| **PROFESSOR:** |  |
| --- | --- |
| **OFFICE LOCATION:** |  |
| **OFFICE HOURS:** |  |
| **PHONE NUMBER:** |  |
| **E-MAIL:** |  |
| **SEMESTER:** |  |
| **DELIVERY METHOD:** |  |

# COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDITS:

## MAC 1140 Pre-Calculus Algebra (3 Credits)

This is an algebra class designed to prepare students to enter either engineering or calculus courses. Topics covered include exponential and logarithmic functions, polynomials, rational functions, conic sections, sequences and series, mathematical induction, the binomial theorem, and matrices. If completed with a grade of “C” or better, this course serves to demonstrate competence for the general education mathematics requirement. Credit is not given for both MAC 1140 and MAC 1106, or for both MAC 1140 and MAC 1147.

## PREREQUISITES FOR THIS COURSE:

MAC 1105 with a minimum grade of “C” or appropriate CLM score

### CO-REQUISITES FOR THIS COURSE:

None

## GENERAL COURSE INFORMATION:

Topic Outline

Polynomial, rational, and other algebraic functions, their properties and graphs

Polynomial and rational inequalities

Exponential and logarithmic functions, their properties and graphs

Piecewise defined functions

Conic sections

Matrices and determinants

Sequences and series

Mathematical induction

Binomial Theorem

Applications

## ALL COURSES AT FLORIDA SOUTHWESTERN STATE COLLEGE CONTRIBUTE TO THE GENERAL EDUCATION PROGRAM BY MEETING ONE OR MORE OF THE FOLLOWING GENERAL EDUCATION COMPETENCIES:

**C**ommunicate clearly in a variety of modes and media.

**R**esearch and examine academic and non-academic information, resources, and evidence.

**E**valuate and utilize mathematical principles, technology, scientific and quantitative data.

**A**nalyze and create individual and collaborative works of art, literature, and performance.

**T**hink critically about questions to yield meaning and value.

**I**nvestigate and engage in the transdisciplinary applications of research, learning, and knowledge.

**V**isualize and engage the world from different historical, social, religious, and cultural approaches.

**E**ngage meanings of active citizenship in one’s community, nation, and the world.

A. General Education Competencies and Course Outcomes

1. Listed here are the outcomes/objectives assessed in this course which play an integral part in the student’s general education along with the general education competency they support.

General Education Competency: Evaluate

Course Outcomes or Objectives Supporting the General Education Competency Selected:

Determine and apply appropriate mathematical and computational methods, models, principles and algorithms in order to solve mathematical problems related to the selection of topics listed in the “General Course Information: Topic Outline” of this Syllabus, interpret and represent results.B. Other Course Objectives/Standards

At the conclusion of this course, students will be able to demonstrate the following competences:

Determine the complex zeros, real zeros and linear factorization of a polynomial when given either a graphical or symbolic representation.

Analyze and sketch the graphs of polynomial and rational functions, including determining any asymptotes, intercepts and other critical values both algebraically and using technology.

Solve polynomial and rational inequalities graphically and algebraically.

Apply properties, algebraic techniques, and technology to solve exponential and logarithmic equations and interpret the solutions.

Analyze and sketch the graphs of exponential and logarithmic functions.

Apply appropriate mathematical properties to graph and interpret continuous and piece-wise functions.

Determine the equation of a conic section given its graph or characteristics of its graph and vice versa.

Perform matrix operations, evaluate inverses and determinants, and use the results to solve systems of linear equations.

Use multiple approaches to solve systems of linear and non-linear equations and compare and contrast those approaches.

Analyze sequences and series using patterning, formulas, and/or technology and extend these concepts to the use of mathematical induction and the binomial theorem.

Use a graphing utility to determine a curve of best fit for given data.

## DISTRICT-WIDE POLICIES:

### PROGRAMS FOR STUDENTS WITH DISABILITIES

Florida SouthWestern State College, in accordance with the Americans with Disabilities Act and the College’s guiding principles, offers students with documented disabilities programs to equalize access to the educational process. Students needing to request an accommodation in this class due to a disability, or who suspect that their academic performance is affected by a disability should contact the Office of Adaptive Services at the nearest campus. The office locations and telephone numbers for the Office of Adaptive Services at each campus can be found at <https://www.fsw.edu/adaptiveservices>.

### REPORTING TITLE IX VIOLATIONS

Florida SouthWestern State College, in accordance with Title IX and the Violence Against Women Act, has established a set of procedures for reporting and investigating Title IX violations including sexual misconduct. Students who need to report an incident or need to receive support regarding an incident should contact the Equity Officer at [equity@fsw.edu](mailto:equity@fsw.edu). Incoming students are encouraged to participate in the Sexual Violence Prevention training offered online. Additional information and resources can be found on the College’s website at <https://www.fsw.edu/sexualassault>.

## REQUIREMENTS FOR THE STUDENTS:

List specific course assessments such as class participation, tests, homework assignments, make-up procedures, etc.

## ATTENDANCE POLICY:

The professor’s specific policy concerning absence. (The College policy on attendance is in the Catalog and defers to the professor.)

## GRADING POLICY:

Include numerical ranges for letter grades; the following is a range commonly used by many faculty:

| **Grade Percent** | **Letter Grade** |
| --- | --- |
| 90 - 100 | A |
| 80 - 89 | B |
| 70 - 79 | C |
| 60 - 69 | D |
| Below 60 | F |

(Note: The “incomplete” grade [“I”] should be given only when unusual circumstances warrant. An “incomplete” is not a substitute for a “D,” “F,” or “W.” Refer to the policy on “incomplete grades.)

## REQUIRED COURSE MATERIALS:

(In correct bibliographic format.)

## RESERVED MATERIALS FOR THE COURSE:

Other special learning resources.

## CLASS SCHEDULE:

This section includes assignments for each class meeting or unit, along with scheduled Library activities and other scheduled support, including scheduled tests.

## ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

(Which would be useful to the students in the class.)