

Math 161 Precalculus I

Fall 2019 – Annandale Campus

Section C06N 30075

Tuesdays/Thursdays 2:00pm to 3:15pm in CT216

Instructor Information

Instructor

Elizabeth Paige Highsmith

Email

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Phone

703-425-5181

Office Location & Hours

CT336B

Office Hours: Mondays 11am to Noon

Tuesdays/Thursdays 10am to Noon

Appointment Hours: Wednesdays 12:30pm to 3:30pm

Fridays 11am to 1pm

Note: Appointment hours are treated like any other appointment. You must confirm with the instructor via email at least 24 hours prior. You cannot show up unannounced and expect to be seen.

Course Materials

Book

Book Name

Precalculus, Enhanced with Graphing Utilities, 7th edition

Author

Sullivan & Sullivan

Book Format Options

- **Hardcopy only**
- **Online version only (two options)**
 - Digital Copy of Book only
 - Digital Copy of Book with supporting MyMathLab software by Pearson
 - Must purchase access code and use Course ID: highsmith16365
- **Both Hardcopy and online version (Bundle) (Most expensive)**

Important information about access to the book

In this class, we will use the book for two purposes:

1. To read and learn the material in the chapters (i.e. supplement your class notes)
2. To work homework problems from the end of each section

It is up to each student to pick the book format that best fits their needs:

Hardcopy? Digital? Or both?

Options available in the NVCC Annandale bookstore

- Rent digital copy of the book only for \$59.99
- Buy digital copy of the book only for \$89.99.
- Buy MyMathLab software access code for \$95.15.

Note: The digital copy of the book does not include the MyMathLab software with all of its online help and resources. It is only the book.

This class will not use MyMathLab for online homework.

Please talk to your instructor if you have any questions regarding the book and its planned use in this class.

Calculator

Graphing calculator is required

- **Models TI-83, TI-83 Plus or TI-84 Plus are recommended. TI-89, TI-NSpire or any other calculator that does symbolic differentiation or integration on exams are not allowed.**
- **Desmos: We will also use/learn the online/app calculator called "desmos". This is a free resource.**
 - To access desmos, visit desmos.com/calculator or download the app from the App Store or Google Play...for FREE!!!
 - To learn more about desmos and how to use it, visit <https://learn.desmos.com/graphing>

Other Required Resources

Two notebooks dedicated for Precalculus I only

(no other course notes should be in these notebooks)

One notebook is used for class/lecture notes.

One notebook is used for homework.

- **The homework notebook will be handed in for grading during each class test.**
- **Try to find a notebook that has folder pockets in order to hold loose leaf worksheets handed out by the instructor.**

The instructor will hand out a "Notebook Guide" that shows how to properly format your work in these notebooks.

Pencils with Erasers

No pens allowed on graded work (i.e. homework, worksheets, tests).

Course Information

Course Description

Presents topics in power, polynomial, rational, exponential, and logarithmic functions, and systems of equations and inequalities. Credit will not be awarded for both MTH 161 and MTH 167 or equivalent. Lecture 3 hours. Total time in class: 3 hours per week.

Course Purpose

The general purpose of this one-semester course is to prepare students for a course in statistics or applied calculus sequence by providing them with the necessary competencies in algebra and functions. Precalculus I can also be applied in conjunction with Precalculus II in preparation for a course in calculus with analytic geometry.

Course Prerequisites/Corequisites

Prerequisite: Competency in MTE 1-9 as demonstrated through placement or unit completion or equivalent or

Corequisite: MCR 6.

Course Objectives

Relations and Functions

- Distinguish between relations and functions.
- Evaluate functions both numerically and algebraically.
- Determine the domain and range of functions in general, including root and rational functions.
- Perform arithmetic operations on functions, including the composition of functions and the difference quotient.
- Identify and graph linear, absolute value, quadratic, cubic, and square root functions and their transformations.
- Determine and verify inverses of one-to-one functions.

Polynomial and Rational Functions

- Determine the general and standard forms of quadratic functions.
- Use formula and completing the square methods to determine the standard form of a quadratic function.
- Identify intercepts, vertex, and orientation of the parabola and use these to graph quadratic functions.
- Identify zeros (real-valued roots) and complex roots, and determine end behavior of higher order polynomials and graph the polynomial, and graph.
- Determine if a function demonstrates even or odd symmetry.
- Use the Fundamental Theorem of Algebra, Rational Root test, and Linear Factorization Theorem to factor polynomials and determine the zeros over the complex numbers.
- Identify intercepts, end behavior, and asymptotes of rational functions, and graph.
- Solve polynomial and rational inequalities.
- Interpret the algebraic and graphical meaning of equality of functions ($f(x) = g(x)$) and inequality of functions ($f(x) > g(x)$)
- Decompose partial fractions of the form $P(x)/Q(x)$ where $Q(x)$ is a product of linear factors

Exponential and Logarithmic Functions

- Identify and graph exponential and logarithmic functions and their transformations.
- Use properties of logarithms to simplify and expand logarithmic expressions.
- Convert between exponential and logarithmic forms and demonstrate an understanding of the relationship between the two forms.
- Solve exponential and logarithmic equations using one-to-one and inverse properties.
- Solve application problems involving exponential and logarithmic functions.

Systems of Equations

- Solve three variable linear systems of equations using the Gaussian elimination method.

Grading

Overall Class Grade

100% hard work

20% Notebook Homework

10% Worksheets

50% In-Class Tests

20% Final Exam

Grading Scale: A = 90 to 100, B = 80 to 89, C = 70 to 79, D = 60 to 69, F = Below 60.

(Cheating = F, I = Incomplete *, W = Withdrawal*)

Note: The award of W after the last day to withdraw without grade penalty REQUIRES official documentation and the Dean's signature.)

* For more information regarding Incomplete and Withdraw grades, refer to the COLLEGE CATALOG: Grades: Grading System for Credit Classes.

Notebook Homework (20%)

At the end of each section in your book, there are practice problems.

Required problems: You are assigned to do the ODD problems for each of the following areas:

- "Concepts and Vocabulary"
- "Skill Building"

Optional problems: You may also work the "Mixed Practice" for more practice.

The required problems count as part of your grade. They are graded on neatness, completeness and correctness. If you find you need more practice, go back and work the EVEN problems. The EVEN problems are not counted towards your homework grade. During each test, the instructor will collect your homework notebook to grade you on the work to date.

Worksheets (10%)

These sheets are handed out in class and due on the last class day of the week unless otherwise indicated by the instructor.

- Mon/Wed classes have a Wednesday due date.
- Tue/Thu classes have a Thursday due date.

These sheets are graded by your instructor and provide feedback on all aspects of your written work. No late worksheets are accepted. If you plan to miss class, email your instructor to make arrangements for your worksheet(s).

In-Class Tests (50%)

Tests are given in class and last one class period (i.e. 75 minutes). If you arrive late, you do not receive extra time to complete the test. The average of your chapter tests will count as 50% of your grade.

- If you know in advance that you will miss a test, then it is possible to arrange to take it in advance, but no test will be given after the class has taken it. Email the instructor for details.

- **For a student who is absent and provides a sufficient and documented reason for the absence (within one week of the absence):**
 - The instructor will replace one missing test score with your score on the final examination. All other missing scores remain zeroes.
 - Documented absences may require written third party evidence and/or notification to the instructor by telephone, voicemail, and/or email.
- **THERE ARE NO MAKEUP TESTS!**

24/7 policy: Students must wait 24 hours after receiving a graded test before discussing it with the instructor. Then you have 7 days to review it with the instructor during office/appointment hours, not in class. After that, the grade is set in stone.

Final Exam (20%)

Your final exam is counted as 20% of your grade. This exam is cumulative and includes all material covered during the semester. You are given only one attempt to take the final at the end of the semester. You must attend your scheduled class exam time and date.

Cheating

If you are caught cheating on any worksheet, homework or test, you will automatically fail the class and the instructor will report you to the college for further disciplinary action.

Semester Schedule

Important NVCC Dates

- | | |
|----------------------------------|--|
| September 5: | Census date: last day to drop with a tuition refund. |
| September 6: | Parking enforcement on student "B" lots at 6am.
Students are not required to display a permit while parked in a "B" lot after 3:45 p.m. on weekdays or anytime on weekends. |
| October 1: | Last day to apply for Fall Graduation. |
| October 14-15: | No classes. Fall break. College open. |
| October 29: | Last day to withdraw without a grade penalty.
Withdrawals after this date require documentation of mitigating circumstances and permission of the instructor and the academic dean. |
| November 27: | No classes. College closes at noon. |
| November 28 – December 1: | No classes. Thanksgiving Holiday. |

Detailed class schedule on next page...

Class Schedule

The schedule is tentative and subject to change. You will be notified of any changes in class and via Canvas.

8/20/2019 Tue	Lines
8/22/2019 Thu	Function Basics
8/27/2019 Tue	Function Basics
8/29/2019 Thu	Function Basics
9/3/2019 Tue	Function Transformations
9/5/2019 Thu	Function Transformations
9/10/2019 Tue	Analyzing Functions
9/12/2019 Thu	Piece-wise Defined Functions
9/17/2019 Tue	Function Algebra & Composition
9/19/2019 Thu	Function Composition
9/24/2019 Tue	Test 1
9/26/2019 Thu	Quadratic Functions
10/1/2019 Tue	Quadratic Functions
10/3/2019 Thu	Polynomial Functions
10/8/2019 Tue	Finding Zeros (Factoring Polys)
10/10/2019 Thu	Finding Zeros (Factoring Polys)
10/15/2019 Tue	No Class Fall Break
10/17/2019 Thu	Rational Functions
10/22/2019 Tue	Rational Functions
10/24/2019 Thu	Polynomial & Rational Inequalities
10/29/2019 Tue	Test 2
10/31/2019 Thu	Inverse Functions
11/5/2019 Tue	Exponential Functions
11/7/2019 Thu	Logarithmic Functions
11/12/2019 Tue	Properties of Logs
11/14/2019 Thu	Solving Exponential & Log Eqs
11/19/2019 Tue	Solving Exponential & Log Eqs
11/21/2019 Thu	Exponential & Log Applications
11/26/2019 Tue	Test 3
11/28/2019 Thu	No Class Thanksgiving Break
12/3/2019 Tue	System of Equations & Matrices
12/5/2019 Thu	Partial Fraction Decomposition
Final Exam	100 Minutes
12/10/2019 Tue	2pm Section C06N

Class Policies

Honor Policy

At the end of each homework, worksheet, and test that is turned in for grading you will be expected to **legibly sign and date** the following statement:

I hereby declare upon my word of honor that I have neither given nor received any help on this work.

No Cheating

If you are caught cheating on a test or exam or if you are caught violating the honor policy in any capacity, then you will fail the course. The instructor will report you to the college according to official college policies and rules.

Follow All Directions

Do not make up your own rules or think the class policies do not apply to you. If you choose not to follow the rules/policies of the class, then you choose the associated consequence(s). You will not talk your way out of the consequence(s). Do not ask for special treatment. All rules, policies and regulations will be applied equally and fairly to all students. Asking for special treatment (like extra credit or extra time for an assignment) is a form of academic dishonesty.

Be On Time for Class

Class starts promptly at the time indicated on your SIS schedule. What does "on time" mean? The instructor expects you to be in your seat, ready to take notes promptly at that time. This means you should arrive to class at least 5 minutes early and be in your seat with all needed materials for class on your desk and ready to go (pencils, calculators, class handouts, notebooks, etc.). The instructor should not have to tell you to get out your calculator each class. Late is defined as arriving after the instructor has started lecturing for the day.

Tardy Policy

If tardiness becomes a problem for any individual student, the instructor will implement a tardiness policy for that individual which will result in points being deducted from each Test. Being tardy will negatively affect your grade.

No Using Social Media or Texting During Class

No using Wi-Fi devices for social media. No texting. If you are caught texting or using your Wi-Fi electronic device for social media purposes, the instructor will ask you to leave the class for the remainder of the class period for that day. If you continue to abuse this policy, the instructor will dismiss you from class and require you to visit the Dean of Student Services before returning to the classroom.

Use of Desmos App is approved

The only approved use of phones and other Wi-Fi electronic devices is for Desmos: the free, online graphing calculator.

Wi-Fi electronic devices silenced on test/exam days

If any type of electronic device beeps, rings, vibrates, plays music or makes any other type of sound that disrupts the class during a test/exam, the instructor will take your test from you and you will be finished with the test/exam for that day. You will receive a grade based on how many problems you have finished at that point in time. You will not have any opportunity to make up what you did not complete. Using the Desmos App on a smart phone is allowed during tests...but only in "Test Mode" which is controlled by the instructor.

No leaving classroom during a test/exam

If you need to leave the classroom during a test/exam, you must turn in your exam for grading. It will not be returned to you. Use the restroom right before each exam. There is no leaving the classroom and then returning during a test/exam.

No pens/No scribbling

Use of pens on worksheets/notebook homework/tests/final exam is prohibited. Scribbling with a pen or pencil on homework/tests is prohibited. You must use a pencil and erase mistakes or you will have 10 points deducted from your homework/test score. Write neatly. Try to give your instructor your best work each and every class.

Communicate via email & Canvas

Communication via email is encouraged. The instructor will try to reply to email within 24 hours during the work week (Monday – Friday at Noon). If you email the instructor during the weekend, please wait until the next business day for a response. The instructor will try to respond to weekend email by noon on Mondays.

- Email the instructor if you plan on being absent from class.

In each email, include the following

- Your name somewhere in the email, preferably at the end...like a signature.
- Your class and your section number.

Do not treat communications to your instructor like an informal text to a friend or acquaintance. You will not receive a response. Treat emails as an official correspondence containing all needed information. (Going "old school"!)

Helpful Resources on Class Material

It is the student's responsibility to seek help at the first sign of "trouble" or lack of understanding. It is not wise to wait until the final exam to seek help. Here is a list of ways to get help:

- Visit the instructor during office hours
- Make an appointment with the instructor
- Visit the NVCC Annandale Tutoring Center in CG-405
- Google it or You Tube it
- Ask a friend of classmate who understands the material

Notice to all students

- Leave excuses at the door.

- If you didn't do your homework, just admit it and get it done.
- If you don't understand the material, ask for help.
- If you didn't study adequately for the test, resolve to do better next time.
- If you choose to break the class policies, you choose to accept the consequences.
- Repetition in Math is good. Work the same problem multiple times to understand the process of problem solving.
- The secret to learning math: focused practice, focused practice, focused practice, etc.
- You have 16 weeks to learn the material and earn your grades. Use all 16 weeks wisely.
- The instructor is in the classroom for you, to help you LEARN, THRIVE and GROW.
- The instructor wants you to succeed but can't do the work for you.
- The instructor will bring 100% to each class and expects each student to do the same.

NVCC Policies & Information

Academic Integrity

When College officials award credit, degrees, and certificates, they must assume the absolute integrity of the work students have done; therefore, it is important that students maintain the highest standard of honor in their scholastic work.

The College does not tolerate academic dishonesty. Students who are not honest in their academic work will face disciplinary action along with any grade penalty the instructor imposes. Procedures for disciplinary measures and appeals are outlined at www.nvcc.edu/students/handbook. In extreme cases, academic dishonesty may result in dismissal from the College. Academic dishonesty, as a general rule, involves one of the following acts:

- Cheating on an examination or quiz, including giving, receiving, or soliciting information and the unauthorized use of notes or other materials during the examination or quiz;
- Buying, selling, stealing, or soliciting any material purported to be the unreleased contents of a forthcoming examination, or the use of such material;
- Substituting for another person during an examination or allowing another person to take the student's place;
- Plagiarizing, which means taking credit for another person's work or ideas. This includes copying another person's work either word-for-word or in substance without acknowledging the source;
- Accepting help from or giving help to another person to complete an assignment, unless the instructor has approved such collaboration in advance;
- Knowingly furnishing false information to the College; forgery and alteration or use of College documents or instruments of identification with the intent to defraud.

Attendance Policy

- Attendance will be taken each class period and maintained as an official school record.
- Attendance and punctuality are important to the learning process.

- Any student who does not attend class by the Census Date will be administratively withdrawn.
- If you must be absent, contact the instructor, check Canvas (through MyNOVA) or a classmate to receive any assignments.
- You will be held responsible for all material missed and will be expected to take tests with the class unless prior arrangements are made.
- It is the student's responsibility to make sure that credit for attendance is given if he/she is absent when attendance is taken. The student must inform the instructor that very class day and cannot wait until the next class to inform the instructor.

Attendance/Student Participation

<https://catalog.nvcc.edu/content.php?catoid=2&navoid=86#attendance-student-participation>

Education is a cooperative endeavor between the student and the instructor. Instructors plan a variety of learning activities to help their students master the course content. Students are expected to participate in these activities within the framework established in the class syllabus. Faculty will identify specific class attendance policies and other requirements of the class in the syllabus that is distributed at the beginning of each term. Successful learning requires good communication between students and instructors; therefore, in most cases, regular classroom attendance, or regular participation in the case of a nontraditional course format, is essential.

It is the student's responsibility to inform his/her instructor prior to an absence from class. Students are responsible for making up all coursework missed during an absence. In the event of unexplained absences, the instructor may withdraw a student administratively from the course.

If a student does not attend at least one class meeting or participate in an online class by the "last day to drop with a tuition refund" (census date), his/her class registration will be administratively deleted. This means that there will be no record of the class or any letter grade on the student's transcript. Furthermore, the student's class load will be reduced by the course credits, and this may affect his/her full-time or part-time student status. Tuition will not be refunded.

Safety & Comfort

NOVA is a place for learning and growing. You should feel safe and comfortable anywhere on this campus. In order to meet this objective, you should:

- let your instructor, his/her supervisor, the Dean of Students or Provost know if any unsafe, unwelcome or uncomfortable situation arises that interferes with the learning process
- inform Campus Police-703-764-5000 if necessary
- inform the instructor within the first two weeks of classes if you have received a special needs or a disability accommodation that may affect your performance in this course. The Special Needs/Disabilities Counselors are in CA 112, 703-323-3200.

Miscellaneous

Special Needs

Students with documented disabilities may be eligible for accommodations in their classes. If you require such accommodations, contact a counselor for Disability Services. Please provide your

instructor with proper documentation from the Counseling Center before the end of the second week of the classes so that appropriate accommodations can be arranged. All discussions are confidential. The Special Needs/Disabilities Counselors are in CA 112, 703-323-3200.

Accommodation Forms

Forms should be presented at the beginning of the semester or as soon as possible. These forms are not retroactive. The accommodations begin after the instructor has received the form and has time and an opportunity to take appropriate measures to meet the accommodation.

Emergency Procedures

You are strongly encouraged to sign up for NOVA Alert.

- NOVA Alert will send you text messages and/or email with timely updates about college closings. You can register for NOVA Alert at <http://alert.nvcc.edu>.

Please also check the NOVA website regularly. In addition, please go to our Canvas site for specific communication and supplemental assignments if a class is cancelled.

- For FAQ's, please see <http://www.nvcc.edu/depts/homepage/closing.htm#faq>

In case of emergency, please follow the emergency procedures as discussed on the first day of class and as posted in the classroom.

- You should have and be familiar with the procedures described online at www.nvcc.edu/emergency/index.html

Weather Information

If the College is closed...

Please go to Canvas for specific communication and instruction for the course.

Also...

- A text alert will be sent to cell phones registered on NOVA Alert.
- A notice will also be posted on the College's home page.
- A notice will appear on the cable television station (channels 19, 25, 37 or 59).

Individuals may also call the College Call Center at 703-323-3000 or the NovaConnect Phone at 703-323-3770.

See <http://www.nvcc.edu/emergency/closing/>

Facing Challenges

Students who face challenges securing food or housing that may affect their performance in this class/school are urged to contact the Dean of Students or your professor (if you feel comfortable).

Learn more about the Financial Stability Program at <https://blogs.nvcc.edu/wssn/about/>

Action Item for Student:

After reading this syllabus and having all of your questions answered, go to Canvas and complete the "Syllabus Contract" assignment. This involves typing your name in the blank space as an acknowledgement that you have read and understand the information contained in the syllabus.

Failure to complete this assignment by the date of Test 1 will result in a 10 point deduction from Test 1.