MAT 115 Syllabus

Dr. Christensen
Office: S 222
Phone: 344-3368

2018 Fall Semester: MWF 2:30-3:20, L 137

Textbook: "PreCalculus" 5e by Faires and DeFranza

MAT 115 PRECALCULUS (3,0) An introductory course covering topics from algebra and trigonometry needed for the study of calculus. This course does not satisfy the core requirement in college level mathematics.
Prerequisites: Either ACT Math 18, SAT Math 430, GEC 093 and 094, GEC 096, or equivalent

1 Goals and Outcomes

1.1 Department Goals: To provide the skills and knowledge necessary to succeed in calculus

The goal of this course is to provide the information necessary to prepare students for success in the standard college-level calculus course. This course will remind of information you learned in your high school algebra courses, reframe that information in preparation for calculus, and tie it into the framework of trigonometric and exponential functions. If you are successful in this course, then when you take the calculus course, you should be able to focus on the calculus without having the algebra trip you up or distract you.

1.2 Instructor Goals: To enable students to find their mathematical feet

My goal for this course is to provide students with the practice, the perspective, and the habits that will enable success in the standard college-level calculus course. I cannot *make* you learn this material. I can *help* you learn this material. I can rephrase the material in the book in a variety of ways so that it "fits in your ear"; but I need you to help me do that by telling me what makes sense and what doesn't make sense.

1.3 Impact of Goals on Class

Just as sports, music, carpentry, and any other skill requires practice, to do well in mathematics requires practice. Homework will be managed in a manner that rewards you for practicing without penalizing you for not being an expert. You should use the homework to make the classroom experience more useful to you. When doing the homework, sort it into "I see how this works" or "I don't get this". If you don't get it, make a question and ask!

Quizzes will test your skills and knowledge. Think of these as scrimmages. You will be graded on success, but they are not as important as the "real games".

Class days are designed to answer the questions you have on the topics you don't understand. We will start with your questions, based on your attempts on the homework. If you don't have questions, I will quiz your knowledge. If there is time after the quiz, I will give you hints on your next homework. At the end of each chapter, you will get a set of homework that is graded for accuracy, followed by an exam. The final exam will test your knowledge from the entire semester.

1.4   Student Learning Outcomes

After successfully completing this course, students should be able to

1. Formulate questions that help fix confusion
   assessed through classroom interactions and homework

2. Express functions in algebraic and graphical forms, recognizing key features
   assessed through quizzes and exams

3. Recognize certain functions that are necessary for solving integrals
   assessed through quizzes and exams

   (a) trigonometric functions and their inverses

   (b) exponential functions

   (c) logarithmic functions

4. Develop a high comfort-level in manipulating algebraic expressions, sufficient to focus on calculus without
   distraction by algebra
   assessed through timed quizzes and exams

2   Grading

10%   **Homework:** The most productive method of learning mathematics is by practice. This homework is for practice
and self-discipline. The point is to help you figure out (1) what you know, (2) what you can figure out, and (3) what
you need help with. You will not be graded on accuracy, only on the attempt. You will get one point per sub-section
attempted. You will get one point per odd problem worked (answers in the back). You will get two points per even
problem worked (no answers available). You cannot score more points than there are problems in the section. "Full
credit" will be given for scoring points equal to one-third the number of problems in the section. Homework is due
on the day that we will discuss the material.

10%   **Quizzes:** Quizzes are for you to show your skills. Quizzes will be graded for accuracy. The point is to show me
what you understand. At the start of class I will ask if you have questions and you can ask whatever you like from
the section of the day. When you are done asking questions, I will give you a 5-10 question quiz. If you have enough
questions that there is no time for a quiz, then you do not have to take the quiz that day. At the end of every
chapter, there will be problems due which will be graded for accuracy and will count towards your quiz grade. For
every day that there is no quiz, there will be a few additional problems from this section in this assignment.

15%
15%
15%   **Exams:** There will be four tests and a final exam. Each test is worth 15% of your grade (total 60%). The final is
15%   comprehensive and is worth 20%.
+20%

100%   **Grades:** Final grades will be reported as a percentage of the total earned points weighted by the percentages above.
If at any time during the semester you are curious about your grade, I have an Excel worksheet which can printout
a summary of your individual grades. Expect the grading scale to be 90-80-70-60, although I reserve the right to
adjust this slightly. I consider a score of 75% (mid-C) to be average.

Expectations: A grade of "D" is *poor* ("D"ang, I just can't get this!). A grade of "C" is *good enough* //
("C"ompetent). A grade of "B" is *well done* ("B"etter...). A grade of "A" is *excellent* ("A"men!). The point
of turning in work is to show me how well you understand the material. The point of grading work is to show you
how well you understand as well as how well you communicate your understanding. If you find yourself saying,
"Oh...That's good enough..." then you are likely headed for a C.

Extra Credit: Extra Credit granted to those who find mistakes in the book, lecture, and/or posted solutions. You
must write up and hand in a brief explanation of *what* is wrong, *why you think* it is wrong, and what it *should* say.

3   Policies

Attendance: Physical attendance is officially mandatory. Mental attendance is appreciated (not to mention helpful). If "something comes up," contact me (note, email, or voice mail) **beforehand**. If you cannot contact me, then tell a friend to contact me that same day. I can be contacted via the information at the top of the page.

Athletics: It is your personal responsibility to inform me if you will miss class **before** you miss class. Even if you think an email is being sent on your behalf, see me before or after class so that I can let you know of any variations from the syllabus. If your sport requires you to have a grade report filled out during the semester, I consider it your personal responsibility to inform me that you are going to bring the grade updates before you bring them so that I can have a grade available. Please reread **Attendance** and **Missed Exams**.

Late Policy: Homework assignments which are turned in late lose 5 points per day. Saturday and Sunday count as a single day.

Missed Exams: Make up exams **must** be scheduled before regular exam time. Documented, unforeseen events will be dealt with on a case-by-case basis.

Office Hour Policy My office hours are posted on my schedule located on the wall by my office door as well as on the MyTMC website. I prefer that you visit during office hours, but I am in my office most days from about 8:00am to about 4:30pm. You are welcome to stop by whenever you have a question. Be aware that my posted schedule also lists times which I will *probably* be in my office. If you call ahead and I am busy, we can find a time that suits us both. Be aware that in the unlikely event we cannot match our schedules, there is a tutor center available.

TMC Saints Community Standards: Students are expected to conduct their behavior in the classroom, outside the classroom and online, in a manner that reflects the Community Commitments described in the TMC Saints Community Standards. The Standards identify five community commitments - individual worth, personal integrity, critical thinking, self-control, and community responsibility. The students of our community are expected to uphold and portray these characteristics in all aspects of their life while enrolled at Thomas More College. As a student at Thomas More College, you are expected to understand and know the policies and procedures as out-

lined in the Saints Community Standards, Sexual Misconduct Policy and the Catalog. Please visit `http://www.thomasmore.edu/studentlife/handbook.cfm` to learn about all the policies.

Suggestions for Success: While I have found that taking and rewriting lecture notes generates and reinforces my understanding, I have met others who find this "dictation" distracting. You will need to find a method which works well for you. If you are having trouble deciding how best to study, stop by my office and I can make some suggestions.

4   Services

Students with Accommodations: In compliance with Thomas More College policy and section 504 of the Americans with Disabilities Act, appropriate accommodations for students with disabilities are available. If you have a documented physical or learning disability for which you require special accommodations, please see the Assistant Director of the Institute for Academic Excellence, who can be reached at 344-3507 or StudentSuccess@thomasmore.edu, as soon as possible. This includes students who have previously received accommodations at TMC.

Tutor Services: Thomas More College provides some tutoring services for all students (details can be found at `http://www.thomasmore.edu/academics/support.cfm`), these include:

- face-to-face writing center, located in room 2207,

- a face-to-face math and physics tutoring center, located around the corner from the elevator on the second floor of the Science wing,

- students can request a personal tutor for these or other subjects at this website (`http://www.thomasmore.edu/academics/support_request.cfm`)

- students have access to SmartThinking online tutoring. For details, contact the Assistant Director of the Institute for Academic Excellence, at 344-3507 or StudentSuccess@thomasmore.edu.

Academic Coaching: Students who would like guidance in time management, study skills, organizational skills, planning, and stress management can contact the Assistant Director of the Institute for Academic Excellence, at 344-3507 or StudentSuccess@thomasmore.edu.

Week	Day	Topic	pages
8/20	M	1.1 Def'n of sets of numbers	2
	W	1.2 Intervals and Inequalities on the Real Number Line	9
	F	1.3 Distance and Circles (regions) in the Coordinate Plane	5
8/27	M	1.4 Graphs of Equations, Symmetry	6
	W	1.5 Graphing on Calculator, etc	6
	F	==== **Labor Day - No Class** ====	
9/3	M	1.6 Functions: Domain, Range, Graph, Even/Odd	13
	W	1.7 Linear Functions: Equation, Parallel, Perpendicular	6
	F	1.8 Quadratic Functions: Shifts, Roots	10
9/10	M	1. Review Problems, Calc-Prep Problems	6
	W	2.1 Building Functions	2
9/14	F	$\Rightarrow$ **Test 1** $\Leftarrow$	
9/17	M	2.2 ABS, SQRT, Floor	6
	W	2.3 Algebraically Combining Functions	7
	F	2.4 Functions of Functions (Composition)	8
9/24	M	2.5 The Inverse of a 1:1 Function	8
	W	2. Review Problems, Calc-Prep Problems	5
	F	3.1 Algebraic Functions	2
10/1	M	$\Rightarrow$ **Test 2** $\Leftarrow$	
	W	3.2 Polynomial Functions: Roots, IVT, Root-Multiplicity	13
	F	3.3 Finding Factors and Zeros	9
10/8	M	3.4 Rational Functions: Asymptotes	13
	W	3.5 Rational-Power functions	4
	F	3.6 Complex Numbers, Complex Roots	7
10/15	M	3. Review Problems, Calc-Prep Problems	7
	W	4.1 Trigonometric Functions	1
	F	==== **Fall Break - No Class** ====	
10/22	M	$\Rightarrow$ **Test 3** $\Leftarrow$	
	W	4.2 Radians, Unit Circle, Arc-length	4
	F	4.3 sine, cosine, tangent, secant, cosecant, cotangent	4
10/29	M	4.4 Getting to know sine and cosine	11
	W	4.5 Graphing the sine and cosine	9
	F	4.6 Graphs and Properties of tangent, secant, cosecant, cotangent	6
11/5	M	4.7 Trigonometric Identities	11
	W	4.8 Inverse Trigonometric Functions (arcsin, etc)	7
	F	4.9 Law of Sine, Law of Cosine, Other Trig Relations	11
11/12	M	4. Review Problems, Calc-Prep Problems	5
	W	5.1 Exponential and Logarithm Functions	2
11/16	F	$\Rightarrow$ **Test 4** $\Leftarrow$	
11/19	M	5.2 The Natural-Exponential Function	11
	W	==== **Thanksgiving Break - No Class** ====	
	F	==== **Thanksgiving Break - No Class** ====	
11/26	M	5.3 Logarithms and the Natural Logarithm	9
	W	5.4 Exponential Growth and Decay	6
	F	5. Review Problems, Calc-Prep Problems	5
12/3	M	Review Day	
	W	Review Day	
12/10	M	$\Rightarrow$ **Final Exam** $\Leftarrow$: 2:45-4:45	Comprehensive

† - 10/15: Midterm Reports.

∗ - 10/26: Last day to drop.