

Berkeley City College Spring 2014
Mathematics 2 Precalculus with Analytic Geometry Code: 23043, 5 units
Syllabus

Instructor: Shawn McDougal **E-mail:** smcdougal@peralta.edu
Office Hours: M & W 5:50-6:30pm. T 2:45-3:25 & 5:50-6:30pm. Th 2-3:20. Plus 1 hr by appt.
Office Location: Room 353 **Phone:** (510) 981-5018

Class Meeting Days/Times: Monday and Wednesday, 10am – 12:15pm
Location: Room 321

Prerequisites: Math 50 or 52C or placement through assessment

Textbook: *Precalculus, Ninth Edition* by Sullivan, Pearson Education, Prentice Hall
The textbook is available for purchase in the bookstore (Room 517). The text is also on reserve in the BCC library (Room 131).

Materials: You should obtain a scientific calculator for the work we do with exponential and logarithmic functions. Graph paper will also be needed. If you do not want to buy graph paper there are free websites where you can download and print out your own.

Catalog Description

Advanced algebra and analytic geometry: Linear, quadratic, polynomial, rational, exponential and logarithmic functions, inverse functions, determinants, matrices and linear systems, zeros of polynomials, arithmetic and geometric sequences, mathematical induction, permutations and combinations, binomial theorem, vectors, conic sections, translation and rotation of axes, polar coordinates, lines and surfaces in space, quadric surfaces.

Class format

Our typical class will be a mix of lectures clarifying and expanding upon the points raised in the book, hands-on problem solving sessions, examples and open discussion. I will often ask you to talk through the problems or ideas with other students. Talking through your ideas with others is a good way to 1) test and refine your ideas, 2) learn multiple ways of thinking about a concept or solving a problem, and 3) learn how to put the ideas in your own words.

On average, every week we will cover about 3 sections from the book. Bring your book to class as we will be using it a lot.

Every day you are expected to come to class having *already read* the sections to be covered in class that day. You are *not* expected to understand everything you read the very first time--that is the point of coming to class and doing the HW!--but you will understand the lectures much better if you come to class with initial ideas and questions about the material.

Grading Allotment

Homework 25%
Quizzes 40%
Final Exam 25%
Connections 10%

Grading Scale A: 90% - 100 %, B: 75% - 89%, C: 65% - 74%, D: 55% - 64%. F: Below 55%

Self-intros

Every day for the first few weeks of the course, 3-4 students will get a chance to briefly introduce themselves to the class. "Briefly" meaning like 30 seconds. This will allow all of us to get to know a bit about each other. Include something answering one of the following "questions":

- One experience I had after age 13 that really shaped who I am or how I think.
- Something a lot of people who meet me wouldn't guess about me.
- If I could change one thing about society, what would it be?

Homework

To be successful in this course, students should typically spend about 15 hours per week outside of class studying the material and completing assignments. Some may need more or less time to do well. Please determine what type of math learner you are and study accordingly.

Homework (HW) will be due almost every day. There are no make-up or late HWs. I will drop your lowest 4 or so assignments--out of about 29 HWs I will count only your best 25.

I will typically collect HW at the beginning of class. I will generally assign the next day's HW in class. If you miss class and need to know the assignment, or need to turn in HW but can't come to class, I encourage you to ask for help from another student. I encourage you to collaborate with each other on the HW assignments. Still, you must write up your own solutions.

Each HW will be graded according to completeness, on the following 1 point scale:

1 point--70%+ of the problems done

0 points--less than 70% the problems done

Each HW is worth 1 point out of the 100 points in the course. Therefore, the HW will be worth 25×1 points = 25% of your grade.

Make sure your HW is stapled or clipped together. Illegible HW will not be graded and thus will not count. Show your work on the problems, as appropriate. If the answers are simply copied down, then they will not be counted.

Quizzes

There will be a quiz every two weeks, almost always on Wednesday. (If there needs to be a change in scheduling I will let you know well in advance.) There will be about 7 quizzes altogether. I will drop your lowest 2 quizzes score, so your top 5 quizzes will be counted. Altogether, the quizzes are worth 5×8 points = 40% of your grade. There are no make-up quizzes.

Final Exam

The final exam is scheduled for Monday, May 19th in class. It will cover all the material of the course. It will be worth 25% of your grade.

Important Dates (cf. BCC Spring 2014 Academic Calendar)

Feb. 2 – Last day to drop regular session classes without "W" appearing on transcript.

Feb. 2 – Last day to drop regular session classes and receive a refund.

Feb. 2 – Last day to add regular session classes.

Feb. 3 – Census Day.

Feb. 7 – Last day to file for P/NP grading option for regular session classes.

May 3 – Attendance Verification Day. Last day to drop with "W".

Connections Activity for Shawn's Math Classes

The Connections part of this course is an opportunity for students to connect with diverse colleagues outside of class while reflecting issues of mathematical and/or personal and/or community interest.

There will be a Connections assignment roughly each week. It should take 15-30 minutes to complete.

- Each week students will buddy-up with 1 or 2 others, forming pairs or triples.
- Students choose who they will buddy-up with every week.
- Each team will submit a roughly 2-3 paragraph write-up. (Thus, less than 1 page required.) Either paper or electronic is fine. (See Connections Form for the required info.)
- There will be 15 Connections assignments altogether. Each is worth $\frac{2}{3}$ of a percent of your grade. So altogether Connections accounts for $15 \times .66... = 10\%$ of your grade.
- In order to get credit for N assignments, each student must buddy-up with at least $N/2$ different people during the term.
- On each team, there are 2 roles: Initiator and Responder.
- The Initiator makes the initial remark or asks the initial question to start the conversation. The Responder responds.
- For pairs there is 1 Initiator and 1 Responder.
- For triples there is 1 Initiator and 2 Responders.
- Students choose who plays what role.

Menu of options

1. a recent experience that has really impacted you
2. something you're confused, curious, or excited about in class
3. news story with (interesting, confusing, problematic) use of math
4. example of how (lack of) math knowledge is used to trick people
5. an issue in the school or community that really upsets you or saddens you
6. an idea for improving things in the school or in the community
7. interview a "community expert" on how math impacts their work or the way they think ("community expert" meaning someone who works at BCC or in the local community)
8. attend and comment on a school or community event related to math, science, or social justice

Q: What if the other person(s) on my team is (are) absent?

A: Solo option: Write 1-2 paragraphs on

- how math skills will apply in a profession that you are considering
- news story, interview, or event option (see above)

Connections Form (template)

Initiator Name:

Responder Name(s):

Date:

Topic: (or Name and Job of Community Expert or Name of Community Event)

Write up:...

Weekly Schedule

Week of Monday...	Sections to be covered (tentative)	Notes
1/20	1.1-1.4	
1/27	2.1-2.3	Quiz 1
2/3	2.4-3.1 (skip 3.2)	
2/10	3.3-3.5 (skip 3.4)	Quiz 2
2/17	4.1-4.2	no class 2/17
2/24	4.3-4.5	Quiz 3
3/3	4.6-5.3	
3/10	5.4.-5.6	Quiz 4
3/17	6.1-6.3, 9.1 (skip 6.4-6.6)	
3/24	9.2-10.1 (skip 9.4-9.7)	Quiz 5
3/31	10.2-10.5	
4/7	10.6-10.7	Quiz 6
Spring Break		
4/21	11.1-11.6 (skip 11.3-11.5)	
4/28	11.7-12.1 (skip 11.8)	Quiz 7
5/5	12.2-12.4	
5/12	12.5, Final Review	
5/19 Final Exam		

Attendance

Students who miss more than 2 consecutive classes without contacting me to explain their absences may be dropped from the course. Anyone who misses the first 2 class meetings may be dropped. Still, do not assume that I will automatically drop you if you merely stop attending class. Anyone whose name appears on the final grade roster who has not been attending class will receive an F.

Academic Honesty

Any evidence of cheating on an exam or quiz will result in a score of zero (0), and may incur further penalties. Cheating includes but is not limited to bringing notes or written or electronic materials into an exam or quiz, copying off of another person's exam or quiz, allowing someone to copy off of your exam or quiz, and having someone take an exam or quiz for you.

General Information/Expectations

Please turn off your cell phones during class.

Student Learning Outcomes

1. Solve word problems.
2. Deduce equations of lines, circles, parabolas, ellipses, etc. from their geometric definitions and deducing their main properties.
3. Use trigonometric identities and properties of trigonometric functions directly from the definitions and using the unit circle.
4. Solve quadratic equations by factoring, completing the square, by the quadratic formula, and by graphing.
5. Solve simple higher order equations by factoring and solving systems of equations.
6. Graph polynomial, rational, exponential, and trigonometric functions and their inverse functions.
7. Find the equations of lines, circles, parabolas, ellipses, hyperbolas. Graph and deduce their main properties.

Justification for Course

Satisfies the General Education and Analytical Thinking requirement for Associate Degrees. Provides foundation for more advanced study in mathematics and related fields, such as Physics. Satisfies the Quantitative Reasoning component required for transfer to UC, CSUC, and some independent four-year institutions. Acceptable for credit: CSU, UC. AA/AS area 4b, CSU area B4, IGETC area 2A.

Piazza Discussion Forums

I usually do not answer questions about the course material over email. (Reason #1: I do not want to be swamped with emails. Reason #2: It's easier to answer a question once rather than 5, 10, or 20 times.) To help you get your questions answered quickly by other students and/or me, and to help students share ideas and build community with each other, I have set up a Piazza forum for our class.

If you are enrolled in the course, you will have access to this forum. Sign in via <https://piazza.com>. Please familiarize yourself with the capabilities of Piazza.

I will make announcements and post course material via Piazza and my faculty page, so it should prove to be a very useful tool for your learning.

You do not have to use Piazza to pass the course. Also, if you want, you may choose to post questions/comments anonymously on Piazza.

Moodle/Passport

Please make sure your preferred email address is listed on Passport and Moodle. For Moodle see <http://eperalta.org/spring2014/>.

I will use those email addresses to send invites to the Piazza forum.

Also, I intend to use a Moodle feature that allows students to check their grades throughout the semester. Stay tuned!