

## Term Information

Effective Term Spring 2023  
[Previous Value](#) Autumn 2022

## Course Change Information

### What change is being proposed? (If more than one, what changes are being proposed?)

To submit this course for a GE foundation course: Mathematical and Quantitative Reasoning (or Data Analysis)

### What is the rationale for the proposed change(s)?

The Division of Biostatistics would like for students to be able to select this course as a GE foundation requirement

### What are the programmatic implications of the proposed change(s)?

(e.g. program requirements to be added or removed, changes to be made in available resources, effect on other programs that use the course)?

none

Is approval of the request contingent upon the approval of other course or curricular program request? No

Is this a request to withdraw the course? No

## General Information

|                                      |   |
|--------------------------------------|---|
| Course Bulletin Listing/Subject Area | Pub Hlth: Biostatistics   |
| Fiscal Unit/Academic Org             | College of Public Health - D2505  |
| College/Academic Group               | Public Health   |
| Level/Career                         | Undergraduate   |
| Course Number/Catalog                | 2210  |
| Course Title                         | Biostatistics for Public Health Research  |
| Transcript Abbreviation              | Biostat Pub Hlth  |
| Course Description                   | Hands-on experience using statistical tools to answer real-world questions. Students will design and implement a short survey and analyze their results. Emphasis on analysis of actual survey data using statistical software. Statistical topics include numerical/graphical summaries, measures of association, and hypothesis testing. Focus is on interpretation, not calculation. |
| Semester Credit Hours/Units          | Fixed: 3  |

## Offering Information

|  |  |
|--|--|
| Length Of Course   | 14 Week, 12 Week, 8 Week, 7 Week, 6 Week           |
| Flexibly Scheduled Course  | Never  |
| Does any section of this course have a distance education component? | Yes  |
| Is any section of the course offered                                 | 100% at a distance                                 |
| Grading Basis  | Letter Grade                                       |
| Repeatable   | No   |
| Course Components  | Lecture  |
| Grade Roster Component   | Lecture  |
| Credit Available by Exam   | No   |
| Admission Condition Course   | No   |
| Off Campus   | Never  |
| Campus of Offering   | Columbus, Lima, Mansfield, Marion, Newark, Wooster |
| <a href="#">Previous Value</a>                                       | <a href="#">Columbus</a>                           |

## Prerequisites and Exclusions

Prerequisites/Corequisites

Exclusions

Electronically Enforced No

## Cross-Listings

Cross-Listings

## Subject/CIP Code

Subject/CIP Code 26.1102  
Subsidy Level Baccalaureate Course  
Intended Rank Freshman, Sophomore, Junior, Senior

## Requirement/Elective Designation

Required for this unit's degrees, majors, and/or minors  
Mathematical and Quantitative Reasoning (or Data Analysis)

[Previous Value](#)

*Required for this unit's degrees, majors, and/or minors*

## Course Details

Course goals or learning objectives/outcomes

- Translate a general idea into a specific research question  
Construct a survey to collect data specific to a research question
- Choose and calculate/create the appropriate numerical and graphical summary measures for different data types  
Construct confidence intervals for means and proportions
- Choose and perform the appropriate hypothesis test for different data types and interpret the results
- Summarize statistical results through written, visual, and oral communication methods so that results are understandable to someone who has not taken this course.

Content Topic List

- What is biostatistics?  
Types of data  
Graphical and numeric summaries of data  
Confidence intervals and hypothesis tests concepts  
Confidence intervals for means, proportions
- Univariable hypothesis tests  
Multivariable hypothesis tests  
Multiple comparisons  
Power and sample size

Sought Concurrence

No

[Previous Value](#)

Yes

**Attachments**

- PUBHBIO 2210 Biostatistics for Public Health Research Syllabus.pdf  
*(Syllabus. Owner: Droesch, Kynthia Ellen)*
- PUBHBIO\_2210-ge-foundations-submission.pdf: GE Foundations Submission  
*(Other Supporting Documentation. Owner: Droesch, Kynthia Ellen)*

**Comments**

- Per Andrew Martin's email, we are submitting as is. *(by Droesch, Kynthia Ellen on 07/12/2022 11:50 AM)*
- - Hi Kynthia: In answer to your question: Yes, either upload the ODEE review (or whatever form was used to receive approval for DL; the ASCC panel needs documentation of previous DL approval) or fill out the DL form on the ASC site <https://ascas.osu.edu/curriculum/distance-courses>  
Call me if you have any questions *(by Vankeerbergen, Bernadette Chantal on 06/03/2022 02:22 PM)*

**Workflow Information**

| Status             | User(s)   | Date/Time           | Step                   |
|--------------------|---|---------------------|------------------------|
| Submitted          | Droesch, Kynthia Ellen  | 05/10/2022 09:15 AM | Submitted for Approval |
| Approved           | Anderson, Sarah Elizabeth   | 05/11/2022 04:18 PM | Unit Approval          |
| Approved           | Bisesi, Michael Salvatore   | 05/12/2022 07:24 AM | College Approval       |
| Revision Requested | Vankeerbergen, Bernadette Chantal   | 05/31/2022 02:43 PM | ASCCAO Approval        |
| Submitted          | Droesch, Kynthia Ellen  | 05/31/2022 05:14 PM | Submitted for Approval |
| Approved           | Anderson, Sarah Elizabeth   | 06/03/2022 10:45 AM | Unit Approval          |
| Approved           | Bisesi, Michael Salvatore   | 06/03/2022 02:17 PM | College Approval       |
| Revision Requested | Vankeerbergen, Bernadette Chantal   | 06/03/2022 02:22 PM | ASCCAO Approval        |
| Submitted          | Droesch, Kynthia Ellen  | 07/12/2022 11:50 AM | Submitted for Approval |
| Approved           | Anderson, Sarah Elizabeth   | 07/12/2022 12:10 PM | Unit Approval          |
| Approved           | Bisesi, Michael Salvatore   | 07/12/2022 01:20 PM | College Approval       |
| Pending Approval   | Cody, Emily Kathryn<br>Jenkins, Mary Ellen Bigler<br>Hanlin, Deborah Kay<br>Hilty, Michael<br>Vankeerbergen, Bernadette Chantal<br>Steele, Rachel Lea | 07/12/2022 01:20 PM | ASCCAO Approval        |

**PUBHBIO 2210 – Biostatistics for Public Health Research**  
**Distance Learning Section**  
**3 credit hours – Spring, 2022**

- Instructor:** James B. Odei, Ph.D.  
Office: 248 Cunz Hall  
Phone: 614-247-8048  
Email: [odei.3@osu.edu](mailto:odei.3@osu.edu)
- Office Hours:** Tuesdays 2:00pm–3:00pm EST and Wednesdays 12:30pm–1:30pm EST, or by Appointment via (OSU Carmen) Zoom  
  
Zoom Link (**Tuesdays**):  
<https://osu.zoom.us/j/95059240375?pwd=eVJsTWpWTzNEM3pBV0FrYjBSV3AwZz09>  
Meeting ID: 950 5924 0375  
Password: 844957  
  
Zoom Link (**Wednesdays**):  
<https://osu.zoom.us/j/96235338158?pwd=R0M5Mi9PM01jalOTVNPuHEwRGswQT09>  
Meeting ID: 962 3533 8158  
Password: 921148
- Teaching Assistant (TA):** Arkobrato Gupta  
Email: [gupta.1161@osu.edu](mailto:gupta.1161@osu.edu)
- TA Office Hours:** Wednesdays 11:00am–12:00pm EST via (OSU Carmen) Zoom.  
  
Zoom Link (**Wednesdays**):  
<https://osu.zoom.us/j/93317184993?pwd=T2FvWmtPdHFDTGhscFh1eGpLQ1Y0dz09>  
Meeting ID: 933 1718 4993  
Password: 560525
- TA Responsibilities:** The TA assigned to the course will assist with the online activities, hold regular office hours, and lead review sessions for any students who need help with class material. The TA may assist with scoring assignments and exams; however, final grades will be assigned by the professor. **Any questions regarding grading must be directed to the professor and not the TA.**
- Course Description:** Hands-on experience using statistical tools to answer real-world questions. Students will design and implement a short survey and analyze their results. Emphasis is on analysis of actual survey data using statistical software. Statistical topics include numerical/graphical summaries, measures of association, and hypothesis testing. Focus is on interpretation, not calculation.
- Pre-requisites:** None

**GE Information:**

This course satisfies GE requirement for the Foundations: Mathematical and Quantitative Reasoning (or Data Analysis) category. The goals and the university's stated expected learning outcomes for this requirement are as follows.

**GE Goals:**

Successful students will be able to apply quantitative or logical reasoning and/or mathematical or statistical analysis methodologies to understand and solve problems, and to communicate results.

**GE Expected Learning Outcome (ELO):**

- ELO 1.1 Successful students are able to use logical, mathematical and/or statistical concepts and methods to represent real-world situations.
- ELO 1.2 Successful students are able to use diverse logical, mathematical and/or statistical approaches, technologies, and tools to communicate data symbolically, visually, numerically, and verbally.
- ELO 1.3 Successful students are able to draw appropriate inferences from data based on quantitative analysis and/or logical reasoning.
- ELO 1.4 Successful students are able to make and evaluate important assumptions in estimation, modeling, logical argumentation, and/or data analysis.
- ELO 1.5 Successful students are able to evaluate social and ethical implications in mathematical and quantitative reasoning.

**Course Learning Objectives:**

Upon successful completion of the course, students will be able to:

1. Translate a general idea into a specific research question (ELO 1.5)
2. Construct a survey to collect data specific to a research question (ELO 1.5)
3. Choose and calculate/create the appropriate numerical and graphical summary measures for different data types (ELO 1.1-1.2)
4. Construct confidence intervals for means and proportions (ELO 1.1, 1.3)
5. Choose and perform the appropriate hypothesis test for different data types and interpret the results (ELO 1.1, 1.3-1.4)
6. Summarize statistical results through written, visual, and oral communication methods so that results are understandable to someone who has not taken this course (ELO 1.2, 1.5)

**Foundational Competencies:**

- Apply the fundamental principles of the five core disciplines of public health (biostatistics; environmental health; epidemiology; health administration/policy; health behavior/promotion) to domestic and international population health issues. (5)
- Communicate public health information, in both oral and written forms, through a variety of media and to diverse audiences. (6)
- Locate, use, evaluate and synthesize public health information. (7)

**CEPH Domains:**

- **Role and Importance of Data in Public Health:** Address the basic concepts, methods, and tools of public health data collection, use, and analysis and why evidence-based approaches are an essential part of public health practice. (2)
- **Health Communications:** Address the basic concepts of public health-specific communication, including technical and professional writing and the use of mass media and electronic technology (9)

**CEPH Cross-Cutting Concepts:**

- Independent work and a personal work ethic (6)
- Research methods (10)
- Teamwork and leadership (12)

**Alignment of Course Assessments with Degree Program Competencies, Course Objectives, CEPH Domains, and CEPH Cross-Cutting Concepts**

| Assessment                         | Course Objectives | Competencies | Domains | Cross-Cutting Concepts |
|------------------------------------|-------------------|--------------|---------|------------------------|
| Exams                              | 3, 4, 5, 6        | 5, 7         | 2       | 10                     |
| Quizzes                            | 3, 4, 5, 6        | 5, 7         | 2       | 10                     |
| Lab Exercises                      | 4, 5, 6           | 5, 6, 7      | 2, 9    | 10                     |
| Activities                         | 2, 3, 5, 6        | 5, 6, 7      | 2, 9    | 10                     |
| Survey Project: Homework           | 1, 2, 4, 5, 6, 7  | 5, 6, 7      | 2, 9    | 6, 10, 12              |
| Survey Project: Video Presentation | 1, 2, 4, 5, 6, 7  | 5, 6, 7      | 2, 9    | 10, 12                 |
| Survey Project: Paper              | 1, 2, 4, 5, 6, 7  | 5, 6, 7      | 2, 9    | 6, 10                  |

**Course Format:****Mode of Delivery:**

This course is **100% online (Asynchronous)**. There are no required sessions when you must be logged in to Carmen at a scheduled time.

**Pace of Delivery:**

The course material is organized in **weekly modules**. Each module generally starts at 12:00 am EST on a Friday preceding the corresponding week and ends at 11:59 pm EST on a Thursday (see calendar for specific dates). Each module contains (a) recorded lectures to be watched asynchronously, (b) computer labs, (c) online quizzes, (d) textbook readings. Students are expected to keep pace with weekly deadlines but may schedule their efforts freely within that time frame. All asynchronous activities will be accessible via Carmen. Periodically during the semester, I may ask you for feedback on your learning experience in order to improve the course. Students will be responsible for reading the assigned textbook chapter(s), watching the recorded lecture, reviewing the lecture notes, and completing the online quiz by the due date (Monday nights). Majority of the remaining assignments are due Friday nights. Lectures and quizzes will be posted in advance. Students must complete each quiz by midnight on the due date (see schedule for exact dates).

**Credit Hours and Work Expectations:**

This is a **3-credit-hour course**. According to [Ohio State policy \(go.osu.edu/credithours\)](http://go.osu.edu/credithours), students should expect around 3 hours per week of time spent on direct instruction (instructor content and Carmen activities, for example) in addition to 6 hours of homework (reading and assignment preparation, for example) to receive a grade of (C) average.

**Attendance and Participation Requirements:**

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

- **Participating in online activities for attendance: AT LEAST ONCE PER WEEK**  
You are expected to log in to the course in Carmen every week. (During most weeks you will probably log in many times.) If you have a situation that might cause you to miss an entire week of class, discuss it with me *as soon as possible*.
- **Office hours and live sessions: OPTIONAL**  
All live, scheduled events for the course, including my office hours, are optional.
- **Participation in discussion forums: UP TO 2 TIMES PER WEEK**  
As part of your participation, each week you can expect to post up to twice as part of our substantive class discussion on the week's topics or activities.

**Required Text:** *Intuitive Biostatistics, 4<sup>th</sup> Edition*, by Harvey Motulsky (2017)  
Note: 3<sup>rd</sup> edition (2014) may also be used

The text is intended as a **supplement** to course materials available on Carmen. No assignments or assessments require this text.

**Additional Readings:** In addition to assigned textbook readings, students will occasionally be expected to read articles from peer-reviewed literature as well as other resources. These readings will be made available through Carmen.

**Required Statistical Software:** This course will use the software program R (<https://www.r-project.org/>) This software is provided for this course through a remote server so that students can access it anywhere they have an internet connection by going to: <https://remote.service.osu.edu/> and logging in with their **name.#**. Note that the login procedure requires BuckeyePass, also referred to as Duo or 2-factor authentication <http://ocio.osu.edu/KB05023> – the same procedure as is required to access Carmen. For the purpose of illustration and to get the best computing support, students are **required to use R for all assignments and activities**.

**Required Survey Software:** Qualtrics ([osu.qualtrics.com](http://osu.qualtrics.com))  
You will be using Qualtrics, an online survey software tool, to create and implement a survey. Instructions for creating an account and using the software will be provided.

**Course Technology:** (1) *TECHNOLOGY SUPPORT*  
For help with your password, university email, Carmen, or any other technology issues, questions, or requests, contact the OSU IT Service Desk. Standard support hours are available at <https://ocio.osu.edu/help/hours>, and support for urgent issues is available 24/7.

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

(2) *TECHNOLOGY SKILLS NEEDED FOR THIS COURSE*

- Basic computer and web-browsing skills
- Navigating Carmen ([go.osu.edu/canvasstudent](http://go.osu.edu/canvasstudent)): for questions about specific functionality, see the [Canvas Student Guide](#).
- CarmenZoom virtual meetings ([go.osu.edu/zoom-meetings](http://go.osu.edu/zoom-meetings))
- Recording a slide presentation with audio narration ([go.osu.edu/video-assignment-guide](http://go.osu.edu/video-assignment-guide))
- Recording, editing, and uploading video ([go.osu.edu/video-assignment-guide](http://go.osu.edu/video-assignment-guide))

(3) *REQUIRED EQUIPMENT*

- Computer: current Mac (OS X) or PC (Windows 7+) 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
- Other: a mobile device (smartphone or tablet) or landline to use for BuckeyePass authentication

(4) *REQUIRED SOFTWARE*

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

**Carmen Access:**

Login at <http://carmen.osu.edu> with your OSU internet username (**name.#**) and password then go to PUBHBIO 2210. The site will contain the syllabus, recorded lectures, quizzes, assignments, and additional readings. All assignments **must** be turned in electronically via the Carmen dropbox, unless otherwise directed.

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

- Register multiple devices in case something happens to your primary device. Visit the [BuckeyePass - Adding a Device](#) help article for step-by-step instructions ([go.osu.edu/add-device](http://go.osu.edu/add-device)).
- Request passcodes to keep as a backup authentication option. When you see the Duo login screen on your computer, click “**Enter a Passcode**” and then click the “**Text me new codes**” button that appears. This will text you ten passcodes good for 365 days that can each be used once.
- Download the [Duo Mobile application \(go.osu.edu/install-duo\)](http://go.osu.edu/install-duo) to all of your registered devices for the ability to generate one-time codes in the event that you lose cell, data, or Wi-Fi service.



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

**Carmen Zoom:** Any online office hours and/or online review sessions will be held via **OSU Carmen Zoom**. Information about using Carmen Zoom as a participant can be found at: <https://teaching.resources.osu.edu/toolsets/carmenzoom>. The links for participating can be found on page 1 of this syllabus or by clicking on the Zoom tab in Carmen to join a specific meeting.

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

- **Grading and feedback:** For large weekly assignments, you can generally expect feedback within **7 days**.
- **Email:** I will reply to emails within **24 hours on days when class is in session at the university**.
- **Discussion board:** I will check and reply to messages in the discussion boards every **24 hours on school days**

**Grading:** Final class grade will be determined as follows:

|                                    |                      |
|------------------------------------|----------------------|
| 2 Exams                            | 15% each (30% total) |
| Quizzes                            | 10%                  |
| Lab Exercises                      | 10%                  |
| Activities                         | 10%                  |
| Survey Project: Homework           | 10%                  |
| Survey Project: Video Presentation | 15%                  |
| Survey Project: Final Report       | 15%                  |

Any questions regarding grading should be addressed within one week of the return of the assignments or exams. **Any questions regarding grading must be directed to the professor and not the TA.**

|                       |            |    |            |    |            |    |            |    |
|-----------------------|------------|----|------------|----|------------|----|------------|----|
| <b>Grading Scale:</b> | 93 – 100   | A  | 87 – 89.99 | B+ | 77 – 79.99 | C+ | 67 – 69.99 | D+ |
|                       | 90 – 92.99 | A- | 83 – 86.99 | B  | 73 – 76.99 | C  | 60 – 66.99 | D  |
|                       |            |    | 80 – 82.99 | B- | 70 – 72.99 | C- | 0 – 59.99  | E  |

**Exams:** There will be two midterm exams. Both exams will be online and timed; have a similar structure (multiple choice and short answer response) and involve data analysis and interpretation using the computer. The exams will be on **Wednesday, February 16, 2022**, and **Wednesday, March 30, 2022**. If you cannot make it for an exam due to a scheduling conflict, you must make arrangements with the instructor **at least one month prior to the scheduled exam**. Students who miss an exam **will not be allowed** to take a make-up exam and in the absence of a documented excuse will receive a 0 on the exam.

- Assignments:** All deadlines are by 11:59 pm EST and submission is through Carmen. Students are strongly encouraged to submit well in advance of deadlines to avoid difficulties, technical or otherwise. Quizzes, labs, and activities not submitted on time will receive no credit. Survey project assignments submitted up to 72 hours late will have the earned score scaled by 50%. For example, an assignment due Friday but submitted the following Monday scoring 9/10 submitted will receive a score of  $(9/10) \times (50\%) = 4.5/10$ .
- Quizzes:** Upon completion of each distance lecture, students will need to take a short quiz on Carmen. The quiz will be active up until **11:59 pm EST** the day it is due (see schedule for exact dates). A score of at least 80% on a quiz receives full credit for that quiz at the end of the semester before final course grades are computed. If a student scores below an 80% on a quiz, he/she will receive 0 points for that quiz but will have the opportunity to “make up” the quiz (i.e., to avoid the 0 points). Otherwise, 0 points will be awarded for that quiz at the end of the semester before final course grades are computed. If a quiz is not completed before the deadline, 0 points will be given for that quiz (**note: no quiz make-up is allowed in this case**). **Detailed instruction for the quiz make-up is available under Module 0 (and also, in the quiz-make up dropbox) in CARMEN.** The instructor reserves the right to penalize students who abuse this quiz make-up policy. **Quizzes must be completed without the help of other individuals (books and notes are okay).**
- R Lab Exercises:** Approximately one assignment per week will consist of a computer lab session with lab exercises provided before/on the day of the lab (usually by Monday) using the R statistical software package. Exercises, which are designed to be completed during the allotted time, should be completed during the week and must be turned in electronically via Carmen by the due day (usually Friday). Students may work together but **must** submit their own work in their own writing. No late lab assignments will be accepted.
- Activities:** Some activities require interaction with other students, usually through discussion board posts. For such activities, students may work together but must submit their own work in their own writing. Other activities require completing and submitting your work in an assigned group.
- Survey Project:** Students will design and implement a short survey as an ongoing project throughout the course, culminating in a final video presentation and final written report (details below). Students will work **in groups assigned by the instructor** to design and implement the survey and to create a video presentation, however, each student will write his/her own final report/paper.
- Survey Project – Homework:** There will be 7 homework assignments related to the survey assignment that students will be working on throughout the course. Most of these homework assignments will be completed and submitted (**electronically** through the Carmen dropbox) in the assigned groups.

*Survey Project –  
Video  
Presentation:*

Students will work in the assigned groups to create a video presentation. The video presentations are due on **Wednesday, 4/20 by 11:59 pm EST**. In addition, there will be peer feedback/evaluation on these video presentations between **Thursday, 4/21** and **Friday, 4/22**. Note here that the last day to provide student video feedback is on **Friday, 4/22 by 11:59 pm EST**. Grades for the video presentation will be determined by (a) the assigned group video presentation, and (b) student's peer feedback of the video presentation. Specific instructions for the video presentation will be provided in Carmen.

*Survey Project –  
Final Report/Paper:*

The final assignment for this course will be a written report/paper, due on **Tuesday, 5/3 by 11:59 pm EST**. While students will be working **in groups** to design and implement the survey, each student will write **their own final report or paper**. Specific instructions for the final report/paper will be provided in Carmen.

**Course Integrity:**

**Policies for this online course include the following:**

- **Quizzes and exams:** You must complete the midterm and/or final exams yourself, without any external help or communication. Weekly quizzes are included as self-checks with points attached.
- **Written assignments:** Your written assignments, including discussion posts, should be your own original work. In formal assignments, you should follow [MLA/APA] style to cite the ideas and words of your research sources (including class articles and cases) you use for your written assignments and discussion points. You are encouraged to ask a trusted person to proofread your assignments before you turn them in – but no one else should revise or rewrite your work.
- **Reusing past work:** In general, you are prohibited in university courses from turning in work from a past class to your current class, even if you modify it. If you want to build on past research or revisit a topic you have explored in previous courses, please discuss the situation with me.
- **Falsifying research or results:** All research you will conduct in this course is intended to be a learning experience; you should never feel tempted to make your results or your library research look more successful than it was.
- **Collaboration and informal peer-review:** The course includes many opportunities for formal collaboration with your classmates. While study groups and peer-review of major written projects is encouraged, remember that comparing answers on a quiz or assignment is not permitted. If you are unsure about a particular situation, please feel free just to ask ahead of time.
- **Group projects:** This course includes group projects, which can be stressful for students when it comes to dividing work, taking credit, and receiving grades and feedback. I have attempted to make the guidelines for group work as clear as possible for each activity and assignment, but please let me know if you have any questions.

## **Discussion and Communication Guidelines:**

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

- **Writing style:** While there is no need to participate in class discussions as if you were writing a research paper, you should remember to write using good grammar, spelling, and punctuation. A more conversational tone is fine for non-academic topics.
- **Tone and civility:** Let us maintain a supportive learning community where everyone feels safe and where people can disagree amicably. Remember that sarcasm does not always come across online.
- **Citing your sources:** When we have academic discussions, please cite your sources to back up what you say. (For the textbook or other course materials, list at least the title and page numbers. For online sources, include a link.)
- **Backing up your work:** Consider composing your academic posts in a word processor, where you can save your work, and then copying into the Carmen discussion.

## **Health and Safety Requirements**

All students, faculty and staff are required to comply with and stay up to date on all university safety and health guidance (<https://safeandhealthy.osu.edu>), which includes following university mask policies and maintaining a safe physical distance at all times. Non-compliance will be warned first, and disciplinary actions will be taken for repeated offenses.

## **Statement with COVID Process Addition**

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

## **Disability Statement**

Any student who feels s/he may need an accommodation based on the impact of a disability should contact me privately to discuss your specific needs. Please contact the Office of Student life: Disability Services at 614-292-3307 (TDD: 614-292-0901) in room 098 Baker Hall, 113 W. 12<sup>th</sup> Avenue to coordinate reasonable accommodations for students with documented disabilities. (<http://slds.osu.edu>). More resources regarding accessibility can be found at: <https://ada.osu.edu>.

## Mental Health Services

As a student, you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (CCS) by visiting <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>

## Academic Integrity

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, the College of Public Health, and the Committee on Academic Misconduct (COAM) expect that all students have read and understood the University's *Code of Student Conduct* and the School's *Student Handbook*, and that all students will complete all academic and scholarly assignments with fairness and honesty. The *Code of Student Conduct* and other information on academic integrity and academic misconduct can be found at the COAM web pages (<https://oaa.osu.edu/academic-integrity-and-misconduct>). Students must recognize that failure to follow the rules and guidelines established in the University's *Code of Student Conduct*, the *Student Handbook*, and in the syllabi for their courses 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. Please note that the use of material from the Internet without appropriate acknowledgement and complete citation is plagiarism just as it would be if the source were printed material. Further examples are found in the *Student Handbook*. Ignorance of the *Code of Student Conduct* and the *Student Handbook* is never considered an "excuse" for academic misconduct.

**If I suspect a student of academic misconduct in this course, I am obligated by University Rules to report these suspicions to the University's Committee on Academic Misconduct.** If COAM determines that the student has 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 you have any questions about the above policy or what constitutes academic misconduct in this course, please contact me.

Other sources of information on academic misconduct (integrity) to which you can refer include:

- The Committee on Academic Misconduct web pages ([COAM Home](#))
- *Ten Suggestions for Preserving Academic Integrity* ([Ten Suggestions](#))
- *Eight Cardinal Rules of Academic Integrity* ([www.northwestern.edu/uacc/8cards.htm](http://www.northwestern.edu/uacc/8cards.htm))

## Copyright Disclaimer

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

## Statement on Title IX

Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories (e.g., race). If you or someone you know has been sexually harassed or assaulted, you may find the appropriate resources at <http://titleix.osu.edu> or by contacting the Ohio State Title IX Coordinator, Melissa Mayhan, at [titleix@osu.edu](mailto:titleix@osu.edu) or 614-247-5838.

## Course Schedule (subject to change; most current version is always posted to Carmen)

| Topic  | Week/Class | Date                                       | Module   | Readings    | Assignment (Due date)   |
|--|------------|--|--|-------------|---|
| A. Introduction                                  | 1          | Mon 1/10 –<br>Thur 1/13                    | Module 0   | Ch 1-3      | Watch lecture #0; Interests Questionnaire; Syllabus Quiz (by Thur 1/13)   |
| B. Types of data and software intro              | 2          | Fri 1/14 –<br>Thur 1/20<br><b>Mon 1/17</b> | Module 1<br><b>No Class – Martin Luther King Day</b> | Ch 8        | Watch lecture #1; Quiz #1 (by Tues 1/18) Activity #1 (due Fri 1/21); Lab #1 (due Fri 1/21); HW #1 (due Fri 1/21)  |
| C. Graphical & numeric data summaries            | 3          | Fri 1/21 –<br>Thur 1/27                    | Module 2   | Ch 7, 9-11  | Watch lecture #2; Quiz #2 (by Mon 1/24) Activity #2 Part 1 (due Wed 1/26); Activity #2 Part 2 (due Fri 1/28); Lab #2 (due Fri 1/28); HW #2 (due Fri 1/28) |
| D. Confidence intervals & hypothesis tests       | 4          | Fri 1/28 –<br>Thur 2/3                     | Module 3   | Ch 4, 15-17 | Watch lecture #3; Quiz #3 (by Mon 1/31) Activity #3 (due Fri 2/4); Lab #3 (due Fri 2/4); Activity #4 – Exam Review (open)                                 |
| E. Confidence intervals; means & proportions     | 5          | Fri 2/4 –<br>Thur 2/10                     | Module 4   | Ch 4, 12-14 | Watch lecture #4; Quiz #4 (by Mon 2/7) Activity #4 (by Fri 2/11); Lab #4 (due Fri 2/11); HW #3 (due Fri 2/11)   |
| F. Univariable hypothesis tests                  | 6          | Fri 2/11 –<br>Thur 2/17                    | Module 5   | Ch 18-19    | Watch lecture #5; Quiz #5 (by Mon 2/14) Lab #5 (due Fri 2/18); HW #4 (due Fri 2/18)   |
| <b>EXAM #1</b>                                   |            | <b>Wed 2/16</b>                            | <b>Online timed exam</b>                             |             |   |
| G. Multivariable hypothesis tests: categ./categ. | 7          | Fri 2/18 –<br>Thur 2/24                    | Module 6   | Ch 27-28    | Watch lecture #6; Quiz #6 (by Mon 2/21) Activity #5 (due Fri 2/25); Lab #6 (due Fri 2/25); HW #5 (due Fri 2/25)   |
| H. Multivariable hypothesis tests: cont./categ.  | 8          | Fri 2/25 –<br>Thur 3/3                     | Module 7   | Ch 30, 39   | Watch lecture #7; Quiz #7 (by Mon 2/28) Activity #6 (by Fri 3/4); Lab #7 (due Fri 3/4)  |

|  |    |                            |                                  |              |   |
|--|----|----------------------------|----------------------------------|--------------|---|
| I. Multiple comparisons                        | 9  | Fri 3/4 –<br>Thur 3/10     | Module 8                         | Ch 22-23, 40 | Watch lecture #8; Quiz #8 (by Mon 3/7)<br>Lab #8 (due Fri 3/11); HW #6 (due Fri 3/11)   |
|  | 10 | <b>Mon 3/14 – Fri 3/18</b> | <b>No Classes – SPRING BREAK</b> |              |   |
| J. Multivariable hypothesis tests: cont./cont. | 11 | Fri 3/18 –<br>Thur 3/24    | Module 9                         | Ch 32-33     | Watch lecture #9; Quiz #9 (by Mon 3/21)<br>Activity #7 (due Fri 3/25); Lab #9 (due Fri 3/25); Activity #8 – <i>Exam Review</i> (open) |
| K. Capstone example                            | 12 | Fri 3/25 –<br>Thur 3/31    | Module 10                        | Ch 44-45     | Watch lecture #10; Quiz #10 (by Mon 3/28)<br>Activity #8 (by Tues 3/29)   |
| <b>EXAM #2</b>                                 |    | <b>Wed 3/30</b>            | <b>Online timed exam</b>         |              |   |
| L. Power and sample size                       | 13 | Fri 4/1 –<br>Thur 4/7      | Module 11                        | Ch 20, 26    | Watch lecture #11; Quiz #11 (by Mon 4/4); Activity #9 (open); Lab #10 (due Fri 4/8); HW #7 (due Fri 4/8)                              |
| M. Paired data                                 | 14 | Fri 4/8 –<br>Thur 4/14     | Module 12                        | Ch 31        | Watch lecture #12; Quiz #12 (by Mon 11/15); Activity #9 (due Fri 4/15); Lab #11 (due Fri 4/15)  |
| N. Video Presentations                         | 15 | Fri 4/15 –<br>Wed 4/20     |                                  |              | <b>Video presentation</b> (due Wed 4/20)  |
|  |    | Thur 4/21 –<br>Fri 4/22    |                                  |              | <b>Peer feedback on video presentations</b><br>(due Fri 4/22)   |
| <b>FINAL REPORT</b>                            | 16 | Fri 4/22 –<br>Tues 5/3     |                                  |              | <b>Final Report</b> (due Tue 5/3)*  |
|  |    |                            |                                  |              | <b>End-of-Semester Peer Evaluation for Members of Group Project</b> (due Tue 5/3)   |

Readings are in the Intuitive Biostatistics textbook

*\*Deadline may be extended if specific circumstances warrant – must contact instructor in advance*

# GE Foundation Courses

## Overview

Courses that are accepted into the General Education (GE) Foundations provide introductory or foundational coverage of the subject of that category. Additionally, each course must meet a set of Expected Learning Outcomes (ELO). Courses may be accepted into more than one Foundation, but ELOs for each Foundation must be met. It may be helpful to consult your Director of Undergraduate Studies or appropriate support staff person as you develop and submit your course.

This form contains sections outlining the ELOs of each Foundation category. You can navigate between them using the Bookmarks function in Acrobat. Please enter text in the boxes to describe how your class meets the ELOs of the Foundation(s) to which it applies. Because this document will be used in the course review and approval process, you should use language that is clear and concise and that colleagues outside of your discipline will be able to follow. Please be as specific as possible, listing concrete activities, specific theories, names of scholars, titles of textbooks etc. Your answers will be evaluated in conjunction with the syllabus submitted for the course.

## Accessibility

If you have a disability and have trouble accessing this document or need to receive the document in another format, please reach out to Meg Daly at [daly.66@osu.edu](mailto:daly.66@osu.edu) or call 614-247-8412.

## GE Rationale: Foundations: Race, Ethnicity, and Gender Diversity (3 credits)

Requesting a GE category for a course implies that the course fulfills **all** the expected learning outcomes (ELOs) of that GE category. To help the reviewing panel evaluate the appropriateness of your course for the Foundations: Race, Ethnicity, and Gender Diversity, please answer the following questions for each ELO.

### A. Foundations

Please explain in 50-500 words why or how this course is introductory or foundational for the study of Race, Ethnicity and Gender Diversity.



## **GE Rationale: Foundations: Mathematical and Quantitative Reasoning (or Data Analysis) (3 credits)**

Requesting a GE category for a course implies that the course fulfills **all** expected learning outcomes (ELOs) of that GE category. To help the reviewing panel evaluate the appropriateness of your course for the Foundations: Mathematical and Quantitative Reasoning (or Data Analysis), please answer the following questions for each ELO.

### **A. Foundations**

Please explain in 50-500 words why or how this course is introductory or foundational in the study of Mathematical & Quantitative Reasoning (or Data Analysis).

This is an introductory course in biostatistics, a field applying mathematical and quantitative reasoning to living organisms and develops skills in study design, data analysis, and presentation. The course is designed for students not majoring in statistics or biostatistics, and there are no prerequisites. Students are introduced to the topics of numerical and graphical summaries of data, measures of association, confidence intervals, and hypothesis testing, with course learning outcomes relating to developing a public health–related research question and survey to address it, administering the survey as well as appropriately analyzing the resulting data and reporting the results. Emphasis is on data analysis rather than mathematical theory.

### **B. Specific Goals for Mathematical & Quantitative Reasoning/Data Analysis**

Goal: Successful students will be able to apply quantitative or logical reasoning and/or mathematical/statistical analysis methodologies to understand and solve problems and to communicate results.

**Expected Learning Outcome 1.1: Successful students are able to use logical, mathematical and/or statistical concepts and methods to represent real-world situations.** Please link this ELO to the course goals and topics and indicate *specific* activities/ assignments through which it will be met. (50-700 words)

Via Course Learning Outcomes 3–5, students will be able to summarize data numerically and graphically and conduct inference using data. Numeric summaries include measures of distribution location and variability, as well as measures of association. Inferences include point estimates, confidence intervals, and hypothesis tests. This ELO will be achieved via analysis of data collected as part of a semester-long survey project, as well as computer lab activities applying lecture concepts to provided real-world data which have been professionally collected and prepared.

Course Subject &amp; Number: \_\_\_\_\_

**Expected Learning Outcome 1.2: Successful students are able to use diverse logical, mathematical and/or statistical approaches, technologies, and tools to communicate about data symbolically, visually, numerically, and verbally.**

Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Via Course Learning Outcomes 3 & 6, students will be able to summarize data and statistical results through written, visual, and oral communication meaningful to both experts and people who have not taken this course. Students will learn best practices for summarizing data both numerically and graphically. This ELO will be assessed via the semester-long survey project; as part of this project students create numerical summaries of their data, create graphs (visual summaries), do a short oral presentation, and create a written presentation. This ELO will also be reinforced through the computer lab activities.

**Expected Learning Outcome 1.3: Successful students are able to draw appropriate inferences from data based on quantitative analysis and/or logical reasoning.** Please link this ELO to the course goals and topics and indicate

*specific* activities/assignments through which it will be met. (50-700 words)

Via Course Learning Outcomes 4 & 5, students will be able to perform statistical inference using quantitative data. Specifically, they will learn how to construct and interpret confidence intervals and conduct and interpret hypothesis tests. This ELO will primarily be assessed via timed, online exams and frequent low-stakes quizzes. It will also be reinforced through the computer lab activities and semester-long survey project.

Course Subject &amp; Number: \_\_\_\_\_

**Expected Learning Outcome 1.4: Successful students are able to make and evaluate important assumptions in estimation, modeling, logical argumentation, and/or data analysis.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Via Learning Outcome 5, students will be able to choose and perform the appropriate hypothesis test for different data types, including evaluating necessary assumptions about the data and interpreting the results of the tests. This ELO will primarily be assessed via timed, online exams and frequent low-stakes quizzes. It will also be reinforced through the computer labs and the semester-long survey project.

**Expected Learning Outcome 1.5: Successful students are able to evaluate social and ethical implications in mathematical and quantitative reasoning.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Via Learning Outcomes 1, 2, & 6, students will be able to translate a general idea into a specific research question in public health, construct a survey to collect data specific to that research question, and summarize the results to people who have not taken the course. Topics covered include representativeness of survey samples and correlational and causal relationships. This ELO will be achieved via the design and administration of a survey addressing research questions in public health and the oral and written presentation of the results.