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COURSE NUMBER, TITLE MAT 103 Quantitative Reasoning

COURSE TEXT Staszko and Bradshaw. Thomson, Brooks/Cole, 2005. (ISBN 0-495-13106-7)

COURSE DESCRIPTION Numerical, visual, verbal, and symbolic aspects of quantitative reasoning with emphasis of interpretation of quantitative information in real-world problems. Satisfies general education requirements. Prerequisites: 2 years of high school algebra or equivalent. 3

GENERAL COURSE OBJECTIVES (GOALS) This course seeks to develop in the student a competency in problem solving and analysis which will be helpful in personal decision-making, in evaluating concerns in the community, city, and nation, and in setting and achieving career goals.

GENERAL EDUCATION COMPETENCIES Students will demonstrate competency in:

GE 1. **Critical and Creative Thinking**-Developing sound analytical and reasoning skills and the ability to use them to think critically, solve problems, analyze logically and quantitatively, and effectively respond to change

GE 2. **Communication**- Developing skills to communicate effectively through reading, writing, speaking, and listening.

GE 3. **Quantitative Skills**-Developing enhanced abilities for symbolic and numeric reasoning

GE 4. **Inquiry and Technology**- Developing skills for the application of information

SPECIFIC OBJECTIVES

At the completion of the course students will

1. Define key terms related to sets, Venn diagrams, algebraic models, probability statistics and finance. (GE 1, 2, 3)
2. Use Venn diagrams to solve problems related to surveys and probabilities. (GE 1, 2, 3)
3. Use counting techniques as methods of problem solving. (GE 1, 2, 3)
4. Calculate and interpret probabilities, including probabilities from frequency tables, graphs, and probability distributions. (GE 1, 2, 3)
5. Compute and interpret statistics pertaining to data sets. (GE 1, 2, 3)
6. Gather, organize, describe, and analyze data to make and support decisions. (GE 1, 2, 3, 4)
7. Communicate results using the language of probability and statistics. (GE 1, 2, 3)
8. Develop and apply sampling procedures to political surveys, manufacturing quality control, and the life sciences. (GE 1, 2, 3)
9. Solve personal finance problems related to savings and interest, taxes, discounts, credit, and other purchases, such as homes and automobiles. (GE 1, 2, 3)
10. Apply a variety of problem-solving techniques to real-world problems. (GE 1, 2, 3)

Each of these objectives may also be linked to Student Learning Outcomes for the Department of Mathematics. A numbered list of these Student Learning Outcomes is on file in the Department of Mathematics. Each of these specific objectives may be linked to Student Learning Outcome 2. Since each test will require students to provide written explanations of concepts, these objectives are also linked to Student Learning Outcome 3.

MAJOR STUDENT ACTIVITIES

1. Regular and punctual attendance is expected of students and students must adhere to the attendance regulations of the University and the Department.
2. Students must complete required homework and lab assignments that will be collected and graded at the discretion of the instructor.
3. Students will take quizzes, both announced and unannounced.
4. Students will take four assigned tests during the semester.
5. Students will take a comprehensive final exam at the end of the semester.
6. Students are expected to participate in all class activities.

EVALUATION AND GRADING

Grades will be assigned according to the following scale.

A(90 - 100) B(80 - 89) C(70 - 79) D(60 - 69) F(Below 60)

1. Assigned homework will be collected and graded on a weekly basis. No homework credit will be awarded for **answers only** unless this has been agreed upon prior to the assignment. Quizzes will also be given throughout the semester. **Calculator use is permitted on all in-class work as well as on homework and tests.** However, cell phones are not allowed for calculator use.
2. Three or four scheduled tests will be given during the semester. Your homework/quiz average will count as another test grade. These scores will comprise 75% of your final grade. **A comprehensive final examination** will comprise the other 25%.
3. There will be at least one question on each test that requires you to provide a written explanation of a concept. Evaluation of the answer to this question will include mathematical content, spelling, grammar, and sentence construction.

PRESENTATION METHODS

75% Lecture, Cooperative learning activities 15%, 10% Lab

ACADEMIC HONESTY POLICY Cheating and plagiarism **are not tolerated.** If it is established that a violation has occurred, the instructor may determine the penalty, or he/she may report the offense to the department chair and dean of the school. The usual penalty involves a grade of zero on the test, examination, or paper in question.

ADA STATEMENT – REFERENCE TO COUNSELING CENTER FOR DISABILITIES Delta State University is committed to a policy of equal employment and educational opportunity. Delta State University does not discriminate on the basis of race, color, religion, national origin, sex, age, disability, or veteran status. This policy extends to all programs and activities supported by the University. The Office of Disability Services is available for students who require academic accommodation due to any physical, psychological, or learning disability. Any student with a clinically diagnosed disability who desires accommodation under this Act should contact Dr. Richard Houston in the Office of Disability Services at 846-4690.

ADDITIONAL COURSE-SPECIFIC RULES, POLICIES, EXPECTATIONS

1. **Prompt and regular** attendance is necessary for success in this course. To receive credit in this course, a student must attend a minimum of 75% of the class meetings. Classes meeting three times per week will be allowed **11** absences, **excused and unexcused.** Absences will begin to accrue the first official day that this class meets, regardless of when you actually enroll in the class.
2. If a student is tardy for class, it is the student's responsibility to request that the faculty member change the recorded absence to a tardy. **This must be done on the day the tardy occurs.** A maximum of 3 tardies will be allowed. Each additional tardy will be recorded as an unexcused absence.
3. **Perfect attendance will be rewarded at the end of the semester.** Two points will be added to your final semester average if you have no absences, excused or unexcused, and one point will be added if you have only one absence, excused or unexcused. **Please remember to notify me if you are tardy for class! Do this the day the tardy occurs so that I might change the recorded absence to a tardy.** Failure to do so will result in the loss of your perfect attendance points.

CLASSROOM POLICIES AND MAKE-UP TESTS

1. There will be no extra credit to improve a grade at the end of the semester. Your grade will be earned throughout the semester.
2. **Cell Phones and Pagers must be turned off during class.** Cell phones may not be used as calculators.
3. Come to my office for help during scheduled office hours. No appointment is necessary. It is extremely important that you understand the day's material and are able to complete the homework assignments from each class meeting **before** we meet another class. If your class and/or work schedule conflicts with the office hours I offer, please feel free to make an appointment for a time not listed or take advantage of the tutors in The Academic Support Lab in room 311 of the Student Union Building.
4. Scheduled tests will be announced at least one week prior to the actual test date. Make-up tests will be given only to those students presenting a written excuse, acceptable by the university. **Any absence from scheduled work must be covered by a written excuse by the Vice President for Academic Affairs, the Student Health Service, or a doctor before the student is allowed to make up that missed work. All make-up work must be completed within three days of returning to class.** Any exception to this rule must be arranged before the work is missed.
5. A calculator with a statistical package is required for this class.

BRING YOUR CALCULATOR TO CLASS EACH DAY!

6. Take earphones and listening devices out of your ears upon entering the classroom.
7. Do not ask to leave class early. Schedule all appointments at times that do not conflict with class time.

TENTATIVE SCHEDULE (May Change at Instructor Discretion)

Test 1

Set notation

Venn diagrams

Multiplication Rule of Counting

Test 2

Multiplication Rule of Counting, permutations, combinations

Probability (including “not”, “and”, “or”)

Using Venn diagrams to compute probability

Test 3

Statistics definitions

Data organization

Measures of central tendency

Measures of variation

Gaussian distribution

Test 4

Personal finance

Instructor’s Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday
10:00 – 11:30	10:45 – 11:30	10:00 – 11:30	10:45 – 11:30	10:00 – 11:30
1:30 – 2:45	1:30 – 2:45	1:30 – 2:45	1:30 – 2:45	

Other office hours are available by appointment.