SYLLABUS
MATH 1231 – INTRODUCTION TO STATISTICS

INSTRUCTOR: Dr. Keith Driscoll
OFFICE HOURS: MW 10:00 – 11:00, 12:00 – 12:35, F 12:00 – 2:00
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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** *Introductory Statistics*, from OpenStax College (2013) ISBN 1938168208. Good news: your textbook for this class is available for free online at http://cnx.org (scroll down to about the third row of texts). If you prefer, you can also get a print version at a very low cost. Your book is available in web view and PDF for free. You can also purchase on iBooks for $4.99 or get a print version, if you prefer, via the campus bookstore or from seller OpenStax on Amazon.com. You can use whichever formats you want.
- **SOFTWARE:**
    - **Minitab**: Minitab is a statistical software program. We will rarely compute statistics without the assistance of this software package. Minitab FOR PCs is available for through USG Software Resource & Services. Log into the Swan and click on the link for Software (on the right near the top. Or just click here). You will need to create an account on the SRS personal store before you can purchase Minitab. For Macintosh computers, you will need Minitab Express. This can be purchased directly from Minitab (www.minitab.com) at a comparable price. **You are required to use Minitab, 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, and submitting papers using Word combined with Minitab through email and MyMathLab.
- **CALCULATOR:** We will use the computer extensively, but a scientific calculator is occasionally helpful. You may NOT share calculators on tests. Any calculator used MUST be a stand-alone calculating

device, and not one built into a cell phone, ipad, etc.

YOU SHOULD BRING YOUR COMPUTER AND 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.

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

COURSE CONTENT AND OBJECTIVES

- Gathering data using sample surveys and designed experiments (Chapter 1)
  The student will learn:
  1. How to select a random sample, and identify potential sources of bias
  2. How to design a basic randomized comparative experiment
- Exploring data, variables, and distributions (Chapters 2)
  The student will learn to:
  1. Analyze distributions of quantitative and categorical variables, using the appropriate graphs and statistical summaries.
  2. Compare distributions of variables
- Experience with random variables, probability, and probability models (Chapters 3,4,5)
  The student will learn to:
  1. Use simple probability models and rules
  2. Calculate conditional probabilities
- Examine the Standard Normal Distribution (Chapter 6,7)
  The student will learn to:
  1. Use the Normal Distribution to model distributions
  2. Understand and use sampling distributions and the Central Limit Theorem
- Estimate population parameters from sample statistics (Chapter 8)
  Using Confidence intervals, the student will learn to:
  1. Estimate a population proportion
  2. Estimate a population mean when σ is known
  3. Estimate a population mean when σ is unknown
- Statistical inference (Hypothesis tests) (Chapter 9,10)
  The student will learn to:
  1. Test a hypothesized proportion

2. Test a hypothesized mean (z- and t-procedures)
3. Perform matched pairs and two sample hypothesis tests
4. Understand when to use z or t-procedures for single means, matched pairs, or two-sample procedures

- Exploring relationships between variables (Chapter 11,12)

  The student will learn to:

  1. Analyze relationships between two quantitative and qulitative 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.

- 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 MyMathLab homework, outlines, quizzes, tests and the final exam.

- **Quizzes:** Approximately once a week, there will be an in-class quiz. 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.
- **WebWork Homework**: Approximately 1-2 times a week, a homework assignment will be due using WebWork. The lowest homework grade will be dropped, therefore missed homework cannot be made up. The deadline dates posted in WebWork are firm. Homework deadlines will not be extended for an individual student for any reason. To access WebWork, go to https://webwork.clayton.edu/webwork2/M1231-XX-SP17 (replace XX with your section number (03 for the 11:00 class, 05 for the 12:45 class, or FC1 for the section in PTC). Your login ID and password are your Swan ID and Password. Note that you must use lower case for your user id!
- **Tests:** Three tests will be given, each worth 100 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 150 points, is a cumulative, department standard, 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*
Quizzes	100
Homework	100
Tests (3)	300
Final Exam	150
Total:	650

Grading Scale

Grade	*Percent*		*Points*	
A	90%	100.0%	585	650
B	80%	89.9%	620	584
C	70%	79.9%	455	619
D	60%	69.9%	390	454
F	0%	59.9%	0	389

Assessment	Tentative Date
Test 1	2/6
Test 2	3/3
Test 3	4/17
Final Exam	See Below

FINAL EXAM SCHEDULE:

MWF 11:00 Section: May 3, 10:15am – 12:15pm
MW 12:45 Section: May 8, 12:30 – 2:30pm
TR 9:10 (PTC) Section: May 2, 8:00 – 10:00am

MIDTERM GRADE REPORTS: Midterm grades will be reported by February 27th, 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** March 3rd. Student Withdrawals after that day result in an automatic WF unless a hardship exception is granted. (See CSU catalog for hardship criteria.)

ATTENDANCE: Attendance is necessary in order to maintain a good grade in this course. Attendance will be taken at the beginning of each class. Students are responsible for all material presented in class. Success on the tests will be highly dependent on attending class and participating in the learning activities designed to apply the material. If you must miss a class, you are responsible for asking another student to fill you in on what occurred in class. Regular attendance is expected and necessary to understand the material. You are responsible for submitting all work by the deadline, whether you attend class or not.

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, 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 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://adminservices.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 policies.

- NO SHOW Policy: Any paid student who has failed to attend a class by January 19th 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.

OTHER NOTES:

- In order to succeed in this course, a student must do each homework assignment. 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. 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 .

Disruptive Classroom Behavior[1]

Disruptive behavior in the classroom can negatively affect the classroom environment as well as the educational experience for students enrolled in the course. Disruptive behavior is defined as any behaviors that hamper the ability of instructors to teach or students to learn. Common examples of disruptive behaviors include, but are not limited to:

- Eating in class
- Monopolizing classroom discussions
- Failing to respect the rights of other students to express their viewpoints
- Talking when the instructor or others are speaking
- Constant questions or interruptions which interfere with the instructor's presentation
- Overt inattentiveness (e.g., sleeping or reading the paper in class)
- Creating excessive noise
- Entering the class late or leaving early
- Use of pagers or cell phones in the classroom
- Inordinate or inappropriate demands for time or attention
- Poor personal hygiene (e.g., noticeably offensive body odor)
- Refusal to comply with faculty direction

Students exhibiting these types of behaviors can expect a warning from the instructor or dismissal for the lesson in which the behavior occurs. Failure to correct such behaviors can result in dismissal from the course.

More extreme examples of disruptive behavior include, but are not limited to:

- Use of profanity or pejorative language
- Intoxication
- Verbal abuse of instructor or other students (e.g., taunting, badgering, intimidation)
- Harassment of instructor or other students
- Threats to harm oneself or others
- Physical violence

Students exhibiting these more extreme examples of disruptive behavior may be dismissed from the lesson or the entire course.

Students dismissed from a lesson will leave the classroom immediately or may be subject to additional penalties. Dismissed students are responsible for any course material or assignments missed.

Students dismissed from a course have the right to appeal the dismissal to the department head responsible for the course. Appeals beyond the department head may also be pursued. If no appeal is made or the appeal is unsuccessful, the student will receive a grade of WF (withdrawal – failing) regardless of the current grade in the course.

Conditions attributed to physical or psychological disabilities are not considered as a legitimate excuse for disruptive behavior.

[1] The description of disruptive behavior and listings of examples of disruptive behavior are taken from the Web sites of James Mason University, the University of Delaware and Virginia Tech.