

Berkeley City College Spring 2017
Mathematics 18 Real Number Systems Code: 24050, 3 units
Syllabus (v.2)

Instructor: Shawn McDougal **E-mail:** smcdougal@peralta.edu

Office Hours: MW 1:45-3pm, TR 5:45-6:30pm (plus 1 hr by appointment)

Office Location: Room 353 **Phone:** (510) 981-5018

Class Meeting Days/Times: MW 6:30-9:20pm **Location:** 2000 Center St., #2

Prerequisites: Math 203 or 211D, or placement through assessment

Textbook: *Elementary and Middle School Mathematics: Teaching Developmentally*, by Van De Walle et al. (7th edition, 2009)

Catalog Description

Structure, properties and operations of the real number system: Introduction to set theory, logic and deductive reasoning; Introduction to probability, statistics and inductive reasoning; Review of geometry in two and three dimensions (British and metric measure, perimeter, area, volume, characteristics of basic plane and solid figures). Survey course intended primarily for education majors planning to teach in the primary grades.

Class format

Our typical class will be a mix of lectures clarifying and expanding upon the points raised in the book and the videos, hands-on problem solving sessions, solution presentations (from students as well as me), and open discussion. A portion of the class will be "workshop"—you will be working on problems individually or in groups as I go around helping as needed. In addition to providing feedback and guidance, 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) practice putting the ideas in your own words.

Self-intros

Every day for the first few weeks of the course, a few students will get a chance to briefly introduce themselves to the class. "Briefly" meaning like 30 sec. to 1 min. This will allow all of us to get to know a bit about each other. Include an answer to one of the following prompts:

- One experience you had after age 13 that really shaped who you are or how you think.
- If you could, what is one thing you would change about society?

Grading Allotment (400 points = 100% for course)

	points each	total points	total %	notes
Moodle Check-ins (10)	4	40	10%	
Connections (4)	5	20	5%	
Show What You Know (4)	20	80	20%	
Self-Assessments (3)	20	60	15%	
Peer-Assessments (3)	20	60	15%	
Lesson Share	100	100	25%	
Final Exam	40	40	10%	

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

Moodle Check-ins

At least 10 times during the semester you will write a Moodle *Check-in*. The purpose of the *Check-ins* is to 1) encourage folk to discuss the material outside of class, 2) let me know which concepts I most need to clarify in class, and 3) build community among students. For credit, the check-ins must be posted before the start of the next week (by Sunday (MW class) or Monday (TR class) 11:59pm) in the appropriate weekly forum, and be about the math covered in class or the book, etc. that week.

To receive credit, a *Check-in* must be one of the following (examples are for illustration only):

- a *good question* about a problem or concept or example we covered
 - good question: "On problem X in section Y I tried to do Z but got the wrong answer. What am I missing?"
 - not-so-good questions: "I don't get problem X." or "Please do problem X for me."
- an *interesting comment* about a problem or concept or example we covered
 - interesting comment: "I like method X because of it is easier to remember than method Y."
 - not-so-interesting comment: "I like method X."
- a *substantive response* to someone else's question or comment.
 - substantive response: "I agree. Also, Method Y uses Theorem W, which I don't really get."
 - not-so-substantive response: "I agree."

You are welcome and encouraged to participate frequently in the Moodle discussions, though you can receive credit for at most one *Check-in* in a given week. Each *Check-in* is worth 2 points. Altogether the *Check-ins* are worth 20 points (i.e. 5%).

Show What You Know

You will meet with me during class every 3 weeks. (Briefly, for like 2 minutes.) You'll explain a concept from the last week in your own words, illustrate it graphically or with examples, or solve an example problem. (I'll give you a list of options.) You will do this 4 times. (A simple rubric will be given.)

Self- and peer-assessments

A key component of educational success is 'metacognition'—reflecting on your own learning. Thrice during the semester you will be asked to write an assessment of how well you are doing in mastery of the concepts. (There will be a form for this.) The score will be based on how much of the material you say you have mastered, the evidence/rationale you provide, and, if applicable, your plans for improvement. (A rubric will be given.) Tentatively, the Self-assessments will happen in Weeks 4, 8, and 12.

Lesson Share

I encourage students to learn from each other, take time to really think through problems and teaching ideas. Once during the term, you will present a lesson. The *Lesson Share* is worth 100 points (i.e. 25% of the course total). (A rubric will be provided.)

Final Exam

The Final Exam is scheduled for Monday/Tuesday of Finals Week, in class. It will cover the key math concepts of the course. It's worth 40 points (i.e. 10% of the course total).

Weekly Schedule (tentative)

Week of...	Chapters	Week of...	Chapters
1/23--Week 1	overview+reals	3/20	15,16
1/30	2	3/27	17,18
2/6	3	4/3	23 + number theory
2/13	4	4/17	induction, logic, sets
2/20	no class (M holiday)	4/24	19
2/27	8-10	5/1	20
3/6	11,12	5/8	21
3/13	13,14	5/15	22
Final Exam Monday May 22 (in class)			

Important Dates (cf. BCC Spring 2017 Academic Calendar)

Feb. 5 – Last day to add regular session classes. Last day to drop (without a "W") and get a refund.

Feb. 10 – Last day to file for P/NP grading option for regular session classes.

March 17 – Last Day to File Petitions for AA or AS Degree/Certificate

May 1 – Last day to drop with "W". Attendance Verification Day.

Connections Assignments

Connections is an opportunity for students to connect with diverse colleagues outside of class while reflecting on issues relating to math, personal interest, or community interest.

There will be 4 *Connections* assignments, spaced a week apart. The first is due 12 AM Friday 5/3 (during Week 2, aka "W2"). The others are due on successive Fridays. Each should take roughly 15-30 minutes to complete.

- Each week (from W2 to W5) students will form teams of 2 or 3 people.
- Each team will discuss one of the topics and submit a roughly 2-3 paragraph write-up.
- Either hardcopy (handed in during class) or electronic submission (pdf, rtf, word, or plaintext format) via Moodle dropbox is fine. (See *Connections Form* template below for the required info.)
- Each *Connections* assignment is worth 5 points (i.e. 1.25%).
- In order to get credit for N assignments, each student must team up with at least N different people. (So I suggest you don't team up with the same person every week ;^)
- On each team, there are 2 roles: Initiator and Responder. Students choose who plays what role.
 - The Initiator makes the initial remarks to get the conversation started. The Responder (or Responders) responds to or follows up on the comment.

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 bothers you and/or an idea for improving things in the school or in the community
6. 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)
7. attend and comment on a school or community event related to math, science, or social justice

Connections Form (template)

Initiator Name:

Responder Name(s):

Date:

Topic: (or name and job of person interviewed, or title of event attended)

Write up:...

Attendance

Students who miss 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

- Make sure your preferred email address is listed on Passport and Moodle, as I sometimes may send out announcements. For Moodle see <http://eperalta.org/Spring2017/>
- If you have questions about the course material—e.g. because you missed a class—and cannot make it to office hours, do NOT email me. I almost never answer questions about the course material over email. (Firstly, I don't want to be swamped with emails. Secondly, I prefer to answer a question once rather than multiple times.) To help your questions get answered quickly by me and/or your peers, and to help students share ideas and build community with each other, you should post your questions in the *forums* on Moodle. (An exception to my email policy: feel free to email me if you have questions about your Solution Share.)
- Also, on Moodle you will be able to review your grades throughout the semester.
- Please turn off your cell phone ringers/alarms during class.

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, in particular, Education. 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.

Student Learning Outcomes (General)

At the end of the course students will be able to:

1. represent relevant information in various mathematical or algorithmic forms.
2. calculate accurately and comprehensively.
3. interpret information presented in mathematical or algorithmic forms.
4. draw appropriate conclusions based on the quantitative analysis of data, while recognizing the limits of this analysis.
5. explain quantitative evidence and analysis.

Student Health and Wellness

Students are required to pay the Student Health fee of \$18.00 per semester for fall and spring semesters (\$15 for summer session). This fee is collected at the time of enrollment. The health fee covers low cost health, mental health and wellness services on campus at: 2000 Center St., Suite 100.

Former Foster Youth

We are making a special effort to support foster youth at BCC. If you are a former foster youth you may qualify for scholarships and services to help you achieve your educational goals. You can contact Jennifer Ajinga directly (Room 349, Email: jajinga@peralta.edu) for more information.

Disabilities Statement

Berkeley City College is committed to providing reasonable accommodations for all individuals with disabilities. Any student with a documented disability needing academic accommodations is requested to speak with Programs & Services for Students with Disabilities (PSSD), located in Room 261 and the instructor as early in the semester as possible. I encourage any student who suspect they may have a learning disability to contact PSSD for assistance. They can be reached by phone at (510) 981-2812 or 2813. All conversations will remain confidential. The syllabus and course material are available in alternate formats upon request.