



THE OHIO STATE UNIVERSITY

STAT 5740

Introduction to SAS Software (20964)

Autumn 2026

Syllabus - Instructor Information

Nicole Kelbick

Professional Qualifications

Ph.D., Biostatistics, The Ohio State University

Master's, Biostatistics, The Ohio State University

Bachelor's, Mathematics, University of Dayton

Syllabus - Required or Recommended Readings

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)

Optional Materials

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

Syllabus - Course Schedule

Module	Topic
1	Intro to SAS and Interfaces
2-1	Reading Data Into SAS and Manipulating Data
2-2	Reading Data Into SAS and Manipulating Data
3	Sorting and Printing Data
4	Summarizing Data
5	Customizing Output
6	Combining Datasets
7	Macros
8	More Macros
9	Visualizing Data
10	Basic Statistical Procedures
11	More Statistical Procedures
12	Exporting Data
13	Putting It All Together
14	PROC SQL

Course Details - Instructor Contact Details

Name: Nicole Kelbick, PhD

Email: kelbick.1@osu.edu

Course Details - Office Hours

If the links don't work by just clicking on them, you may have to right click on the link and select the Open link in a new tab or copy and paste the web address into a web browser.

Office hours begin the [second](#) week of classes.

Monday and Wednesday	https://osu.zoom.us/j/92772086990?pwd=rWFku060XQDSyZlaN9sVWjh4zmDaSf.1
9:30am - 10:30am	Meeting ID: 927 7208 6990 Password: 467138
Monday and Wednesday	https://osu.zoom.us/j/98002825630?pwd=brxeMMBdxNJu9QWwD0EKe6Wi7n7Ppo.1
3:00pm - 4:00pm	Meeting ID: 980 0282 5630 Password: 347237
Tuesday	https://osu.zoom.us/j/99293828418?pwd=Juspoqr4eIP3qJlwX1w2wsnKAQ8Zdw.1
2:00pm - 3:00pm	Meeting ID: 992 9382 8418 Password: 742981
By Appointment	To set up a meeting, email instructor at kelbick.1@osu.edu .
Finals Week	To Be Determined

TA: Chloe Yang

Email: yang.8009@buckeyemail.osu.edu

Friday	https://osu.zoom.us/j/95030141651?pwd=PM2TGA14hqKFFnjBJx7SbhetASxr4I.1
12:30pm - 1:30pm	Meeting ID: 950 3014 1651 Password: 465921

Course Details - Class Meeting Details

Class Meeting Details: TBA - Online -

Course Delivery

The course is 100% asynchronous (self-paced).

For each module, students are expected to:

- review the weekly module announcements posted on Carmen
- watch the lecture videos
- answer quiz questions associated with each video
- execute example SAS code related to the lecture videos in a given module
- complete homework assignments related to the topic of a given module
- Note: about half way through the course, students will begin working on a group final project to be submitted in lieu of a final exam. The latter modules are designed to help each group develop various parts of the final project report.

The instructor and the teaching assistant will hold weekly office hours via CarmenZoom and will be checking email regularly. Refer to the section of the syllabus that contains the days, times and zoom links for the office hours.

Course Details - Course Description

The basic statistical procedures covered will be illustrated using SAS. The intent of the course is to cover some of the SAS statistical methods that graduate students from outside the Statistics Department require for their own research.

Prereq: 3202 or 4202 or 5301, or permission of instructor.

Prerequisite(s) / Corequisites: Prereq: 3202 or 4202 or 5301, or permission of instructor.

Course Details - More About This Course

General 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 Details - 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 Details - Course Supplies

Course Materials

Required

Textbook: *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 to this textbook 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:
 1. Go to: <https://learning.oreilly.com/library/view/-/9781642953435/?ar>
 2. Click on the "School or institution name"

3. From the drop-down menu, select “Ohio State University”
4. If you already have an O’Reilly account, sign in using your login information.
5. If you do not have an O’Reilly account, enter your Ohio State email address (name.1@buckeyemail.osu.edu or name.#@osu.edu) and follow instructions on how to create an account.
6. If desired, download the O’Reilly app for your iOS or Android device.

Optional Materials

Textbook: *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 for this textbook is available to those who set up an O’Reilly account linked to their Ohio State email address. Click on the link below and follow the instructions directly above:

<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

Technology skills needed for this course

- Basic computer and web-browsing skills
- Navigating Carmen (go.osu.edu/canvasstudent)
- CarmenZoom virtual meetings (go.osu.edu/zoom-meetings)
- Recording, editing, and uploading video (go.osu.edu/video-assignment-guide)

Required 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
- Other: a mobile device (smartphone or tablet) to use for BuckeyePass authentication

Recommended Equipment

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

Required 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 in the Carmen course. For technical assistance accessing SAS OnDemand for Academics, follow the three steps listed in the Get Help section 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 in 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), 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 it. If you are not planning to use SAS Studio, please contact the instructor as soon as possible.

- Microsoft Office 365: All Ohio State students are now eligible for free Microsoft Office 365. Full instructions for downloading and installation can be found at go.osu.edu/office365help.

Carmen Access

You will need to use BuckeyePass (buckeyepass.osu.edu) multi-factor authentication to access your courses in Carmen. To ensure that you are able to connect to Carmen at all times, it is recommended that you take the following steps:

- Register multiple devices in case something happens to your primary device. Visit the BuckeyePass - Adding a Device help article for step-by-step instructions (go.osu.edu/add-device).
- Request passcodes to keep as a backup authentication option. When you see the Duo login screen on your computer, click Enter a Passcode and then click the Text me new codes button that appears. This will text you ten passcodes good for 365 days that can each be used once.

- Download the Duo Mobile application (go.osu.edu/install-duo) to all of your registered devices for the ability to generate one-time codes in the event that you lose cell, data, or Wi-Fi service

If none of these options will meet the needs of your situation, you can contact the IT Service Desk at 614-688-4357(HELP) and IT support staff will work out a solution with you.

Course Details - Detailed Course Schedule

Week	Module	Topic	Readings
1	1	SAS and SAS Studio overview	Chapters 1-2
2	2-1	Reading Data into SAS and Manipulating Data	Chapters 1-2
3	2-2	Reading Data into SAS and Manipulating Data	Chapter 3
4	3	Summarizing data	Chapter 4
5	4	Output Delivery System (ODS)	Chapter 5
6	5	Customizing Output	Chapter 5
7	6	Combining datasets	Chapter 6
8	7	Macros	Chapter 7
9	8	More macros	Chapter 7
10	9	Visualizing Data	Chapter 8
11	10	Basic Statistical Procedures	Chapter 9
12	11	More Statistical Procedures	Chapter 9
13	12	Exporting Data	Chapter 10
14	13	Putting it all together	
15	14	PROC SQL (if time allows)	
16		Wrap up assignments and final project.	

Course Details - Canvas Assignment Schedule

Date	Name	Assignment Type	Points
	<u>DISCUSSION: Module 1 General Questions</u>	Discussion	0
	<u>DISCUSSION: Course Q&A</u>	Discussion	0
	<u>DISCUSSION: Hello, It's nice to meet you!</u>	Discussion	0
8/30/26	<u>QUIZ: Module 1 Part 1</u>	Quiz	2
8/30/26	<u>QUIZ: Module 1 Part 2</u>	Quiz	2
8/30/26	<u>QUIZ: Module 1 Part 3</u>	Quiz	2
8/31/26	<u>GROUP DISCUSSION: Module 1 [Intro to SAS]</u>	Discussion	5
9/2/26	<u>ASSIGNMENT: Module 1 [SAS Overview and Reading Data into SAS]</u>	Assignment	20
9/6/26	<u>QUIZ: Module 2-1, Section 1, Part 1</u>	Quiz	2
9/6/26	<u>QUIZ: Module 2-1, Section 1, Part 2</u>	Quiz	2
9/6/26	<u>QUIZ: Module 2-1, Section 2, Part 1</u>	Quiz	1

Date	Name	Assignment Type	Points
9/6/26	QUIZ: Module 2-1, Section 2, Part 2	Quiz	3
9/8/26	GROUP DISCUSSION: Module 2-1, Section 1 [Reading Data Into SAS]	Discussion	5
9/10/26	ASSIGNMENT: Module 2-1, Section 1 [Reading Data into SAS]	Assignment	20

Course Details - Grading Policy

Grade Components

Category	Percentage
Check-in Quizzes	5%
Homework	60%
Discussion/Group Assignments	10%
Final Project	25%
Total	100%

Late Penalties

- Missing submissions are automatically assigned 0%.
- If a homework assignment or check-in quiz is submitted late, it will be assessed a 15% penalty per day for up to 3 days past the due date.
- After 3 days, the maximum score that can be received is 55%, assuming no points are deducted for incorrect answers.

Because of this generous late policy, there is no need to request an extension for

check-in quizzes and homework assignments, unless a student will be incapacitated for more than a week or has disability accommodations.

Course Details - Grading Scale

Letter Grade	Percentage Range
A	100% to 93%
A-	< 93% to 90%
B+	< 90% to 87%
B	< 87% to 83%
B-	< 83% to 80%
C+	< 80% to 77%
C	< 77% to 73%
C-	< 73% to 70%
D+	< 70% to 67%
D	< 67% to 60%
E	< 60% to 0%

Course Details - Other

Descriptions of the Different Types of Course Assignments

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. There are lots of quizzes, so the Carmen gradebook can appear quite long and disorganized. There has been an attempt to organize the grades so that homework, group discussion and project grades are most prominent.

Homework

Homework will be due most weeks. Students will upload at least one (usually more) of four file types per assignment. Each assignment will indicate which types of files to submit.

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 in a main file. 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 HW_ModX_main_name.number.pdf, where “X” is replaced with the module number where the assignment originates. **Questions in the Carmen assignment write-up that should be answered in the Main file are highlighted in green.**
2. **Code files:**
 1. **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 HW_ModX_code_name.number.sas, where “X” is replaced with the module number where the assignment originates. If you are using SAS OnDemand, you can download this file using the “download” button  in the Server Files and Folders explorer.
 2. **PDF version of the SAS code.** Create a pdf version of the SAS code, which can be done easily within SAS Studio. Directions on how to do so will be provided in Canvas. Name this file HW_ModX_code_name.number.sas.pdf.
 3. **Questions in the Carmen assignment write-up that should be**

answered in the Code file are highlighted in yellow.

3. **Results file:** The raw output produced by running the SAS code file, saved in PDF format. This file must be named **HW_ModX_results_name.number.pdf**, where “X” is replaced with the module number where the assignment originates. 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.
 1. Make sure the PDF preference is selected in SAS Studio to output results as a PDF file.
 2. Go to the More menu next to the Help icon  in the blue ribbon at the top.
 3. Select Preferences from the drop down menu and Results in the left column.

Questions in the Carmen assignment write-up that should be answered in the Results file are highlighted in pink.

Assignments will not always require all three file types. Some may require two of the three. Keep an eye out for the color coding so you are sure to submit all required files. Each homework assignment will be accompanied by a grading rubric to help you understand the assignment expectations. However, after the assignment is due, the course grader will only assess student work for a subset of the rubric, and the total homework score will be pro-rated by the number of points assessed by the grader.

Discussion/Group Assignments

Working programs are often improved by talking to other programmers. In this class, you will talk to other programmers as a class or in small groups, using the Carmen discussion boards.

During the first part of the course, the instructor will post a discussion prompt each week.

- Each student is expected to post a message responding to that prompt either for the whole class or for their assigned group, as specified in the

instructions.

- This post will be graded for completion (i.e., a reasonable answer will get full credit).
- For many assignments, there will be a follow-up prompt to consider and synthesize student responses. While students are encouraged to post responses to the follow-up prompt, these will not be graded.

During the second part of the course, students will work together in small groups to complete a project.

- Weekly group assignments will keep groups on track to complete the final report in a timely manner.
- Some weeks these assignments will require individual submissions; others will require group submissions.
- These submissions will be graded for completion (i.e., a reasonable submission will get full credit).

Final Project

This course has a final project instead of a final exam.

- Assigned groups of 3-4 students will work together to create a final report.
- Although the instructor will assign membership of the groups, students will have the opportunity to fill out a survey to indicate any group member preferences about halfway through the semester.
- Each week of the second half of the semester will focus on a particular aspect of the final report to be handed in as part of the weekly homework assignments. The idea is that by the end of the semester, the different completed pieces can be assembled into the final report. Details about the final project will be posted on Carmen.

Course Details - Instructor Policies

Instructor Feedback and Response Time

The following list is to give you an idea of the 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

- The goal is to reply to e-mails within 48 hours on days when class is in session at the university.

Discussion Board

- The goal is to check and reply to messages in the discussion boards within 48 hours on school days.

Course Details - Course Policies

Discussion and Communication Guidelines

The following are expectations for how communication should occur 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.

Disclaimers

This syllabus should be taken as a fairly reliable guide for the course content. However, you may not 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.

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.

- **Use of AI:** All work submitted for this course must be your own.
 - Any use of generative AI tools when working on assignments is prohibited except for the following:
 - after spending a lot of time trying to get some code to work unsuccessfully and there is insufficient time to reach out to the instructor or teaching assistant due to approaching deadlines.
 - **see section of syllabus titled AI Use Policy** for more detailed information about use of AI.

The assignments in this class have been designed to challenge you to develop creativity, critical-thinking, and problem-solving skills. Using AI technology will limit your capacity to develop these skills and to meet the learning goals of this course.

- **Reusing past work:** In general, turning in work from a prior course is discouraged.
- **Falsifying research or results:** All research conducted by students in this course is intended to be a learning experience. Resist the temptation to make results or 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 are unsure about a particular situation, please feel free 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. Guidelines for group work have been made as clear as possible for each activity and assignment. Please let your instructor know if you have any questions.

Course Details - AI Use Policy

Homework Assignments

GenAI can fabricate information (for example, creating citations to sources that do not exist) or omit key information. You are ultimately responsible for the accuracy and integrity of your submitted work. Unless explicitly permitted below, representing AI-generated content as your own work is a violation of the Code of Student Conduct. Please check with your instructor if you have questions.

These levels may apply to the entire course or specific assignments, as indicated by the instructor:

- **Permitted:** You may use GenAI as a virtual tutor to explain concepts, quiz you on course topics, or summarize content you have personally authored (e.g., your own class notes).
- **Prohibited:**
 - **You may not ask AI to generate SAS code for ANY assignment or check-in quiz.**
 - You must personally author all text/work. No AI-generated sentences, paragraphs, code, etc. may be included in your homework submission.
 - The materials in this course may be subject to copyright protection. **Do not input or allow AI to access external or instructor-created course materials (e.g., assigned readings, slides) without explicit instructor permission.** Do not use GenAI to outline, draft, translate, or write any part of an assignment.

Final Project

GenAI can fabricate information (for example, creating citations to sources that do not exist) or omit key information. **You are ultimately responsible for the accuracy and integrity of your submitted work.** Unless explicitly permitted below, **representing AI-generated content as your own work is a violation of**

the Code of Student Conduct. Please check with your instructor if you have questions.

These levels may apply to the entire course or specific assignments, as indicated by the instructor:

- **Permitted:**
 - You may use GenAI to generate topic ideas for the final project. You may NOT use it to produce the data analyzed in the final project.
 - You must personally author the entire draft without AI assistance. Then you may use GenAI to critique your logic, improve grammar, clarity, etc.
- **Prohibited:**
 - The materials in this course may be subject to copyright protection. Do not input or allow AI to access external or instructor-created course materials (e.g., assigned readings, slides) without explicit instructor permission.
 - You must personally author all text/work until all parts are assembled into one cohesive draft. Then you may use GenAI to critique your logic, improve grammar, clarity, etc.
 - No AI-generated SAS code may be included in your submission.
 - When seeking feedback, students may not use AI to generate new content, rewrite whole sections, fill in missing analysis or evidence, or create thesis statements or conclusions.
- **Requirement:** The core ideas and original text/work must remain yours. You are responsible for the accuracy and appropriateness of any AI-suggested revisions and ensuring that AI does not obscure your individual learning or voice. You should document and critically evaluate AI suggestions before accepting them.

Syllabus - University Policies

Office of Undergraduate Education - Standard Syllabus Statements

- [Academic Misconduct](#)
- [Religious Accommodations](#)
- [Accommodations for Disability and Illness](#)
- [Intellectual Diversity](#)
- [Grievances and Solving Problems](#)
- [Creating an Environment Free from Harassment, Discrimination, and Sexual Misconduct](#)
- [Copyrights](#)
- [Content Warnings](#)
- [Mental Health Support](#)
- [Resources for Military-Connected Students](#)
- [Campus-wide Class Cancellations](#)