

## Precalculus

### MAC 1140

#### Course Description:

Pre-Calculus provides an essential foundation for calculus and is applicable to diverse fields, from physics and economics to computer science. Beyond fostering mathematical readiness for advanced courses, the knowledge obtained through MAC1140 and MAC1114 is crucial for understanding real-world phenomena, including radioactive decay in chemistry, birth rates in biology, and computer security in IT.

MAC1140 introduces functions, graphs, and their real-world applications. From exploring polynomial, rational, exponential, and logarithmic functions, to delving into matrix algebra and conic sections, the course provides a comprehensive understanding of sequences, mathematical induction, and the binomial theorem. With an emphasis on the vital skills and concepts for calculus, MAC1140 and MAC1114 serve as the prerequisites for the Calculus I, II, and III series.

#### Course Learning Objectives:

At the completion of this course, students will be able to:

1. Describe the concept of a function and explain its various properties.
2. Define a function by ordered pairs, by a graph, and algebraically. Use transformations, symmetry, function operations, and inverses.
3. Translate between numerical, graphical, and algebraic representations of functions.
4. Apply a variety of techniques to find solutions to equations and inequalities.
5. Simplify algebraic and transcendental expressions.
6. Graph polynomial and rational functions; find the zeros of functions, and reconstruct a polynomial from its given zeros.
7. Graph and analyze graphs of exponential and logarithmic functions; solve exponential and logarithmic equations
8. Find equations of populations that obey the law of exponential growth and decay.
9. Analyze conic sections and solve problems with real-world applications.
10. Perform matrix operations and find inverse matrices.
11. Understand notation and applications of Sequences and Series.
12. Correctly write AND explain mathematics quantitatively and conceptually.
13. Select and apply appropriate methods (i.e., mathematical, statistical, logical, and/or computational models or principles) to solve real-world problems.
14. Use a variety of forms to represent problems and their solutions.

#### Graded Assignments:

The grading for this course comprises regular ALEKS homework, quizzes, collaborative lab activities, as well as class attendance and participation. These are complemented by three periodic semester exams, all leading to a comprehensive final exam.

## **LIBERAL STUDIES STATEMENT**

This course has been approved to meet FSU's Liberal Studies Quantitative and Logical Thinking requirements and helps you become a critical analyst of quantitative and logical claims.

In order to fulfill the State of Florida's College mathematics and computation requirement the student must earn a "C-" or better in the course.

By the end of the course, students will demonstrate the ability to:

1. Select and apply appropriate methods (i.e., mathematical, statistical, logical, and/or computational models or principles) to solve real-world problems.
2. Use a variety of forms to represent problems and their solutions.

## **UNIVERSITY ATTENDANCE POLICY**

Excused absences include documented illness, deaths in the family and other documented crises, call to active military duty or jury duty, religious holy days, and official University activities. These absences will be accommodated in a way that does not arbitrarily penalize students who have a valid excuse. Consideration will also be given to students whose dependent children experience serious illness.

## **ACADEMIC HONOR POLICY**

The Florida State University Academic Honor Policy outlines the University's expectations for the integrity of students' academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the

process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to "...be honest and truthful and... [to] strive for personal and institutional integrity at Florida State University." (Florida State University Academic Honor Policy, found at <http://fda.fsu.edu/Academics/Academic-Honor-Policy>)

## **AMERICANS WITH DISABILITIES ACT**

Florida State University (FSU) values diversity and inclusion; we are committed to a climate of mutual respect and full participation. Our goal is to create learning environments that are usable, equitable, inclusive, and welcoming. FSU is committed to providing reasonable accommodations for all persons with disabilities in a manner that is consistent with academic standards of the course while empowering the student to meet integral requirements of the course.

To receive academic accommodations, a student:

- (1) must register with and provide documentation to the Office of Accessibility Services (OAS);
- (2) must provide a letter from OAS to the instructor indicating the need for accommodation and

what type; and, (3) should communicate with the instructor, as needed, to discuss recommended accommodations. A request for a meeting may be initiated by the student or the instructor.

Please note that instructors are not allowed to provide classroom accommodations to a student until appropriate verification from the Office of Accessibility Services has been provided.

This syllabus and other class materials are available in alternative format upon request.

For more information about services available to FSU students with disabilities, contact the

Office of Accessibility Services 874 Traditions Way 108 Student Services Building Florida State University Tallahassee, FL 32306-4167 (850) 644-9566 (voice) (850) 644-8504 (TDD)  
oas@fsu.edu <https://dsst.fsu.edu/oas>

## **ACADEMIC SUCCESS**

Your academic success is a top priority for Florida State University. University resources to help you succeed include tutoring centers, computer labs, counseling and health services, and services for designated groups, such as veterans and students with disabilities. The following information is not exhaustive, so please check with your advisor or the Dean of Students office to learn more.

## **CONFIDENTIAL CAMPUS RESOURCES**

Various centers and programs are available to assist students with navigating stressors that might impact academic success. These include the following:

Victim Advocate Program  
University Center A, Rm. 4100  
(850) 644-7161  
Available 24/7/365  
Office Hours: M-F 8-5  
<https://dsst.fsu.edu/vap>

Counseling and Psychological Services  
Askew Student Life Center, 2nd floor  
942 Learning Way  
(850) 644-8255  
<https://counseling.fsu.edu/>

University Health Services  
Health and Wellness Center  
(850) 644-6230  
<https://uhs.fsu.edu/>