

**SYLLABUS**  
**MATH 1231 – INTRODUCTION TO STATISTICS**

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**INSTRUCTOR:** Dr. Catherine Matos

**OFFICE HOURS:** Virtual Office Hours TR 8:00 - 9:00am and By Appointment

**OFFICE:** U-404

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**PREREQUISITE:** A grade of C or better in Math 1101, Math 1111, Math 1113, Math 1241 or Math 1501.

**COURSE DESCRIPTION:** Statistics is often referred to as the "science of data analysis." The purpose of this course is for you to experience and understand statistical analysis by working with data. Doing statistical analysis involves subtle reasoning. Students who have completed this course have said the thinking required is similar to that in "critical thinking" or "logic." One goal is to improve your ability to read, understand, and critique statistical work published by others (newspapers, magazines, and professional journals). Another major goal is for you to learn how statistics is used in the process of asking a research question, gathering the data to address this question(s), analyzing the data, and making conclusions. You will do each of these parts separately and then tie them all together. Throughout the semester, concepts will be stressed. Topics include probability, random variables, probability functions, measures of central tendency and variation, sampling, and statistical estimations and prediction. The computer will be used extensively in this course. 3 credit hours

**REQUIRED MATERIALS:**

- **COMPUTER:** A computer is required in Math 1231. Each student in Math 1231 needs access to a notebook computer. Students will use their notebook computers during class sessions and tests. Clayton State University **requires** that students have ready access throughout the semester to a notebook computer that meets faculty-approved hardware and software requirements for the student's academic program. See <http://itpchoice.clayton.edu> for full details of this policy.
- **TEXTBOOK:** *The Basic Practice of Statistics, 5<sup>th</sup> Edition*, by Moore bundled with *StatsPortal* and JMP.
- **SOFTWARE:**
  - **StatsPortal:** In the bundle with NEW textbooks is an activation code for access to the StatsPortal website. This package is **required** for all homework assignments. If you purchase a used textbook, StatsPortal can be bought separately [online](#). Discussions and quizzes will be housed here, as well as additional supporting material.
  - **JMP:** In the bundle of ALL texts is a CD with JMP. Please take care of your CD! It cannot be replaced without buying another textbook! JMP is a statistical software program. We will rarely compute statistics without the assistance of this software package. **You are required to use JMP, and not use Excel! Assignments submitted using Excel will be returned as unacceptable (and if they are not re-submitted by the deadline, they will be considered late, and not graded).**
  - Additionally, you will be responsible for sending and receiving email from your CSU account, accessing websites, downloading files from my website and other sites, submitting papers using Word combined with JMP through email and StatsPortal, and participating in Bulletin Board discussions.
- **CALCULATOR:** We will use the computer extensively, but a scientific calculator is occasionally helpful. You may NOT share calculators on tests.

**Purchasing StatsPortal**

If you need to purchase a stand-alone version of StatsPortal, please go to <http://courses.bfwpub.com/bps5e.php> , and select Purchase. The cost is \$70.95 to buy the program separately from the textbook. You will need a credit card to finalize the purchase.

**YOU SHOULD BRING YOUR COMPUTER AND YOUR TEXTBOOK TO EACH CLASS MEETING.**

**COMMON LEARNING OUTCOMES:** After successful completion of the course the student will be able to:

1. identify, find, analyze and compare distributions of quantitative and categorical variables
2. use the Normal model to model distributions
3. analyze relationships between two quantitative variables
4. select a random sample, design experiments, and identify potential sources of bias.
5. use simple probability models and rules
6. use sampling distributions and the Central Limit Theorem
7. use appropriate statistical procedures to conduct statistical inference for means using confidence intervals and hypothesis tests.

**COURSE CONTENT AND OBJECTIVES**

- The student will explore data, variables, and distributions (Chapters 1-3, 6-7)
  1. Analyze distributions of quantitative and categorical variables, using the appropriate graphs and statistical summaries.
  2. Compare distributions of variables
  3. Use the Normal model to model distributions
- The student will explore relationships between variables (Chapters 4-5)
  1. Analyze relationships between two quantitative variables.
  2. Find and understand the correlation coefficient and regression model
  3. Use the regression line to make predictions and understand when it should not be used.
- The student will understand how to gather data using sample surveys and designed experiments (Chapters 8-9)
  1. How to select a random sample, and identify potential sources of bias
  2. How to design a basic randomized comparative experiment
- The student will understand random variables, probability, and probability models (Chapters 10-12)
  1. Use simple probability models and rules
  2. Calculate conditional probabilities
  3. Understand and use sampling distributions and the Central Limit Theorem
- The student will be able apply the data at hand to the world at large (statistical inference) using confidence intervals and hypothesis tests (Chapters 14-22)
  1. Calculate confidence intervals for means
  2. Test a hypothesized mean
  3. Understand when to use z or t-procedures for single means, matched pairs, or two-sample situations.
- Additionally, the student will be able to:
  1. Identify, find and analyze information.
  2. Develop abilities to select and execute appropriate analyses.
  3. Learn to use available resources (text, classmates, instructor, library, Internet) to solve real-world statistics-related problems.
  4. Develop critical thinking and problem solving skills as related to statistics.

**EVALUATION:** Your grade in this course will be determined by the points that you earn on the StatsPortal homeworks, pre-tests, quizzes, online discussions, tests and the final exam.

- **Quizzes:** Approximately once every two weeks, you will take an online quiz in StatsPortal. Quizzes will cover all material since the previous quiz. You can use your textbook and your notes, but you will not have enough time to use them to study during the quiz. One quiz grade will be dropped. The deadline dates posted for all quizzes are firm. Quiz deadlines will NOT be extended for an individual student for any reason.
- **StatsPortal Homework:** Approximately 2-3 times a week, a homework assignment will be due using StatsPortal. The lowest homework grade will be dropped, therefore missed homeworks cannot be made up. The deadline dates posted in StatsPortal are firm. Homework deadlines will not be extended for an individual student for any reason.
- **Online discussions:** About once a week, you will participate in GROUP discussions about class material in StatsPortal. These discussions will require that you post comments on different days. In other words, you must read the assignment and any comments that other may have posted, think about what's there, post a comment yourself, go back later and read any new postings, then compose another thoughtful posting yourself. This cannot generally be done in one day. Most discussions will involve the entire class, but a few may be small group assignments. For the small group assignments, your group will then post a "final answer" to your discussion thread. Credit will be given for well-thought-out, relevant contributions to the discussion topic.
- **Pre-tests and other chapter activities:** You will be expected to complete a pre-test on each chapter BEFORE it is scheduled to be covered in the course. Other activities in StatsPortal may also be assigned.
- **Tests:** Two tests will be given, each worth 125 points. If you miss a test, arrangements MAY be made to take it. Email me immediately, before missing the test if possible. You must have evidence of an excused absence. Appropriate documentation will be required (doctor's note, etc).
- **Final Exam:** The final exam, worth 125 points, is cumulative from the beginning of the semester. It is a mandatory, departmental, multiple choice exam. No student will be excused from taking the final examination; only under extenuating circumstances will a student be allowed to take the final examination at any time other than the regularly scheduled time. *Failure to take the final examination will result in the grade of "F" for the course.*
- **You are expected to do your own work in this class for all assignments. Any violation of this will result, at the minimum, in a grade of zero on that assignment. Academic Misconduct charges will also be filed.**

Assessment	Points	Grading Scale			
		Grade	Percent	Points	
Quizzes	90				
Homework	85	A	90%	100.0%	585 650
Chapter Activities	30	B	80%	89.9%	520 584
Discussions	70	C	70%	79.9%	455 519
Tests (2)	250	D	60%	69.9%	390 454
Final Exam	125	F	0%	59.9%	0 389
<b>Total:</b>	<b>650</b>				

<b>Assessment</b>	<b>Date</b>
Test 1	6/16
Test 2	7/19
Final Exam	7/28

**MIDTERM GRADE REPORTS:** Midterm grades will be reported by June 21<sup>st</sup> and will reflect approximately 35% of your grade. Based on this grade, students may choose to withdraw from the course and receive a grade of “W”. Students pursuing this option must fill out an official withdrawal form, available online from the [Office of the Registrar](#) before the **midterm date of June 24<sup>th</sup>**. Student Withdrawals after that day result in an automatic WF unless a hardship exception is granted. (See CSU catalog for hardship criteria.)

**ATTENDANCE:** You are expected to attend all on campus meetings, and attend class virtually by participating in the online discussions and assignments.

### **MAKE-UP WORK**

- Tests may not be made up unless an excused absence is obtained from the instructor. An unexcused absence will result in a 0 for that test. There are NO make-ups for late quizzes/homework/discussions, and the student will receive a 0.
- To obtain an excused absence, the student must give the instructor a written explanation of the absence **PRIOR** to the class being missed. The instructor will decide if the absence is excusable. You **must** call me immediately, preferably **before** the test is missed.

**STUDENT RESPONSIBILITIES:** Students must abide by policies in the [Clayton State University Student Handbook](#). Students who violate the conduct code regulations will face disciplinary action and/or University Sanctions. Academic dishonesty will not be tolerated. Academic dishonesty includes, but is not limited to, giving and receiving information. This policy will be enforced. No exceptions. Students who do not conduct themselves appropriately will be asked to leave the classroom.

**TECHNOLOGY ETIQUETTE:** All materials displayed on your computer at all times during class must support the learning experience in the classroom. This includes screensavers, wallpaper, computer games, email and internet access. Specifically, students are expected to use computers only when requested for classroom use. If you are surfing, playing games, watching videos, emails, or any other activity not related to what is going on in the classroom, I will give you one warning before I turn off your computer. If the behavior continues, I will ask you to leave the classroom for the remainder of the class.

Outside of class, any e-mail sent to the instructor should state your name and identify the class you are taking. Remember to act professionally when sending e-mail to your instructor. Any unprofessional e-mail sent to an instructor will not be tolerated.

### **ELECTRONIC MESSAGES**

- The instructor may send emails with information vital to your success in the course. Check your email often, **at least once a day**.
- Any voice-mail or e-mail message left will be returned during the regular workweek. The instructor checks e-mail each workday.
- When contacting me via e-mail, you **must** identify the email with your first and last name, the course number, and the section number.
- **Absolutely no graded assignments will be accepted via email.** Assignments must be turned in on paper or as instructed in the assignment.

**RESOURCES:** I hold regular office hours online and by appointment in person and am willing to help! Another resource to help you is the Center for Academic Success (CAS), which is located on the lower level of the Library. The CAS home page is <http://adminsivices.clayton.edu/caa/>. The CAS sponsors a Peer Tutoring Program. Please see the CAS website for more information and to schedule an appointment with a Peer Tutor. Additional group instruction is available from the members of the CAS staff who have advanced mathematics training. There are materials and computer software which may be of help. If you need help on background arithmetic or algebra, there are also videotapes which may be of help. There are numerous books on statistics in the CSU library for further reference and study.

**UNIVERSITY POLICIES:** See the current Academic Catalog for details on the two policies.

- **NO SHOW Policy:** Any paid student who has failed to attend a class by the 10<sup>th</sup> day of the semester will be identified as a “no show.” The “no show” student will be administratively withdrawn from the class, a grade of W will be posted, and the student will NOT be reinstated. Any appeals on the decision are made to the Dean.
- **THREE STRIKES Policy:** A student who has withdrawn or earned less than a satisfactory grade (F, U, D, WF, W) a total of three times in a course at CSU will not be allowed to take the course again. Any appeals on the decision are made to the Dean.

**OTHER NOTES:**

- Homework problems from the textbook will be assigned, but not collected. In general however, the online Homework in StatsPortal is based on the problems assigned in the textbook, so it is to your advantage to do the textbook problems.
- In order to succeed in this course, a student must do each homework assignment, both online and those assigned from the textbook. On the average, homework will require three hours, per semester credit hour, of work outside of class each week.
- Any instance of academic dishonesty will be dealt with in accordance with University policies with a **minimum** penalty of a zero being given for any associated work and the filing of Academic Misconduct charges.

**NATIONAL EDUCATION STANDARDS:** The content of this course syllabus correlates to education standards established by national and state education governing agencies, accrediting agencies and learned society/ professional education associations. Please refer to the course correlation matrices located at the following web site:

<http://a-s.clayton.edu/teachered/Standards%20and%20Outcomes.htm>

**DISABILITY SERVICES:** Students with disabilities who require reasonable accommodations need to register with Disability Services (DS) in order to obtain their accommodations. You can contact them at 678-466-5445 or [disabilityservices@clayton.edu](mailto:disabilityservices@clayton.edu). If you are already registered with DS and are seeking accommodations for this course, please make an appointment with your instructor to discuss your specific accommodation needs for this course and give the instructor your accommodations letter.

**All pagers and cell phones must be turned off during class. Please mute your computer speakers in class .**