

MATH 1410 Topics in Contemporary Math I

Credit Hours

3 credit hours

Course Description

A conceptual and problem solving approach to sets, numeration systems, algorithms for addition, subtraction, multiplication, and division in the real number system, elementary number theory, relations and functions.

Prerequisite Course(s)

Two years of high school algebra and acceptable placement score, or Learning Support Modules 1 - 12

Text (See Instructor for Details)

Thinking Mathematically, Blitzer, 5e
ISBN: 0321645855 Package w/ MyMathLab

Other text or materials required

Calculator and graph paper

Academic Honesty

Acts of academic dishonesty are serious offences at JSCC. Suspension from the college could be the consequence for any act of dishonesty. No form of cheating will be tolerated. See the JSCC catalog for additional information.

Prerequisite Competencies

It is expected that students have mastery of these prerequisite competencies. These topics will not be covered during class time. If assistance is needed regarding these topics, please use the services and materials provided by the Academic Assistance Center and Math Learning Center+.

Competencies include but are not limited to:

- The ability to do research on the Internet
- Perform the four basic operations on algebraic expressions and real numbers (addition, subtraction, multiplication, and division)
- Solve linear equations.
- Understand set operations and set notation.
- Identify the key elements of an application problem, set up an appropriate equation to solve.
- Have a familiarity with our Hindu-Arabic numeration system and its four basic operations.
- Have previous experience with the Roman numeration system.
- Be able to determine the relative order of selected numbers.

Exit Competencies:

Upon successful completion of this course, a student will demonstrate comprehension and application of the following competencies.

- Use Polya's method and inductive reasoning to solve problems
- Simplify expressions using order of operations
- Translate mathematical statements
- Estimate answers to numerical questions
- Perform operations on sets and use Venn diagrams
- Perform logic operations on statements (negation, conditional, converse, inverse, contrapositive)
- Use direct, indirect, and transitive reasoning
- Find a valid conclusion for a given argument
- Know the principal properties of the Roman numeration system
- Change numbers from and to the Roman numeration system
- Change numbers from one base to another
- Perform operations on binary and octal numbers
- Demonstrate the definition of multiplication
- Determine if a given set is closed on a given operation
- Perform prime factorization
- Determine LCM and GCF of a set of numbers
- Perform operations on fractions
- Determine the elements of the number sets (Natural, Whole, Integer, Rational, Irrational, Real)
- Perform operations in modular arithmetic
- Simplify algebraic expressions
- Factor polynomials
- Multiply binomials mentally
- Solve linear and quadratic equations and inequalities
- Solve applied problems involving number, distance, and the Pythagorean relationships
- Construct and simplify ratios and solve proportion problems
- Compare the magnitude of numbers in various forms (fraction, decimal, radical)
- Solve systems of equations by graphing, substitution, and addition
- Solve applied problems involving coins and mixtures
- Perform matrix arithmetic
- Solve systems of inequalities and linear programming

Writing Competency

The course will include assignments that must be written in clear, precise English.

Support Facilities

Most JSCC math courses are supported with tutoring during the Fall and Spring semesters. See your instructor for specific tutoring opportunities available at JSCC. These facilities are not a substitute for attending class. Math tutors are not allowed to introduce new material to a student. If a class must be missed, the student must obtain class notes from a classmate and then meet with the instructor BEFORE seeking tutoring on the missed material.

ADA

Jackson State will make reasonable accommodations for students with documented disabilities. Students should notify their instructor and Linda Nickell, Dean of Students, in the Counseling Office, Room 139 of the Student Union Building. The contact number is 425-2616 and the email is lnickell@jsc.edu. Instructors should be notified the first week of class. All discussions remain confidential.