



## Course Syllabus

### **Math 1332 – Quantitative Reasoning**

**Catalog Description:** Intended for Non STEM (Science, Technology, Engineering, and Mathematics) majors. Topics include introductory treatments of sets and logic, financial mathematics, probability and statistics with appropriate applications. Number sense, proportional reasoning, estimation, technology, and communication should be embedded throughout the course. Additional topics may be covered.

**Lecture hours = 3, Lab hours = 0**

**Prerequisites:** TSI Math Complete.

**Semester Credit Hours:** 3

**Lecture Hours per Week:** 3

**Lab Hours per Week:** 0

**Contact Hours per Semester:** 48

**State Approval Code:** 27.0101.51 19

**Class section meeting time:**

#### **Core Components and Related College Student Learning Outcomes**

This course counts as part of the academic requirements of the Panola College Core Curriculum and an Associate of Arts or Associate of Science degree.  Yes  No: If no, skip to Instructional Goals.

The items below marked with an X reflect the state-mandated outcomes for this course **IF this is a CORE course:**

- Critical Thinking Skills – to include creative thinking, innovation, inquiry and analysis, evaluation and syntheses of information
  - CT1: Generate and communicate ideas by combining, changing, or reapplying existing information
  - CT2: Gather and assess information relevant to a question
  - CT3: Analyze, evaluate, and synthesize information
- Communication Skills – to include effective development, interpretation, and expression of ideas through written, oral, and visual communication
  - CS1: Develop, interpret, and express ideas through written communication
  - CS2: Develop, interpret, and express ideas through oral communication
  - CS3: Develop, interpret, and express ideas through visual communication
- Empirical and Quantitative Skills – to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
  - EQS1: Manipulate and analyze numerical data and arrive at an informed conclusion
  - EQS2: Manipulate and analyze observable facts and arrive at an informed conclusion

- Teamwork – to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal
  - TW1: Integrate different viewpoints as a member of a team
  - TW2: Work with others to support and accomplish a shared goal
- Personal Responsibility – to include the ability to connect choices, actions, and consequences to ethical decision-making
  - PR1: Evaluate choices and actions and relate consequences to decision-making
- Social Responsibility – to include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities
  - SR1: Demonstrate intercultural competence
  - SR2: Identify civic responsibility
  - SR3: Engage in regional, national, and global communities

**Instructional Goals and Purposes:**

Upon completion of MATH 1332, the student will be able to demonstrate:

1. Competence in describing sets, subsets, and performing set operations.x
2. Competence in solving consumer [math problems](#), including percents, loans, simple and compound interest, and mortgage payments.
3. Competence in solving probability problems, including single- and multi-stage experiments.
4. Competence in applications with permutations and combinations.
5. Competence in finding measures of central tendency, probability and statistics.
6. Competence in discerning correct information from various types of graphs.

**Learning Outcomes:**

Upon completion of MATH 1332, the student will be able to demonstrate:

1. Apply the language and notation of sets.
2. Determine the validity of an argument or statement and provide mathematical evidence.
3. Solve problems in mathematics of finance.
4. Demonstrate fundamental probability/counting techniques and apply those techniques to solve problems.
5. Interpret and analyze various representations of data.
6. Demonstrate the ability to choose and analyze mathematical models to solve problems from real-world settings, including, but not limited to, personal finance, health literacy, and civic engagement.

**Course Content:**

Students in all sections of this course will learn the following content:

A general description of lecture/discussion topics included in this course are listed in the Learning Objectives / Specific Course Objectives sections of this syllabus.

After studying the material presented in the text(s), lecture, laboratory, computer tutorials, and other resources, the student should be able to complete all behavioral/learning objectives listed below with a minimum competency of 70%. The student should be able:

1. To define terms relevant to sets, subsets, and set operations.
2. To perform set operations: union, intersection, complement.
3. To use Venn diagrams to determine the solution to a set problem.
4. To apply set definitions to "real-world" problems.
5. To use proper notation involving sets and related terms.
6. To convert a rational number to a decimal and to a percent and vice versa.
7. To solve consumer math problems involving percents.
8. To solve problems involving simple interest, compound interest, and personal loans.
9. To determine the finance charge and the monthly payment on a fixed installment loan.
10. To define and identify terms used with probability: event, outcome, empirical probability, theoretical probability, etc.
11. To calculate the probability of a simple event.
12. To calculate the odds of success and failure of an event.
13. To use tree diagrams to calculate the probability of a multi-stage experiment.
14. To use the Fundamental Counting Principle to calculate the number of permutations of an event.
15. To use the Fundamental Counting Principle to calculate the number of combinations of an event.
16. To properly read information from "real-world" graphs.
17. To calculate measures of central tendency of a set of data.

**Methods of Instruction/Course Format/Delivery:**

Methods of Instruction/Course Format/Delivery: Methods employed will include Lecture/demonstration, discussion, problem solving, analysis, and reading assignments. Homework will be assigned. Faculty may choose from, but are not limited to, the following methods of instruction:

1. Lecture
2. Discussion
3. Internet

4. Video
5. Television
6. Demonstrations
7. Field trips
8. Collaboration
9. Readings

**Major Assignments/Assessment:**

Faculty may assign both in- and out-of-class activities to evaluate students' knowledge and abilities. Faculty may choose from – but are not limited to -- the following methods attendance, class preparedness and participation. Collaborative learning projects, exams/tests/quizzes, homework, internet, library assignments, readings, research papers, scientific observations, student-teacher conferences, and written assignments.

The Mathematics Department does not accept late work.

**Assessment(s):**

1. Exam per Chapter
2. Comprehensive Final Exam

**Course Grade:**

<b>Assignment Weights</b>	
Class Participation	10%
Homework/Quiz Average	15%
Exams	55%
Comprehensive Final Exam	20%

**Letter Grades for the Course will be assigned as follows:**

- A:  $90 < \text{Average} < 100$
- B:  $80 < \text{Average} < 90$
- C:  $70 < \text{Average} < 80$
- D:  $60 < \text{Average} < 70$
- F:  $00 < \text{Average} < 60$

**Texts, Materials, and Supplies:**

- Textbook: A Survey of Mathematics with Applications. Angel, Abbott, and Runde. 9<sup>th</sup> Edition
- MyMathLab Access
- Canvas Access
- Scientific Calculator

**Other:**

- For current texts and materials, use the following link to access bookstore listings: <http://www.panolacollegestore.com>
- For testing services, use the following link: <http://www.panola.edu/elearning/testing.html>
- If any student in this class has special classroom or testing needs because of a physical learning or emotional condition, please contact the ADA Student Coordinator in Support Services located in the Administration Building or go to <http://www.panola.edu/student-success/disability-support-services/> for more information.
- Withdrawing from a course is the student's responsibility. Students who do not attend class and who do not withdraw will receive the grade earned for the course.
- Student Handbook, *The Pathfinder*: <http://www.panola.edu/student-success/documents/pathfinder.pdf>