

1 Course: Maths 161, Precalculus I

Maths 161 is an elementary course in Precalculus, dealing with algebraic functions. Topics include: Functions, real numbers, distance and locus problems in the plane, polynomial functions, graphs of functions, inverse functions, rational functions, their zeros and poles. Prerequisite: MATH 118 with a grade of C or better or MATH 161 placement.

2 Instructor Information

I am (Dr.) David A. SANTOS. I have been teaching full-time at CCP since the autumn of 1999. I received an AB in Mathematics from the University of Chicago in 1987 and a Ph.D. in Mathematics from the University of Michigan (Ann Arbor) in 1993. My office is on the second floor (uppermost level) of the Bonnell Building: B2-14. My office phone is (215) 751-8698. My email is dsantos@ccp.edu. My website is at <http://faculty.ccp.edu/faculty/dsantos>. I like camels (the quadrupeds, not the cigarettes!).

3 Office Hours and Tutoring

We are not required to hold office hours during the summer, but normally, I should be available half an hour prior to class.

The Learning Laboratory in B2-36 organises weekly workshops for Maths 161. It also provides free tutoring. Please inquire the staff there about these services.

4 Course Pre-requisites and Goals

The formal pre-requisites for this course is MATH 118. You must have mastered the following in order to be successful in this course: solution of quadratic equations through the quadratic formula, manipulation of algebraic fractions, solution of equations involving absolute values, multiplication and division of polynomials. I won't have the time to go over pre-requisites in the course.

5 Class Website

My webpage at CCP is at

<http://faculty.ccp.edu/faculty/dsantos>.

Click on the precalculus link to see old exams and assignments that I have given when I have taught this course previously. Also, you will find there handouts, exams, and assignments for the current semester as they are given in class. Thus if you happen to miss a class when I have given a handout, you can refer to the website. This is particularly useful as I tend to dispose of any extra copies that are not picked-up by students on the day that I distribute handouts—this helps me keep the clutter in my office to a minimum.

6 Textbook

The textbook for this course will be *Precalculus, A Prelude to Calculus, Preliminary Edition*, by Sheldon AXLER. Since we are testing this book for possible adoption, free copies will be given courtesy of the publisher.

Please note that you may use Axler's book for reference, but the principal reference will be my lecture notes. These provide a great deal of examples, but they are rather sketchy. You can download these notes for free by going to my website, clicking on "Lecture Notes" and then on the Adobe Acrobat pdf file for "Precalculus I ONLY." You may print them at home, or download them for free from the web. **Please avoid using the computer labs to print all these documents.**

7 Topics Outline

Disclaimer: this is a *very fast-paced course*. There will be *little time—if any—for review. What follows is an approximate outline of the pace of the course. We may go faster or slower, contingent on class response.*

- **05/12-05/15** The Real Line. Algebra of Real Numbers. Inequalities. Absolute Values. (Axler Chapter 0. Lecture Notes Chapter I.)
- **05/19-05/22** Inequalities. Absolute Values. Sets on the Plane. (Axler Chapter 0. Lecture Notes Chapter II.) **Exam I on Thursday**
- **05/27-05/29 Monday 26 is Memorial Day. No classes.** Lines. Linear Absolute Values. Parabolas. Hyperbolas. Ellipses. (Lecture Notes Chapter II.)
- **06/02-06/05** Algebra of Functions. Inversion of Functions. (Axler's Sections 1.4, 1.5, 1.6. Lecture Notes Sections 3.4, 3.5, 3.6, 3.7.) **Exam II on Thursday.**
- **06/09-06/12** Transformations of the graphs of Functions. (Axler Section 1.3 . Lecture Notes Chapter IV.)
- **06/16-06/19** Polynomial Functions. (Axler Section 2.4. Lecture Notes Chapter V.)
- **06/23-06/26** Rational Functions. (Axler Section 2.5. Lecture Notes Chapter VI.) **Final Exam on Thursday June 26.**

8 How your final grade is determined

The way your final grade is computed **is not negotiable**. There will be **2** topical exams (full period) each worth **30** marks, and one *comprehensive final exam* (worth **40** marks). *None of the exam grades will be dropped*. This gives a total of

$$30 + 30 + 40 = 100$$

marks.

The grading scale is as follows.

Range	Class Grade
100 – 85	A
84 – 70	B
69 – 55	C
54 – 45	D
44 – 0	F

9 Homework

Homework will be assigned, but not collected. Remember, the more you practice, the better prepared you will be for the exams.

10 Absences

If you are absent (without a valid excuse) six or more hours during the semester, I have the right to drop you from class. This does not mean that I will drop you, only that I *may*. If you should drop the class, do so before the deadline passes. Verify with the registrar's office that you are indeed dropped from class, they tend to make mistakes. I tend to give "F"'s to students who stop shewing up for class and do not earn enough marks to get a "D" if they stop shewing up.

If you expect to miss class and have a good excuse, please leave a message in my voice mail, or, preferably, send me an email. This will be especially important if you miss an exam. For very good reasons, which might amuse you to know, I tend not to reply to phone calls. I do, however, reply to all email. My email is dsantos@ccp.edu.

If you miss a class, it is your responsibility to get the lecture notes from a classmate. I never have written plans of my lectures since I lecture contingent on the response that I get from the audience.

11 Studying and Discipline

Mathematics courses are **not** Humanities or Social Science courses, where you can make silly speeches about the rôle of women and minorities and get a good grade in the class, or where you "vote" the truth of a particular proposition. It is easy for any Mathematician, or Scientist or Engineer to be admitted into graduate programmes in the Humanities

or Social Sciences, after all, in those fields all you need is good spelling and keeping in tune with the political leanings of your professors in order to pass the classes. But it is almost impossible for people in the Humanities or Social Sciences to get into graduate programs in Mathematics, the Sciences or Engineering, for in these latter fields you require specialised knowledge that can only be earned through years of hard work. In Mathematics you have to learn the material taught, must recall the material from previous courses, and do your own reading. It is impossible to cover every single situation in the allotted class time. You have to learn to synthesise and to apply the knowledge in new situations on your own.

Mathematics requires a good deal of discipline if it is to be learned. Only by applying yourself and doing the core problems will you have a chance of passing the course. I won't take pity on you because you are pregnant, broke a leg, your five grandmothers died, etc. You have to pass and learn the material honestly.

12 Extra Credit

The need of extra credit arises from your inability to cope with the minimum class burden given. In such a case, this means that you have not acquired the necessary know-how in Precalculus to be deemed proficient in the course, hence you must repeat the course. Extra credit will **NEVER** be given, so do not ask for it!

Many a student with histrionic abilities come to me at the end of the semester telling me that they need the class to graduate, that this is their last class at CCP, that they need a good grade in order to keep or get a scholarship, etc. **Don't bother me with this! I don't care! This is not my concern!** Every student will pass the class the student like every other student: through hard work and through passing the exams. Do not expect me to make special allowances for you: don't even suggest it, you will only make me angry.

13 Registration Status

Check your registration status often. The new Banner software is notoriously faulty and has been known to drop students arbitrarily.

14 Midterm Grades

You will not receive a midterm grade in this course. You will only receive a final grade. You should have no problem monitoring your performance by considering the scores on your exams.

15 Dropping the Course

Any student who is registered by the end of the term will receive a grade. Incomplete “I” grades cannot be given in order to avoid failure.

Students who have not dropped from the course and are still registered, and who have, moreover, missed class work, will receive an “F” grade at the end of the term.

16 Practice Exams and Review for Tests

I will strive to have practice exams ready a week before the actual exam. Review will only occupy one hour of lecture, and thus I may not be able to go over every problem on the practice exam. Therefore, I shall only concentrate on the problems that I deem most difficult. You should try the simple problems on your own. **You are allowed to use your lecture notes, calculators, and/or books during exams.** You may not use someone else’s lecture notes, calculator, etc. during exams (for obvious reasons). Exams will last the whole period and will closely resemble the practice exams. Old exams (with solutions), old practice exams (without solutions) and old assignments (with solutions) are available at the class website.

17 Appropriate Classroom Behaviour

- Please be on time for class. It is distracting to me as to your other classmates to have people come in late.
- Please switch off pagers and cell phones before entering the classroom.
- Abstain from bringing friends or small children to the classroom.
- Be courteous and considerate to your other classmates and to me.
- Do not ask for extra credit, as none will be given.
- Mathematics is a cumulative subject. Do not expect to understand subsequent material if you have not mastered current material.
- Homework may be assigned, but not collected. Do the assigned homework.
- The best way to ask a question is something like: “How did you get from the second step to the third step?” or

“What does it mean to complete the square?” Asseverations like “I don’t understand” do not help me answer your queries. Moreover, not understanding is a psychological problem, not a mathematical one, and I am only paid to help you with your mathematics.

- I am very patient, but I will not tolerate boorish, badgering behaviour. If it comes to me having to call security to remove you from the classroom, and if I ask you to leave, please do leave. You should be able to return the next day, and I will not penalise you for a bad behaviour day. I don’t keep grudges! Beware: if I must call security, an incident report will be written and it will go into your record. Let us keep our teacher-student relationship civil!

18 Statement on Disability

Students who are registered with the Centre of Disability must inform the instructor by the end of the first week of classes if special accommodations are required.

19 Making a Complaint

It is always best to inform your instructor immediately about any concerns you may have. If you are having a problem in any class, the first step is to make an appointment with the instructor to try to resolve the problem directly. If you have been unable to resolve it with your instructor, you may use a student complaint form, available at the Chair’s Office in W2-7.

When you fill out the student Complaint Form you will be required to fill out your name, course, and other identifying characteristics, as anonymous complaints will not be paid attention to.

Upon receipt of the complaint form, the Chair will contact you and will contact me.

Complaining with the Chair will not change your grade, as only I can do that.

20 Spelling

I use British spelling. So I end my verbs in “ise” rather than “ize,” I use the ending “our” rather than “or” (as in “colour”) and I use the correct spelling “shew” rather than “show.” If you have a problem with this, tough break!