GENERAL INFORMATION

PROFESSOR INFORMATION

Instructor:	Ondrej Zjevik	**Phone:**	305-919-5140
Office:	AC1 389		
Office Hours:	M: 1-2pm (MMC), 5-6pm (MMC) Tu: 12:30-2pm, 3:30-4:30pm Th: 12:30-2pm, 3:30-4:30pm F: noon-1pm	**Email:**	ozjevik@fiu.edu

COURSE DESCRIPTION AND PURPOSE

This course prepares students for Calculus through the use of quantitative reasoning, dynamic geometry, functions, angle measure and modeling.

Topics include: Polynomials, Rational, Exponential and Logarithmic Functions, Trigonometry, Conic Sections, Sequences and Series, and Polar Coordinates.

COURSE OBJECTIVE

Upon completion of this course, students will be able to:

- Recognize the key ideas foundational to Calculus
- Reason about two quantities that change in tandem with each other
- Demonstrate a process view of functions
- Formulate, represent, and solve novel real-life problems
- Apply algebraic procedures accurately and efficiently
- Explain and justify mathematical assertions
- Communicate mathematical concepts through writing and group discourse

TEXTBOOK
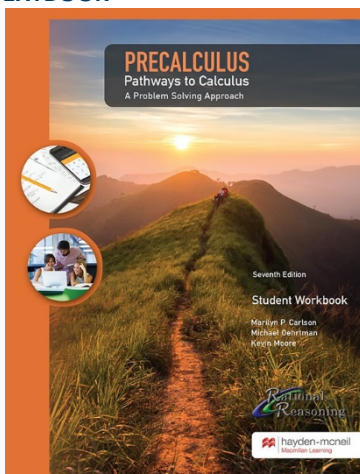
PreCalculus: Pathways to Calculus workbook 7th edition (with access code included)

ISBN: 978-0-7380-9452-6

You may purchase your workbook online at the FIU Bookstore.

Alternatively, it may be purchased on the Rational Reasoning Website.

POLICIES

Please review the FIU's Policies webpage. The policies webpage contains essential information regarding guidelines relevant to all courses at FIU, as well as additional information about acceptable netiquette for online courses.

- **Drop Date:** The last day to drop a course is **Monday, November 4th, 2019**. FIU does not automatically drop students that stop participating in class after the drop/add period!

- **Incomplete Grade Policy:** The incomplete grade (IN) is given to a student who has substantially completed most of the course work but is unable to finish an exam or another assignment because of circumstances beyond the student's control. An incomplete grade must be made up within two semesters. There is no extension of the two-semester deadline. The student must not register again for the course to make up the incomplete. Every incomplete grade must be approved by the Mathematics Department. An IN grade cannot be given if it is necessary for the student to repeat the course.

- **Academic Misconduct:** Includes (but is not limited to) giving or receiving assistance on an exam or homework assignment for which such assistance is not permitted, falsifying a document to obtain an excusal from a test, using unauthorized notes on an exam and using unauthorized calculator. A more complete definition of Academic Misconduct is given in the Student Handbook. Penalties for Academic Misconduct range from an F in the course to expulsion from the University.

- **Make-up Policy:** There will be no make-up tests. If you miss a test due to illness or other emergency and provide documentation, your final exam will count in place of the missed test. There will be no make-ups for MLP assignments. Technological issues are not a valid reason for missing MLP assignments. Personal travel plans are not a valid reason for missing a test. University related absences that require special scheduling must be arranged one week prior to the test.

- **Calculator Policy**: Graphing calculators are not allowed in this course. You will need a scientific calculator for online assignment and in-class work. Very likely your smartphone already has an app that will suffice. Alternatively, there are many free apps for download that can be used. For tests you may use a non- graphing calculator

- **Class Policy:**
    o You must bring your Pathways workbook (7th edition) with you to every class.
        Working in groups on problems in the workbook is part of your participation grade. Failure to bring the workbook to class will result in a zero for the participation grade for that class and may result in being refused entry to class. If a situation arises that prevents you from bringing the workbook to class, contact me in advance to discuss the situation.
    o Each class you will participate in online Canvas live poll problems. You are required to bring to class your own mobile device -- a smartphone, tablet, or laptop.
        To access the Cavnas live poll simply log into your course as usual on your laptop or tablet at https://canvas.fiu.edu/login/   or through the canvas app on your smartphone. In-class your professor will describe the steps to access your live poll questions. There is no cost or additional registration/username required to use live poll—it is part of Canvas. Make sure your device always has adequate batteries/charge. We will start using live poll during our first class.

- **Lab Policy:** You have a 1-hour requirement in the Mastery Math Lab, AC1 226, every week.
    o The week runs Monday through Friday, and lab hours need to be completed each week by Friday at 8 PM.
    o Your time in the lab can be continuous or broken into smaller time periods. The total time you spend in the lab will be recorded and if it is less than 1 hour = 60 minutes (59 is smaller than 60), you cannot get credit for that week. (Exception: Weeks 1 and 2 may be combined for a total of 2 hours.) We also do not give partial credit for earning less than required 1 hour.
    o The hours you spend in the lab cannot be "rolled over" to the next period; this means that if you spend 2 hours one week, you are still required to spend a minimum of 1 hour in the next week. We encourage you to spend as much time as you need to master the material for your course.
    o While we record your hours, you should also keep track of them on your own so that you can be aware of how much time you have spent. There is a monitor in the lab that will tell you how many minutes you have accrued each week.

- You will need to sign out whenever you leave the lab. This includes leaving to take a phone call or to visit the restroom.
- Lab hours are Monday through Friday, 9 am - 6 pm.
- The lab will be open on Sundays from 1pm - 6pm for additional help, but it will not count toward your lab hours for the week.
- A few important rules while in the lab:
  - Food and drinks allowed not allowed in the lab.
  - Cell phones must be on vibrate and put away (not on lap or in chair). If you need to answer a phone call, please sign out and leave the lab for the duration of the call.
  - Your time in the lab is meant to be time on task. This means that while in the lab you are expected to work on your lab course and should not do work for your other classes.

- **Final Exam Policy:**
  - The final exam is a mandatory assignment for all students.
  - You must get a score of 60% or higher on the final exam in order to pass the course.
  - Travel plans are not an excused absence. Check the Schedule now and make sure you know when your final exam is!

COURSE PREREQUISITES

Prerequisites: Grade of 'C' or higher in MAC 1105, or appropriate score on placement exam for students with no prior college-level coursework in mathematics.

COMPONENTS OF THIS COURSE

Work is organized into weeks. Each week has accompanying videos and/or worked problems to help you understand the topics and how they are connected.

- **Prerequisite Modules** are designed to provide you with weekly review and practice of the Algebra skills and concepts needed for learning the upcoming content. They are located in Canvas. Completion of the prerequisite module each week is required to open the written homework.
- **Pre-Class Assignments** are designed to get you thinking about the material before our class meets and are crucial to your understanding of that week's content. They are located in Rational Reasoning.
- **Online Homework Problems** give you the opportunity to develop and apply your knowledge of the material. They are located in Rational Reasoning.
- **In-Class Quizzes and Participation** give you the opportunity to work collaboratively in investigating the concepts in a peer group setting, and to regularly and consistently engage in quizzing, which is beneficial for your learning.
- **Written Homework Problems** allow me the opportunity to see your mathematical writing and thinking and provide you with written feedback. They are located in Canvas and will not be accessible to you until you complete the weekly prerequisite module.
- **Math Lab Hours** give you the opportunity to do your work in an environment where you can reach out for help along the way.
- **Assessments** test both your mastery of the material as well as your ability to synthesize the different concepts each week.

GRADING

The content in this course is split up into 33 learning goals. The chart below delineates how many of those goals you need to pass in order to achieve the grade listed.

GRADE	NUMBER OF PASSED LEARNING GOALS
A	31
A-	30
B+	28
B	27
B-	26
C+	24
C	23
D	19
F	18 OR LESS

In addition to passing the listed number of learning goals, you must complete 60% of the items below:
- Final Exam
- Pre-Class Assignments

In addition to passing the listed number of learning goals, you must complete 60% of two of the four items listed below:
- Online Homework
- Written Homework
- Lab Attendance
- Live Poll/Class Attendance

Grading of the learning goals will be based upon the following rubric. Earning a 5 out of 6 points is considered passing a learning goal.

Criteria Scores → ↓	Strong (2 points)	Emerging (1 point)	Not there yet (0 points)
Reasoning Process	Mathematical statements are complete, uses appropriate jargon/ terms, and flows without major gaps of ideas.	Flow of ideas is sometimes incomplete or erratic.	Student shows no work. Answer is a collection of unconnected statements or connections are not articulated.
Correctness	Answer is mathematically logical and precise.	Answer includes some minor mistakes or inaccurate statements.	Answer contains many mistakes and/or contains major conceptual errors.
Relevance	Answer fully addresses the question(s) posed.	Answer only partially addresses the question posed and leaves out key elements.	Answer does not address the question(s) being asked.

Below is the list of the 33 learning goals that will be assessed this semester. There are 6 in-class assessments throughout the semester based on content covered since the previous assessment. Reassessment opportunities will be offered throughout the semester in the lab, details to follow.

1. Relating Quantities
2. Constant Rate of Change
3. Proportional Reasoning
4.   Function Relationships
5. Piece-Wise/Accumulation Functions
6. Function Composition
7. Function Inverse
8. Difference Quotient
9. Average Rate of Change/ Concavity
10. Arithmetic Sequences
11. Geometric Sequences
12. Summation Notation and Binomial Theorem
13. Exponential Growth
14. Logarithms
15. Exponential and Logarithmic Equations
16. Quadratic Growth
17. Distinguishing Functions
18. Polynomial Functions
19. Transformations of Functions
20. Rational Functions and Limits
21. Polynomial and Rational Inequalities
22. Angle Measure
23. Circular Motion (Sine and Cosine)
24. Transformations of Trigonometric Functions
25. The Tangent Function
26. Reciprocal of Trigonometric Functions
27. Inverse of Trigonometric Functions
28. Right Triangle Trigonometry
29. Trigonometric Identities
30. Trigonometric Equations
31. The Law of Sines and Law of Cosines
32. Polar Coordinates
33. Conic Sections

KEYS TO SUCCESS

Math is learned by doing math problems. Do math problems every day. Make it part of your routine. Work with a friend. Form a study group.

- Be an active participant in the classroom. Complete your pre-class preparation assignment so that you are prepared to discuss and explore the concepts and ideas in class further.
- When studying math, you need to give it your undivided focused attention – study with your phone out of reach.
- When you do your homework, write out complete solutions, as if you were taking a test. Don't just scratch out a few lines and check the answer in the back of the book. If your answer is not correct, do the problem again. If you can't get the answer, get help from me or LAs or from your classmates.
- Start studying early for a test. At least 3-4 days before the test, do not leave it until the last night.
- Monitor your own progress. If you are having difficulty meeting deadlines, come see me! E-mail me. Stop by the Mastery Math Lab! All students need help at some point, do not be shy about getting the help you need. We want to help you!

COURSE CALENDAR

WEEK	DATES	WORKBOOK SECTIONS	TOPICS		LAST DAY TO COMPLETE ASSIGNMENTS (ALWAYS BY 11:59PM)
1	8/26 - 9/1	2.1	Quantities and Co-variation of Quantities		• Pre-Class (Week 1 Class 1): 8/27 • Pre-Class (Week 1 Class 2): 8/29 • Online Homework Week 1: 9/1 • Offline Homework Week 1: 9/1
		2.2 – 2.4	Constant Rate of Change, Linear Functions and Proportional Reasoning		
2	9/2 - 9/8	3.1 – 3.3	Modeling with Functions, Domain and Using and Interpreting Function Notation		• Pre-Class (Week 2 Class 1): 9/3 • Pre-Class (Week 2 Class 2): 9/5 • Online Homework Week 2: 9/8 • Offline Homework Week 2: 9/8
		3.4--3.5	Piece-Wise Defined Functions and Function Composition		
3	9/9 - 9/15	3.6	**Assessment #1**	Function Inverses	• Pre-Class (Week 3 Class 1): 9/10 • Pre-Class (Week 3 Class 2): 9/12 • Online Homework Week 3: 9/15 • Offline Homework Week 3: 9/15
		2.5, 2.7, 5.2	Average Speed, Difference Quotient, Concavity and Average Rate of Change		
4	9/16 - 9/22	Mod 11	Summation Notation, Sequences		• Pre-Class (Week 4 Class 1): 9/17 • Pre-Class (Week 4 Class 2): 9/19 • Online Homework Week 4: 9/22 • Offline Homework Week 4: 9/22
		4.2, 4.3	Percent Change, The Meaning of Exponents and Linear vs. Exponential Behavior, 1-Unit Growth Factors		
5	9/23 - 9/29	4.8	**Assessment #2**	Basic Exponential Equations	• Pre-Class (Week 5 Class 1): 9/24 • Pre-Class (Week 5 Class 2): 9/26 • Online Homework Week 5: 9/29 Offline Homework Week 5: 9/29
		4.8, 4.9	Inverse of an Exponential Function, Properties of Logarithms, Exponential and Logarithmic Equations		

6	9/30 - 10/6	5.3, 5.4	Transformations of Functions and Quadratic Functions		• Pre-Class (Week 6 Class 1): 10/2 • Pre-Class (Week 6 Class 2): 10/3 • Online Homework Week 6: 10/6 • Offline Homework Week 6: 10/6
		5.4, 5.5	Quadratic and Polynomial Functions		
7	10/7 - 10/13		**Assessment #3**	Polynomial and Rational Inequalities	• Pre-Class (Week 7 Class 1): 10/8 • Pre-Class (Week 7 Class 2): 10/10 • Online Homework Week 7: 10/13 • Offline Homework Week 7: 10/13
		6.1, 6.2	Vertical Asymptotes and End Behavior of Rational Functions		
8	10/14 - 10/20	6.3	Horizontal Asymptotes and Graphs of Rational Functions		• Pre-Class (Week 8 Class 1): 10/15 • Pre-Class (Week 8 Class 2): 10/17 • Online Homework Week 8: 10/20 • Offline Homework Week 8: 10/20
		7.2, 7.3	Angle Measure, Circular Motion		
9	10/21 - 10/27	7.3	**Assessment #4**	Sine and Cosine	• Pre-Class (Week 9 Class 1): 10/22 • Pre-Class (Week 9 Class 2): 10/24 • Online Homework Week 9: 10/27 • Offline Homework Week 9: 10/27
		7.4, 7.5	Applications of Sine and Cosine Functions		
10	10/28 – 11/3	7.6, 7.7	Transformations of Periodic Functions		• Pre-Class (Week 10 Class 1): 10/29 • Pre-Class (Week 10 Class 2): 10/31 • Online Homework Week 10: 11/3 • Offline Homework Week 10: 11/3
		7.7, 7.8	Transformations of Periodic Functions and Tangent		
11	11/4 - 11/10	7.10	Inverse Trigonometric Functions		• Pre-Class (Week 11 Class 1): 11/5 • Pre-Class (Week 11 Class 2): 11/7 • Online Homework Week 11: 11/10 • Offline Homework Week 11: 11/10
		8.0 - 8.2	Right Triangle Trigonometry, Applications of Right Triangle Trigonometry		
12	11/11 - 11/17	8.3	**Assessment #5**	Trigonometric Identities	• Pre-Class (Week 12 Class 1): 11/12 • Pre-Class (Week 12 Class 2): 11/14 • Online Homework Week 12: 11/17 • Offline Homework Week 12: 11/17
		8.3	Trigonometric Equations		
13	11/18 - 11/24	8.5, 8.6	Trigonometry of Non-Right Triangles		• Pre-Class (Week 13 Class 1): 11/19 • Pre-Class (Week 13 Class 2): 11/21 • Online Homework Week 13: 11/24 • Offline Homework Week 13: 11/24
			Conic Sections		
14	11/25 - 12/1	Mod 9	**Assessment #6**	Polar Coordinates	• Pre-Class (Week 14 Class 1): 11/26 • Online Homework Week 14: 12/1
			THANKSGIVING - NO CLASS		
15	12/2 - 12/8		Skill Check and Review		
			Review		

| 16 | 4/22 – 4/26 | FINAL EXAM | FINAL EXAM (IN CLASS AT DAY AND TIME LISTED IN PANTHERSOFT) | |