Course: MATH 355- Statistical and Geometrical Concepts
(3 Semester Hours)
Pre-requisite: MATH1314 and MATH1350 or approval of instructor
Instructor: Chris Sinquefield
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(The subject line of all emails should begin with MATH355)
Office Hours: MW: 12:15 – 4:15
T: 9:00-11:00
Also available by email

Textbook:

NOTE: Students must have access to a computer with internet connection for course work.


Catalog Description: Mathematics course emphasizing statistical and geometrical concepts. Appropriate technology will be used. Technology includes Blackboard, computer software and calculator.

Course Overview:
Students will use the My Math Lab online software to access course related materials including video lectures, electronic copy of the text book, homework assignments and tests. (The Course ID will be emailed to all students enrolled in the course no later than the first class day.)

Students will be expected to view the video presentation and/or read the text book pages before attempting the homework assigned for each section.
After all the homework for a Unit is complete, students will take an Exam over the Unit. A comprehensive Final exam will also be given.
**Student Learner Outcomes:** Upon completion of this course the student will be able to:
1. Display data and draw statistical graphs
2. Compute measures of central tendency, standard deviation, and variance.
3. Calculate z-score and probability from normal distribution.
4. Analyze data.
5. Apply basic definitions and investigation properties of probability.
6. Apply multistage experiments with tree diagrams.
7. Calculate odds, conditional probability, expected value, combination and permutation.
8. Draw lines, planes, angles, and geometric figures.
9. Prove congruence between two triangles.
10. Prove similarity between two triangles.
11. Calculate different English system scale.
12. Calculate different metric system scale.
13. Calculate length, area, volume, mass, temperature.
14. Apply current technologies including Blackboard, computer software, calculators.
15. Apply tessellation techniques.

**Course Objectives:**
The primary objective in this course is to prepare students with appropriate materials for statistics, probability, and geometry content.
In this course students will:

1. Develop a thorough understanding of the mathematics content for statistics and geometry;
2. Formulate explanations of that content in understandable terminology;
3. Develop greater facility to think about mathematics and mathematical problem solving; and
become independent in doing mathematics as well as Statistics and Geometry.

Each student will be expected to develop an independent understanding of mathematics as the course progresses. Here there is no requirement that students understand mathematics in a particular way; however, students will be required to:

1. Understand and construct topics of statistics and geometry in their own way;
2. Develop the ability to demonstrate their understanding by using concrete models and drawing representations of these models; and
3. Develop the ability to give written explanations of mathematical processes and ideas so that others can understand.

**This course is designed to meet the following Mathematics Skill Standards from the State Board of Education of Texas. The standards related specifically to the content of this course require that a beginning EC-6 teacher should be able to:**

Standard III. Geometry & Measurement
3.2 develop, explain, and use formulas to find length, perimeter, area, and volume of basic geometrical figures
3.3 explain and illustrate the use of numbers and units of measurement for quantities such as temperature, money, percent, speed, and acceleration
3.4 develop, justify, and use conversions within and between different measurement systems
3.6 identify attributes to be measured, quantify the attributes by selecting and using appropriate units, and communicate information about the attributes using the unit measure
Standard IV. Probability & Statistics
4.1 investigate and answer questions by collecting, organizing, and displaying data from real-world situations
4.2 support arguments, make predictions, and draw conclusions using summary statistics and graphs to analyze and interpret one-variable data
4.3 communicate the results of a statistical investigation using appropriate language
4.4 investigate real-world problems by designing, administering, analyzing and interpreting surveys
4.5 use the concepts and principles of probability to describe the outcome of simple and compound events
4.6 explore concepts of probability through data collection, experimentation, and simulations
4.7 generate, simulate and use probability models to represent a situation
4.8 use the graph of the normal distribution as a basis for making inferences about a population

More general standards, that apply to all mathematics courses, require that a beginning EC-6 teacher should be able to:

Standard V. Mathematical Processes & Logical Reasoning
5.8 evaluate the reasonableness of a solution to a given problem
5.15 explore problems using verbal, graphical, numerical, physical, and algebraic representations
5.16 recognize and use multiple representations of a mathematical concept
5.17 apply mathematical methods to analyze practical situations
5.18 use mathematics to model and solve problems in other disciplines, such as art, music, science, social science, and business
5.19 facilitate discourse between the teacher and students and among students to explore, build, and refine mathematical ideas
5.20 use questioning strategies to identify, support, monitor, and challenge students’ mathematical thinking
5.21 translate mathematical statements among developmentally appropriate language, standard English, mathematical language, and symbolic mathematics
5.22 provide students with opportunities to demonstrate their understanding of mathematics in a variety of ways using a variety of tools
5.23 use visual media such as graphs, tables, diagrams, and animations to communicate mathematical information
5.24 use the language of mathematics as a precise means of expressing mathematical ideas

Topics (major content areas):
Statistics:
Data, statistical graphs, measures of central tendency, standard deviation, variance, normal distribution, concepts of measurement, data analysis.

Probability:
Basic definitions, properties of probability, multistage experiments with tree diagrams, odds, conditional probability, expected value, combination, permutation

Geometry:
Points, lines, planes, angles, geometric figures, networks, constructions, congruence, similarity, English system, metric system, length, area, volume, mass, temperature, tessellations.
In this course appropriate technology will be used. Computer/Calculator Usage will be addressed throughout the course.

Evaluation and Grading:
Students MUST submit all homework and tests on time. If a student does not complete the homework assignment when it is due, 30% will be deducted from the grade. The final comprehensive exam is over all chapters and may replace your lowest unit test grade.

Final Grade:
The final grade for the course will be based on a weighted average of a student’s test average, homework average and the final exam score. These averages will be weighted according to the following percentages:

- Unit Tests – 55%
- Homework – 20%
- Final Exam – 25%

Grade Scale:
A: 90% or greater
B: 80% to less than 90%
C: 70% to less than 80%
D: 60% to less than 70%
F: Less than 60%

Course Outline:

- Week 1 • Data, Statistical graphs, Measures of central tendency
- Week 2 • Concepts of measurement
- Week 3 • Basic definitions, Properties of probability
- Week 4 • Odds, Conditional probability, Expected value, Combination, Permutation
- Week 5 • Introduction to Geometry
- Week 6 • Congruence
- Week 7 • Constructions and Similarity
- Week 8 • Length, Area, Volume
- Week 9 • Mass, Temperature and Tessellations
- Week 10 • Final exam

Academic Integrity:
Academic honesty is expected of students enrolled in this course. Cheating on examinations, unauthorized collaboration, falsification of research data, plagiarism, and undocumented use of materials from any source, constitute academic dishonesty, and may be grounds for a grade of “F” in the course and/or disciplinary actions. For additional information see the university catalog.
Email:
Upon application to Texas A & M University–Texarkana an individual will be assigned an A & M-
Texarkana email account. This email account will be used to deliver official university correspondence.
Each individual is responsible for information sent and received via the university email account and is
expected to check the official A & M-Texarkana email account on a frequent and consistent basis.
Faculty and students are required to utilize the university email account when communicating about
coursework.

Drop Policy: University Drop Policy: To drop this course after the 12th class day, a student must complete the Drop/Withdrawal Request Form, located on the University website http://tamut.edu/Registrar/droppingwithdrawing-from-classes.html) or obtained in the Registrar’s Office. The student must submit the signed and completed form to the instructor of each course indicated on the form to be dropped for his/her signature. The signature is not an “approval” to drop, but rather confirmation that the student has discussed the drop/withdrawal with the faculty member. The form must be submitted to the Registrar’s office for processing in person, email Registrar@tamut.edu, mail (P. O. Box 5518, Texarkana, TX 75505) or fax (903-223-3140). Drop/withdraw forms missing any of the required information will not be accepted by the Registrar’s Office for processing. It is the student’s responsibility to ensure that the form is completed properly before submission. If a student stops participating in class (attending and submitting assignments) but does not complete and submit the drop/withdrawal form, a final grade based on work completed as outlined in the syllabus will be assigned.

Disability Accommodation:
Students with disabilities may request reasonable accommodations through the A & M-Texarkana Disability Services Office by calling 903-223-3062.

Student Technical Assistance:
MyMathLabHelp:
http://www.mymathlab.com/

The professor has the right to modify this syllabus at any point during the semester.