

From: [Smith, Randy](#)
To: [Clark, Jill](#); [Greenbaum, Rob](#); [Adams, Christopher](#)
Cc: [Sutherland, Sue](#); [Herrmann, Samantha](#); [Smith, Randy](#); [Griffiths, Rob](#); [Reed, Katie](#); [Duffy, Lisa](#); [Hunt, Ryan](#); [Brown, Trevor](#)
Subject: Proposal to establish a Micro Credential Certificate in Public Workforce Skills: Data Analytics and Technology
Date: Wednesday, January 14, 2026 5:31:02 PM
Attachments: [image001.png](#)

Jill, Rob and Chris,

The proposal from the John Glenn College of Public Affairs to establish a Micro Credential Certificate in Public Workforce Skills: Data Analytics and Technology was approved by the Council on Academic Affairs at its meeting on January 14, 2026. Thank you for attending the meeting to respond to questions/comments.

No additional level of internal review/approval is necessary. This action will be included in the Council's next Annual Activities Report to the University Senate (July 2026).

The Office of the University Registrar will work you with any implementation issues.

Please keep a copy of this message for your file on the proposal and I will do the same for the file in the Office of Academic Affairs.

If you have any questions please contact the Chair of the Council, Professor Sue Sutherland (.43), or me.

I wish you success with this important program development.

Randy



W. Randy Smith, Ph.D.

Vice Provost for Academic Programs

Office of Academic Affairs

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Assisted by:

Katie Reed

Executive Assistant

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To: Katie Reed

From: Rob Greenbaum, Associate Dean for Curriculum

Subject: Proposal to establish micro-credential certificates

Date: January 13, 2026

cc: Jill Clark and Chris Adams

The following are initial responses (not in bold) to your questions (**in bold**) regarding the proposal to establish micro-credential:

1. **Can you speak to any opportunities to assess career advancement for the Data Analytics credential? A major goal rationale for both micro credentials is potential employers looking for these skills and the subcommittee is interested in how you might look at post-graduate outcomes. I see there is some assessment for the Advanced Research credential, will you be using the graduating student survey to collect these data?**
 - a. **Also, I don't see learning outcomes for the credentials, only for the courses in the syllabi. Can you send the outcomes for the micro-credentials?**

We consider these micro-credentials to be about workforce readiness, rather than career advancement. Most of our audience of undergraduate students are not yet engaged in careers. We are basing the needs for these skills on employer demand and student interest. A 2024 survey by the National Association of Colleges and Employers found that 73.2% of employers are looking at recent graduate resumes for technical skills. The same survey shows that nearly 65% of employers utilize skills-based hiring. Indeed, a major public sector employer, the State of Ohio, has moved to skill-based hiring (Executive Order 23-10D). One of our main academic societies, the Association for Public Policy and Analysis and Management (APPAM) conducted a survey of non-academic employee members that asked future employers what type of skills they consider important for new hires to have. The results show that the skills in this set of micro-credentials are considered very important when hiring: data visualization (42%), basic quantitative analysis (75%), basic research skills (75%), and Excel (100%) (APPAM, 2020). A survey of Glenn College undergraduate students was conducted in the Spring of 2024.¹ Students were asked which skills courses they most wanted to have offered. We based our micro-credential both on their responses and a survey of non-academic employers conducted by the Association for Public Policy Analysis and Management.² For several years of surveys, undergraduate students have requested more skills courses to be offered in their college.

¹ The response rate was 24%.

² One hundred percent of the employers surveyed indicated that they expected their hires to use Excel frequently (the next highest software was at only 50% of employers). Further, 42% of employers indicated that data

Here are learning objectives for both micro-credentials:

ELOs Certificate in Public Workforce Skills: Data Analytics and Technology

1. Analyze datasets using Microsoft Excel to answer applied questions in public policy and related fields.
2. Apply Excel's analytical tools (including functions, formulas, charts, and PivotTables) to manage, manipulate, and interpret data.
3. Connect data management and data presentation practices to real-world policy issues, demonstrating the ability to translate analysis into applied insights.

ELOs Certificate in Public Workforce Skills: Advanced Research.

1. Demonstrate competency in at least one qualitative or quantitative research method.
2. Apply research skills in an experiential setting (such as a thesis, non-thesis research project, applied research course, or public-sector internship) by conducting data collection, analysis, and interpretation appropriate to the problem context.
3. Communicate research findings effectively through written and/or oral formats that meet professional expectations in public affairs.

2. Is the Data Analytics and Technology micro credential a prerequisite for the Research credential, or could students potentially do the Research credential on its own?

No. While students would benefit from “stacking” the Research credential on the Data Analytics and Technology micro credential, The Data Analytics and Technology micro-credential is not a prerequisite for the Research credential.

3. I have concerns about calling these micro credentials “Certificates.” I worry that students may be misled into thinking they will receive the same level of credentials they would get with an academic certificate. Has your team considered this and, if so, can you comment on it?

We have considered this concern. We had similar internal discussions when we launched our first graduate certificates, as we had already been offering shorter professional development certificates at the time and were concerned about potential confusion among potential students.

We are open to changing the name of this micro credential to something other than “certificate.” However, we are not as concerned that students will be misled given the marketing we plan to do for the new credential. This is primarily how we addressed offering different types of certificates at the graduate level, and it has also been an opportunity to discuss with potential students the best option for them.

visualization skills were *very important* for new masters-level research positions, and 50% indicated that those skills were *somewhat important*. Employers were not asked specifically about undergraduate hires.

Likewise, because Glenn College students are the primary audience for these credentials, our advisors and faculty will have ample opportunity to talk with students about what makes these programs similar to and different from other academic certificates at the university. That said, if the committee feels strongly that we should not call these credentials “certificates” we are happy to entertain different naming options.

- 4. The advanced research proposal states that PUBAFRS 5517 is one of the options for research methods, but is this a typo? The syllabus is for PUBAFRS 7571.**

At the time of writing the proposal, converting PUBAFRS 7571 to PUBAFRS 5571 had not been approved. It is now approved.

- 5. Most of the syllabi in the proposals have some language that has probably been removed in the last year, including land acknowledgments and diversity statements. It also looks like they are missing current standard language. Can you send in updated syllabi to me and Katie?**

Yes. Language has been removed from our syllabus template. We are working to update these individual courses and will forward the syllabi as soon as possible.



Robert T. Greenbaum
Associate Dean for Curriculum

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October 29, 2025

Vice Provost W. Randy Smith
Council on Academic Affairs
Office of Academic Affairs

Dear Randy:

Please find enclosed proposals for two new Glenn College undergraduate micro credentials designed to better prepare our students for the workforce (**Certificate in Public Workforce Skills: Data Analytics and Technology**) and to engage in research (**Certificate in Public Workforce Skills: Advanced Research**).

These micro credentials, built on existing courses, represent an attempt to incentivize students to build workforce development skills around data analytics and advanced research. Students also have the option to stack the research credential on top of the data analytics credential.

Both were approved by the College's undergraduate curriculum committee on April 4, 2025.

We look forward to your review of the proposals.

Sincerely,

Robert T. Greenbaum
Professor

Proposal Overview

Working name of the micro-credential:

Certificate in Public Workforce Skills: Data Analytics and Technology

Type of micro-credential:

For credit: Completion of 3, 1-credit-hour courses with a C- or higher.

- PUBAFRS 5511: Database Management in Public Affairs (P)
- PUBAFRS 5512: Data Visualization in Public Affairs (P)
- PUBAFRS 5513: Excel I (DL)
- PUBAFRS 5514: Excel II (DL)

Mode(s) of delivery for micro-credential:

Online, asynchronous; in-person

Anticipated first enrollment term and year:

- First academic term after approval.

Rationale for Development

- This micro-credential satisfies multiple sources of demand for workforce development from students and employers (employer demand detailed below). A survey of Glenn College undergraduate students was conducted in the Spring of 2024.¹ Students were asked which skills courses they most wanted to have offered. We based our micro-credential both on their responses and a survey of non-academic employers conducted by the Association for Public Policy Analysis and Management.² For several years of surveys, undergraduate students have requested more skills courses to be offered in their college.
- A priority of the John Glenn College of Public Affairs (JGCPA) Undergraduate Curriculum Committee is to increase students' skills and experiential learning, contributing to workforce development by creating easy pathways to attain skills and embedding experiential learning in core courses.
- Another priority of the JGCPA Undergraduate Curriculum Committee is to provide pathways for undergraduate research. This proposed micro-credential ensures some basic skills needed to engage in research. We are proposing a "stackable" research credential, "Certificate in public workforce skills: Advanced Research," to stack on top of this one.

¹ The response rate was 24%.

² One hundred percent of the employers surveyed indicated that they expected their hires to use Excel frequently (the next highest software was at only 50% of employers). Further, 42% of employers indicated that data visualization skills were *very important* for new masters-level research positions, and 50% indicated that those skills were *somewhat important*. Employers were not asked specifically about undergraduate hires.

- Currently, our Master of Public Administration students have a requirement to take five credits of skills courses (each 1 to 2 credits). Without adding time to degree, one way to incentivize undergraduate students to gain needed skills is via a micro-credential.
- Research nationally on competitor degree programs offering micro-credentials would set OSU's JGCPA BA and BS degrees apart from competitors.

Who is the intended audience and what value will the micro-credential bring them?

Include in the description specific competencies or skills gained at completion.

This micro-credential is for three student populations. First, this micro-credential is designed for students who want to build skills through a public sector perspective but are not interested in obtaining a degree or minor from the JGCPA. This option is attractive to “sister” degrees, for example, City and Regional Planning. The second student population is JGCPA students. A micro-credential is a way to incentivize our students to take much-needed skills courses. The third potential audience is regional campus students. Because many of the skills courses are offered online, it would be possible for us to partner with regional campuses to allow their students to pursue this micro-credential.

By bundling the set of skills classes into a micro-credential, students will be able to signal to future employers in a more efficient way that they have attained these valuable skills.

Students will be competent in excel, data management and data visualization.

Specifically, students will be able to:

- Use Excel to analyze data
- Gain proficiency with the analytical tools in Microsoft Excel
- Produce complex organized spreadsheets where others can follow your analysis
- Practice connecting data management and presentation to real world policy issues

Explain the evidence of need for the micro-credential based on market assessment and related data, including any collaboration with employers.

A 2024 survey by the National Association of Colleges and Employers found that 73.2% of employers are looking at recent graduate resumes for technical skills. The same survey shows that nearly 65% of employers employ skills-based hiring. Indeed, a major public sector employer, the State of Ohio has moved to skill-based hiring (Executive Order 23-10D). One of our main academic societies, the Association for Public Policy and Analysis and Management (APPAM) conducted a survey of non-academic employee members that asked future employers what type of skills they consider important for new hires to have. The results show that the skills in this set of micro-credentials are considered very important when hiring: data visualization (42%), basic quantitative analysis (75%), basic research skills (75%), and Excel (100%) (APPAM, 2020).

What other institutions (academic or otherwise) offer similar programs?

We examined competitor programs, including Big 10 Schools with undergraduate programs, two regional schools with programs and Georgia Tech because they do have a Public Affairs degree and this program is known to be skills-based. Any programmatic skills component, micro-credentials, or certificates offered via those programs were noted.

The table below illustrates that several of our competitor programs offer skills courses. None offers micro-credentials.

School	Degree	Skills Component	Micro-credentials & Certificates
Maryland	BA in Public Policy		Certificate in Nonprofit Management and Leadership and Intelligence Analysis
Rutgers	BA in Public and Nonprofit Administration	Career Explorations in Public Service; Grant Writing for Organizations	Undergraduate Public and Nonprofit Management certificate (offered on satellite campus)
Michigan	BA in Public Policy		None
Indiana	BS in Public Affairs	Survey Research; Community Development; Using IT in Public Affairs (Computer requirement); Career Development and Planning; Technical Skills Courses: GIS, Performance Measurement, Cloud Computing Applications, Database Management, Grant Writing	Certificate in Public Affairs with a focus on Public Policy and Law – 18 credit hours
Cleveland State	BA in Urban and Regional Studies;	Proposal Writing;	Urban & Regional Studies BA: certificates in Public Management,

	BA in Nonprofit Administration		Sustainable Urban Development, and Urban Geographic Information Systems
Georgia Tech	BS in Public Policy	Policy Tools for Environmental Management	Certificates in Pre-Law, Intellectual Property, Public Policy, Political Science, and Philosophy through School of Public Policy
Syracuse	BA in Policy Studies	Grant writing for Nonprofits; Key Issues in Illicit Finance; Strategies for Career Success	Public Affairs graduate certifications offered
Kentucky	BA in Public Policy		None
UCLA	BA in Public Affairs	Network Science Using R; Community-Engaged Research Methods	UCLA Extension program offers Public Policy Certification in Data Analytics in Public Affairs (available to undergrad & post-grad/professional)
USC	BS in Public Policy	Citizenship and Public Ethics; Empirical Methods for Public Policy; Urban Infomatics; GIS	Certificates in Public Policy and Public Policy Advocacy, usually reserved for graduate students

Assessment Plan

Describe how the learning outcomes will be assessed.

Learning outcomes will be assessed throughout the three-course experience. Because the courses in this series are in direct alignment with the micro credential learning outcomes, student final grades are based directly on competency. Therefore, to earn credit for the micro credential, students must pass each class with a 70% or higher.

Describe how the learning outcomes information will be used.

Outcomes information will be used to assess the effectiveness of the courses in terms of student learning achievement. Because the assignments are competency-based and aligned with the learning outcomes, grades will be monitored in various assignments to see if any interventions are needed.

Provide a timeline for implementing the assessment plan.

The assessment plan will be implemented beginning in AU2026 and will be ongoing when the various courses are offered.

Contact Information

First Name: Chris

Last Name: Adams

Ohio State Username (name.#): adams.615

Unit name: JGCPA

Additional Resources

Proposal

- [CAA proposal resources](#) [CAA member access and key microcredential pilot stakeholders access only]
- [EHE and PCE proposal development resources](#) [Ohio State log-in access expires June 30, 2025]

University Context

- [Ohio State's Strategic Plan Framework](#)
- [Ohio State's Alternative Credential Framework](#) [2022]
 - [CAA proposal seeking endorsement of Alternative Credential Framework](#) [2022]

Ohio State's Workforce Development Evolution

- Workforce Development Committee Originating Documents
 - [Framing and Defining Workforce Development at Ohio State](#) [2020]
 - [Workforce Development Implement Plan Framework for Ohio State](#) [2020]
 - [Workforce Development Credit and Non-Credit Categories](#) [2021]
 - [CAA Workforce Development progress update](#) [2024]

Initial Proforma Development Considerations

This new program draws exclusively on existing courses that are required or elective for existing degrees and minors. This means the marginal cost for instruction is zero.

Revised Syllabi



THE OHIO STATE UNIVERSITY

JOHN GLENN COLLEGE OF PUBLIC AFFAIRS

Excel Basic Skills

PUBAFRS 5513

Summer 2025

Course Information

Class Schedule and Delivery Mode

Course times and location: This course is 100% online asynchronous. There are no required sessions when you must be logged in to Carmen at a scheduled time. This course is divided into weekly modules that are released one week in advance in case it is useful for students to work ahead to accommodate events in their academic, professional, or personal lives. Students are expected to keep pace with weekly coursework and deadlines but may freely schedule their efforts within the seven days that comprise a module week.

Credit hours: 1

Mode of delivery: Online

Instructor

Tricia Petras, PhD

Contact information: petras.6@osu.edu

Preferred modes of communication: My preferred method for questions is **email**. My class-wide communications will be sent through the Announcements tool in CarmenCanvas. Please check your [notification preferences](#) (go.osu.edu/canvas-notifications) to be sure you receive these messages.

Office hours for student questions and support: By appointment

Course Description

Vast amounts of information are created, manipulated, and analyzed every day. Tools are needed to analyze the information and provide meaningful results, effectively harnessing the power of that information. The most common tool used in the workplace today is Microsoft Excel. Excel is the primary means of performing a number of different tasks such as keeping simple lists, tracking work, performing complex analysis of data and creating reports. It is important to know how to use this tool effectively and understand some of the benefits and challenges of Excel. For instance, while Excel is a powerful program, it is easy to corrupt data and intentionally or unintentionally skew the results. Once the challenges are understood, we can incorporate mitigating controls to minimize risk and increase confidence in the tool.

This course focuses on acquiring basic Microsoft Excel skills from data entry and formatting through nested formulas, chart construction and customization, and the creation and use of PivotTables. All activities are based on the use of publicly available data to answer real world questions related to public policy problem definition, policy formulation, implementation, or evaluation. By the end of the seven-week course, students will be proficient in the basic Excel skills required to manage, analyze, and present information in a wide variety of practical contexts.

Course Prerequisites

None

Learning Outcomes

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

- Gain an understanding of essential functionality of Microsoft Excel
- Utilize Excel to optimize the formatting, usability, and comprehension of data and reports
 - Create formulas comprised of simple and advanced functions to produce calculations, clean and manage text, lookup data, handle error conditions, and provide conditional responses
 - Become familiar with the many Excel options for presenting data in charts and graphs
- Create and Use PivotTable and PivotCharts to summarize and analyze data
- Understand important limitations of Excel and best practices for ongoing data management and collaboration
- Practice connecting Excel data management and presentation to real world policy issues
- Become proficient at recognizing, identifying, and implementing reliable information for future Excel applications.

Course Materials, Fees, and Technologies

Course Materials

Optional textbook: Walkenbach, John (2015). Excel 2016 Bible. Wiley. ISBN: 978-1-119-06751-1.

This book is available electronically from OSU Library or may be purchased from a retailer.

All other course materials will be provided through Carmen. For library course materials and additional optional materials, refer to the CarmenCanvas course.

Technology

Students will be required to have access to Microsoft Excel, any recent version will be acceptable. Ohio State University provides students with access to MS 365, which is preferred. Students will not be able to complete assignments using a tablet or iPad, for example, and will need an actual computer to use functionality in spreadsheet applications (e.g., right-clicking on cells, formula entry and modification).

- CarmenZoom virtual meetings
- Recording a slide presentation with audio narration
- Recording, editing, and uploading video
- Computer: current Mac (OS X) or PC (Windows 10+) with high-speed internet connection
- Webcam: built-in or external webcam, fully installed and tested
- Microphone: built-in laptop or tablet mic or external microphone
- MS Office, including Excel, preferably MS 365 or MS Office Professional
- Other: a mobile device (smartphone or tablet) or landline to use for BuckeyePass authentication

If you do not have access to the technology you need to succeed in this class, review options for technology and internet access at go.osu.edu/student-tech-access.

For help with your password, university email, CarmenCanvas, or any other technology issues, questions or requests, contact the IT Service Desk, which offers 24-hour support, seven days a week:

<https://it.osu.edu/students>

Grading and Evaluation

The course grade is based on performance on discussion posts (14%), Excel Skills Projects (41%), and an Original Final Project (45%).

How Your Grade is Calculated

Assignment Category	Points/Weight	Assignment Type
Individual Introduction – Carmen Discussion Posts	3 points	 Independent work
Cautionary Tales – Carmen Discussion Posts	11 points	 Independent work
Project 1 – Excel Skills Projects	13 points	 Independent work
Project 2 – Excel Skills Projects	14 points	 Independent work
Project 3 – Excel Skills Projects	14 points	 Independent work
Initial Proposal (part 1) – Original Final Project	8 points	 Independent work
Data, Research Questions, Analysis Plan – Original Final Project	12 points	 Independent work
Analysis and Memo – Original Final Project	25 points	 Independent work
TOTAL POINTS	100 points	

Descriptions of Major Course Assignments

Carmen Discussion Posts

Students will have the opportunity to engage in multiple class discussions during this course, but two will be graded, the individual introduction due when the semester begins and the response to the Excel cautionary tales articles found in Module 1. Details about due dates and response expectations (e.g. length where applicable) can be found in the Carmen assignment along with the scoring rubric. Due dates for each graded activity will be posted on Carmen and are in the Course Schedule on the last page of this syllabus. Because this is a collaborative activity and classmates' ability to participate depends on others, no late assignments will be accepted for discussion posts and responses.

Excel Skills Projects

Detailed assignment instructions and the scoring rubric will be posted on Carmen well in advance of the due date. Because these are individual skills assessments, students must complete each project individually.

Project 1 will assess formatting and introductory formula and functions skills.

Project 2 will cover nested/advanced formula and functions skills.

Project 3 will assess PivotTables

Projects will be submitted on Carmen. Due to the shortened (half semester) format of the course and to maintain fairness in assessment, no late submissions will be accepted for grading.

Original Final Project:

For this project, students will select a data set, craft one to three questions that will be answered through Excel analysis, construct and execute an analysis plan, and present the results in a succinct memo. To support students, this project is scaffolded, i.e. there are due dates for the initial proposal, analysis plan, and results. These will be indicated on Carmen and can be found in the course schedule on the last page of this syllabus. Students lock in their project plans early in the term, so clear and specific guidance on topic and data selection considerations will be provided on Carmen. The initial proposal and analysis plans may be submitted up to one week (i.e. seven days) late with a one point per day deduction. To maintain fairness when assessing student work, no late submissions will be accepted for grading after seven days. The final analysis and memo cannot be accepted late as they are due at the end of the term. Because this is a summative assessment of individual skills, each student must complete this project individually.

Grading Scale

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

Course Policies

Attendance and Participation Expectations

Because this is an online course, attendance is based on your weekly online activity and participation. The following is a summary of expected participation

Participating in online activities for attendance: **AT LEAST ONCE PER WEEK** During most weeks, you will probably log in to the course in Carmen many times, but you are expected to log in to the course in Carmen at least once every week. If a situation arises that might cause you to miss an entire week of class, discuss it with me as soon as possible in advance of the schedule conflict.

Participating in discussion forums: **PERIODICALLY** (as indicated on Carmen) As part of your participation, each week you can expect to post at least twice as part of our substantive class discussion on the week's topics.

Office hours and potential synchronous (“live”) Zoom sessions: **OPTIONAL** All synchronous Zoom events for the course, including my office hours, are optional but students should feel welcome to use them as often as needed throughout the semester.

Late Assignments and Making Up Work

No late assignments will be accepted in this course. Please refer to CarmenCanvas for due dates. Due dates are set to help you stay on pace and to allow timely feedback that will help you complete subsequent assignments.

Grade Appeals

The assigned grade is designed to show the overall quality of work performed by each student. If you believe that any grade was not properly assigned you may write an email explaining why you believe the grade was incorrectly assigned within one week of receiving the graded assignment back. Each appeal will be considered, and if a re-grade is performed, the entire assignment will be re-graded. The final grade may be greater, less, or equal to the original grade.

Copyright

The materials used in connection with this course, including those created by the instructor or classmates, 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.

Academic Policies

Refer to <https://oaa.osu.edu/academic-policies> for academic policies, including student rights and responsibilities related to the following:

Accessibility: Arrange for accommodations if you anticipate barriers to your learning based on a disability

Academic integrity: Understand your rights and responsibilities related to academic integrity and review the university's processes for addressing claims of academic misconduct

Safe learning environment: Know the university's commitments to an environment free from discrimination or harassment, and find resources for reporting or finding support.

Academic Misconduct

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the [Committee on Academic Misconduct](#) (COAM) expect that all students have read and understand the University's [Code of Student Conduct](#), and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the University's Code of Student Conduct and this syllabus may constitute Academic Misconduct.

The Ohio State University's Code of Student Conduct ([Section 3335-23-04](#)) defines academic misconduct as: Any activity that tends to compromise the academic integrity of the University or subvert the educational process. Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the University's Code of Student Conduct is never considered an excuse for academic misconduct, so please review the Code of Student Conduct and, specifically, the sections dealing with academic misconduct.

If an instructor suspects that a student has committed academic misconduct in this course, the instructor is obligated by University Rules to report those suspicions to the Committee on Academic Misconduct. If COAM determines that a student violated the University's Code of Student Conduct (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in the course and suspension or dismissal from the University.

If students have questions about the above policy or what constitutes academic misconduct in this course, they should contact the instructor.

Artificial Intelligence (AI) and Academic Integrity

There has been a significant increase in the popularity and availability of a variety of generative artificial intelligence (AI) tools, including ChatGPT, Sudowrite, and others. These tools will help shape the future of work, research and technology, but when used in the wrong way, they can stand in conflict with academic integrity at Ohio State.

All students have important obligations under the Code of Student Conduct to complete all academic and scholarly activities with fairness and honesty. Our professional students also have the responsibility to uphold the professional and ethical standards found in their respective academic honor codes. Specifically, students are not to use unauthorized assistance in the laboratory, on field work, in scholarship, or on a course assignment unless such assistance has been authorized specifically by the course instructor. In addition, students are not to submit their work without acknowledging any word-for-word use and/or paraphrasing of writing, ideas or other work that is not your own. These requirements apply to all students undergraduate, graduate, and professional.

To maintain a culture of integrity and respect, these generative AI tools should not be used in the completion of course assignments unless an instructor for a given course specifically authorizes their use. Some instructors may approve of using generative AI tools in the academic setting for specific goals. However, these tools should be used only with the explicit and clear permission of each individual instructor, and then only in the ways allowed by the instructor.

Religious Accommodations

Ohio State has had a longstanding practice of making reasonable academic accommodations for students' religious beliefs and practices in accordance with applicable law. In 2023, Ohio State updated its practice to align with new state legislation. Under this new provision, students must be in early communication with their instructors regarding any known accommodation requests for religious beliefs and practices, providing notice of specific dates for which they request alternative accommodations within 14 days after the first instructional day of the course. Instructors in turn shall not question the sincerity of a student's religious or spiritual belief system in reviewing such requests and shall keep requests for accommodations confidential.

With sufficient notice, instructors will provide students with reasonable alternative accommodations with regard to examinations and other academic requirements with respect to students' sincerely held religious beliefs and practices by allowing up to three absences each semester for the student to attend or participate in religious activities. Examples of religious accommodations can include, but are not limited to, rescheduling an exam, altering the time of a student's presentation, allowing make-up assignments to substitute for missed class work, or flexibility in due dates or research responsibilities. If concerns arise about a requested accommodation, instructors are to consult their tenure initiating unit head for assistance.

A student's request for time off shall be provided if the student's sincerely held religious belief or practice severely affects the student's ability to take an exam or meet an academic requirement **and** the student has notified their instructor, in writing during the first 14 days after the course begins, of the date of each absence. Although students are required to provide notice within the first 14 days after a course begins, instructors are strongly encouraged to work with the student to provide a reasonable accommodation if a request is made outside the notice period. A student may not be penalized for an absence approved under this policy.

If students have questions or disputes related to academic accommodations, they should contact their course instructor, and then their department or college office. For questions or to report discrimination or harassment based on religion, individuals should contact the [Civil Rights Compliance Office](#).

Policy: [Religious Holidays, Holy Days and Observances](#)

Disability Statement (with Accommodations for Illness)

The University strives to maintain a healthy and accessible environment to support student learning in and out of the classroom. If

students anticipate or experience academic barriers based on a disability (including mental health and medical conditions, whether chronic or temporary), they should let their instructor know immediately so that they can privately discuss options. Students do not need to disclose specific information about a disability to faculty. To establish reasonable accommodations, students may be asked to register with **Student Life Disability Services (SLDS)**. After registration, students should make arrangements with their instructors as soon as possible to discuss your accommodations so that accommodations may be implemented in a timely fashion.

If students are ill and need to miss class, including if they are staying home and away from others while experiencing symptoms of viral infection or fever, they should let their instructor know immediately. In cases where illness interacts with an underlying medical condition, please consult with Student Life Disability Services to request reasonable accommodations.

SLDS Contact Information (Columbus)

- **Email:** SLDS@osu.edu
- **Phone:** [\(614\) 292-3307](tel:(614)292-3307)
- [**Student Life Disability Services Website**](#)
- **SLDS Office:** 098 Baker Hall, 113 West 12th Avenue

Intellectual Diversity

Ohio State is committed to fostering a culture of open inquiry and intellectual diversity within the classroom. This course will cover a range of information and may include discussions or debates about controversial issues, beliefs, or policies. Any such discussions and debates are intended to support understanding of the approved curriculum and relevant course objectives rather than promote any specific point of view. Students will be assessed on principles applicable to the field of study and the content covered in the course. Preparing students for citizenship includes helping them develop critical thinking skills that will allow them to reach their own conclusions regarding complex or controversial matters.

Grievances and Solving Problems

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Creating an Environment Free from Harassment, Discrimination, and Sexual Misconduct

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To report harassment, discrimination, sexual misconduct, or retaliation and/or seek confidential and non-confidential resources and supportive measures, contact the **Civil Rights Compliance Office (CRCO)**:

- [Online Reporting Form](#)
- [Email: CivilRights@osu.edu](mailto:CivilRights@osu.edu)
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- All University employees, except those exempted by legal privilege of confidentiality or expressly identified as a confidential reporter, have an obligation to report incidents of sexual assault immediately.
- The following employees have an obligation to report all other forms of sexual misconduct as soon as practicable but at most within five workdays of becoming aware of such information:
 1. Any human resource professional (HRP)
 2. Anyone who supervises faculty, staff, students, or volunteers
 3. Chair/director
 4. Faculty member

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- [24/7 Suicide and Crisis Lifeline: 988](#)

Course Schedule

Course Schedule Notes: See Carmen for up-to-date deadlines

Module 1: Data management, Excel Introduction, Formulas and Functions I

- Article Reading and Discussion – Data Management Cautionary Tales
- Lab 1.1 Excel Introduction
 - 1.1.1 *Intro*
 - 1.1.2 *Formatting*
 - 1.1.3 *Using and Customizing Worksheets*
- Lab 1.2 Formulas and Functions
 - 1.2.1 *Cell referencing and Basic Formulas*
 - 1.2.2 *More Basic Formulas*
 - 1.2.3 *Excel Functions*

Relevant textbook chapters (purely optional reading): 1, 2, 3, 4, 6, 7, 9, 10, 13, 16, 21

Assignments: Your introduction Carmen discussion post is due by 11:59 PM on Friday, May 9th.

Excel Cautionary Tales Reading and Carmen Discussion due by 11:59 PM on Friday, 5/9/25.

Module 2: Formulas & Functions II

- Lab 2.1 Logic, Text, and Date Functions
 - 2.1.1 *Logic Functions*
 - 2.1.2 *Text Functions*
 - 2.1.3 *Date and Time Functions*
 - 2.1.4 *Los Angeles Animal Intake Data Application*
- Lab 2.2 Info and Math Functions
 - 2.2.1 *Information Functions*
 - 2.2.2 *Math Functions*
 - 2.2.3 *Ohio Budget Data Application*

Relevant textbook chapters (purely optional reading): 10, 11, 12, 13, 16, 21, 25

Assignment: Final Project Initial Proposal due by 11:59 PM on Friday, 5/16/25.

Module 3: Advanced Formulas

- Lab 3.1 Lookup Functions & Nested IF Formulas
 - 3.1.1 *Lookup Functions*
 - 3.1.2 *Nested IF Formulas 1/2*
 - 3.1.3 *Nested IF Formulas 2/2*
- Lab 3.2 Nested Functions
 - 3.2.1 *Nesting Function 1/2*
 - 3.2.2 *Nesting Function 2/2*

Relevant textbook chapters (purely optional reading): 11, 13, 14, 15, 16, 26, 32

Assignment: Project 1. Formatting, Formulas, & Functions due by 11:59 PM on Friday, 5/23/25.

Module 4: Charts & Graphs

- Lab 4.1 Charts and Graphs I
 - Lecture – Data Management Practices*
 - 4.1.1 *Line Chart Creation*
 - 4.1.2 *Chart Customization*
 - 4.1.3 *Pie and Doughnut Charts, Customization*
- Lab 4.2 Charts and Graphs II
 - 4.2.1 *Bar Charts*
 - 4.2.2 *Scatter Plots*
 - 4.2.3 *Sparklines*

Relevant textbook chapters (purely optional reading): 19, 20, 22, 23

Assignment: Final Project Data, Research Questions, and Analysis Plan due by 11:59 PM on Friday, 5/30/25.

Module 5: Tables & PivotTables

- Lab 5.1 Tables
 - 5.1.1 Format as Table
 - 5.1.2 Modifying Tables
 - 5.1.3 Table Filters
- Lab 5.2 PivotTables
 - 5.2.1 Creating a PivotTable
 - 5.2.2 PivotTable Filters
 - 5.2.3 PivotTable Appearance
 - 5.2.4 PivotTable Example 2

Relevant textbook chapters (purely optional reading): 5, 33, 34

Assignment: Project 2. Advanced Formulas due by 11:59 PM on Friday, 6/6/25.

Module 6a: PivotTables & PivotCharts

- Lab 6.1 PivotTables
 - 6.1.1 PivotTable Creation and Customization
 - 6.1.2 PivotTable Groupings
 - 6.1.3 Calculated Fields
- Lab 6.2 PivotCharts
 - 6.2.1 PivotChart Example 1
 - 6.2.2 PivotChart Example 2

Relevant textbook chapters (purely optional reading): 33, 34

Assignment: Project 3. PivotTables due by 11:59 PM on Friday, 6/13/25.

Module 6b: Skill Polishing, Course Wrap Up, Comprehensive Project

Assignment: Final Project due on Carmen by 11:59 PM on Monday, 6/16/25.

Course Schedule Summary

Wk	Date	Topic	Graded Items (due on Friday)
1	5/5 – 5/9	Court Prep + Data management I, Excel Introduction, Formulas and Functions I	Syllabus Review + Quiz Cautionary Tales Reading & Discussion
2	5/12 – 5/16	Formulas & Functions II	Final Project Initial Proposal
3	5/19 – 5/23	Advanced Formulas	Project 1
4	5/26 – 5/30	Data management II, Charts & Graphs	Final Project Data & Research Questions
5	6/2 – 6/6	Tables & PivotTables	Project 2
6a	6/9 – 6/13	PivotTables & PivotCharts	Project 3
6b		Skill Polishing, Course Wrap Up, Comprehensive Project	Final Project (due by 11:59 PM Monday 6/16)



THE OHIO STATE UNIVERSITY

JOHN GLENN COLLEGE OF PUBLIC AFFAIRS

Excel Advanced Skills

PUBAFRS 5514

Summer 2025

Course Information

Class Schedule and Delivery Mode

Course times and location: This course is 100% online asynchronous. There are no required sessions when you must be logged in to Carmen at a scheduled time. This course is divided into weekly modules that are released one week in advance in case it is useful for students to work ahead to accommodate events in their academic, professional, or personal lives. Students are expected to keep pace with weekly coursework and deadlines but may freely schedule their efforts within the seven days that comprise a module week.

Credit hours: 1

Mode of delivery: Online

Instructor

Tricia Petras, PhD

Contact information: petras.6@osu.edu

Preferred modes of communication: My preferred method for questions is **email**. My class-wide communications will be sent through the Announcements tool in CarmenCanvas. Please check your [notification preferences](#) (go.osu.edu/canvas-notifications) to be sure you receive these messages.

Office hours for student questions and support: By appointment

Course Description

Microsoft Excel is a powerful tool to collect, organize, and analyze data. It has many advanced analytical and visualization features. Because Excel is part of Microsoft Office, it is widely used by private enterprises, nonprofits, and governments.

Unlike traditional coding languages, working in Excel is hands-on. You work directly with data, and it provides immediate feedback. However, like traditional coding languages, Excel's blank grid does not provide guidance on how to begin a project. It expects you to know what to do. In the course, you will learn the steps on how to approach a project, use procedures to analyze data, and present the analysis.

The best way to learn software is to actually use it and practice. Each week will feature a series of videos where Excel techniques, tools, and components will be demonstrated. You will be able to download a lesson spreadsheet and work along with the videos. The course is asynchronous, so you can work through the weekly lessons at your schedule. The videos allow you to replay or pause the demonstrations to ensure you understand the concept and practice along with the lesson. Also, the course is designed to continue building upon the skills learned in the prior weeks, so the videos and example spreadsheets are resources for you to consult.

Course Prerequisites

PUBAFRS 5513

Learning Outcomes

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

- Gain proficiency with the advanced analytical tools in Microsoft Excel
- Use Excel to analyze data
- Produce complex organized spreadsheets where others can follow your analysis
- Present data and analysis in clear professional manner using visualizations
- Be confident using Excel in future projects

Course Materials, Fees, and Technologies

Course Materials

Optional Textbooks:

Alexander, M., Kusleika, R., & Walkenbach, J. (2022). *Microsoft Excel 365 Bible*. Wiley. ISBN: 9871119835226.

Winston, W. (2019). *Microsoft Excel Data Analysis and Business Modeling: Office 2021 and Microsoft 365*, Sixth Edition. Wiley. ISBN: 9780137613663.

The books are available online on Safari: O'Reilly's Learning Platform for Higher Education. You have access through the Ohio State University library.

All other course materials will be provided through Carmen. For library course materials and additional optional materials, refer to the CarmenCanvas course.

Technology

Students will be required to have access to Microsoft Excel, any recent version will be acceptable. Ohio State University provides students with access to MS 365, which is preferred. Students will not be able to complete assignments using a tablet or iPad, for example, and will need an actual computer to use functionality in spreadsheet applications (e.g., right-clicking on cells, formula entry and modification).

- CarmenZoom virtual meetings
- Recording a slide presentation with audio narration
- Recording, editing, and uploading video
- Computer: current Mac (OS X) or PC (Windows 10+) with high-speed internet connection
- Webcam: built-in or external webcam, fully installed and tested
- Microphone: built-in laptop or tablet mic or external microphone
- MS Office, including Excel, preferably MS 365 or MS Office Professional
- Other: a mobile device (smartphone or tablet) or landline to use for BuckeyePass authentication

If you do not have access to the technology you need to succeed in this class, review options for technology and internet access at go.osu.edu/student-tech-access.

For help with your password, university email, CarmenCanvas, or any other technology issues, questions or requests, contact the IT Service Desk, which offers 24-hour support, seven days a week:

<https://it.osu.edu/students>

Grading and Evaluation

The course grade is based on performance on exercises (47%) and a final project (53%).

How Your Grade is Calculated

Assignment Category	Points/Weight	Assignment Type
Excel Refresher Exercise	13 points	 Independent work
Pivot Table and Pivot Chart Exercise	17 points	 Independent work
Debugging Exercise	17 points	 Independent work
Final Project Progress Report	3 points	 Independent work
Final Dashboard Project	50 points	 Independent work
TOTAL POINTS	100 points	

Descriptions of Major Course Assignments

Excel Refresher Exercise

Goes over skills you will have learned in the basic Excel course. The exercise involves formatting and the use of different formulas.

Pivot Charts and Dashboards Exercise

Will require you to create a table, pivot tables, and a pivot chart.

Debugging Exercise

Will require you to find errors in a spreadsheet, correct the errors, and improve the organization.

Final Dashboard Project

Will require you to create an original interactive dashboard that can be used to assist others in understanding your data. You will choose the topic, gather the data, and produce the dashboard. The assignment has two components: a progress report and final dashboard.

The *progress report* is a form you will submit containing the following information:

- Research topic.
- At least one data source with either a link to the data or the actual data.
- Questions you hope the data will answer.

Final dashboard must include two different data sources joined into one table, at least three computed fields, two named objects, a pivot table to summarize the data, and a pivot chart for interactive analysis. In addition, the dashboard you create must have interactive elements that another person can use to quickly manipulate the data. One worksheet must show how you used the data to answer an initial research question. Ideally, you can place all the elements so can it produce a professional printed output. At least one example of a project is available on Carmen/Canvas.

Grading Scale

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

Course Policies

Attendance and Participation Expectations

Because this is an online course, attendance is based on your weekly online activity and participation. The following is a summary of expected participation

Participating in online activities for attendance: **AT LEAST ONCE PER WEEK** During most weeks, you will probably log in to the course in Carmen many times, but you are expected to log in to the course in Carmen at least once every week. If a situation arises that might cause you to miss an entire week of class, discuss it with me as soon as possible in advance of the schedule conflict.

Participating in discussion forums: **PERIODICALLY** (as indicated on Carmen) As part of your participation, each week you can expect to post at least twice as part of our substantive class discussion on the week's topics.

Office hours and potential synchronous (“live”) Zoom sessions: **OPTIONAL** All synchronous Zoom events for the course, including my office hours, are optional but students should feel welcome to use them as often as needed throughout the semester.

Late Assignments and Making Up Work

No late assignments will be accepted in this course. Please refer to CarmenCanvas for due dates. Due dates are set to help you stay on pace and to allow timely feedback that will help you complete subsequent assignments.

Grade Appeals

The assigned grade is designed to show the overall quality of work performed by each student. If you believe that any grade was not properly assigned you may write an email explaining why you believe the grade was incorrectly assigned within one week of receiving the graded assignment back. Each appeal will be considered, and if a re-grade is performed, the entire assignment will be re-graded. The final grade may be greater, less, or equal to the original grade.

Copyright

The materials used in connection with this course, including those created by the instructor or classmates, 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.

Academic Policies

Refer to <https://oaa.osu.edu/academic-policies> for academic policies, including student rights and responsibilities related to the following:

Accessibility: Arrange for accommodations if you anticipate barriers to your learning based on a disability

Academic integrity: Understand your rights and responsibilities related to academic integrity and review the university's processes for addressing claims of academic misconduct

Safe learning environment: Know the university's commitments to an environment free from discrimination or harassment, and find resources for reporting or finding support.

Academic Misconduct

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the [Committee on Academic Misconduct](#) (COAM) expect that all students have read and understand the University's [Code of Student Conduct](#), and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the University's Code of Student Conduct and this syllabus may constitute Academic Misconduct.

The Ohio State University's Code of Student Conduct ([Section 3335-23-04](#)) defines academic misconduct as: Any activity that tends to compromise the academic integrity of the University or subvert the educational process. Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the University's Code of Student Conduct is never considered an excuse for academic misconduct, so please review the Code of Student Conduct and, specifically, the sections dealing with academic misconduct.

If an instructor suspects that a student has committed academic misconduct in this course, the instructor is obligated by University Rules to report those suspicions to the Committee on Academic Misconduct. If COAM determines that a student violated the University's Code of Student Conduct (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in the course and suspension or dismissal from the University.

If students have questions about the above policy or what constitutes academic misconduct in this course, they should contact the instructor.

Artificial Intelligence (AI) and Academic Integrity

There has been a significant increase in the popularity and availability of a variety of generative artificial intelligence (AI) tools, including ChatGPT, Sudowrite, and others. These tools will help shape the future of work, research and technology, but when used in the wrong way, they can stand in conflict with academic integrity at Ohio State.

All students have important obligations under the Code of Student Conduct to complete all academic and scholarly activities with fairness and honesty. Our professional students also have the responsibility to uphold the professional and ethical standards found in their respective academic honor codes. Specifically, students are not to use unauthorized assistance in the laboratory, on field work, in scholarship, or on a course assignment unless such assistance has been authorized specifically by the course instructor. In addition, students are not to submit their work without acknowledging any word-for-word use and/or paraphrasing of writing, ideas or other work that is not your own. These requirements apply to all students undergraduate, graduate, and professional.

To maintain a culture of integrity and respect, these generative AI tools should not be used in the completion of course assignments unless an instructor for a given course specifically authorizes their use. Some instructors may approve of using generative AI tools in the academic setting for specific goals. However, these tools should be used only with the explicit and clear permission of each individual instructor, and then only in the ways allowed by the instructor.

Religious Accommodations

Ohio State has had a longstanding practice of making reasonable academic accommodations for students' religious beliefs and practices in accordance with applicable law. In 2023, Ohio State updated its practice to align with new state legislation. Under this new provision, students must be in early communication with their instructors regarding any known accommodation requests for religious beliefs and practices, providing notice of specific dates for which they request alternative accommodations within 14 days after the first instructional day of the course. Instructors in turn shall not question the sincerity of a student's religious or spiritual belief system in reviewing such requests and shall keep requests for accommodations confidential.

With sufficient notice, instructors will provide students with reasonable alternative accommodations with regard to examinations and other academic requirements with respect to students' sincerely held religious beliefs and practices by allowing up to three absences each semester for the student to attend or participate in religious activities. Examples of religious accommodations can include, but are not limited to, rescheduling an exam, altering the time of a student's presentation, allowing make-up assignments to substitute for missed class work, or flexibility in due dates or research responsibilities. If concerns arise about a requested accommodation, instructors are to consult their tenure initiating unit head for assistance.

A student's request for time off shall be provided if the student's sincerely held religious belief or practice severely affects the student's ability to take an exam or meet an academic requirement **and** the student has notified their instructor, in writing during the first 14 days after the course begins, of the date of each absence. Although students are required to provide notice within the first 14 days after a course begins, instructors are strongly encouraged to work with the student to provide a reasonable accommodation if a request is made outside the notice period. A student may not be penalized for an absence approved under this policy.

If students have questions or disputes related to academic accommodations, they should contact their course instructor, and then their department or college office. For questions or to report discrimination or harassment based on religion, individuals should contact the [Civil Rights Compliance Office](#).

Policy: [Religious Holidays, Holy Days and Observances](#)

Disability Statement (with Accommodations for Illness)

The University strives to maintain a healthy and accessible environment to support student learning in and out of the classroom. If students anticipate or experience academic barriers based on a disability (including mental health and medical conditions, whether chronic or temporary), they should let their instructor know immediately so that they can privately discuss options. Students do not need to disclose specific information about a disability to faculty. To establish reasonable accommodations, students may be asked to register with **Student**

Life Disability Services (SLDS). After registration, students should make arrangements with their instructors as soon as possible to discuss your accommodations so that accommodations may be implemented in a timely fashion.

If students are ill and need to miss class, including if they are staying home and away from others while experiencing symptoms of viral infection or fever, they should let their instructor know immediately. In cases where illness interacts with an underlying medical condition, please consult with Student Life Disability Services to request reasonable accommodations.

SLDS Contact Information (Columbus)

- **Email:** SLDS@osu.edu
- **Phone:** [\(614\) 292-3307](tel:(614)292-3307)
- [Student Life Disability Services Website](#)
- **SLDS Office:** 098 Baker Hall, 113 West 12th Avenue

Intellectual Diversity

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false pregnancy, termination of pregnancy, or recovery therefrom), race, religion, sex, sexual orientation, or protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment. Members of the University community also have the right to be free from all forms of sexual misconduct: sexual harassment, sexual assault, relationship violence, stalking, and sexual exploitation.

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- **24/7 Suicide and Crisis Lifeline:** 988

Course Schedule

Course Schedule Notes: See Carmen for up-to-date deadlines

Wk	Date	Topic	Graded Items (due on Friday)
1	6/16 – 6/20	Introduction to the course, assignment expectations, and lookup functions	Excel Refresher Exercise
2	6/23 – 6/27	Data Tables and Pivot Tables	
3	6/30 – 7/4	Slicers and Pivot Charts	Pivot Table and Pivot Chart Exercise
4	7/7 – 7/11	Debugging, Named Objects, and Array Formulas	Final Project Progress Report
5	7/14 – 7/18	Error Handling, Data Validation, and Dynamic Arrays	Debugging Exercise
6a	7/21 –	Descriptive Statistics, Identifying Outliers, and Frequency Tables	Final Dashboard Project
6b	7/25	Forecasting Functions and Regression	



Public Affairs 5511: Skills - Database Management in Public Affairs
Syllabus
Credit Hours: 1

Instructor Information

Email is the best way to contact me. I check email often, and I will attempt to respond to all emails within 24 hours of receiving them. Text me if you need a response quickly.

Course Information

Meeting Day/Time: Mondays, 5:30-7:20 PM (October 18 – December 6)

Location: Page Hall 040

Credit Hours: 1

Course Description

Overview

A critical skill in today's public sector environment is the ability to effectively collect, manage, and analyze the significant amount of data needed to operate any size department or agency. The database environment is the central resource for the support of decision making at the tactical, strategic, and policy levels. In this environment, end-users (policy analysts, financial managers, and other non-computer specialists) directly use computers to quickly access information for decision making. The database environment is thus a key to increased efficiency and effectiveness. Also, by studying database design and implementation, we arrive at some of the most fundamental information and information technology issues facing government. Finally, because databases are the repository for the organization's information, they are the core or foundation upon which information systems are built.

The management of information systems has evolved from a narrow concern with how to utilize the data processing center to a wider vision of how the organization can best use its information resources. As a result of this shift in focus, the successful public manager must understand both the technical implications of database technology as well as their managerial and policy implications. Students who master this class will have very marketable skills, as they will be able to build a simple database in Access that contains most of the components of a database system. Completion of this class also provides a foundation for those who want to further specialize in information systems and further decision support courses.

Student Learning Objectives

Upon successful completion of this course, students will be able to or will have:

- Developed skills in the management of information and information technology
- Built competence in end-user computing
- Apply skills to manipulate and create management application software (Access)
- Interact effectively with IT professionals and software vendors

Class Structure

Class will primarily consist of two parts:

1. The first 30-60 minutes will consist of lecture/discussion on the general information management topic of the day. This will include discussion on the assigned reading along with additional material from the instructor.
2. The remaining 60-75 minutes will be hands-on time with Access. This may include some additional instruction time specific to Access, working with test files from the Access book, and working directly on the database project.

Course Materials

1. MacDonald, Matthew (2013). Access 2013, The Missing Manual. O'Reilly Media. ISBN: 978-1449357412. **This is available electronically at OSU Library.**
2. All other readings and course materials will be supplied by the instructor through Carmen. These include selected chapters from the following. These **do not** need to be purchased.
 - Goldsmith, Stephen & Crawford, Susan (2014). The Responsive City: Engaging Communities through Data-Smart Governance. ISBN: 978-1118910900.
 - Lathrop, Daniel & Ruma, Laurel, Editors (2010). Open Government. O'Reilly. ISBN: 978-0596804350.
 - Milakovich, Michael E (2012). Digital Governance, New Technologies for Improving Public Service and Participation. Routledge. ISBN: 978-0415891448.
 - Reddick, Christopher G (2012). Public Administration and Information Technology. Jones & Bartlett Learning. ISBN: 978-0-7637-8460-7.
 - Shark, Alan R. (2012). Seven Trends That Will Transform Local Government through Technology. ISBN: 978-1470046026.
 - White, Jay D (2007). Managing Information in the Public Sector. M. E. Sharpe. ISBN: 978-0765617484.

Students can access textbook information via the Barnes & Noble bookstore website: http://go.osu.edu/BN_OSU as well as from their BuckeyeLink Student Center. This information is disseminated by B&N to all area bookstores. You may buy from a store of your choice and/or shop for books (always use ISBN# for searches) on line.

Course Requirements

The following components make up the final course grade:

Class contribution:	10%
Current Trend Memo:	30%
Interim Database Check:	15%
Final Database Project:	45%

Transformation of numerical grade to a letter grade will be according to the schedule below:

A	93-100	B-	80-82	D+	68-69
A-	90-92	C+	78-79	D	60-67
B+	88-89	C	73-77	E	<60
B	83-87	C-	70-72		

Class Contribution

Class contribution is critical to make this course as valuable as possible for you and your fellow students. This includes having read assigned readings before class, participating in conversations regarding those readings, asking questions, clarifying assignments, participating in the lab portion of the class, and sharing personal and professional experiences that can aid the class during discussions. **Attendance is considered part of class contribution, and lack of attendance and leaving the lab portion of the class early will reduce this portion of your grade.** Lack of evidence that class readings were completed will also affect this portion of your grade.

Attendance is taken by roll call. If you arrive late, it is your responsibility to sign in or inform me before you leave that you were in attendance. Notification after the class ends via any method that you were in attendance will not be considered as proof of attendance. Notification ahead of class time is required for excused absences.

Current Trend Memo

The purpose of this assignment is to look at a current technology trend and integrate that trend with your knowledge of how it could impact information management in the public sector. The method of achieving this is to approach the paper as a memo to the senior leadership of an organization (federal, state, local, nonprofit). The paper should aim to answer the following:

- Describe the current technology trend with some detail (10 points)
- What challenges will your organization have in adopting this trend? (10 points)
- Your recommendation: Should your public sector organization adopt this trend? Why or why not? If adopted, how will the trend impact your organization? (10 points)

An additional 5 points is awarded for overall paper cohesiveness, and quality of writing and thought. Conciseness is critical, and points will be taken off for exceeding the page limit. The paper is graded out of 35 points.

The paper should be 2 pages, single spaced, 12-point font, 1-inch margins. Cite all sources and be consistent in the method by which you cite (e.g. footnotes, endnotes, APA style). A **required**

list of references does not count against the 2-page limit. It is expected that you will rely on a number of sources for this paper, which can include, but is not limited to, any of the following:

- Material published by a public sector organization
- Evaluations conducted by oversight organizations
- Reports in periodicals
- Primary or secondary interviews
- Blogs
- Online articles

If you are looking for ideas, the following websites can aid in your search:

- <http://www.nextgov.com/>
- <http://www.govtech.com/>
- <https://challenge.gov/>
- <http://www.informationweek.com/government.asp>

Current Trend Memo is to be submitted to Carmen by 5:00 PM on Monday, November 1.

OCAP Database Project

The purpose of this assignment is to provide hands-on experience in designing and implementing a simple database in a public organization. By working with a real-life problem, we encounter some of the technical issues as they interact with the political, economic, and organizational issues of managing information in the public sector. We will use Microsoft Access to build a database from (almost) scratch, covering topics such as tables, queries, forms, reports, user interface design, and process improvement.

There will be two submissions for this project. The Interim Database Check submission will include the Access Database and the Documentation Template for Sections B, C, D, and E. **All documentation and files related to the Interim Database Check are to be submitted to Carmen by midnight on Monday, November 8, at 5:00 PM.**

Using the feedback you received from the Interim Database Check, you can improve sections B, C, D, and E. These sections will be re-graded if work was done to improve them for the Final Database Project. Otherwise the original grade will be used for those sections when calculating the Final Database Project score. **All documentation and files related to the Final Database Project are to be submitted to Carmen by midnight on Thursday, December 16.**

Additional information regarding this project will be presented separately.

Course Policies

Assignment Submission

All assignments should be submitted through Carmen by the day they are due. The Access database should be submitted in the Access format. The Current Trends paper and OCAP database project documentation should be submitted in Word format. Informing the instructor of your intention to be absent does not waive your obligation to submit assigned work. **Late work will be accepted with a one-third-letter grade penalty each day that it is late (A- to B+), unless prior approval is granted by the instructor.**

Grade Appeals

Grades on assignments are intended to reflect the overall quality of performance of the student. You may appeal your grade on an assignment if you think the grade does not reflect the quality of your performance on the assignment. To appeal a grade, submit a clear written explanation via email describing why you believe the assigned grade is inappropriate **within one week after your work is returned.**

Academic Misconduct

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students are not to use unauthorized assistance in the laboratory, on field work, in scholarship, or on a course assignment unless such assistance has been authorized specifically by the course instructor. In addition, students are not to submit their work without acknowledging any word-for-word use and/or paraphrasing of writing, ideas or other work that is not your own. These requirements apply to all students undergraduate, graduate, and professional.

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If students have questions or disputes related to academic accommodations, they should contact their course instructor, and then their department or college office. For questions or to report discrimination or harassment based on religion, individuals should contact the [Civil Rights Compliance Office](#).

Policy: [Religious Holidays, Holy Days and Observances](#)

Disability Statement (with Accommodations for Illness)

The University strives to maintain a healthy and accessible environment to support student learning in and out of the classroom. If students anticipate or experience academic barriers based on a disability (including mental health and medical conditions, whether chronic or temporary),

they should let their instructor know immediately so that they can privately discuss options. Students do not need to disclose specific information about a disability to faculty. To establish reasonable accommodations, students may be asked to register with **Student Life Disability Services (SLDS)**. After registration, students should make arrangements with their instructors as soon as possible to discuss your accommodations so that accommodations may be implemented in a timely fashion.

If students are ill and need to miss class, including if they are staying home and away from others while experiencing symptoms of viral infection or fever, they should let their instructor know immediately. In cases where illness interacts with an underlying medical condition, please consult with Student Life Disability Services to request reasonable accommodations.

SLDS Contact Information (Columbus)

- **Email:** SLDS@osu.edu
- **Phone:** [\(614\) 292-3307](tel:(614)292-3307)
- [Student Life Disability Services Website](#)
- **SLDS Office:** 098 Baker Hall, 113 West 12th Avenue

Intellectual Diversity

Ohio State is committed to fostering a culture of open inquiry and intellectual diversity within the classroom. This course will cover a range of information and may include discussions or debates about controversial issues, beliefs, or policies. Any such discussions and debates are intended to support understanding of the approved curriculum and relevant course objectives rather than promote any specific point of view. Students will be assessed on principles applicable to the field of study and the content covered in the course. Preparing students for citizenship includes helping them develop critical thinking skills that will allow them to reach their own conclusions regarding complex or controversial matters.

Grievances and Solving Problems

According to University Policies, if you have a problem with this class, you should seek to resolve the grievance concerning a grade or academic practice by speaking first with the instructor or professor. Then, if necessary, take your case to the department chairperson, college dean or associate dean, and to the provost, in that order. Specific procedures are outlined in [Faculty Rule 3335-8-23](#). Grievances against graduate, research, and teaching assistants should be submitted first to the supervising instructor, then to the chairperson of the assistant's department.

Creating an Environment Free from Harassment, Discrimination, and Sexual Misconduct

The Ohio State University is committed to building and maintaining a welcoming community. All Buckeyes

have the right to be free from harassment, discrimination, and sexual misconduct. Ohio State does not discriminate on the basis of age, ancestry, color, disability, ethnicity, gender, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, pregnancy (childbirth, false pregnancy, termination of pregnancy, or recovery therefrom), race, religion, sex, sexual orientation, or protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment. Members of the University community also have the right to be free from all forms of sexual misconduct: sexual harassment, sexual assault, relationship violence, stalking, and sexual exploitation. To report harassment, discrimination, sexual misconduct, or retaliation and/or seek confidential and non-confidential resources and supportive measures, contact the **Civil Rights Compliance Office (CRCO)**:

- [Online Reporting Form](#)
- [Email: CivilRights@osu.edu](mailto:CivilRights@osu.edu)
- [Phone: \(614\) 247-5838](tel:(614) 247-5838)

The University is committed to stopping sexual misconduct, preventing its recurrence, eliminating any hostile environment, and remedying its discriminatory effects. All University employees have reporting responsibilities to the Civil Rights Compliance Office to ensure the University can take appropriate action:

- All University employees, except those exempted by legal privilege of confidentiality or expressly identified as a confidential reporter, have an obligation to report incidents of sexual assault immediately.
- The following employees have an obligation to report all other forms of sexual misconduct as soon as practicable but at most within five workdays of becoming aware of such information:
 1. Any human resource professional (HRP)
 2. Anyone who supervises faculty, staff, students, or volunteers
 3. Chair/director
 4. Faculty member

Course Schedule

Week 1:

Topics:

- Welcome and introduction to course
- Brief overview of syllabus and course requirements
- IT/Public policy interaction
- Myths and Realities of IT
- Process analysis/improvement
- Database design
- Overview of project

Access Topic: Introduction/Familiarization (MacDonald, Chapter 1)

Read:

- Reddick, Chapter 1: Public Administration and Information Technology
- Shark, Pages 16-18: Common Myths and Realities of IT
- Optional readings on Healthcare.gov

Lab: Access Overview/Introduction

Week 2:

Topics:

- Data normalization
- OCAP Overview

Access Topics:

- Tables, Data Integrity, Data Import (MacDonald, Chapters 2-4 and 20)
- Linking Tables (MacDonald, Chapters 5)

Read:

- White, Chapter 4: Managing the Agency's Data Resources
- OCAP Systems Analysis (Spring 2017)

Lab:

- Build data tables and data rules for project. Import data for tables.
- Build table relationships for project.

Week 3:

Topics:

- Interoperability and data sharing
- Open Data and Transparency
- **Due:** Current Trend Memo is to be submitted to Carmen by 5:00 PM on Monday, November 1.

Access Topics:

- Queries (MacDonald, Chapters 6-7, Optional: Chapter 9)

Read:

- Reddick, Chapter 7: Enterprise Architecture
- Lanthrop & Ruma, Chapter 28: Toads on the Road to Open Government Data

Lab:

- Build queries for project

Week 4:

Topics:

- Big data
- Information quality

Access Topic: Reports (MacDonald, Chapters 10-11)

Read:

- Redman, The Impact of Poor Data Quality on the Typical Enterprise

Lab: Build reports for project

Due: All documentation and files related to the Interim Database Check are to be submitted to Carmen by Monday, November 8, at 5:00 PM.

Week 5:

Topics:

- Security/Privacy

Access Topic: Forms (MacDonald 12-13)

Read:

- Reddick, Chapter 10: Information Security and Privacy
- Shark, Trend 7: Protecting the Enterprise; Power, Grid, Network, and Cyber Security
- Why changing your password regularly may do more harm than good

Lab: Build forms for project

Week 6:

Topics:

- Usability of data systems

Access Topic: User Interface (MacDonald 14)

Read: None

Lab: Build/enhance the user interface for your project

Week 7:

Topics:

- The cloud
- Challenges to data informed governance

Access Topic: None

Read:

- Shark, Trend 3: Cloud-based Solutions
- Goldsmith and Crawford, Chapter 7: Rethinking Government

Lab: Wrap up project/submit if complete

Week 8:

Topics:

- Artificial intelligence, big data, and algorithmic bias

Access Topic: None

Read:

- To be assigned

Lab: Wrap up project/submit if complete

Due: All documentation and files related to the Final Database Project are to be submitted to Carmen by Thursday, December 16 at 8:00 PM.



THE OHIO STATE UNIVERSITY

JOHN GLENN COLLEGE OF PUBLIC AFFAIRS

Public Affairs 5512: Skills –Data Visualization in Public Affairs
Syllabus
Credit Hours: 1

Instructor Information

Course Information

Meeting Day/Time:

Class Location

Credit Hours: 1¹

Course Description

Overview

A critical skill in today's public sector environment is the ability to effectively collect, manage, analyze, and **present** the significant amount of data needed to operate any size department or agency. Many visualization tools exist to present data in an efficient and effective manner; each has its strengths and weaknesses. By studying different techniques for how best to present information, we can make the decision-making process more efficient by helping employees, supervisors, the public and other stakeholders grasp critical points more easily. Students who master this class will be

¹ For each credit, please expect about an hour of in class meeting time, and 2 hours out of class work. So for a one-credit class, you should expect 14 hours of in class instruction (7 meetings at 2 hours each) and about twice that outside of class preparing and doing homework, studying and assignments (approximately 4 hours per week for 7 weeks). If you feel you are exceeding these guidelines on a regular basis, please let me know.

able to effectively present data in a number of different ways to both illustrate and draw meaning out of the data—a transferable, marketable skill.

Course Approach

This course focuses on concepts of presenting data from initial concept to final presentation. A variety of methods are presented and discussed, to cover planning, data gathering, data analysis, and visual presentation, with an emphasis on presentation.

Student Learning Objectives

Upon successful completion of this course, students will:

- Have gained an understanding of the use of data visualization techniques
- Understand the visual qualities important to conveying data
- Manage and analyze data using Tableau software
- Manipulate and create visualizations and dashboards in Tableau
- Utilize Tableau to support decision making and communicate with decision makers

Class Structure

Class meetings will consist of two parts:

1. The first half of the class (approx.) will consist of lecture/discussion of data visualization theory and techniques. This will include discussion of any additional assigned readings and topics of interest for the class.
2. The second half of the class (approx.) will be hands-on time with Tableau data visualization tools. This may include some additional instruction specific to Tableau, working with files, and working on examples and exercises.

Course Materials [Not Required to Purchase; all are available as eBooks through the University Libraries Website (Safari – Books Online). View in web browser.]

1. Ben Jones. (2014) *Communicating Data with Tableau*. Sebastopol, CA: O'Reilly Media, Inc. (ISBN: 978-1-449-37202-6)
2. Joshua N. Milligan (2016) *Learning Tableau 10 - Second Edition*. Birmingham, UK: Packt Publishing Ltd. (ISBN: 978-1-78646-635-8)
3. Daniel G. Murray (2013) *Tableau Your Data! – Fast and Easy Visual Analysis with Tableau Software*. Indianapolis, IN: John Wiley & Sons (ISBN: 978-1-118-61204-0)
4. All other readings and course materials will be supplied by the instructor through <https://carmen.osu.edu>.

Students can access textbook information via the Barnes & Noble bookstore website: <https://ohiostate.bncollege.com> as well as from their BuckeyeLink Student Center. This information is disseminated by B&N to all area bookstores. You may buy from a store of your choice and/or shop for books (always use ISBN# for searches) online.

Course Requirements

The following components make up the final course grade:

Exercise 1:	10%
Exercise 2:	10%
Exercise 3:	15%
Case Study 1:	10%
Case Study 2:	15%
Final Project:	40%

Transformation of numerical grade to a letter grade will be according to the schedule below:

A	931-00	B-	80-82	D+	68-69
A-	90-92	C+	78-79	D	60-67
B+	88-89	C	73-77	E	<60
B	83-87	C-	70-72		

Course Exercises / Projects

Exercise 1: A Tableau Sketchbook

Traditionally, a sketchbook is a sketch pad or notebook with blank pages used by visual artists to sketch their ideas as part of the creative process. It can also be used to practice basic forms (shapes, shading, patterns and anatomical renderings).

For this exercise, you will follow directions on the Tableau website to create a set of basic visualizations that you can use as templates in your own work (a sketchbook of visualizations, if you will). Because the tutorials are essentially "self-grading" (since each tutorial shows you what the visualization should look like at the end), I will not be providing detailed feedback on them. Rather, I will look through your workbook for completeness (i.e., were all the tutorials done) and only provide feedback if I spot any obvious problems.

To create your sketchbook:

- Open Tableau Desktop and connect to the Sample – Superstore data set (Connect pane > Saved Data Sources > Sample – Superstore; do NOT open the Superstore sample workbook).
- Go to this page: <https://go.osu.edu/BuildTableauCharts> (opens a tutorial page on the Tableau web site.)
- Complete ALL the data visualization tutorials listed under "Other articles in this section" at the bottom of the page ("Build an Area Chart", "Build a Bar Chart", etc.). Create each visualization on its own sheet in your Tableau workbook.
- Save your Tableau workbook as a packaged workbook (.twbx)
- Submit the packaged workbook on Carmen.

Exercise 2: Tableau Power Start Workbook

We will begin this tutorial exercise in class to create several basic data visualization “forms” in Tableau and collect them into a dashboard. You will complete the tutorial on your own. This exercise has three goals: (1) to continue to familiarize you with the Tableau program interface, (2) to present a further sampling of basic visualization types available in Tableau, and (3) to introduce the concept of a dashboard. You will turn in your Power Start Workbook as Packaged Workbook (.twbx) file.

Case Study 1

New York City’s Metropolitan Transportation Authority (MTA) has been a leader in making data accessible to their customers and stakeholders. For this case study (6 text pages max, exclusive of screen shots):

- Read ***The MTA in the Age of Big Data: Transforming the Wealth of MTA Data into Accessible, Meaningful, Visual, Interactive Information.***
- Browse the MTA website (<https://new.mta.info/>). Previously in beta for several years, the site is now fully operational and the result of the initiative described in your reading. As you browse, think about the intended audience for each part of the website, making note of the tools and information provided (e.g., trip-planning and customer self-serve tools for riders, data for policy makers and advocates for public accountability). Choose two of the available tools for RIDERS on the MTA site and write a brief critique (2 text pages max, exclusive of graphics) of these tools with respect to their ease of use and visual appeal. In your critique, address specifically whether or not the graphical design and presentation of the tool enhances its usefulness. Include screen shots of the tools you are critiquing.
- Next, turn your attention to the “Transparency” section of the MTA website (<https://new.mta.info/transparency>). This is the type of information that you, as a manager in the public sector, will most likely be tasked with providing to stakeholders and the public. Browse the data provided and critique the presentation of the data in light of the MTA document you read. Are the transparency data presented in a way that lives up to the document’s title of being “accessible, meaningful, visual and interactive information”? Explain why or why not (either is acceptable, as long as you justify your answer), with examples (screen shots) from the website (2-4 written pages; screen shots should be appended to the written document and do NOT count toward the 2-4 page requirement).

Exercise 3: Create Visualizations from Data

Using Tableau and a dataset provided by your instructor on Carmen, create three visual representations of the data. (Alternatively, you may use a dataset of your own choosing, but please submit a sample to the instructor for approval before you begin work.) Submit

your visualizations as a Packaged Workbook (.twbx) file. In a separate Word document, provide a brief explanation (no more than 1 page per viz) of each viz, including a description of the source data, the intended audience, and what you intended the visualization to communicate.

Case Study 2

Read ***Transparency in Texas: Beyond Raw Data***. Using ONE of the case studies in the report as a guide (*Texas School District Finance Data, Legislative Budget Board Website, City of Kyle, or City of Manor: Transparency on a Budget*), select a similar government agency in Ohio (state, county or municipal), locate the section of their website where they present similar data, and assess the strengths and weaknesses in their presentation of data. Be sure to take into account the intended audience. Let me know if you need assistance finding an appropriate agency to assess. Write up your assessment (3–5 pages), highlighting what the Ohio agency is doing right and/or what they can improve regarding how they present information. Include examples of their visual representations (data vizes) to illustrate your assessment. These should be screen shots appended to your written assessment; these do NOT count as part of the 3–5 pages). Grading of your assessment will be based on how you evaluate the selected agency data presentation/visualizations using criteria for effective data and graphics presented in class lectures and readings.

Final Project: Tutorial for a Deconstructed Data Viz

This assignment is intended to extend your skills beyond this course by learning from the examples of others. Tableau is a complex, powerful data visualization tool, and in this course we will only begin to explore its capabilities. Tableau is also very well supported by an extensive community of users from a broad array of professions. Chances are, when you need to apply Tableau to your own data, someone, somewhere has created Tableau visualizations like the ones you have in mind, or some that may inspire you to view your data in a new and engaging way. You will select a visualization from among the top-rated submissions to Tableau Public, or alternatively a Tableau visualization posted online that you locate yourself (links to eligible vizzes can be provided by the instructor on request). In Tableau, you will “reverse engineer” (deconstruct and recreate) the entire visualization to understand exactly how it was created. You will then write a step-by-step tutorial that another Tableau user could follow to create the visualization for themselves, with only the source data (and Tableau!) available to them. Include in your tutorial a description of the source data, a summary of the purpose and intended audience of the selected visualization, and your assessment of the most innovative, unique, or useful aspects of the visualization.

You will turn in:

- The tutorial as a Word document (summary, data description, step-by-step instructions, and a link to the visualization that you are emulating)

- Your *reconstructed* Tableau viz (NOT the file you downloaded) as a Packaged Workbook
- The source data for your viz (will require you to do a data extract from Tableau)

Using only the extracted data and your tutorial instructions, I will attempt to construct your selected viz from scratch.

Suggestion: Though not required, you may wish to pair up with a classmate to peer-review one another's tutorials. Trade tutorials and source data and attempt to build your classmate's viz just from the instructions given. Then provide one another with feedback on any unclear instructions or gaps in the tutorial instructions. This approach will work best if you are working on different tutorials, so that each of you is a naive user, approaching your classmate's viz for the first time. You may provide feedback on the tutorial instructions only; you may NOT tell your classmate how to fix problems with the tutorial or advise them on how to structure the source data for the tutorial. If you do pair up with a classmate, note the classmate's name in your tutorial document summary.

➤ Final Project Grading

- The final project is worth 40 points. Points will be distributed as follows:
 - Overview summary (including notes on visualization preparation, analysis, audience and source) (15 points)
 - Step-by-step tutorial document (25 points)

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With sufficient notice, instructors will provide students with reasonable alternative accommodations with regard to examinations and other academic requirements with respect to students' sincerely held religious beliefs and practices by allowing up to three absences each semester for the student to attend or participate in religious activities. Examples of religious accommodations can include, but are not limited to, rescheduling an exam, altering the time of a student's presentation, allowing make-up assignments to substitute for missed class work, or flexibility in due dates or research responsibilities. If concerns arise about a requested accommodation, instructors are to consult their tenure initiating unit head for assistance.

A student's request for time off shall be provided if the student's sincerely held religious belief or practice severely affects the student's ability to take an exam or meet an academic requirement **and** the student has notified their instructor, in writing during the first 14 days after the course begins, of the date of each absence. Although students are required to provide notice within the first 14 days after a course begins, instructors are strongly encouraged to work with the student to provide a reasonable accommodation if a request is made outside the notice period. A student may not be penalized for an absence approved under this policy.

If students have questions or disputes related to academic accommodations, they should contact their course instructor, and then their department or college office. For questions or to report discrimination or harassment based on religion, individuals should contact the [Civil Rights Compliance Office](#).

Policy: [Religious Holidays, Holy Days and Observances](#)

Disability Statement (with Accommodations for Illness)

The University strives to maintain a healthy and accessible environment to support student learning in and out of the classroom. If students anticipate or experience academic barriers based on a disability (including mental health and medical conditions, whether chronic or temporary), they should let their instructor know immediately so that they

can privately discuss options. Students do not need to disclose specific information about a disability to faculty. To establish reasonable accommodations, students may be asked to register with **Student Life Disability Services (SLDS)**. After registration, students should make arrangements with their instructors as soon as possible to discuss your accommodations so that accommodations may be implemented in a timely fashion.

If students are ill and need to miss class, including if they are staying home and away from others while experiencing symptoms of viral infection or fever, they should let their instructor know immediately. In cases where illness interacts with an underlying medical condition, please consult with Student Life Disability Services to request reasonable accommodations.

SLDS Contact Information (Columbus)

- **Email:** SLDS@osu.edu
- **Phone:** [\(614\) 292-3307](tel:(614)292-3307)
- [Student Life Disability Services Website](#)
- **SLDS Office:** 098 Baker Hall, 113 West 12th Avenue

Intellectual Diversity

Ohio State is committed to fostering a culture of open inquiry and intellectual diversity within the classroom. This course will cover a range of information and may include discussions or debates about controversial issues, beliefs, or policies. Any such discussions and debates are intended to support understanding of the approved curriculum and relevant course objectives rather than promote any specific point of view. Students will be assessed on principles applicable to the field of study and the content covered in the course. Preparing students for citizenship includes helping them develop critical thinking skills that will allow them to reach their own conclusions regarding complex or controversial matters.

Grievances and Solving Problems

According to University Policies, if you have a problem with this class, you should seek to resolve the grievance concerning a grade or academic practice by speaking first with the instructor or professor. Then, if necessary, take your case to the department chairperson, college dean or associate dean, and to the provost, in that order. Specific procedures are outlined in [Faculty Rule 3335-8-23](#). Grievances against graduate, research, and teaching assistants should be submitted first to the supervising instructor, then to the chairperson of the assistant's department.

Creating an Environment Free from Harassment, Discrimination, and Sexual Misconduct

The Ohio State University is committed to building and maintaining a welcoming community. All Buckeyes have the right to be free from harassment, discrimination, and sexual misconduct. Ohio State does not

discriminate on the basis of age, ancestry, color, disability, ethnicity, gender, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, pregnancy (childbirth, false pregnancy, termination of pregnancy, or recovery therefrom), race, religion, sex, sexual orientation, or protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment. Members of the University community also have the right to be free from all forms of sexual misconduct: sexual harassment, sexual assault, relationship violence, stalking, and sexual exploitation. To report harassment, discrimination, sexual misconduct, or retaliation and/or seek confidential and non-confidential resources and supportive measures, contact the **Civil Rights Compliance Office (CRCO)**:

- [Online Reporting Form](#)
- [Email: CivilRights@osu.edu](mailto:CivilRights@osu.edu)
- [Phone: \(614\) 247-5838](tel:(614)247-5838)

The University is committed to stopping sexual misconduct, preventing its recurrence, eliminating any hostile environment, and remedying its discriminatory effects. All University employees have reporting responsibilities to the Civil Rights Compliance Office to ensure the University can take appropriate action:

- All University employees, except those exempted by legal privilege of confidentiality or expressly identified as a confidential reporter, have an obligation to report incidents of sexual assault immediately.
- The following employees have an obligation to report all other forms of sexual misconduct as soon as practicable but at most within five workdays of becoming aware of such information:
 1. Any human resource professional (HRP)
 2. Anyone who supervises faculty, staff, students, or volunteers
 3. Chair/director
 4. Faculty member

Counseling and Consultation Services / Mental Health Statement

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):

- [CCS Website](#)
- **CCS Phone & On-Call Counselor:** [\(614\) 292-5766](tel:(614)292-5766)
- **CCS Office:** Younkin Success Center (4th Floor), 1640 Neil Avenue
- **24/7 Suicide and Crisis Lifeline:** 988

Public Affairs 6510: Course Schedule

Week 1:

- Welcome and Introduction to the course
- Overview of syllabus and course requirements
- Introduction to Data Visualization
- Hands-on with Tableau: Gapminder in Tableau (Due September 6 @ 5:00 PM)
- Explain Exercise 1: A Tableau Sketchbook (Due September 6 @ 5:00 PM)

Week 2:

- NO CLASS
- Due: Gapminder in Tableau, Exercise 1
- (Optional: 1-on-1 Zoom check-ins)
- Explain Case Study 1 (via Email or Zoom) (Due September 20 @ 5:00 PM)

Week 3:

- Design Matters: Criteria for Effective Data Visualizations
- Connecting to Data
- Touch base on Case Study 1
- Explain Exercise 2: Tableau Power Start (Due September 20 @ 5:00 PM)
- Explain Case Study 2 (Due October 4 @ 5:00 PM)
- Explain Final Project (Due December 11 @ 8:00 PM)
- Hands-on with Tableau

Week 4:

- Exercise 2 and Case Study 1 due at 5:00 PM
- Use of Color in Visualizations
- Touch base on Final Project
- Explain Exercise 3: Create Visualizations from Data (Due October 4 @ 5:00 PM)
- Hands on with Tableau

Week 5:

- Advanced Tableau Techniques
- Touch base on Final Project

Week 6:

- Exercise 3 and Case Study 2 Due at 5:00 PM
- Advanced Tableau Techniques/Dashboards
- Work on Final Project

Week 7:

- Telling stories with data / Wrapping up loose ends
- Work on Final Project

Finals “Week”: Final Project –

Syllabi Appendix



THE OHIO STATE UNIVERSITY

JOHN GLENN COLLEGE OF PUBLIC AFFAIRS

Excel Basic Skills

PUBAFRS 5513

Summer 2025

Course Information

Class Schedule and Delivery Mode

Course times and location: This course is 100% online asynchronous. There are no required sessions when you must be logged in to Carmen at a scheduled time. This course is divided into weekly modules that are released one week in advance in case it is useful for students to work ahead to accommodate events in their academic, professional, or personal lives. Students are expected to keep pace with weekly coursework and deadlines but may freely schedule their efforts within the seven days that comprise a module week.

Credit hours: 1

Mode of delivery: Online

Instructor

Tricia Petras, PhD

Contact information: petras.6@osu.edu

Preferred modes of communication: My preferred method for questions is **email**. My class-wide communications will be sent through the Announcements tool in CarmenCanvas. Please check your [notification preferences](#) (go.osu.edu/canvas-notifications) to be sure you receive these messages.

Office hours for student questions and support: By appointment

Course Description

Vast amounts of information are created, manipulated, and analyzed every day. Tools are needed to analyze the information and provide meaningful results, effectively harnessing the power of that information. The most common tool used in the workplace today is Microsoft Excel. Excel is the primary means of performing a number of different tasks such as keeping simple lists, tracking work, performing complex analysis of data and creating reports. It is important to know how to use this tool effectively and understand some of the benefits and challenges of Excel. For instance, while Excel is a powerful program, it is easy to corrupt data and intentionally or unintentionally skew the results. Once the challenges are understood, we can incorporate mitigating controls to minimize risk and increase confidence in the tool.

This course focuses on acquiring basic Microsoft Excel skills from data entry and formatting through nested formulas, chart construction and customization, and the creation and use of PivotTables. All activities are based on the use of publicly available data to answer real world questions related to public policy problem definition, policy formulation, implementation, or evaluation. By the end of the seven-week course, students will be proficient in the basic Excel skills required to manage, analyze, and present information in a wide variety of practical contexts.

Course Prerequisites

None

Learning Outcomes

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

- Gain an understanding of essential functionality of Microsoft Excel
- Utilize Excel to optimize the formatting, usability, and comprehension of data and reports
 - Create formulas comprised of simple and advanced functions to produce calculations, clean and manage text, lookup data, handle error conditions, and provide conditional responses
 - Become familiar with the many Excel options for presenting data in charts and graphs
- Create and Use PivotTable and PivotCharts to summarize and analyze data
- Understand important limitations of Excel and best practices for ongoing data management and collaboration
- Practice connecting Excel data management and presentation to real world policy issues
- Become proficient at recognizing, identifying, and implementing reliable information for future Excel applications.

Course Materials, Fees, and Technologies

Course Materials

Optional textbook: Walkenbach, John (2015). Excel 2016 Bible. Wiley. ISBN: 978-1-119-06751-1.

This book is available electronically from OSU Library or may be purchased from a retailer. All other course materials will be provided through Carmen. For library course materials and additional optional materials, refer to the CarmenCanvas course.

Technology

Students will be required to have access to Microsoft Excel, any recent version will be acceptable. Ohio State University provides students with access to MS 365, which is preferred. Students will not be able to complete assignments using a tablet or iPad, for example, and will need an actual computer to use functionality in spreadsheet applications (e.g., right-clicking on cells, formula entry and modification).

- CarmenZoom virtual meetings
- Recording a slide presentation with audio narration
- Recording, editing, and uploading video
- Computer: current Mac (OS X) or PC (Windows 10+) with high-speed internet connection
- Webcam: built-in or external webcam, fully installed and tested
- Microphone: built-in laptop or tablet mic or external microphone
- MS Office, including Excel, preferably MS 365 or MS Office Professional
- Other: a mobile device (smartphone or tablet) or landline to use for BuckeyePass authentication

If you do not have access to the technology you need to succeed in this class, review options for technology and internet access at go.osu.edu/student-tech-access.

For help with your password, university email, CarmenCanvas, or any other technology issues, questions or requests, contact the IT Service Desk, which offers 24-hour support, seven days a week: <https://it.osu.edu/students>

Grading and Evaluation

The course grade is based on performance on discussion posts (14%), Excel Skills Projects (41%), and an Original Final Project (45%).

How Your Grade is Calculated

Assignment Category	Points/Weight	Assignment Type
Individual Introduction – Carmen Discussion Posts	3 points	 Independent work
Cautionary Tales – Carmen Discussion Posts	11 points	 Independent work
Project 1 – Excel Skills Projects	13 points	 Independent work
Project 2 – Excel Skills Projects	14 points	 Independent work
Project 3 – Excel Skills Projects	14 points	 Independent work
Initial Proposal (part 1) – Original Final Project	8 points	 Independent work
Data, Research Questions, Analysis Plan – Original Final Project	12 points	 Independent work
Analysis and Memo – Original Final Project	25 points	 Independent work
TOTAL POINTS	100 points	

Descriptions of Major Course Assignments

Carmen Discussion Posts

Students will have the opportunity to engage in multiple class discussions during this course, but two will be graded, the individual introduction due when the semester begins and the response to the Excel cautionary tales articles found in Module 1. Details about due dates and response expectations (e.g. length where applicable) can be found in the Carmen assignment along with the scoring rubric. Due dates for each graded activity will be posted on Carmen and are in the Course Schedule on the last page of this syllabus. Because this is a collaborative activity and classmates' ability to participate depends on others, no late assignments will be accepted for discussion posts and responses.

Excel Skills Projects

Detailed assignment instructions and the scoring rubric will be posted on Carmen well in advance of the due date. Because these are individual skills assessments, students must complete each project individually.

Project 1 will assess formatting and introductory formula and functions skills.

Project 2 will cover nested/advanced formula and functions skills.

Project 3 will assess PivotTables

Projects will be submitted on Carmen. Due to the shortened (half semester) format of the course and to maintain fairness in assessment, no late submissions will be accepted for grading.

Original Final Project:

For this project, students will select a data set, craft one to three questions that will be answered through Excel analysis, construct and execute an analysis plan, and present the results in a succinct memo. To support students, this project is scaffolded, i.e. there are due dates for the initial proposal, analysis plan, and results. These will be indicated on Carmen and can be found in the course schedule on the last page of this syllabus. Students lock in their project plans early in the term, so clear and specific guidance on topic and data selection considerations will be provided on Carmen. The initial proposal and analysis plans may be submitted up to one week (i.e. seven days) late with a one point per day deduction. To maintain fairness when assessing student work, no late submissions will be accepted for grading after seven days. The final analysis and memo cannot be accepted late as they are due at the end of the term. Because this is a summative assessment of individual skills, each student must complete this project individually.

Grading Scale

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

Course Policies

Attendance and Participation Expectations

Because this is an online course, attendance is based on your weekly online activity and participation. The following is a summary of expected participation

Participating in online activities for attendance: **AT LEAST ONCE PER WEEK** During most weeks, you will probably log in to the course in Carmen many times, but you are expected to log in to the course in Carmen at least once every week. If a situation arises that might cause you to miss an entire week of class, discuss it with me as soon as possible in advance of the schedule conflict.

Participating in discussion forums: **PERIODICALLY** (as indicated on Carmen) As part of your participation, each week you can expect to post at least twice as part of our substantive class discussion on the week's topics.

Office hours and *potential* synchronous ("live") Zoom sessions: **OPTIONAL** All synchronous Zoom events for the course, including my office hours, are optional but students should feel welcome to use them as often as needed throughout the semester.

Late Assignments and Making Up Work

No late assignments will be accepted in this course. Please refer to CarmenCanvas for due dates. Due dates are set to help you stay on pace and to allow timely feedback that will help you complete subsequent assignments.

Grade Appeals

The assigned grade is designed to show the overall quality of work performed by each student. If you believe that any grade was not properly assigned you may write an email explaining why you believe the grade was incorrectly assigned within one week of receiving the graded assignment back. Each appeal will be considered, and if a re-grade is performed, the entire assignment will be re-graded. The final grade may be greater, less, or equal to the original grade.

Copyright

The materials used in connection with this course, including those created by the instructor or classmates, 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.

Academic Policies

Refer to <https://oaa.osu.edu/academic-policies> for academic policies, including student rights and responsibilities related to the following:

Accessibility: Arrange for accommodations if you anticipate barriers to your learning based on a disability

Academic integrity: Understand your rights and responsibilities related to academic integrity and review the university's processes for addressing claims of academic misconduct

Safe learning environment: Know the university's commitments to an environment free from discrimination or harassment, and find resources for reporting or finding support.

Academic Misconduct

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the University's Code of Student Conduct, and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the University's Code of Student Conduct and this syllabus may constitute Academic Misconduct.

The Ohio State University's Code of Student Conduct (Section 3335-23-04) defines academic misconduct as: Any activity that tends to compromise the academic integrity of the University or subvert the educational process. Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the University's Code of Student Conduct is never considered an excuse for academic misconduct, so I recommend that you review the Code of Student Conduct and, specifically, the sections dealing with academic misconduct.

If I suspect that a student has committed academic misconduct in this course, I am obligated by University Rules to report my suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the University's Code of Student Conduct (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the University.

If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact me.

Artificial Intelligence and Academic Integrity

There has been a significant increase in the popularity and availability of a variety of generative artificial intelligence (AI) tools, including ChatGPT, Sudowrite and others. These tools will help shape the future of work,

research and technology but when used in the wrong way, they can stand in conflict with academic integrity.

All students have important obligations under the Code of Student Conduct to complete all academic and scholarly activities with fairness and honesty. Our professional students also have the responsibility to uphold the professional and ethical standards found in their respective academic honor codes. Specifically, students are not to use unauthorized assistance in the laboratory, on field work, in scholarship or on a course assignment unless such assistance has been authorized specifically by the course instructor. In addition, students are not to submit their work without acknowledging any word-for-word use and/or paraphrasing of writing, ideas or other work that is not your own. These requirements apply to all students undergraduate, graduate, and professional.

Mental Health and Well-Being

If you find yourself feeling isolated, anxious or overwhelmed, on-demand mental health resources (go.osu.edu/ccsdemand) are available from Ohio State University's Student Life Counseling and Consultation Service (CCS). You can reach an on-call counselor when CCS is closed at 614- 292-5766. 24-hour emergency help is available through the National Suicide Prevention Lifeline website (suicidepreventionlifeline.org) or calling 1-800-273-8255(TALK). The Ohio State Wellness app (go.osu.edu/wellnessapp) is also a great resource.

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 is 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 Counseling and Consultation Services (CCS)** by visiting <https://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 [https://suicidepreventionlifeline.org/](http://suicidepreventionlifeline.org/). Also, the OSU Student Advocacy Center is a resource to help students navigate OSU and to resolve issues that they encounter at OSU – visit <http://advocacy.osu.edu/> .

Glenn College Diversity Values

The Glenn College is committed to nurturing a diverse and inclusive environment for our students, faculty, staff, and guests that celebrates the fundamental value and dignity of everyone by recognizing differences and supporting individuality. We are dedicated to creating a safe space and promoting civil discourse that acknowledges and embraces diverse perspectives on issues and challenges that affect our community.

Disability Services Statement

Accommodation Policy

The University strives to make all learning experiences as accessible as possible. 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.

FERPA and Privacy in CarmenZoom

Video and audio recordings of class lectures 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 note that you are not allowed to share these recordings. This is to protect your FERPA rights and those of your fellow students.

Statement on Title IX

All students and employees at Ohio State have the right to work and learn in an environment free from harassment and discrimination based on sex or gender, and the university can arrange interim measures, provide support resources, and explain investigation options, including referral to confidential resources.

If you or someone you know has been harassed or discriminated against based on your sex or gender, including sexual harassment, sexual assault, relationship violence, stalking, or sexual exploitation, you may find information about your rights and options on [Ohio State's Title IX website](#) (titleix.osu.edu) or by contacting the Ohio State Title IX Coordinator at titleix@osu.edu. Title IX is part of the Office of Institutional Equity (OIE) at Ohio State, which responds to all bias-motivated incidents of harassment and discrimination, such as race, religion, national origin and disability. For more information, visit the [OIE website](#) (equity.osu.edu) or email equity@osu.edu.

Commitment to a Diverse and Inclusive Learning Environment

The Ohio State University affirms the importance and value of diversity in the student body. Our programs and curricula reflect our multicultural society and global economy and seek to provide opportunities for students to learn more about persons who are different from them. We are committed to maintaining a community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among each member of our community; and encourages each individual to strive to reach his or her own potential. Discrimination against any individual based upon protected status, which is defined as age, color, disability, gender identity or expression, national origin, race, religion, sex, sexual orientation, or veteran status, is prohibited.

Religious Accommodations

Ohio State has had a longstanding practice of making reasonable academic accommodations for students' religious beliefs and practices in accordance with applicable law. In 2023, Ohio State updated its practice to align with new state legislation. Under this new provision, students must be in early communication with their instructors regarding any known accommodation requests for religious beliefs and practices, providing notice of specific dates for which they request alternative accommodations within 14 days after the first instructional day of the course. Instructors in turn shall not question the sincerity of a student's religious or spiritual belief system in reviewing such requests and shall keep requests for accommodations confidential.

With sufficient notice, instructors will provide students with reasonable alternative accommodations with regard to examinations and other academic requirements with respect to students' sincerely held religious beliefs and practices by allowing up to three absences each semester for the student to attend or participate in religious activities. Examples of religious accommodations can include, but are not limited to, rescheduling an exam, altering the time of a student's presentation, allowing make-up assignments to substitute for missed class work, or flexibility in due dates or research responsibilities. If concerns arise about a requested accommodation, instructors are to consult their tenure initiating unit head for assistance.

A student's request for time off shall be provided if the student's sincerely held religious belief or practice severely affects the student's ability to take an exam or meet an academic requirement and the student has notified their instructor, in writing during the first 14 days after the course begins, of the date of each absence. Although students are required to provide notice within the first 14 days after a course begins, instructors are strongly encouraged to work with the student to provide a reasonable accommodation if a request is made outside the notice period. A student may not be penalized for an absence approved under this policy.

If students have questions or disputes related to academic accommodations, they should contact their course instructor, and then their department or college office. For questions or to report discrimination or harassment based on religion, individuals should contact the Office of Institutional Equity.

Course Schedule

Course Schedule Notes: See Carmen for up-to-date deadlines

Module 1: Data management, Excel Introduction, Formulas and Functions I

- Article Reading and Discussion – Data Management Cautionary Tales
- Lab 1.1 Excel Introduction
 - 1.1.1 *Intro*
 - 1.1.2 *Formatting*
 - 1.1.3 *Using and Customizing Worksheets*
- Lab 1.2 Formulas and Functions
 - 1.2.1 *Cell referencing and Basic Formulas*
 - 1.2.2 *More Basic Formulas*
 - 1.2.3 *Excel Functions*

Relevant textbook chapters (purely optional reading): 1, 2, 3, 4, 6, 7, 9, 10, 13, 16, 21

Assignments: Your introduction Carmen discussion post is due by 11:59 PM on Friday, May 9th.

Excel Cautionary Tales Reading and Carmen Discussion due by 11:59 PM on Friday, 5/9/25.

Module 2: Formulas & Functions II

- Lab 2.1 Logic, Text, and Date Functions
 - 2.1.1 *Logic Functions*
 - 2.1.2 *Text Functions*
 - 2.1.3 *Date and Time Functions*
 - 2.1.4 *Los Angeles Animal Intake Data Application*
- Lab 2.2 Info and Math Functions
 - 2.2.1 *Information Functions*
 - 2.2.2 *Math Functions*
 - 2.2.3 *Ohio Budget Data Application*

Relevant textbook chapters (purely optional reading): 10, 11, 12, 13, 16, 21, 25

Assignment: Final Project Initial Proposal due by 11:59 PM on Friday, 5/16/25.

Module 3: Advanced Formulas

- Lab 3.1 Lookup Functions & Nested IF Formulas
 - 3.1.1 *Lookup Functions*
 - 3.1.2 *Nested IF Formulas 1/2*
 - 3.1.3 *Nested IF Formulas 2/2*
- Lab 3.2 Nested Functions
 - 3.2.1 *Nesting Function 1/2*
 - 3.2.2 *Nesting Function 2/2*

Relevant textbook chapters (purely optional reading): 11, 13, 14, 15, 16, 26, 32

Assignment: Project 1. Formatting, Formulas, & Functions due by 11:59 PM on Friday, 5/23/25.

Module 4: Charts & Graphs

- Lab 4.1 Charts and Graphs I
 - Lecture – Data Management Practices*
 - 4.1.1 *Line Chart Creation*
 - 4.1.2 *Chart Customization*
 - 4.1.3 *Pie and Doughnut Charts, Customization*
- Lab 4.2 Charts and Graphs II
 - 4.2.1 *Bar Charts*
 - 4.2.2 *Scatter Plots*
 - 4.2.3 *Sparklines*

Relevant textbook chapters (purely optional reading): 19, 20, 22, 23

Assignment: Final Project Data, Research Questions, and Analysis Plan due by 11:59 PM on Friday, 5/30/25.

Module 5: Tables & PivotTables

- Lab 5.1 Tables
 - 5.1.1 *Format as Table*
 - 5.1.2 *Modifying Tables*
 - 5.1.3 *Table Filters*
- Lab 5.2 PivotTables
 - 5.2.1 *Creating a PivotTable*
 - 5.2.2 *PivotTable Filters*
 - 5.2.3 *PivotTable Appearance*
 - 5.2.4 *PivotTable Example 2*

Relevant textbook chapters (purely optional reading): 5, 33, 34

Assignment: Project 2. Advanced Formulas due by 11:59 PM on Friday, 6/6/25.

Module 6a: PivotTables & PivotCharts

- Lab 6.1 PivotTables
 - 6.1.1 *PivotTable Creation and Customization*
 - 6.1.2 *PivotTable Groupings*
 - 6.1.3 *Calculated Fields*
- Lab 6.2 PivotCharts
 - 6.2.1 *PivotChart Example 1*
 - 6.2.2 *PivotChart Example 2*

Relevant textbook chapters (purely optional reading): 33, 34

Assignment: Project 3. PivotTables due by 11:59 PM on Friday, 6/13/25.

Module 6b: Skill Polishing, Course Wrap Up, Comprehensive Project

Assignment: Final Project due on Carmen by 11:59 PM on Monday, 6/16/25.

Course Schedule Summary

Wk	Date	Topic	Graded Items (due on Friday)
1	5/5 – 5/9	Court Prep + Data management I, Excel Introduction, Formulas and Functions I	Syllabus Review + Quiz Cautionary Tales Reading & Discussion
2	5/12 – 5/16	Formulas & Functions II	Final Project Initial Proposal
3	5/19 – 5/23	Advanced Formulas	Project 1
4	5/26 – 5/30	Data management II, Charts & Graphs	Final Project Data & Research Questions
5	6/2 – 6/6	Tables & PivotTables	Project 2
6a	6/9 –	PivotTables & PivotCharts	Project 3
6b	6/13	Skill Polishing, Course Wrap Up, Comprehensive Project	Final Project (due by 11:59 PM Monday 6/16)



THE OHIO STATE UNIVERSITY

JOHN GLENN COLLEGE OF PUBLIC AFFAIRS

Excel Advanced Skills

PUBAFRS 5514

Summer 2025

Course Information

Class Schedule and Delivery Mode

Course times and location: This course is 100% online asynchronous. There are no required sessions when you must be logged in to Carmen at a scheduled time. This course is divided into weekly modules that are released one week in advance in case it is useful for students to work ahead to accommodate events in their academic, professional, or personal lives. Students are expected to keep pace with weekly coursework and deadlines but may freely schedule their efforts within the seven days that comprise a module week.

Credit hours: 1

Mode of delivery: Online

Instructor

Tricia Petras, PhD

Contact information: petras.6@osu.edu

Preferred modes of communication: My preferred method for questions is **email**. My class-wide communications will be sent through the Announcements tool in CarmenCanvas. Please check your [notification preferences](#) (go.osu.edu/canvas-notifications) to be sure you receive these messages.

Office hours for student questions and support: By appointment

Course Description

Microsoft Excel is a powerful tool to collect, organize, and analyze data. It has many advanced analytical and visualization features. Because Excel is part of Microsoft Office, it is widely used by private enterprises, nonprofits, and governments.

Unlike traditional coding languages, working in Excel is hands-on. You work directly with data, and it provides immediate feedback. However, like traditional coding languages, Excel's blank grid does not provide guidance on how to begin a project. It expects you to know what to do. In the course, you will learn the steps on how to approach a project, use procedures to analyze data, and present the analysis.

The best way to learn software is to actually use it and practice. Each week will feature a series of videos where Excel techniques, tools, and components will be demonstrated. You will be able to download a lesson spreadsheet and work along with the videos. The course is asynchronous, so you can work through the weekly lessons at your schedule. The videos allow you to replay or pause the demonstrations to ensure you understand the concept and practice along with the lesson. Also, the course is designed to continue building upon the skills learned in the prior weeks, so the videos and example spreadsheets are resources for you to consult.

Course Prerequisites

PUBAFRS 5513

Learning Outcomes

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

- Gain proficiency with the advanced analytical tools in Microsoft Excel
- Use Excel to analyze data
- Produce complex organized spreadsheets where others can follow your analysis
- Present data and analysis in clear professional manner using visualizations
- Be confident using Excel in future projects

Course Materials, Fees, and Technologies

Course Materials

Optional Textbooks:

Alexander, M., Kusleika, R., & Walkenbach, J. (2022). *Microsoft Excel 365 Bible*. Wiley. ISBN: 9871119835226.

Winston, W. (2019). *Microsoft Excel Data Analysis and Business Modeling: Office 2021 and Microsoft 365*, Sixth Edition. Wiley. ISBN: 9780137613663.

The books are available online on Safari: O'Reilly's Learning Platform for Higher Education. You have access through the Ohio State University library.

All other course materials will be provided through Carmen. For library course materials and additional optional materials, refer to the CarmenCanvas course.

Technology

Students will be required to have access to Microsoft Excel, any recent version will be acceptable. Ohio State University provides students with access to MS 365, which is preferred. Students will not be able to complete assignments using a tablet or iPad, for example, and will need an actual computer to use functionality in spreadsheet applications (e.g., right-clicking on cells, formula entry and modification).

- CarmenZoom virtual meetings
- Recording a slide presentation with audio narration
- Recording, editing, and uploading video
- Computer: current Mac (OS X) or PC (Windows 10+) with high-speed internet connection
- Webcam: built-in or external webcam, fully installed and tested
- Microphone: built-in laptop or tablet mic or external microphone
- MS Office, including Excel, preferably MS 365 or MS Office Professional
- Other: a mobile device (smartphone or tablet) or landline to use for BuckeyePass authentication

If you do not have access to the technology you need to succeed in this class, review options for technology and internet access at go.osu.edu/student-tech-access.

For help with your password, university email, CarmenCanvas, or any other technology issues, questions or requests, contact the IT Service Desk, which offers 24-hour support, seven days a week:
<https://it.osu.edu/students>

Grading and Evaluation

The course grade is based on performance on exercises (47%) and a final project (53%).

How Your Grade is Calculated

Assignment Category	Points/Weight	Assignment Type	
Excel Refresher Exercise	13 points		Independent work
Pivot Table and Pivot Chart Exercise	17 points		Independent work
Debugging Exercise	17 points		Independent work
Final Project Progress Report	3 points		Independent work
Final Dashboard Project	50 points		Independent work
TOTAL POINTS	100 points		

Descriptions of Major Course Assignments

Excel Refresher Exercise

Goes over skills you will have learned in the basic Excel course. The exercise involves formatting and the use of different formulas.

Pivot Charts and Dashboards Exercise

Will require you to create a table, pivot tables, and a pivot chart.

Debugging Exercise

Will require you to find errors in a spreadsheet, correct the errors, and improve the organization.

Final Dashboard Project

Will require you create an original interactive dashboard that can be used assist others in understanding your data. You will choose the topic, gather the data, and produce the dashboard. The assignment has two components: a progress report and final dashboard.

The *progress report* is a form you will submit containing the following information:

- Research topic.
- At least one data source with either a link to the data or the actual data.
- Questions you hope the data will answer.

Final dashboard must include two different data sources joined into one table, at least three computed fields, two named objects, a pivot table to summarize the data, and a pivot chart for interactive analysis. In addition, the dashboard you create must have interactive elements that another person can use to quickly manipulate the data. One worksheet must show how you used the data to answer an initial research question. Ideally, you can place all the elements so can it produce a professional printed output. At least one example of a project is available on Carmen/Canvas.

Grading Scale

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

Course Policies

Attendance and Participation Expectations

Because this is an online course, attendance is based on your weekly online activity and participation. The following is a summary of expected participation

Participating in online activities for attendance: **AT LEAST ONCE PER WEEK** During most weeks, you will probably log in to the course in Carmen many times, but you are expected to log in to the course in Carmen at least once every week. If a situation arises that might cause you to miss an entire week of class, discuss it with me as soon as possible in advance of the schedule conflict.

Participating in discussion forums: **PERIODICALLY** (as indicated on Carmen) As part of your participation, each week you can expect to post at least twice as part of our substantive class discussion on the week's topics.

Office hours and potential synchronous (“live”) Zoom sessions: **OPTIONAL** All synchronous Zoom events for the course, including my office hours, are optional but students should feel welcome to use them as often as needed throughout the semester.

Late Assignments and Making Up Work

No late assignments will be accepted in this course. Please refer to CarmenCanvas for due dates. Due dates are set to help you stay on pace and to allow timely feedback that will help you complete subsequent assignments.

Grade Appeals

The assigned grade is designed to show the overall quality of work performed by each student. If you believe that any grade was not properly assigned you may write an email explaining why you believe the grade was incorrectly assigned within one week of receiving the graded assignment back. Each appeal will be considered, and if a re-grade is performed, the entire assignment will be re-graded. The final grade may be greater, less, or equal to the original grade.

Copyright

The materials used in connection with this course, including those created by the instructor or classmates, 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.

Academic Policies

Refer to <https://oaa.osu.edu/academic-policies> for academic policies, including student rights and responsibilities related to the following:

Accessibility: Arrange for accommodations if you anticipate barriers to your learning based on a disability

Academic integrity: Understand your rights and responsibilities related to academic integrity and review the university's processes for addressing claims of academic misconduct

Safe learning environment: Know the university's commitments to an environment free from discrimination or harassment, and find resources for reporting or finding support.

Academic Misconduct

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the University's Code of Student Conduct, and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the University's Code of Student Conduct and this syllabus may constitute Academic Misconduct.

The Ohio State University's Code of Student Conduct (Section 3335-23-04) defines academic misconduct as: Any activity that tends to compromise the academic integrity of the University or subvert the educational process. Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the University's Code of Student Conduct is never considered an excuse for academic misconduct, so I recommend that you review the Code of Student Conduct and, specifically, the sections dealing with academic misconduct.

If I suspect that a student has committed academic misconduct in this course, I am obligated by University Rules to report my suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the University's Code of Student Conduct (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the University.

If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact me.

Artificial Intelligence and Academic Integrity

There has been a significant increase in the popularity and availability of a variety of generative artificial intelligence (AI) tools, including ChatGPT, Sudowrite and others. These tools will help shape the future of work, research and technology but when used in the wrong way, they can stand in conflict with academic integrity.

All students have important obligations under the Code of Student Conduct to complete all academic and scholarly activities with fairness and honesty. Our professional students also have the responsibility to uphold the professional and ethical standards found in their respective academic honor codes. Specifically, students are not to use unauthorized assistance in the laboratory, on field work, in scholarship or on a course assignment unless such assistance has been authorized specifically by the course instructor. In addition, students are not to submit their work without acknowledging any word-for-word use and/or paraphrasing of writing, ideas or other work that is not your own. These requirements apply to all students undergraduate, graduate, and professional.

Mental Health and Well-Being

If you find yourself feeling isolated, anxious or overwhelmed, on-demand mental health resources (go.osu.edu/ccsdemand) are available from Ohio State University's Student Life Counseling and Consultation Service (CCS). You can reach an on-call counselor when CCS is closed at 614- 292-5766. 24-hour emergency help is available through the National Suicide Prevention Lifeline website (suicidepreventionlifeline.org) or calling 1-800-273-8255(TALK). The Ohio State Wellness app (go.osu.edu/wellnessapp) is also a great resource.

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 is 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 Counseling and Consultation Services (CCS)** by visiting <https://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 <https://suicidepreventionlifeline.org/>. Also, the OSU Student Advocacy Center is a resource to help students navigate OSU and to resolve issues that they encounter at OSU – visit <http://advocacy.osu.edu/> .

Glenn College Diversity Values

The Glenn College is committed to nurturing a diverse and inclusive environment for our students, faculty, staff, and guests that celebrates the fundamental value and dignity of everyone by recognizing differences and supporting individuality. We are dedicated to creating a safe space and promoting civil discourse that acknowledges and embraces diverse perspectives on issues and challenges that affect our community.

Disability Services Statement

Accommodation Policy

The University strives to make all learning experiences as accessible as possible. 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.

FERPA and Privacy in CarmenZoom

Video and audio recordings of class lectures 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 note that you are not allowed to share these recordings. This is to protect your FERPA rights and those of your fellow students.

Statement on Title IX

All students and employees at Ohio State have the right to work and learn in an environment free from harassment and discrimination based on sex or gender, and the university can arrange interim measures, provide support resources, and explain investigation options, including referral to confidential resources.

If you or someone you know has been harassed or discriminated against based on your sex or gender, including sexual harassment, sexual assault, relationship violence, stalking, or sexual exploitation, you may find information about your rights and options on [Ohio State's Title IX website](#) (titleix.osu.edu) or by contacting the Ohio State Title IX Coordinator at titleix@osu.edu. Title IX is part of the Office of Institutional Equity (OIE) at Ohio State, which responds to all bias-motivated incidents of harassment and discrimination, such as race, religion, national origin and disability. For more information, visit the [OIE website](#) (equity.osu.edu) or email equity@osu.edu.

Commitment to a Diverse and Inclusive Learning Environment

The Ohio State University affirms the importance and value of diversity in the student body. Our programs and curricula reflect our multicultural society and global economy and seek to provide opportunities for students to learn more about persons who are different from them. We are committed to maintaining a community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among each member of our community; and encourages each individual to strive to reach his or her own potential. Discrimination against any individual based upon protected status, which is defined as age, color, disability, gender identity or expression, national origin, race, religion, sex, sexual orientation, or veteran status, is prohibited.

Religious Accommodations

Ohio State has had a longstanding practice of making reasonable academic accommodations for students' religious beliefs and practices in accordance with applicable law. In 2023, Ohio State updated its practice to align with new state legislation. Under this new provision, students must be in early communication with their instructors regarding any known accommodation requests for religious beliefs and practices, providing notice of specific dates for which they request alternative accommodations within 14 days after the first instructional day of the course. Instructors in turn shall not question the sincerity of a student's religious or spiritual belief system in reviewing such requests and shall keep requests for accommodations confidential.

With sufficient notice, instructors will provide students with reasonable alternative accommodations with regard to examinations and other academic requirements with respect to students' sincerely held religious beliefs and practices by allowing up to three absences each semester for the student to attend or participate in religious activities. Examples of religious accommodations can include, but are not limited to, rescheduling an exam, altering the time of a student's presentation, allowing make-up assignments to substitute for missed class work, or flexibility in due dates or research responsibilities. If concerns arise about a requested accommodation, instructors are to consult their tenure initiating unit head for assistance.

A student's request for time off shall be provided if the student's sincerely held religious belief or practice severely affects the student's ability to take an exam or meet an academic requirement and the student has notified their instructor, in writing during the first 14 days after the course begins, of the date of each absence. Although students are required to provide notice within the first 14 days after a course begins, instructors are strongly encouraged to work with the student to provide a reasonable accommodation if a request is made outside the notice period. A student may not be penalized for an absence approved under this policy.

If students have questions or disputes related to academic accommodations, they should contact their course instructor, and then their department or college office. For questions or to report discrimination or harassment based on religion, individuals should contact the Office of Institutional Equity.

Course Schedule

Course Schedule Notes: See Carmen for up-to-date deadlines

Wk	Date	Topic	Graded Items (due on Friday)
1	6/16 – 6/20	Introduction to the course, assignment expectations, and lookup functions	Excel Refresher Exercise
2	6/23 – 6/27	Data Tables and Pivot Tables	
3	6/30 – 7/4	Slicers and Pivot Charts	Pivot Table and Pivot Chart Exercise
4	7/7 – 7/11	Debugging, Named Objects, and Array Formulas	Final Project Progress Report
5	7/14 – 7/18	Error Handling, Data Validation, and Dynamic Arrays	Debugging Exercise
6a	7/21 –	Descriptive Statistics, Identifying Outliers, and Frequency Tables	Final Dashboard Project
6b	7/25	Forecasting Functions and Regression	



Public Affairs 5511: Skills - Database Management in Public Affairs
Syllabus
Credit Hours: 1

Instructor Information

Email is the best way to contact me. I check email often, and I will attempt to respond to all emails within 24 hours of receiving them. Text me if you need a response quickly.

Course Information

Meeting Day/Time: Mondays, 5:30-7:20 PM (October 18 – December 6)

Location: Page Hall 040

Credit Hours: 1

Course Description

Overview

A critical skill in today's public sector environment is the ability to effectively collect, manage, and analyze the significant amount of data needed to operate any size department or agency. The database environment is the central resource for the support of decision making at the tactical, strategic, and policy levels. In this environment, end-users (policy analysts, financial managers, and other non-computer specialists) directly use computers to quickly access information for decision making. The database environment is thus a key to increased efficiency and effectiveness. Also, by studying database design and implementation, we arrive at some of the most fundamental information and information technology issues facing government. Finally, because databases are the repository for the organization's information, they are the core or foundation upon which information systems are built.

The management of information systems has evolved from a narrow concern with how to utilize the data processing center to a wider vision of how the organization can best use its information resources. As a result of this shift in focus, the successful public manager must understand both the technical implications of database technology as well as their managerial and policy implications. Students who master this class will have very marketable skills, as they will be able to build a simple database in Access that contains most of the components of a database system. Completion of this class also provides a foundation for those who want to further specialize in information systems and further decision support courses.

Student Learning Objectives

Upon successful completion of this course, students will be able to or will have:

- Developed skills in the management of information and information technology
- Built competence in end-user computing
- Apply skills to manipulate and create management application software (Access)
- Interact effectively with IT professionals and software vendors

Class Structure

Class will primarily consist of two parts:

1. The first 30-60 minutes will consist of lecture/discussion on the general information management topic of the day. This will include discussion on the assigned reading along with additional material from the instructor.
2. The remaining 60-75 minutes will be hands-on time with Access. This may include some additional instruction time specific to Access, working with test files from the Access book, and working directly on the database project.

Course Materials

1. MacDonald, Matthew (2013). Access 2013, The Missing Manual. O'Reilly Media. ISBN: 978-1449357412. **This is available electronically at OSU Library.**
2. All other readings and course materials will be supplied by the instructor through Carmen. These include selected chapters from the following. These **do not** need to be purchased.
 - Goldsmith, Stephen & Crawford, Susan (2014). The Responsive City: Engaging Communities through Data-Smart Governance. ISBN: 978-1118910900.
 - Lathrop, Daniel & Ruma, Laurel, Editors (2010). Open Government. O'Reilly. ISBN: 978-0596804350.
 - Milakovich, Michael E (2012). Digital Governance, New Technologies for Improving Public Service and Participation. Routledge. ISBN: 978-0415891448.
 - Reddick, Christopher G (2012). Public Administration and Information Technology. Jones & Bartlett Learning. ISBN: 978-0-7637-8460-7.
 - Shark, Alan R. (2012). Seven Trends That Will Transform Local Government through Technology. ISBN: 978-1470046026.
 - White, Jay D (2007). Managing Information in the Public Sector. M. E. Sharpe. ISBN: 978-0765617484.

Students can access textbook information via the Barnes & Noble bookstore website: http://go.osu.edu/BN_OSU as well as from their BuckeyeLink Student Center. This information is disseminated by B&N to all area bookstores. You may buy from a store of your choice and/or shop for books (always use ISBN# for searches) on line.

Course Requirements

The following components make up the final course grade:

Class contribution:	10%
Current Trend Memo:	30%
Interim Database Check:	15%
Final Database Project:	45%

Transformation of numerical grade to a letter grade will be according to the schedule below:

A	93-100	B-	80-82	D+	68-69
A-	90-92	C+	78-79	D	60-67
B+	88-89	C	73-77	E	<60
B	83-87	C-	70-72		

Class Contribution

Class contribution is critical to make this course as valuable as possible for you and your fellow students. This includes having read assigned readings before class, participating in conversations regarding those readings, asking questions, clarifying assignments, participating in the lab portion of the class, and sharing personal and professional experiences that can aid the class during discussions. **Attendance is considered part of class contribution, and lack of attendance and leaving the lab portion of the class early will reduce this portion of your grade.** Lack of evidence that class readings were completed will also affect this portion of your grade.

Attendance is taken by roll call. If you arrive late, it is your responsibility to sign in or inform me before you leave that you were in attendance. Notification after the class ends via any method that you were in attendance will not be considered as proof of attendance. Notification ahead of class time is required for excused absences.

Current Trend Memo

The purpose of this assignment is to look at a current technology trend and integrate that trend with your knowledge of how it could impact information management in the public sector. The method of achieving this is to approach the paper as a memo to the senior leadership of an organization (federal, state, local, nonprofit). The paper should aim to answer the following:

- Describe the current technology trend with some detail (10 points)
- What challenges will your organization have in adopting this trend? (10 points)
- Your recommendation: Should your public sector organization adopt this trend? Why or why not? If adopted, how will the trend impact your organization? (10 points)

An additional 5 points is awarded for overall paper cohesiveness, and quality of writing and thought. Conciseness is critical, and points will be taken off for exceeding the page limit. The paper is graded out of 35 points.

The paper should be 2 pages, single spaced, 12-point font, 1-inch margins. Cite all sources and be consistent in the method by which you cite (e.g. footnotes, endnotes, APA style). A **required**

list of references does not count against the 2-page limit. It is expected that you will rely on a number of sources for this paper, which can include, but is not limited to, any of the following:

- Material published by a public sector organization
- Evaluations conducted by oversight organizations
- Reports in periodicals
- Primary or secondary interviews
- Blogs
- Online articles

If you are looking for ideas, the following websites can aid in your search:

- <http://www.nextgov.com/>
- <http://www.govtech.com/>
- <https://challenge.gov/>
- <http://www.informationweek.com/government.asp>

Current Trend Memo is to be submitted to Carmen by 5:00 PM on Monday, November 1.

OCAP Database Project

The purpose of this assignment is to provide hands-on experience in designing and implementing a simple database in a public organization. By working with a real-life problem, we encounter some of the technical issues as they interact with the political, economic, and organizational issues of managing information in the public sector. We will use Microsoft Access to build a database from (almost) scratch, covering topics such as tables, queries, forms, reports, user interface design, and process improvement.

There will be two submissions for this project. The Interim Database Check submission will include the Access Database and the Documentation Template for Sections B, C, D, and E. **All documentation and files related to the Interim Database Check are to be submitted to Carmen by midnight on Monday, November 8, at 5:00 PM.**

Using the feedback you received from the Interim Database Check, you can improve sections B, C, D, and E. These sections will be re-graded if work was done to improve them for the Final Database Project. Otherwise the original grade will be used for those sections when calculating the Final Database Project score. **All documentation and files related to the Final Database Project are to be submitted to Carmen by midnight on Thursday, December 16.**

Additional information regarding this project will be presented separately.

Course Policies

Assignment Submission

All assignments should be submitted through Carmen by the day they are due. The Access database should be submitted in the Access format. The Current Trends paper and OCAP database project documentation should be submitted in Word format. Informing the instructor of your intention to be absent does not waive your obligation to submit assigned work. **Late work will be accepted with a one-third-letter grade penalty each day that it is late (A- to B+), unless prior approval is granted by the instructor.**

Grade Appeals

Grades on assignments are intended to reflect the overall quality of performance of the student. You may appeal your grade on an assignment if you think the grade does not reflect the quality of your performance on the assignment. To appeal a grade, submit a clear written explanation via email describing why you believe the assigned grade is inappropriate **within one week after your work is returned.**

Academic Integrity

The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the University's [Code of Student Conduct](#), and that all students will complete all academic and scholarly assignments with fairness and honesty. Failure to follow the rules and guidelines established in the University's *Code of Student Conduct* may constitute "Academic Misconduct." Sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the University.

The Ohio State University's [Code of Student Conduct](#), Section 3335-23-04, defines academic misconduct as "Any activity that tends to compromise the academic integrity of the University, or subvert the educational process." Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and excessive quotation and paraphrasing of other's work with or without citation. Ignorance of the University's *Code of Student Conduct* is never considered an "excuse" for academic misconduct.

If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact the instructor.

Glenn College Diversity Values

The Glenn College is committed to nurturing a diverse and inclusive environment for our students, faculty, staff, and guests that celebrates the fundamental value and dignity of everyone by recognizing differences and supporting individuality. We are dedicated to creating a safe space and promoting civil discourse that acknowledges and embraces diverse perspectives on issues and challenges that affect our community.

Accommodation Policy

Students with disabilities that have been certified by the Office for Disability Services will be appropriately accommodated and should inform the instructor as soon as possible of their needs. The Office for Disability Services is located in 098 Baker Hall, 113 W. 12th Ave.; telephone 292-3307, TDD 292-0901; <https://slds.osu.edu/>

Mental Health Statement

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 is 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 Counseling and Consultation Services (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.

Course Schedule

Week 1:

Topics:

- Welcome and introduction to course
- Brief overview of syllabus and course requirements
- IT/Public policy interaction
- Myths and Realities of IT
- Process analysis/improvement
- Database design
- Overview of project

Access Topic: Introduction/Familiarization (MacDonald, Chapter 1)

Read:

- Reddick, Chapter 1: Public Administration and Information Technology
- Shark, Pages 16-18: Common Myths and Realities of IT
- Optional readings on Healthcare.gov

Lab: Access Overview/Introduction

Week 2:

Topics:

- Data normalization
- OCAP Overview

Access Topics:

- Tables, Data Integrity, Data Import (MacDonald, Chapters 2-4 and 20)
- Linking Tables (MacDonald, Chapters 5)

Read:

- White, Chapter 4: Managing the Agency's Data Resources
- OCAP Systems Analysis (Spring 2017)

Lab:

- Build data tables and data rules for project. Import data for tables.
- Build table relationships for project.

Week 3:

Topics:

- Interoperability and data sharing
- Open Data and Transparency
- **Due:** Current Trend Memo is to be submitted to Carmen by 5:00 PM on Monday, November 1.

Access Topics:

- Queries (MacDonald, Chapters 6-7, Optional: Chapter 9)

Read:

- Reddick, Chapter 7: Enterprise Architecture
- Lanthrop & Ruma, Chapter 28: Toads on the Road to Open Government Data

Lab:

- Build queries for project

Week 4:

Topics:

- Big data
- Information quality

Access Topic: Reports (MacDonald, Chapters 10-11)

Read:

- Redman, The Impact of Poor Data Quality on the Typical Enterprise

Lab: Build reports for project

Due: All documentation and files related to the Interim Database Check are to be submitted to Carmen by Monday, November 8, at 5:00 PM.

Week 5:

Topics:

- Security/Privacy

Access Topic: Forms (MacDonald 12-13)

Read:

- Reddick, Chapter 10: Information Security and Privacy
- Shark, Trend 7: Protecting the Enterprise; Power, Grid, Network, and Cyber Security
- Why changing your password regularly may do more harm than good

Lab: Build forms for project

Week 6:

Topics:

- Usability of data systems

Access Topic: User Interface (MacDonald 14)

Read: None

Lab: Build/enhance the user interface for your project

Week 7:

Topics:

- The cloud
- Challenges to data informed governance

Access Topic: None

Read:

- Shark, Trend 3: Cloud-based Solutions
- Goldsmith and Crawford, Chapter 7: Rethinking Government

Lab: Wrap up project/submit if complete

Week 8:

Topics:

- Artificial intelligence, big data, and algorithmic bias

Access Topic: None

Read:

- To be assigned

Lab: Wrap up project/submit if complete

Due: All documentation and files related to the Final Database Project are to be submitted to Carmen by Thursday, December 16 at 8:00 PM.



THE OHIO STATE UNIVERSITY

JOHN GLENN COLLEGE OF PUBLIC AFFAIRS

Public Affairs 5512: Skills –Data Visualization in Public Affairs
Syllabus
Credit Hours: 1

Instructor Information

Course Information

Meeting Day/Time:

Class Location

Credit Hours: 1¹

Course Description

Overview

A critical skill in today's public sector environment is the ability to effectively collect, manage, analyze, and **present** the significant amount of data needed to operate any size department or agency. Many visualization tools exist to present data in an efficient and effective manner; each has its strengths and weaknesses. By studying different techniques for how best to present information, we can make the decision-making process more efficient by helping employees, supervisors, the public and other stakeholders grasp critical points more easily. Students who master this class will be

¹ For each credit, please expect about an hour of in class meeting time, and 2 hours out of class work. So for a one-credit class, you should expect 14 hours of in class instruction (7 meetings at 2 hours each) and about twice that outside of class preparing and doing homework, studying and assignments (approximately 4 hours per week for 7 weeks). If you feel you are exceeding these guidelines on a regular basis, please let me know.

able to effectively present data in a number of different ways to both illustrate and draw meaning out of the data—a transferable, marketable skill.

Course Approach

This course focuses on concepts of presenting data from initial concept to final presentation. A variety of methods are presented and discussed, to cover planning, data gathering, data analysis, and visual presentation, with an emphasis on presentation.

Student Learning Objectives

Upon successful completion of this course, students will:

- Have gained an understanding of the use of data visualization techniques
- Understand the visual qualities important to conveying data
- Manage and analyze data using Tableau software
- Manipulate and create visualizations and dashboards in Tableau
- Utilize Tableau to support decision making and communicate with decision makers

Class Structure

Class meetings will consist of two parts:

1. The first half of the class (approx.) will consist of lecture/discussion of data visualization theory and techniques. This will include discussion of any additional assigned readings and topics of interest for the class.
2. The second half of the class (approx.) will be hands-on time with Tableau data visualization tools. This may include some additional instruction specific to Tableau, working with files, and working on examples and exercises.

Course Materials [Not Required to Purchase; all are available as eBooks through the University Libraries Website (Safari – Books Online). View in web browser.]

1. Ben Jones. (2014) *Communicating Data with Tableau*. Sebastopol, CA: O'Reilly Media, Inc. (ISBN: 978-1-449-37202-6)
2. Joshua N. Milligan (2016) *Learning Tableau 10 - Second Edition*. Birmingham, UK: Packt Publishing Ltd. (ISBN: 978-1-78646-635-8)
3. Daniel G. Murray (2013) *Tableau Your Data! – Fast and Easy Visual Analysis with Tableau Software*. Indianapolis, IN: John Wiley & Sons (ISBN: 978-1-118-61204-0)
4. All other readings and course materials will be supplied by the instructor through <https://carmen.osu.edu>.

Students can access textbook information via the Barnes & Noble bookstore website: <https://ohiostate.bncollege.com> as well as from their BuckeyeLink Student Center. This information is disseminated by B&N to all area bookstores. You may buy from a store of your choice and/or shop for books (always use ISBN# for searches) online.

Course Requirements

The following components make up the final course grade:

Exercise 1:	10%
Exercise 2:	10%
Exercise 3:	15%
Case Study 1:	10%
Case Study 2:	15%
Final Project:	40%

Transformation of numerical grade to a letter grade will be according to the schedule below:

A	931-00	B-	80-82	D+	68-69
A-	90-92	C+	78-79	D	60-67
B+	88-89	C	73-77	E	<60
B	83-87	C-	70-72		

Course Exercises / Projects

Exercise 1: A Tableau Sketchbook

Traditionally, a sketchbook is a sketch pad or notebook with blank pages used by visual artists to sketch their ideas as part of the creative process. It can also be used to practice basic forms (shapes, shading, patterns and anatomical renderings).

For this exercise, you will follow directions on the Tableau website to create a set of basic visualizations that you can use as templates in your own work (a sketchbook of visualizations, if you will). Because the tutorials are essentially "self-grading" (since each tutorial shows you what the visualization should look like at the end), I will not be providing detailed feedback on them. Rather, I will look through your workbook for completeness (i.e., were all the tutorials done) and only provide feedback if I spot any obvious problems.

To create your sketchbook:

- Open Tableau Desktop and connect to the Sample – Superstore data set (Connect pane > Saved Data Sources > Sample – Superstore; do NOT open the Superstore sample workbook).
- Go to this page: <https://go.osu.edu/BuildTableauCharts> (opens a tutorial page on the Tableau web site.)
- Complete ALL the data visualization tutorials listed under "Other articles in this section" at the bottom of the page ("Build an Area Chart", "Build a Bar Chart", etc.). Create each visualization on its own sheet in your Tableau workbook.
- Save your Tableau workbook as a packaged workbook (.twbx)
- Submit the packaged workbook on Carmen.

Exercise 2: Tableau Power Start Workbook

We will begin this tutorial exercise in class to create several basic data visualization “forms” in Tableau and collect them into a dashboard. You will complete the tutorial on your own. This exercise has three goals: (1) to continue to familiarize you with the Tableau program interface, (2) to present a further sampling of basic visualization types available in Tableau, and (3) to introduce the concept of a dashboard. You will turn in your Power Start Workbook as Packaged Workbook (.twbx) file.

Case Study 1

New York City’s Metropolitan Transportation Authority (MTA) has been a leader in making data accessible to their customers and stakeholders. For this case study (6 text pages max, exclusive of screen shots):

- Read ***The MTA in the Age of Big Data: Transforming the Wealth of MTA Data into Accessible, Meaningful, Visual, Interactive Information.***
- Browse the MTA website (<https://new.mta.info/>). Previously in beta for several years, the site is now fully operational and the result of the initiative described in your reading. As you browse, think about the intended audience for each part of the website, making note of the tools and information provided (e.g., trip-planning and customer self-serve tools for riders, data for policy makers and advocates for public accountability). Choose two of the available tools for RIDERS on the MTA site and write a brief critique (2 text pages max, exclusive of graphics) of these tools with respect to their ease of use and visual appeal. In your critique, address specifically whether or not the graphical design and presentation of the tool enhances its usefulness. Include screen shots of the tools you are critiquing.
- Next, turn your attention to the “Transparency” section of the MTA website (<https://new.mta.info/transparency>). This is the type of information that you, as a manager in the public sector, will most likely be tasked with providing to stakeholders and the public. Browse the data provided and critique the presentation of the data in light of the MTA document you read. Are the transparency data presented in a way that lives up to the document’s title of being “accessible, meaningful, visual and interactive information”? Explain why or why not (either is acceptable, as long as you justify your answer), with examples (screen shots) from the website (2-4 written pages; screen shots should be appended to the written document and do NOT count toward the 2-4 page requirement).

Exercise 3: Create Visualizations from Data

Using Tableau and a dataset provided by your instructor on Carmen, create three visual representations of the data. (Alternatively, you may use a dataset of your own choosing, but please submit a sample to the instructor for approval before you begin work.) Submit

your visualizations as a Packaged Workbook (.twbx) file. In a separate Word document, provide a brief explanation (no more than 1 page per viz) of each viz, including a description of the source data, the intended audience, and what you intended the visualization to communicate.

Case Study 2

Read ***Transparency in Texas: Beyond Raw Data***. Using ONE of the case studies in the report as a guide (*Texas School District Finance Data, Legislative Budget Board Website, City of Kyle, or City of Manor: Transparency on a Budget*), select a similar government agency in Ohio (state, county or municipal), locate the section of their website where they present similar data, and assess the strengths and weaknesses in their presentation of data. Be sure to take into account the intended audience. Let me know if you need assistance finding an appropriate agency to assess. Write up your assessment (3–5 pages), highlighting what the Ohio agency is doing right and/or what they can improve regarding how they present information. Include examples of their visual representations (data vizes) to illustrate your assessment. These should be screen shots appended to your written assessment; these do NOT count as part of the 3–5 pages). Grading of your assessment will be based on how you evaluate the selected agency data presentation/visualizations using criteria for effective data and graphics presented in class lectures and readings.

Final Project: Tutorial for a Deconstructed Data Viz

This assignment is intended to extend your skills beyond this course by learning from the examples of others. Tableau is a complex, powerful data visualization tool, and in this course we will only begin to explore its capabilities. Tableau is also very well supported by an extensive community of users from a broad array of professions. Chances are, when you need to apply Tableau to your own data, someone, somewhere has created Tableau visualizations like the ones you have in mind, or some that may inspire you to view your data in a new and engaging way. You will select a visualization from among the top-rated submissions to Tableau Public, or alternatively a Tableau visualization posted online that you locate yourself (links to eligible vizzes can be provided by the instructor on request). In Tableau, you will “reverse engineer” (deconstruct and recreate) the entire visualization to understand exactly how it was created. You will then write a step-by-step tutorial that another Tableau user could follow to create the visualization for themselves, with only the source data (and Tableau!) available to them. Include in your tutorial a description of the source data, a summary of the purpose and intended audience of the selected visualization, and your assessment of the most innovative, unique, or useful aspects of the visualization.

You will turn in:

- The tutorial as a Word document (summary, data description, step-by-step instructions, and a link to the visualization that you are emulating)

- Your *reconstructed* Tableau viz (NOT the file you downloaded) as a Packaged Workbook
- The source data for your viz (will require you to do a data extract from Tableau)

Using only the extracted data and your tutorial instructions, I will attempt to construct your selected viz from scratch.

Suggestion: Though not required, you may wish to pair up with a classmate to peer-review one another's tutorials. Trade tutorials and source data and attempt to build your classmate's viz just from the instructions given. Then provide one another with feedback on any unclear instructions or gaps in the tutorial instructions. This approach will work best if you are working on different tutorials, so that each of you is a naive user, approaching your classmate's viz for the first time. You may provide feedback on the tutorial instructions only; you may NOT tell your classmate how to fix problems with the tutorial or advise them on how to structure the source data for the tutorial. If you do pair up with a classmate, note the classmate's name in your tutorial document summary.

➤ Final Project Grading

- The final project is worth 40 points. Points will be distributed as follows:
 - Overview summary (including notes on visualization preparation, analysis, audience and source) (15 points)
 - Step-by-step tutorial document (25 points)

Course Policies

Assignment Submission

All assignments should be submitted through Carmen by the day they are due. Informing the instructor of your intention to be absent does not waive your obligation to submit assigned work. **Late work will be accepted with a one-third-letter grade penalty each day that it is late (A- to B+), unless prior approval is granted by the instructor.**

Grade Appeals

Grades on assignments are intended to reflect the overall quality of performance of the student. You may appeal your grade on an assignment if you think the grade does not reflect the quality of your performance on the assignment. To appeal a grade, submit a clear written explanation via email describing why you believe the assigned grade is inappropriate within one week after your work is returned. I will carefully consider all such appeals.

Academic Integrity

The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the University's [Code of Student Conduct](#), and that all students will complete all academic and scholarly assignments with fairness and honesty. Failure to follow the rules and guidelines established in the University's *Code of Student Conduct* may constitute "Academic Misconduct." Sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the University.

In the Ohio State University's [Code of Student Conduct](#), Section 3335-23-04 defines academic misconduct as: "Any activity that tends to compromise the academic integrity of the University, or subvert the educational process." Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and excessive quotation and paraphrasing of other's work with or without citation. Ignorance of the University's *Code of Student Conduct* is never considered an "excuse" for academic misconduct.

If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact the instructor.

Accommodation Policy

The University strives to make all learning experiences as accessible as possible. 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.

Mental Health Statement

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 is 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 Counseling and Consultation Services (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. Also, the OSU Student Advocacy Center is a resource to help students navigate OSU and to resolve issues that they encounter at OSU – visit <http://advocacy.osu.edu/>

Glenn College Diversity Values Statement

The Glenn College is committed to nurturing a diverse and inclusive environment for our students, faculty, staff, and guests that celebrates the fundamental value and dignity of everyone by recognizing differences and supporting individuality. We are dedicated to creating a safe space and promoting civil discourse that acknowledges and embraces diverse perspectives on issues and challenges that affect our community.

Public Affairs 6510: Course Schedule

Week 1:

- Welcome and Introduction to the course
- Overview of syllabus and course requirements
- Introduction to Data Visualization
- Hands-on with Tableau: Gapminder in Tableau (Due September 6 @ 5:00 PM)
- Explain Exercise 1: A Tableau Sketchbook (Due September 6 @ 5:00 PM)

Week 2:

- NO CLASS
- Due: Gapminder in Tableau, Exercise 1
- (Optional: 1-on-1 Zoom check-ins)
- Explain Case Study 1 (via Email or Zoom) (Due September 20 @ 5:00 PM)

Week 3:

- Design Matters: Criteria for Effective Data Visualizations
- Connecting to Data
- Touch base on Case Study 1
- Explain Exercise 2: Tableau Power Start (Due September 20 @ 5:00 PM)
- Explain Case Study 2 (Due October 4 @ 5:00 PM)
- Explain Final Project (Due December 11 @ 8:00 PM)
- Hands-on with Tableau

Week 4:

- Exercise 2 and Case Study 1 due at 5:00 PM
- Use of Color in Visualizations
- Touch base on Final Project
- Explain Exercise 3: Create Visualizations from Data
(Due October 4 @ 5:00 PM)
- Hands on with Tableau

Week 5:

- Advanced Tableau Techniques
- Touch base on Final Project

Week 6:

- Exercise 3 and Case Study 2 Due at 5:00 PM
- Advanced Tableau Techniques/Dashboards
- Work on Final Project

Week 7:

- Telling stories with data / Wrapping up loose ends
- Work on Final Project

Finals “Week”: Final Project –