MATH-1710: Pre-Calculus I  (On Campus, Web-Assisted | Fall 2017)

Instructor Information

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Course Information

Course Description
This course is an exploration of the real number system involving the topics: relations and functions, graphing techniques, linear and quadratic systems of equations and inequalities. This course also includes the following topics: matrices and determinants, conic sections, polynomial functions and theory of equations, exponential and logarithmic functions, and natural number functions.
Prerequisite(s): Grade of “C” or higher in MATH 1000 or demonstrated proficiency on the placement examination or the mathematics component of the ACT.

(This course does satisfy General Education Requirements for graduation.)

This course provides instructor lead individualized instruction through MyLabsPlus and is competency based.

Lectures must be completed with a grade of 100% before moving to the homework sets.
Module homework sets must be completed with a grade of 90% or higher before moving to the self-checks.

Self-checks must be completed with a grade of 80% or higher before moving to the next section.

Practice Exams must be completed with a grade of 70% before taking Module Exam

Each Module Exam

The student has 1 attempt and these exams are proctored and taken in class however the due date for the exams are enforced.

On the Final Exam the student has 1 attempt on these exams, and is proctored.

Grading Scale:  
A  90-100

B  80- 89

C  70-79

D  60-69

F  59 or below

Student Learning Objectives

1. Students are able to use mathematics to solve problems and determine if results are reasonable.

2. Students are able to use mathematics to model real-world behaviors and apply mathematical concepts to the solution of real life problems.

3. Students are able to make meaningful connections between mathematics and other disciplines.

4. Students are able to use technology for mathematical reasoning and problem solving.

5. Students are able to apply mathematical and/or basic statistical reasoning to analyze data and graphs.

GRADING POLICY: Your instructor determines the grading policy in your class. A formal statement of the grading policy will be distributed by the second class period.
Final course grade will be calculated as follows:

Module Exams (60%)

Final Exam (40%)

Module Exams and the Final Exams are proctored and occur only in designated areas of the lab. Note your instructor retains the right to set their own grading policy.

*IMPORTANT* The final grade for this course is determined by the work that has been completed by the specified final exam date.

**Prerequisites**

MATH 1000 with a grade "C" or higher or equivalent

**Corequisites**

none

**Specific Course Requirements**

COURSE MODULES:

Module I – Functions

Functions and understanding key aspects of their graphs

Review relative minimum, relative maximum

Review decreasing, increasing, constant

piecewise functions
function symmetry (x-axis, y-axis or origin)

even or odd functions

Review relations

Review restricted values

Review function notation

Review function evaluation

Review domain and range

Define difference quotient, slope of secant line

Algebra of functions

adding, subtracting, multiplying or dividing

review domain and range

Represent the work done by multiple functions into one function by using composite functions.

Define inverse functions, show whether two functions are inverses of each other, and learn the four step process to find an inverse function.

Module II – Polynomial Functions and Rational Functions

Polynomial functions and understanding key aspects of their graphs

Review finding zeros [x-intercepts or solutions] by factoring

Review zero product property

multiplicity of zeros

intermediate value theorem
Dividing polynomials

long division and synthetic division

remainder theorem to test zeros of the polynomial

Finding all zeros (solutions, x-intercepts) of a polynomial using the rational zero theorem.

Define rational functions and understanding key aspects of their graphs

vertical, horizontal and oblique asymptotes

arrow notation

Module III – Exponential and Logarithmic Functions/Equations, Matrices

Review Exponential and logarithmic functions and understanding key aspects of their graphs

asymptotes, intercepts

related bases

Review application problems and understanding interest formulas

simple, compound, and continuous interest

Review converting exponential functions to their inverse logarithmic function and vise versa.

Review Apply definitions, transformations, properties and restrictions to exponential and logarithmic functions.

Use rules of logarithms to expand or contract logarithms

product rule, quotient rule, power rule

base change formula

Solve exponential and logarithm equations and applying restrictions to find solutions.
Review the use exponential growth and decay formulas as well as using restrictions to find domain and range to solve application problems.

Represent and solve matrices using row transformations to simplify to reduced row echelon form.

Solve system of equations with one, no or infinite number of solutions by using matrices.

Finding and using determinants and Cramer’s rule for solving systems of equations.

Understand and apply the properties of addition, subtraction, multiplication, and scalar multiplication of matrices.

Module VI – Conic Sections, Circles, Arithmetic and Geometric Sequences, Summation Notation

Definition of circle

radius, center, standard form, general form

Introduction to Ellipse

definition, standard form, graph, transformations, and applications

Introduction to Hyperbola

definition, standard form, asymptotes, graph, transformations, and applications

Introduction to Parabola

definition, standard form, graph, transformations, and applications

Sequences and summation notation, recursive sequences and factorials

Arithmetic sequences

common difference, general term, sum of n terms

Geometric sequences

common ratio, general term, sum of n terms
Textbooks, Supplementary Materials, Hardware, and Software Requirements

Required Text
MyMathLab Plus Student Access Kit Note the MyLabsPlus code required for this course is Course Specific It must say MyLabsPlus Precalculus 6th edition by Blitzer ISBN: 9781323658604

MyMathLab Plus Student Access Kit There are two versions of MyMathLab, buy the one with the word Plus.

Additional Text
Organizer Notebook for Assignments

Earbuds to listen to video lectures in class.

Graphics Calculator The Texas Instruments model TI-83 plus or TI-84 is recommended. Other types of graphing calculators may be used, but the instructor may not be able to provide assistance in their use. Cell phones may not be used as calculators.

Supplementary Materials
Organizer Notebook for Assignments

Earbuds to listen to video lectures in class.

Graphics Calculator The Texas Instruments model TI-83 plus or TI-84 is recommended. Other types of graphing calculators may be used, but the instructor may not be able to provide assistance in their use. Cell phones may not be used as calculators.

Hardware Requirements
If this course requires the use of a computer, these are general recommendations for accessing any of the services that Southwest offers on the Web (e.g. My.Southwest, etc.).

- minimum Pentium IV or higher processor (recommended)
SVGA monitor, minimum resolution 800x600 (1024x768 strongly recommended)
CD-ROM or DVD drive
floppy drive, zip drive, or CD-RW drive
Mouse or compatible pointing device
at least 512 MB of RAM (recommended)
(optional) printer

Software Requirements
The software listed below is recommended for any student accessing Southwest services through the internet. Your course may have specific software requirements.

- Windows 7, Vista, XP
- Mac OS X (up to 10.6) (OS 10.6 recommended)
- Linux with a Supported Browser
- Microsoft Edge+
- IE 10 & 11: some issues+
- Firefox (latest)+
- Firefox ESR+
- Chrome (latest)+
- Current Anti-Virus protection
- Reliable Internet connection (broadband recommended but not required)

Many instructors may require assignments to be submitted using Microsoft Excel or Microsoft Word. To learn how to obtain discounted software from Microsoft, visit [http://southwest.tn.onthehub.com](http://southwest.tn.onthehub.com).

Guidelines for Communications

Email Guidelines
Each student has been provided a Southwest e-mail account. Please do not email your classmates unless the topic relates specifically to this course. E-mails that contain advertisements, solicitations, personal interests, etc. are strictly forbidden. Below are a few guidelines that you should keep in mind when sending email:

- Always include a subject line.
• Typing in all CAPS is considered SHOUTING in Cyberspace. So please use upper and lower case characters when sending e-mails.

• Remember, without facial expressions some comments may be taken the wrong way. Be careful in wording your e-mails and use good Netiquette.

• Use standard fonts.

• Do not send large attachments without permission.

• Respect the privacy of other class members.

**Online instructors will respond to all e-mails within 48 hours.**

**Discussion Guidelines**

Below are a few guidelines that should be adhered to when using the Discussion forum. Messages that contain advertisements, solicitations, personal interests, etc. are strictly forbidden.

• Review the discussion threads thoroughly before entering the discussion.

• Please try to maintain threads by using the "Reply" button rather starting a new topic.

• Do not make insulting or inflammatory statements to other members of the class. Be respectful of others' ideas.

• Be patient and read the comments of other group members thoroughly before entering your remarks.

• Be positive and constructive in group discussions.

• Respond in a thoughtful and timely manner.

**Technical Support**

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**My.Southwest**: Submit a Student Technical Support Request. Please provide a full detailed explanation of the problem.

**PAWS**: For course related questions, contact your instructor. For technical issues with the PAWS website, contact the College Helpdesk at (901) 333-4357.

**Student Services**
Embedded Librarian Service

This service may be found inside PAWS courses. Two Southwest Librarians are assigned to work with you and your instructor throughout the course for the entire semester. The Librarians will suggest library resources and answer questions sent to "Ask A Librarian".

To contact a Librarian, go to the Classlist and select the "Ask A Librarian" tab.

Student Services Links

- Academic Support Centers / Tutoring
- Advising and Counseling
- Campuses, Centers and Sites
- Student Disability Services Southwest Tennessee Community College is committed to serving all students, including students with disabilities, and adheres to the guidelines set forth in Title II of the Americans with Disabilities Act (ADA).
- Additional Links: Student Information & Services

Academic Support

The Academic Support Center (ASC) provides free services and resources to help Southwest students successfully reach their academic and career goals. These services include tutoring by peer and master tutors, computer labs, success workshops, academic coaching, early alerts from your instructors and areas for individual or group study at numerous locations. The ASC also provides Supplemental Instruction in some of our general education classes and the Center is also responsible for Academic Progress Reporting so that you will be aware of your academic standing during the 5th-6th week of the semester. Online tutoring services are offered through Smarthinking 24 hours a day, 7 days a week. Simply login to your PAWS to access this online tutoring resource.

Additional Information

Drop/Withdrawal Dates

See the official college catalog for the current withdrawal policies. Important semester drop and withdrawal dates can be found on the college Web site at http://www.southwest.tn.edu.

Academic Misconduct
Plagiarism, cheating, and other forms of academic dishonesty are prohibited. A student guilty of academic misconduct, either directly or indirectly, through participation or assistance, is immediately responsible to the instructor of the class. The instructor has the authority to assign an “F” grade or a zero for the exercise or examination, or to assign an “F” for the course. College sanctions for academic misconduct may include suspension or dismissal from the College. Please see the section in the current Catalog on Academic Misconduct.

**Classroom Behavior:** Any student engaged in disruptive conduct or conduct violating the general rules or regulations of the College may be ordered to temporarily leave the classroom. Extended or permanent exclusion from the classroom can be achieved only through appropriate procedures of the College.

**Open Labs**

**Macon Cove**

- Academic Support Center: Available during working hours
- Bert Bornblum Library: Available during library hours
- Farris 2131: M-R 8-5:30, F 804:30

**Union Avenue**

- Academic Support Center - F Building, Room 319, available during working hours
- Parrish Library - Available during library hours
- M105: 8-6:30

**Gill**

- Computer Lab- Room 101 (Please note - this room is available when classes are not scheduled. Schedule fluctuates each semester.)
- Library - Available during Library hours only.

**Maxine Smith**

- Open Lab- Room 101.
- Library - Available during Library hours only.

**Whitehaven**

- Open Lab Building 6, Room 127
- Library - Available during Library hours only.
Syllabus Updates

The instructor reserves the right to make changes as necessary to this syllabus. If changes are necessitated during the term of the course, the instructor will immediately notify students of such changes.