

ARIZONA WESTERN COLLEGE  
SYLLABUS

## MAT 215 MATH ANALYSIS FOR BUSINESS

Credit Hours: 4 Lec 4

PREREQUISITE: MAT 212 or MAT 220

COURSE DESCRIPTION

Solving business-related problems by applying the concepts of linear programming, optimization, statistics, probability and multivariable calculus.

1. COURSE GOAL

Provide the student with the tools needed to categorize and solve problems in the areas of business and economics.

2. OUTCOMES

Upon satisfactory completion of this course, students will be able to:

- 2.1 Solve problems associated with functions of several variables, including partial derivatives, optimization, Lagrange multipliers, and the Extreme Value Theorem
- 2.2 Solve business-related multivariable optimization problems, including linear programming problems, using technology when appropriate.
- 2.3 Solve systems of linear equations applications using matrices and determinants with an emphasis on business and economics problems.
- 2.4 Apply the principles of set theory, Venn diagrams, counting techniques and combinatorics to solve problems.
- 2.5 Solve problems using probability concepts
- 2.6 Solve statistics problems utilizing discrete and continuous distributions.
- 2.7 Use graphing calculators and appropriate computer software to model, investigate, solve and justify solutions to given problems.
- 2.8 Solve problems in finance, including simple and compound interest, present and future value of annuities, amortization and sinking funds.

3. AWC GENERAL EDUCATION (GE) OUTCOMES

## 3.1 DIGITAL LITERACY

- Determine the extent of information needed
- Access the needed information effectively and efficiently
- Evaluate information and its sources critically
- Use information effectively to accomplish a specific purpose
- Create content in a digital environment

## 3.2 QUANTITATIVE ANALYSIS

- Identify and extract relevant data from given mathematical or contextual situations
- Select known models or develop appropriate models that organize the data into: tables or spreadsheets (with or without technology); graphical representations (with or without technology); symbolic/equation format
- Obtain correct mathematical results and state those results with appropriate qualifiers and use the results to: determine whether they are realistic in terms of original data/problem; determine whether the mathematical model/representation of data is appropriate; describe trends in a table, graph, or formula and make predications based on these trends; draw qualitative conclusions in written form; apply them to real world problems

## 3.3 SCIENTIFIC LITERACY

- Utilize data to communicate and apply an understanding of scientific logic and/or quantitative reasoning

4. METHODS OF INSTRUCTION

- 4.1 Lecture
- 4.2 Demonstrations

5. LEARNING ACTIVITIES

- 5.1 Scientific calculator usage
- 5.2 Problem solving strategies
- 5.3 Learning activities

6. EVALUATION

Grade may be based on any or all of the following; tests, quizzes, homework assignments, computer-based assignments, class participation and a final

7. STUDENT RESPONSIBILITIES

- 7.1 Under AWC Policy, students are expected to attend every session of class in which they are enrolled.
- 7.2 Classroom Assignments: Students are responsible for work missed and for completing all work before the next class meeting. Students are responsible for participating in all oral drills and for taking all exams.
- 7.3 If a student is unable to attend the course or must drop the course for any reason, it will be the responsibility of the student to withdraw from the course. Students who are not attending as of the 45th day of the course may be withdrawn by the instructor. If the student does not withdraw from the course and fails to complete the requirements of the course, the student will receive a failing grade.
- 7.4 Americans with Disabilities Act Accommodations: Arizona Western College provides academic accommodations to students with disabilities through AccessABILITY Resource Services (ARS). ARS provides reasonable and appropriate accommodations to students who have documented disabilities. It is the responsibility of the student to make the ARS Coordinator aware of the need for accommodations in the classroom prior to the beginning of the semester. Students should follow up with their instructors once the semester begins. To make an appointment call the ARS front desk at (928) 344-7674 or ARS Coordinator at (928) 344-7629, in the College Community Center (3C) building, next to Advising.
- 7.5 Academic Integrity: Any student participating in acts of academic dishonesty including, but not limited to, copying the work of other students, using unauthorized "crib notes", plagiarism, stealing tests, or forging an instructor's signature—will be subject to the procedures and consequences outlined in AWC's Student Code of Conduct.
- 7.6 Textbooks and materials: Students are required to bring notebook or looseleaf book, pens, pencils, dictionaries, and purchase textbook required for class.
- 7.7 Arizona Western College students are expected to attend every class session in which they are enrolled. To comply with Federal Financial Aid regulations (34 CFR 668.21), Arizona Western College (AWC) has established an Attendance Verification process for "No Show" reporting during the first 10 days of each semester.  
Students who have enrolled but have never attended class may be issued a "No Show" (NS) grade by the professor or instructor and receive a final grade of "NS" on their official academic record. An NS grade may result in a student losing their federal financial aid.  
For online classes, *student attendance in an online class is defined as the following* (FSA Handbook, 2012, 5-90):
  - Submitting an academic assignment
  - Taking an exam, an interactive tutorial or computer-assisted instruction
  - Attending a study group that is assigned by the school
  - Participating in an online discussion about academic matters
  - Initiating contact with a faculty member to ask a question about the academic subject studied in the course