number. If you are using SAS OnDemand, you can create this file using the "download results as a pdf file" button ( ) in the menu available in the RESULTS tab.

Discussion

Working programs are often improved by talking to other programmers. In this class, you will talk to other programmers in small groups, using the Carmen discussion boards. Each week, the instructor will post a discussion prompt for each group. Groups will decide their strategy of how to respond to each prompt, with each group member contributing some SAS coding each week and posting their contribution to the Carmen discussion. Groups will then collaborate to share highlights of their work with the rest of the class, as directed in the discussion prompt. Grades are assigned based on posted discussion rubrics.

Final project

This course has a final project. (There is no final exam.) Details about the final project will be posted on Carmen. You will be given ample time in which to work in groups to complete the project.

Late assignments

Late assignments are typically not accepted without prior arrangements. If you expect that you will not be able to sumbit any assignment by the due date, please contact the instructor as soon as possible – preferably at least 48 hours before the due date. If you experience an emergency

that prevents your submitting an assignment, please contact the instructor as soon as possible. Given the currently challenging times, I will strive to be as flexible as possible in granting extensions or making alternative arrangements while maintaining course integrity and promoting fairness.

Grading scale

93–100: A
90–92.9: A-
87–89.9: B+
83–86.9: B
80–82.9: B-
77–79.9: C+
73–76.9: C
70 –72.9: C-
67 –69.9: D+
60 –66.9: D
Below 60: E

Faculty feedback and response time

I am providing the following list to give you an idea of my intended availability throughout the course. (Remember that you can call **614-688-HELP** at any time if you have a technical problem.)

Grading and feedback

For large weekly assignments, you can generally expect feedback within **7 days**.

E-mail

I plan to reply to e-mails within **48 hours on school days**.

Discussion board

I plan to check and reply to messages in the discussion boards within **48 hours on school days**.

Attendance, participation, and discussions

Student participation requirements

Because this is a distance-education course, your attendance is based on your online activity and participation. The following is a summary of everyone's expected participation:

- **Logging in**: **AT LEAST THREE TIMES PER WEEK**
  Be sure you are logging in to the course in Carmen each week, including weeks with holidays or weeks with minimal online course activity. (During most weeks you will probably log in many times.) If you have a situation that might cause you to miss an entire week of class, discuss it with me *as soon as possible.*

- **Office hours and live sessions**: **OPTIONAL OR FLEXIBLE**
  All live, scheduled events for the course, including my office hours, are optional. For live presentations, I will provide a recording that you can watch later. If you are required to discuss an assignment with me, please contact me at the beginning of the week if you need a time outside my scheduled office hours.

- **Participating in discussion forums**: **2+ TIMES PER WEEK**
  As participation, each week you can expect to post at least twice as part of substantive class discussion on the week's topics.

Discussion and communication guidelines

The following are my expectations for how we should communicate as a class. Above all, please remember to be respectful and thoughtful.

- **Writing style**: While there is no need to participate in class discussions as if you were writing a research paper, you should remember to write using good grammar, spelling, and punctuation. Informality (including an occasional emoticon) is fine for non-academic topics.

- **Tone and civility**: Let's maintain a supportive learning community where everyone feels safe and where people can disagree amicably. Remember that sarcasm doesn't always come across online.

- **Citing your sources**: When we have academic discussions, please cite your sources to back up what you say. (For the textbook or other course materials, list at least the title and page numbers. For online sources, include a link.)

- **Backing up your work**: Consider composing your academic posts in a word processor, where you can save your work, and then copying into the Carmen discussion.

Other course policies

Health and safety

The Ohio State University Wexner Medical Center's Cornavirus Outbreak site (https://wexnermedical.osu.edu/features/coronavirus) includes the latest information about COVID-19 as well as guidance for students, faculty and staff.

Students are expected to follow all university policies, including current guidelines and requirements posted on the Safe and Healthy website (http://safeandhealthy.osu.edu). Please remember to complete daily health checks and self-isolate if symptomatic, wear a face covering as appropriate, and maintain social distancing. Accountability measures will be in place for those who do not abide by university policy.

Potential disruptions to instruction

Because this is a distance-education course, potential disruptions are expected to be minimal. Students who become unable to participate or experience a slowed rate of participation that may affect the timeliness of completing course requirements (e.g., late homework submissions) should contact the instructor as soon as possible to make alternate arrangements. An alternate instructor has been identified in case the current instructor becomes unable to manage the course. In that event, announcements about contact information and any changes to office hours will be made in the Carmen course.

Student academic services

Student academic services offered on the OSU main campus http://advising.osu.edu/welcome.shtml.

Student support services

Student support services offered on the OSU main campus http://ssc.osu.edu.

Academic integrity policy

Policies for this online course

- **Quizzes**: You must complete the quizzes yourself, without any external help or communication. You may refer to course materials (e.g., textbook and video) during the quiz.
- **Written assignments**: Your written assignments, including discussion posts, should be your own original work. In formal assignments, you should follow a standard reference style (e.g. APA or Chicago) to cite the ideas and words of your research sources. You are encouraged to ask a trusted person to proofread your assignments before you turn them in--but no one else should revise or rewrite your work.
- **Reusing past work**: In general, you are prohibited in university courses from turning in work from a past class to your current class, even if you modify it. If you want to build on past research or revisit a topic you've explored in previous courses, please discuss the situation with me.

- **Falsifying research or results**: All research you will conduct in this course is intended to be a learning experience; you should never feel tempted to make your results or your library research look more successful than it was.
- **Collaboration and informal peer-review**: The course includes many opportunities for formal collaboration with your classmates. While study groups and peer-review of major written projects is encouraged, remember that comparing answers on a quiz or assignment is not permitted. If you're unsure about a particular situation, please feel free just to ask ahead of time.
- **Group projects**: This course includes group projects, which can be stressful for students when it comes to dividing work, taking credit, and receiving grades and feedback. I have attempted to make the guidelines for group work as clear as possible for each activity and assignment, but please let me know if you have any questions.

Ohio State's academic integrity policy

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct http://studentlife.osu.edu/csc/.

Copyright disclaimer

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

Statement on title IX

Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories (e.g., race). If you or someone you know has been sexually harassed or assaulted, you may find the appropriate resources at http://titleix.osu.edu or by contacting the Ohio State Title IX Coordinator, Kellie Brennan, at titleix@osu.edu

Accessibility accommodations for students with disabilities

The university strives to make all learning experiences as accessible as possible. In light of the current pandemic, students seeking to request

COVID-related accommodations may do so through the university's request process, managed by Student Life Disability Services. If you anticipate or experience academic barriers based on your disability (including mental health, chronic, or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. SLDS contact information: slds@osu.edu; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue.

Accessibility of course technology

This online course requires use of Carmen (Ohio State's learning management system) and other online communication and multimedia tools. If you need additional services to use these technologies, please request accommodations with your instructor.

- [Carmen (Canvas) accessibility](#)
- Streaming audio and video
- Synchronous course tools

Your mental health

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (CCS) by visiting ccs.osu.edu or calling 614- 292-5766. CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. You can reach an on call counselor when CCS is closed at 614-292-5766 and 24 hour emergency help is also available through the 24/7 National Suicide Prevention Hotline at 1-800-273- TALK or at suicidepreventionlifeline.org

Disclaimers

This syllabus should be taken as a fairly reliable guide for the course content. However, you cannot claim any rights from it and in particular we reserve the right to change due dates or the methods of grading and/or assessment if necessary. Any changes will be communicated to you through official course announcements.

Video and audio recordings of class lectures including student participation will be part of the classroom activity. The video and audio recording is used for educational use/purposes and may be made available to all students presently enrolled in the course.

Course schedule (tentative)

See Carmen for details on assignments. Readings are from the textbook, The Little SAS Book, 6th Edition.

Week	Dates	Topics, Readings	Readings
1	8/25-9/1	SAS overview and reading data	Chapters 1 and 2
2	9/2-9/8	Manipulating data	Chapter 3
3	9/9-9/15	Summarizing data	Chapter 4
4	9/16-9/22	Output Delivery System (ODS)	Chapter 5
5	9/23-9/29	Customizing Output	Chapter 5
6	9/30-10/6	Combining datasets	Chapter 6
7	10/7-10/13	Macros	Chapter 7
8	10/14-10/20	More macros	Chapter 7
9	10/21-10/27	Visualizing Data	Chapter 8
10	10/28-11/3	Basic Statistical Procedures	Chapter 9
11	11/4-11/10	More Statistical Procedures	Chapter 9
12	11/12-11/18	Exporting Data	Chapter 10
13	11/19-11/25	Putting it all together	
14	11/26-12/4	PROC SQL	TBD