

**Texas A&M University Central Texas**  
**Math 311 Probability and Statistics**  
**Online**

**Instructor: Mienie de Kock (Ph.D)**

**Office: Warrior Hall Room 412-B**

**Phone: (903) 705-9703**

**Email: dekokk@tamuct.edu**

**Office Hours:**

**M 4pm – 6pm Graduate Assistant in Warrior Hall Room 420 – B face-to-face and online**

**T 1:30pm – 7:30pm Dr. De Kock in Warrior Hall Room 420-B face-to-face and online**

**R 3pm – 5pm online**

**Blackboard access:** (<https://tamuct.blackboard.com>).

**Cengage access:**

<http://www.cengage.com/us/>

## **UNILERT**

Emergency Warning System for Texas A&M University – Central Texas

UNILERT is an emergency notification service that gives Texas A&M University-Central Texas the ability to communicate health and safety emergency information quickly via email, text message, and social media. All students are automatically enrolled in UNILERT through their myCT email account. Connect at [www.TAMUCT.edu/UNILERT](http://www.TAMUCT.edu/UNILERT) to change where you receive your alerts or to opt out. By staying enrolled in UNILERT, university officials can quickly pass on safety-related information, regardless of your location.

## COURSE INFORMATION

### 1.0 Course Overview and description:

Math 311 (Probability and Statistics) is designed to prepare students for the Probability and Statistics domain on the TExES Math 7-12 exam. The class aims to equip students with the requisite knowledge and skills that an entry-level educator in this field in Texas public schools must possess.

The class also incorporates Microsoft Excel as a tool for statistical analysis techniques.

### 2.0 Course Objective:

#### 2.1 Student Learning Outcomes

Students will become thoroughly proficient in the following areas:

- Data and Statistics
- Descriptive Statistics
- Probability
- Discrete Probability distributions
- Continuous Probability distributions
- Simple linear regression
- Multiple regression
- Regression analysis (model building)

#### 2.2 Competency Goals Statements

The class focuses on the following competencies on the probability and statistics domain for the Texas Math 7-12 certification exam as outlined by the Texas Education Agency:

The student understands how to use appropriate graphical and numerical techniques to explore data, characterize patterns and describe departures from patterns.

Competency 15:

1. Selects and uses an appropriate measurement scale (i.e., nominal, ordinal, interval, ratio) to answer research questions and analyze data.
2. Organizes, displays and interprets data in a variety of formats (e.g., tables, frequency distributions, scatter plots, stem-and-leaf plots, box-and-whisker plots, histograms, pie charts).
3. Applies concepts of center, spread, shape and skewness to describe a data distribution.
4. Understands measures of central tendency (i.e., mean, median, mode) and dispersion (i.e., range, interquartile range, variance, standard deviation).
5. Applies linear transformations (i.e., translating, stretching, shrinking) to convert data and describes the effect of linear transformations on measures of central tendency and dispersion.
6. Analyzes connections among concepts of center and spread, data clusters and gaps, data outliers and measures of central tendency and dispersion.
7. Supports arguments, makes predictions and draws conclusions using summary statistics and graphs to analyze and interpret one-variable data

Competency 016: The teacher understands concepts and applications of probability.

The student:

1. Understands how to explore concepts of probability through sampling, experiments and simulations and generates and uses probability models to represent situations.
2. Uses the concepts and principles of probability to describe the outcomes of simple and compound events.
3. Determines probabilities by constructing sample spaces to model situations.
4. Solves a variety of probability problems using combinations and permutations.
5. Solves a variety of probability problems using ratios of areas of geometric regions.
6. Calculates probabilities using the axioms of probability and related theorems and concepts such as the addition rule, multiplication rule, conditional probability and independence.
7. Understands expected value, variance and standard deviation of probability distributions (e.g., binomial, geometric, uniform, normal).
8. Applies concepts and properties of discrete and continuous random variables to model and solve a variety of problems involving probability and probability distributions (e.g., binomial, geometric, uniform, normal).

Competency 017: The teacher understands the relationships among probability theory, sampling and statistical inference and how statistical inference is used in making and evaluating predictions.

The beginning teacher:

1. Applies knowledge of designing, conducting, analyzing and interpreting statistical experiments to investigate real-world problems.
2. Analyzes and interprets statistical information (e.g., the results of polls and surveys) and recognizes misleading as well as valid uses of statistics.
3. Understands random samples and sample statistics (e.g., the relationship between sample size and confidence intervals, biased or unbiased estimators).
4. Makes inferences about a population using binomial, normal and geometric distributions.
5. Describes and analyzes bivariate data using various techniques (e.g., scatterplots, regression lines, outliers, residual analysis, correlation coefficients).
6. Understands how to transform nonlinear data into linear form to apply linear regression techniques to develop exponential, logarithmic and power regression models.
7. Uses the law of large numbers and the central limit theorem in the process of statistical inference.
8. Estimates parameters (e.g., population mean and variance) using point estimators (e.g., sample mean and variance).

### **3.0 Required Reading and Textbook(s):**

Students need to purchase an access code to mindtap on Cengage Learning's website. Instructions are below:

## How to access your MindTap course

---

Math 311

**Instructor** : Mienie De kock

**Start Date** : 01/14/2015

### What is MindTap?

MindTap empowers you to produce your best work – consistently.

MindTap is designed to help you master the material. Interactive videos, animations, and activities create a learning path designed by your instructor to guide you through the course and focus on what's important. Get started today!

### Registration

1. Connect to <http://login.cengagebrain.com/course/MTPQZ6HPQ6C6>
2. Follow the prompts to register your MindTap course.

### Payment

After registering for your course, you will need to pay for access using one of the options below:

**Online:** You can pay online using a credit or debit card, or PayPal.

**Bookstore:** You may be able to purchase access to MindTap at your bookstore. Check with the bookstore to find out what they offer for your course.

**Free Trial:** If you are unable to pay at the start of the semester you may choose to access MindTap until 11:59 PM on 02/03/2015 during your free trial. After the free trial ends you will be required to pay for access.

Please note: At the end of the free trial period, your course access will be suspended until your payment has been made. All your scores and course activity will be saved and will be available to you after you pay for access.

If you already registered an access code or bought MindTap online, the course key to register for this course is: **MTPQ-Z6HP-Q6C6**

## COURSE REQUIREMENTS

### 4.0 Course Requirements:

All assignments will be posted on mindtap. Students are expected to complete all the activities and assignments via a learning path that might consist of reading assignments, lecture videos, homework, quizzes and excel worksheets. Assignments are due as indicated on mindtap and the weekly schedule. NO late assignments will be accepted.

Online discussions:

Two online discussions will be available on blackboard.

Project:

One project in excel to illustrate the application of theory learned in class.

Midterm:

- The Midterm is a proctored exam and will cover Chapters 1-6. The student needs to schedule a time to take the Midterm at a testing center and provide the proctor's contact information to the instructor. The student is allowed to use a calculator on the midterm, but no notes.

Final:

- The final will be cumulative (Chapters 1-6, 14-16) and is proctored. The student needs to schedule a time to take the Midterm at a testing center and provide the proctor's contact information to the instructor. The student is allowed to use a calculator on the midterm, but no notes.

**Make-ups will only be given if student has a university approved excuse and can provide documentation for it.**

Week 1	Jan 19 Martin Luther King Jr. Day	Jan 20 Get registered for course on Cengage learning mindtap	Jan 21	Jan 22
Week 2	Jan 26 Assignments on Chapter 1 and 2 due.	Jan 27	Jan 28	Jan 29
Week 3	Feb 2 Assignments on Chapters 3 and 4 due.	Feb 3	Feb 4	Feb 5
Week 4	Feb 9 Assignments on Chapters 5 and Discussion 1 due.	Feb 10	Feb 11	Feb 12
Week 5	Feb 16 Assignments on Chapter 6 due	Feb 17	Feb 18 Review (Face-to- face)	Feb 19 MIDTERM (PROCTORED) On Chapters 1-6
Week 6	Feb 23 Online discussion 2 due.	Feb 24	Feb 25	Feb 26
Week 7	Mar 2 Assignments on Chapter 14 due	Mar 3	Mar 4	Mar 5 Project due
Week 8	Mar 9 Assignments on Chapter 15 due	Mar 10 Assignments on Chapter 16 due. Review	Mar 11 Proctored, comprehensive final on Chapters 1- 6, 14-16	Mar 12

**7.0 Grading Criteria Rubric and Conversion**

Assignments on mindtap	(200 points)	20%	90-100%=A 80- 89%= B
Project (1 x100)	(100 points)	20%	70- 79%= C
Online discussions (2 x 50)	(100 points)	10%	60- 69%= D
Midterm	(300 points)	30%	
<u>Final</u>	<u>(300 points)</u>	<u>30%</u>	<u>Below 60 % =F</u>
TOTAL	(1000 points)	100%	

**COURSE AND UNIVERSITY PROCEDURES AND POLICIES****8.0 Drop Policy**

If you discover that you need to drop this class, you must go to the Records Office and ask for the necessary paperwork. Professors **cannot** drop students; this is always the responsibility of the student. The record's office will provide a deadline for which the form must be returned, completed and signed. Once you return the signed form to the records office and wait 24 hours, you must go into Duck Trax and confirm that you are no longer enrolled. Should yo

u still be enrolled, FOLLOW-UP with the records office immediately? You are to attend class until the procedure is complete to avoid penalty for absence. Should you miss the deadline or fail to follow the procedure, you will receive an F in the course.

**9.0 Academic Integrity**

Texas A&M University - Central Texas expects all students to maintain high standards of honor in personal and scholarly conduct. Any deviation from this expectation may result in a minimum of a failing grade for the assignment and potentially a failing grade for the course. All academic dishonesty concerns will be reported to the university's Office of Student Conduct. Academic dishonesty includes, but is not limited to, cheating on an examination or other academic work, plagiarism and improper citation of sources, using another student's work, collusion, and the abuse of resource materials. When in doubt on collaboration, citation, or any issue, please contact me before taking a course of action. More information can be found at <http://www.tamuct.edu/departments/studentconduct/academicintegrity.php>

## 10.0 Disability Support Services

At Texas A&M University Central Texas, we value an inclusive learning environment where every student has an equal chance to succeed and has the right to an education that is barrier-free. The Office of Disability Support and Access is responsible for ensuring that students with a disability enjoy equal access to the University's programs, services and activities. Some aspects of this course or the way the course is taught may present barriers to learning due to a disability. If you feel this is the case, please contact Disability Support and Access at (254) 501-5831 in Warrior Hall, Suite 212. For more information, please visit their website at [www.tamuct.edu/disabilitysupport](http://www.tamuct.edu/disabilitysupport). Any information you provide is private and confidential and will be treated as such.

## 11.0 Tutoring

Tutoring is available to all TAMUCT students, both on-campus and online. Subjects tutored include Accounting, Finance, Statistics, Mathematics, and Writing. Tutors are available at the Tutoring Center in Warrior Hall, Room 111. Visit [www.ct.tamus.edu/AcademicSupport](http://www.ct.tamus.edu/AcademicSupport) and click "Tutoring Support" for tutor schedules and contact info. If you have questions, need to schedule a tutoring session, or if you're interested in becoming a tutor, contact Academic Support Programs at 254-501-5830 or by emailing [tutoring@ct.tamus.edu](mailto:tutoring@ct.tamus.edu).

Chat live with a tutor 24/7 for almost any subject on your computer! Tutor.com is an online tutoring platform that enables TAMU-CT students to log-in and receive FREE online tutoring and writing support. This tool provides tutoring in Mathematics, Writing, Career Writing, Chemistry, Physics, Biology, Spanish, Calculus, and Statistics. To access Tutor.com, log into your Blackboard account and click "Online Tutoring."

## 12.0 Library Services

INFORMATION LITERACY focuses on research skills which prepare individuals to live and work in an information-centered society. Librarians will work with students in the development of critical reasoning, ethical use of information, and the appropriate use of secondary research techniques. Help may include, yet is not limited to: exploration of information resources such as library collections and services, identification of subject databases and scholarly journals, and execution of effective search strategies. Library Resources are outlined and accessed at <http://www.tamuct.edu/library>

---