

STAT 30100 – Elementary Statistical Methods

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****Please email your instructor or TA for course related questions. Emailing the course coordinator will not get you a faster response.**

Course Description

Introduction to statistical methods with applications to diverse fields. Emphasis on understanding and interpreting standard techniques. Data analysis for one and several variables, design of samples and experiments, basic probability, sampling distributions, confidence intervals and significance tests for means, correlation, and regression. Software is used throughout. For statistics majors and minors,

credit should be allowed in no more than one of STAT 30100, 30301, 35000, 35500, 50100, and in no more than one of STAT 50300 and STAT 51100.

Course Learning Outcomes

By the end of this course students will be prepared to:

- Explain the relevance of a well-planned research study
- Extract the information contained in a data set
- Evaluate the results of a statistical analysis

Technical Requirements

The following information has been provided to assist you in preparing to use technology successfully.

- Internet access/connection: high speed recommended
- Headset/Microphone (required for synchronous sessions)
- Access to SPSS program (see note later in syllabus)
- Registration with WebAssign online homework platform (*\$50 fee*, please see link in Brightspace to register)
- A scientific calculator (graphing calculator is OK but not necessary).
- For online exams – Online proctoring requires students to have:
 - Windows: 10, 8, 7. / Mac: OS X 10.12 or higher./ iOS: 10.0+ (iPad only - must have a compatible LMS integration).
 - A broadband internet connection

Learning Resources and Texts

Required Textbook

“Introduction to the Practice of Statistics” by Moore, McCabe and Craig (Freeman). No need to purchase online access from publisher (just the book, none of the extras).

OFFICE HOURS/ STAT HELP ROOM

Assistance with course assignments and material is available each week through Office Hours (Online and In Person – MATH 206/211). A schedule of weekly availability is posted under “Where to get help” in Brightspace. Students may speak with any instructor or TA when one is available.

Online Platforms

WebEx is a platform used by some of the instructors and TAs to hold virtual meetings. Some use Zoom or Teams. When someone is available, type or click the address of that person into an internet browser and follow the prompts. Be aware of your surroundings when connecting to virtual office hours using a webcam and microphone.

GRADES

Course grades are determined according to the following components, which are weighted as shown.

Homework	15%
Quizzes and/or Attendance	5%
Labs	20%
Peer Review Written Assignment	10%
Data Science Project	20%
Exams (Two midterms)	30%
Total	100%

Your grade will be calculated strictly from your official scores on Brightspace. There is potential for extra credit in the homework. **Do not ask for extra credit at the end of the semester for the purpose of getting to a grade cutoff. There are >1000 students enrolled in this course every semester and every one of them has special circumstances. Therefore, grade cut-offs are strictly enforced for fairness to all students.**

Final Calculated Grade (Brightspace Column)	Letter Grade
100 – 96.5	A+
96.49 – 93.5	A
93.49 – 89.5	A-
89.49 – 86.5	B+
86.49 – 83.5	B
83.49 – 79.5	B-
79.49 – 76.5	C+
76.49 – 73.5	C
73.49 – 69.5	C-
69.49 – 66.5	D+
66.49 – 63.5	D
63.49 – 59.5	D-
59.49 – 0	F

We reserve the right to change the grading scheme and course layout should unusual circumstances demand it.

GRADES ON BRIGHTSPACE

It is your responsibility to make sure the grades recorded on Brightspace are correct. You should also let your lecturer know if you think something was graded incorrectly. ***You have one week from the day that an assignment is graded to dispute the grade.*** It is YOUR responsibility to keep up with your grades on Brightspace throughout the summer.

Number #1 Reason students fail this course:

Not doing the assignments/submitting assignments late. PLEASE MAKE SURE YOU HAVE UPLOADED THE CORRECT DOCUMENT. Many students make the mistake of uploading the document not filled out, a blank document, or even of another course. If you upload the wrong document, you will get a zero and will not be able to submit the correct document later, even with time stamp and "proof" that you did it.

WE DO NOT ACCEPT LATE SUBMISSIONS BEYOND WHAT IS MENTIONED IN SYLLABUS.

SPSS

Lab activities and some homework assignments utilize the statistical package SPSS. You will need to have access to this program to complete labs and some homework assignments. **Attempt to get access to SPSS immediately. Failure to be ready and have access to SPSS does not excuse you from deadlines.**

There are two ways to access SPSS:

1. *Computer Labs*: SPSS is installed in every ITaP computer lab on campus.
2. *Personal install*: SPSS can be installed on a personally owned computer via Community Hub at: <https://communityhub.purdue.edu/storefront/>.

Contact itap@purdue.edu for problems using SPSS on Software Remote, or issues with downloading and installing the software on personally owned computers.

HOMEWORK 15% of final grade

Homework assignments are completed online through the WebAssign homework system and are due by 11:59 pm Eastern Time (ET) on the dates listed in the course schedule. You must register with WebAssign (there is a registration fee) to complete the homework.

- **Pay attention to deadlines.** If you miss a deadline, you can request an extension through WebAssign without emailing your instructor for a 10% penalty to any unfinished questions. If you need an extension beyond 24 hours, you will need to email your instructor. These are granted on a case-by-case basis.
- **EXTRA CREDIT** -If you complete the homework more than 24 hours before it is due, you will get an extra 10% added to your homework grade.
- As you work the homework problems, you have the ability to try each problem more than once for credit, and sometimes several times. Pay attention to the number of attempts as you are working through the problems. Multiple choice answers can be attempted twice generally. Numerical problems generally allow more attempts.
- Your 2 lowest **homework scores are dropped** from your final grade calculation (score by percent, not points). The Brightspace gradebook removes your lowest percent scores when calculating your current grade. It is highly recommended that you do all the homework!

LABS. 20% of final grade

- Labs will be available on Brightspace to be downloaded from the Lab module (or in WebAssign) by 6am on the Monday of each week. They must be completed and submitted online through Brightspace (or WebAssign) by Friday at 11:59 pm ET.
- Labs are graded by your recitation TA. Any grade disputes should be directed towards your TA.
- Any lab submitted after the deadline but within 24 hours will have a **30% deduction (6 points out of 20)**.
- No labs will be accepted after Saturday at 11:59 PM ET.
- Your lowest **lab score is dropped** from your final grade calculation. The Brightspace gradebook removes your lowest score when calculating your current grade.
- You have one week after your lab is graded to dispute the score.

PEER REVIEWED WRITTEN ASSIGNMENT (PRWA). . . . 10% of final grade

Why do we want you to use peer reviewed written assignments?

In the real world, you will often read and write about statistics in context. You won't just be given a data set and asked to report a number with a box around it. You will be asked to write about your results. The peer reviewed written assignment gives you the opportunity to read and write about statistics in context in the same way that you will when you leave this class. Statistical literacy requires good communication skills. Peer review is also an important professional skill.

- There will be two peer reviewed written assignments over the semester.
- The peer reviewed written assignments will be done online using a software package (Circuit) within Brightspace.
- Two parts to the peer reviewed written assignment (each with its own deadline – detailed in course schedule).
 1. Text writing
 2. Reviews and self-review
- Start your peer reviewed written assignment well before the deadline. Technical difficulties will not excuse you from an assignment.
- **Peer reviewed written assignment scores are based on three things:**
 1. 60% - quality of your text writing as determined by other students who peer review your essay.

2. 30% - whether your review of other students' essays is consistent with the other reviewers of the papers. You must provide feedback for your peers. Please see each assignment for specific criteria.
 3. 10% - Instructor will review your written feedback for your peers.
- **You will receive a ZERO in the peer reviewed written assignment if you DO NOT SUBMIT THE FIRST PART BY THE DEADLINE. You will not be able to join the assignment once the first part closes.**
 - **It is impossible to do the assignment late and receive full credit, no matter how important your emergency is.**
 - **All work on the peer reviewed written assignments must be your own independent work, in your own words.** Any suspicions of plagiarism, whether from a published or online source or from another student will be turned over to the Office of the Dean of Students.
 - Using ChatGPT, AI, or similar sources to write your essay is strictly forbidden and is viewed as cheating.
 - **Technical difficulties with the online software**, contact tltp@purdue.edu

NOTE REGARDING MATERIALS POSTED ON COURSE SITE/DISTRIBUTED BY INSTRUCTORS

Notes (Including copies of lecture slides, videos, summaries, etc.) are “considered to be ‘derivative works’ of the instructor's presentations and materials, and they are thus subject to the instructor's copyright in such presentations and materials.” As such, they cannot be sold or bartered without instructor’s express written permission.

EXAMS.30% of final grade

There are two exams during the semester. Anyone caught *cheating* on an exam will fail the course.

Exam details:

- Exam duration 45 minutes
- For face-to-face students, exams will be on Fridays during designated lab time
- For online students, exams will be on Fridays – see Brightspace for hours
- Exams will be proctored by TA’s and/or instructors in person
 - Exams are taken online in Brightspace in the exam room.
 - Access each exam using a link in the Exam module on the exam date (see schedule).
 - DRC exams will be scheduled through course coordinator with appropriate times and accommodations. Students are responsible for scheduling exams at least a week in advance of the exam date.
 - All exams must be proctored by Respondus lockdown browser.

Make-up Exams

Students may request to reschedule an exam due to a valid reason.

- Requests are considered under two conditions.
 - The request is made at least one week in advance of the exam date.
 - Your instructor receives a “Make-up Exam Form” and all justifying documentation.
 - Make-up Exam Form is located the “Forms” module in Brightspace
- Examples of valid reasons to request a make-up exam date.

- University documented absence, class/exam conflicts.
- Circumstances that include illness, death in the family, etc.
- Report personal issues to your instructor and to the Office of the Dean of Students (<http://www.purdue.edu/odos/>) promptly and beforehand when possible. Approving a request may require documentation from the Office of the Dean of Students.
- **NO** make-up exam is given prior to the regularly scheduled exam time.
 - Online exams: Your instructor will coordinate with you on a day for the make-up exam, which can be no more than 6 days after the regular exam.
 - Make-up exams cannot be taken more than **TWO** business days after the date of the regularly scheduled exam.

QUIZZES/ATTENDANCE.5% of final grade

For the in-person section, your instructor will let you know how you can meet these criteria such as signing an attendance sheet. For distance sections, there will be quizzes that are online. Look in schedule for due dates.

Although this is a relatively small component of your grade, we have found from past semesters that the students that are successful in this class attend class and complete every assignment. You should consider this component at the start of the semester as the difference between the grade you want and the grade you earn.

DATA PROJECT.20% of final grade

While you are learning statistical concepts, it is important that you understand the larger topic of data science. Data science includes these competencies: mathematical foundations, computational foundations, statistical foundations, data management and curation, data description and visualization, data modeling and assessment, workflow and reproducibility, communication and teamwork, domain-specific considerations, ethical problem solving. While many of these are covered in a typical statistics course, the instructors in statistics have been tasked with helping students understand how statistics and data science connect with their specific discipline.

In small groups of students, you will work together to provide a final presentation of your data set. Data will be summarized by descriptive statistics as well as data visualization. You will analyze your data and look for patterns. Communication and teamwork will be essential to success in this project. More information about the data project can be found in Brightspace. *Please be aware that your grade can be lowered at the end of the semester if your attendance and participation in data project is not the same as the rest of your group.* Attendance at group meetings will be taken and reported (these can be virtual, please note that your group members notice if you mute yourself and turn off your camera!). You will be evaluated by your group members at the end of the semester; thus, it is vital you be fully engaged and participate in your group and project.

SPECIAL NEEDS

Purdue University strives to make learning experiences as accessible as possible. If you anticipate or experience physical or academic barriers based on disability, you are welcome to let me know so that we can discuss options. You are also encouraged to contact the Disability Resource Center at: drc@purdue.edu or by phone: 765-494-1247.

- If you have been certified by the Office of the Dean of Students as someone needing a course adaptation or accommodation because of a disability OR if you need special arrangements in

case the building must be evacuated, please contact your instructor, and provide the corresponding documentation during the first week of classes.

- If you have a letter from ODOS stating that you may have extra time on the exams or use the DRC testing center, you will need to contact the course coordinator at least a week prior to the regular exam date in order to schedule a time for your exam.
- **NO** exams will be given prior to the regularly scheduled exam time. The last day to take an exam is SIX business days after the date of the regularly scheduled exam.

NONDISCRIMINATION

Purdue University is committed to maintaining a community which recognizes and values the inherent worth and dignity of every person; fosters tolerance, sensitivity, understanding, and mutual respect among its members; and encourages each individual to strive to reach his or her own potential. In pursuit of its goal of academic excellence, the University seeks to develop and nurture diversity. Purdue University prohibits discrimination against any member of the University community on the basis of race, religion, color, sex, age, national origin or ancestry, genetic information, marital status, parental status, sexual orientation, gender identity and expression, disability, or status as a veteran. Any student who believes they have been discriminated against may visit www.purdue.edu/report-hate to submit a complaint to the Office of Institutional Equity. Information may be reported anonymously.

OTHER RESOURCES OFFERED BY PURDUE

If you find yourself beginning to feel some stress, anxiety and/or feeling slightly overwhelmed, try WellTrack, <https://purdue.welltrack.com/>. Sign in and find information and tools at your fingertips, available to you at any time.

Active military personnel and veterans should contact the following organization to learn about the various levels of support they offer: <https://www.purdue.edu/veterans/>

If you need support and information about options and resources, please see the Office of the Dean of Students, <http://www.purdue.edu/odos>, for drop-in hours (M-F, 8 am- 5 pm).

If you're struggling and need mental health services: Purdue University is committed to advancing the mental health and well-being of its students. If you or someone you know is feeling overwhelmed, depressed, and/or in need of mental health support, services are available. For help, such individuals should contact Counseling and Psychological Services (CAPS) at (765)494-6995 and <http://www.purdue.edu/caps/> during and after hours, on weekends and holidays, or by going to the CAPS office of the second floor of the Purdue University Student Health Center (PUSH) during business hours.

EMERGENCIES

Campus Emergencies

In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances. Here are ways to get information about changes in this course: Brightspace announcements or by e-mail from the course coordinator or your instructor. General information

about a campus emergency can be found on the Purdue website: www.purdue.edu. **See also the “Emergency Preparedness Syllabus Attachment” at the end of the syllabus information.**

Illness and Other Student Emergencies

Students with extended illnesses or other emergencies should contact their lecturer and the course coordinator as soon as possible so that arrangements can be made for keeping up with the course. It may be possible to temporarily switch to the online section if necessary due to health-related issues. In the case where short-term illness requires a student to miss a lab or HW assignment, this will count as the student's dropped assignment for the semester.

Purdue University is committed to advancing the mental health and well-being of its students. If you or someone you know is feeling overwhelmed, depressed, and/or in need of support, services are available. For help, such individuals should contact Counseling and Psychological Services (CAPS) at (765)494-6995 and <http://www.purdue.edu/caps/> during and after hours, on weekends and holidays, or through its counselors physically located in the Purdue University Student Health Center (PUSH) during business hours.

MINORING IN STATISTICS

If you earn an A in STAT 301, you are on your way to earning a Minor in Statistics! For more information, contact our department's Undergraduate Studies Chair (check Department of Statistics's website). We would love to have the opportunity to talk with you about why minoring in Statistics could be a great boost to your future career.

Our statistics philosophy: This is NOT a math class. This is a critical thinking class. Our goal is to help you make wise and educated decisions at work and in life.

“Statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write.” H.G. Wells

Assignments

The due dates for the assignments posted on the course website are in Eastern Standard Time (the local time zone of West Lafayette, Indiana). If you go somewhere for the weekend with a different time zone, this does not excuse you from an assignment due time/date. Many students enrolled in the online course are all over the globe. Please be aware of what time coordinates with a deadline for course assignments.

Course Evaluation

During the last two weeks of the course, you will be provided with an opportunity to evaluate this course and your instructor. Purdue now uses an online course evaluation system. You will receive an official email from evaluation administrators with a link to the online evaluation site. You will have up to two weeks to complete this evaluation. Your participation is an integral part of this course, and your feedback is vital to improving education at Purdue University. I strongly urge you to participate in the evaluation system.

ACADEMIC DISHONESTY

Purdue prohibits "dishonesty in connection with any University activity. Cheating, plagiarism, or knowingly furnishing false information to the University are examples of dishonesty." [Part 5, Section III-B-2-a, University Regulations] Furthermore, the University Senate has stipulated that "the

commitment of acts of cheating, lying, and deceit in any of their diverse forms (such as the use of substitutes for taking examinations, the use of illegal cribs, plagiarism, and copying during examinations) is dishonest and must not be tolerated. Moreover, knowingly to aid and abet, directly or indirectly, other parties in committing dishonest acts is in itself dishonest." [University Senate Document 72-18, December 15, 1972]

The use of ChatGPT, AI, or similar sources to write any assignments such as the PRWA or data project assignments is strictly prohibited and will be treated as cheating. Brightspace utilizes TurnItIn to check submitted assignments. Any assignment that has a high % of similarity will be flagged for further review.

EMERGENCY STATEMENT

In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances beyond the instructor's control. Relevant changes to this course will be posted onto the course website or can be obtained by contacting the instructors or TAs via email or phone. You are expected to read your @purdue.edu email on a frequent basis.

DISABILITY STATEMENT

Students with disabilities must be registered with Disability Resource Center in the Office of the Dean of Students before classroom accommodations can be provided. If you are eligible for academic accommodations because you have a documented disability that will impact your work in this class, please schedule an appointment with me as soon as possible to discuss your needs.

ACADEMIC GUIDANCE IN THE EVENT A STUDENT IS QUARANTINED/ISOLATED

If you become quarantined or isolated at any point in time during the semester you will have access to an Academic Case Manager who can provide you academic support. Your Academic Case Manager can be reached at acmq@purdue.edu and will provide you with general guidelines/resources around communicating with your instructors, be available for academic support, and offer suggestions for how to be successful when learning remotely. Importantly, if you find yourself too sick to progress in the course, notify your academic case manager and notify me via email or Brightspace. We will make arrangements based on your particular situation. The Office of the Dean of Students (odos@purdue.edu) is also available to support you should this situation occur.



EMERGENCY PREPAREDNESS SYLLABUS ATTACHMENT

EMERGENCY NOTIFICATION PROCEDURES are based on a simple concept – if you hear a fire alarm inside, proceed outside. If you hear a siren outside, proceed inside.

- **Indoor Fire Alarms** mean to stop class or research and immediately **evacuate** the building.
 - Proceed to your Emergency Assembly Area away from building doors. Remain outside until police, fire, or other emergency response personnel provide additional guidance or tell you it is safe to leave.
- **All Hazards Outdoor Emergency Warning Sirens** mean to immediately seek shelter (**Shelter in Place**) in a safe location within the closest building.
 - “Shelter in place” means seeking immediate shelter inside a building or University residence. This course of action may need to be taken during a tornado, a civil disturbance including a shooting or release of hazardous materials in the outside air. Once safely inside, find out more details about the emergency*. **Remain in place** until police, fire, or other emergency response personnel provide additional guidance or tell you it is safe to leave.

*In both cases, you should seek additional clarifying information by all means possible...Purdue Home page, email alert, TV, radio, etc...review the Purdue Emergency Warning Notification System multi-communication layers at

http://www.purdue.edu/emergency_preparedness/warning_system.htm

EMERGENCY RESPONSE PROCEDURES

- Review the Emergency Procedures Guidelines
https://www.purdue.edu/emergency_preparedness/flipchart/index.html
- Review the **Building Emergency Plan** (available from the building deputy) for:
 - evacuation routes, exit points, and emergency assembly area
 - when and how to evacuate the building.
 - shelter in place procedures and locations
 - additional building specific procedures and requirements.

EMERGENCY PREPAREDNESS AWARENESS VIDEOS

- "Shots Fired on Campus: When Lightning Strikes," is a 20-minute active shooter awareness video that illustrates what to look for and how to prepare and react to this type of incident. See: <http://www.purdue.edu/securePurdue/news/2010/emergency-preparedness-shots-fired-on-campus-video.cfm> (Link is also located on the EP website)

MORE INFORMATION

Reference the Emergency Preparedness web site for additional information:

http://www.purdue.edu/emergency_preparedness/

FAQ

Please see Brightspace for an extensive list of frequently asked questions.