

Math 3A – Calculus I
Peralta Class Code 41885

Class Hours & Location: Mon & Wed 10am-12:15 pm, Ste 1, 2000 Center Street

Instructor: Kelly Pernelle **Office:** Rm 353 BCC **Email:** kpernell@peralta.edu

Office Hours: Mon & Wed 1:30 – 3pm, LRC Room 114, Tuesdays 9 – 11am, Rm 353

Instructor Web Site for additional class info:

<http://www.berkeleycitycollege.edu/wp/kpernell>

Textbook and Required Materials

The textbook used to present the course material is:

Calculus, Early Transcendentals, 8th Edition
by James Stewart
Brooks/Cole Publishing
ISBN 978-1-285-74155-0

Chapters 1 – 5 will be covered. Topics from Chapter 6 will be included as well.

You will need a non-graphing scientific calculator that can do trigonometric and logarithmic calculations. Access to a graphing calculator for homework is encouraged and sometimes suggested but not required. Consider adding a graphing calculator app to your mobile device or using free graphing calculator apps online.

Course Schedule

Each chapter is divided into sections. We will cover about two sections per class period. It is your responsibility to attend class regularly to stay on top of the course material.

There are three midterm exams and one comprehensive final exam for this class. (Exam 1 - Ch 1-2, Exam 2 - Ch 3, Exam 3 - Ch 4, Final Exam – Ch 1 – 5 with a focus on Ch 5).

Please review the tentative calendar/schedule of topics provided at the end of the syllabus.

To be successful in this course, you should spend about 10 hours per week outside of class time, studying the material and completing exercises. Some may need more time to do well.

Grading Policy

A: 90 – 100%; B: 80 – 89%; C: 70 – 79%; D: 60 – 69%; F: 0 – 59%

Your course grade is based on midterm exams, homework and in-class homework activities, and a comprehensive final exam. The percentage breakdown for each component is as follows:

Midterm Exams	60%
Final Exam	20%
Homework & Participation	20%

At the end of the course I will drop your lowest midterm exam score.

Requests for an Incomplete grade will only be granted to students with verifiable extenuating circumstances that occur outside of their control. An Incomplete grade may only be granted to students who complete more than 50% of the coursework and exams with a passing average. Requests for an Incomplete grade will never be granted to students with more than two weeks of absences (more than 4 absences, consecutive or not). The penalty for taking an Incomplete will be the loss of all participation points (5% of course).

Exams

Midterm exams will include material and examples presented in class, examples from the textbook, and the exercises you are assigned in homework and for practice.

The Final Exam will be a comprehensive exam, covering all topics presented in the course. It will contain a slight focus on Chapter 5.

The Final Exam will take place on the Monday of Final Exam week during class time 10am – 12:15pm.

Absolutely no make-up exams will be given.

At the end of the course, I will drop your lowest midterm exam score. You must take the Final Exam.

You are allowed to use a *non-graphing* scientific calculator during each exam. Other electronic devices are NOT permitted during exams. You are also allowed one page of notes for the second and third midterm, and the Final Exam. All exams are designed for students to complete in one hour. You will be given the entire class period to finish the exam (2 hours, 15 minutes). No extra time will be permitted. Please arrive on time.

To minimize cheating, no bathroom breaks are permitted during exams. Please use the restroom *before* each exam. Please bring tissue, bottle of water, etc, if you need it. Please note that you will not be permitted to continue any exam if you leave the room.

Homework

Homework is worth 15% of your course grade. In order to receive full credit on homework, you must show your work to arrive at your answers (i.e. write out your steps). You must explain in words how you arrived at your answer if a question does not require calculation. You will lose points on a homework assignment if you fail to attempt/complete several problems, fail to show/write steps on problems, turn in a messy/unorganized assignment that is hard to grade, and/or turn in the assignment very late.

Homework problems will be assigned for each chapter. They can be found on my BCC faculty page. As part of your homework, you are expected to read the textbook and attend class regularly. You will have a chance to work on homework at the end of some lectures. I often provide time for students to ask questions on homework during the class break and towards the end of class.

Please practice your mathematics writing skills. In order to succeed in future math courses, it is critical to know how to express yourself mathematically.

The best way to learn the material is to regularly attend class and to DO YOUR HOMEWORK:

1. Prepare for class. Read all sections from the text in advance of when they are covered in class. Consult the Tentative Calendar of Topics at the end of the syllabus to stay on track with the course.
2. Take notes during lecture. Sometimes it is better to listen than to take notes of everything written on the board.
3. Ask questions in class or in office hours. Make friends with people in the class. Get together and ask each other questions.
3. Try homework problems and problems from the book on your own. Do not be afraid to make mistakes. Review problems you get wrong so you don't make the same mistakes next time around.
4. If you need help with homework, meet with other students in groups outside of class. Meet with a tutor. Attend office hours. Look at my faculty web site for online calculus resources. Do your own search on the Internet for help.
5. Most importantly, study your calculus a little every day, not just once per week. Do not skip class, even if you feel you understand everything, and *especially* if do not understand some things. If you need to, review trigonometric, exponential, and logarithmic functions *while* you are learning the calculus.

Tutoring is available in BCC's Learning Resources Center, located on the first floor, room 112.

Please save all homework problems you complete neatly in a file, folder, binder, or ringed notebook. Never throw away the work you do for this course.

Please keep all of your exams. They are good to review for the Final Exam.

Homework, exams, and attendance are the critical evidence pieces of your efforts to succeed in the course.

I cannot stress enough how much attendance is an important part of your success in this course. Students who regularly miss class are not fully participating in the course. Without full participation, it is very hard to earn an A or a B.

Participation

Participation is worth 5% of your course grade. Participation includes your attendance, behavior in class, engagement in class activities, promptness in submitting homework assignments, and overall respect for the structure and schedule of the course.

While attending class, please help to maintain a decent learning environment. Please be considerate of others. Turn *off* your cell phones. Try to arrive on time. Sit close to the door if you must leave early. If you are late, please try to find a seat as quickly and *quietly* as possible.

Students who miss more than two consecutive weeks of class without an appropriate excuse for their absences may be dropped from the course. Those who perform poorly on an exam then fail to take the next one *will* be dropped.

Students who regularly disrupt the learning environment in class will lose participation points. (eg talking and not paying attention, disrespect for other students, etc)

Students who miss a lot of class and perform poorly on exams are not properly participating the course and will lose participation points.

Students who frequently submit late homework assignments are not properly participating in the class and will lose participation points and may also lose points on the late homework assignments.

Cheating Policy

Cheating is a very serious offense that I will not tolerate. If you are caught cheating on an exam I will give you a grade of 0% for that exam and also drop your overall course grade by 10%. Both, or all, parties involved will be charged. (*No one caught or involved in cheating will earn an A in the course.*)

Disability Statement

Berkeley City College is committed to providing reasonable accommodations for all individuals with disabilities. This syllabus and the course materials are available in alternate formats upon request. If you have a disability that may have some impact on your work in this class and for which you may need accommodations, please see a staff member in Programs & Services for Students with Disabilities (PSSD) to request accommodations. For students that receive accommodation letters, please meet with me to discuss academic arrangements as early in the term as possible. PSSD can be found in Room 261 of the Main 2050 Center Street campus or by phone at (510) 981-2812 or 2813.

Student Learning Outcomes

Representation: Represent relevant information in various mathematical or algorithmic forms. (conversion of words to mathematical symbols and graphs)

Calculation: Calculate accurately and comprehensively.

Interpretation: Interpret information presented in mathematical or algorithmic forms. (for example, interpretations of equations, graphs, diagrams, tables)

Application/Analysis: Draw appropriate conclusions based on the quantitative analysis of data, while recognizing the limits of this analysis. (problem solving)

Communication: Explain quantitative evidence and analysis. (conversion of mathematical symbols and graphs to words)

Justification for the 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, engineering, and computer science. Satisfies the Quantitative Reasoning component required for transfer to UC, CSUC, and some independent four-year institutions. Acceptable for credit: CSU, UC.

Calendar of Topics**Wk 1 – Aug 22-24**

Section 1.1 - four ways to represent a function
Appendix D trigonometry review

Wk 2 – Aug 29-31

Section 1.4 - exponential functions
Section 1.5 - inverse functions and logarithms
Section 2.1 - the tangent and velocity problems

Wk 3 – Sep 7

Section 2.2 - the limit of a function
Section 2.3 - calculating limits using the limit laws

Wk 4 – Sep 12-14

Section 2.4 - the precise definition of a limit
Section 2.7 - derivatives and rates of change
Section 2.5 - continuity
Section 2.6 - limits at infinity; horizontal asymptotes

Wk 5 – Sep 19-21

Section 2.7 - derivatives and rates of change
Section 2.8 - the derivative as a function
Review Chapters 1 and 2

Wk 6 – Sep 26-28**Exam 1 – Mon Sep 26 – Chapter 1 & 2**

Section 3.1 - derivatives of polynomials and exponential functions
Section 3.2 - the product and quotient rules

Wk 7 – Oct 3-5

Section 3.3 - derivatives of trigonometric functions
Section 3.4 - the chain rule
Section 3.5 - implicit differentiation

Wk 8 – Oct 10-12

Section 3.6 - derivatives of logarithmic functions
Section 3.8 - exponential growth and decay
Section 3.9 - related rates

Wk 9 – Oct 17-19

Section 3.10 - linear approximations and differentials
Section 3.11 - hyperbolic functions
Review Chapter 3

Wk 10 – Oct 24-26

Exam 2 – Mon Oct 24 – Chapter 3

Section 4.1 - maximum and minimum values

Section 4.2 - the mean value theorem

Wk 11 – Oct 31 – Nov 2

Section 4.3 - how derivatives affect the shape of a graph

Section 4.5 - summary of curve sketching

Section 4.4 - indeterminate forms and L'Hospital's Rule

Wk 12 – Nov 7-9

Section 4.7 - optimization problems

Section 4.8 - Newton's method

Section 4.9 - anti-derivatives

Wk 13 – Nov 14-16

Section 5.1 - areas and distances

Section 5.2 - the definite integral

Review Chapter 4

Wk 14 – Nov 21-23

Exam 3 – Mon Nov 21st – Chapter 4

Section 5.3 - the fundamental theorem of calculus

Section 5.4 - indefinite integrals and the net change theorem

Wk 15 – Nov 28-30

Section 5.4 - indefinite integrals and the net change theorem

Section 5.5 - the substitution rule

Section 6.1 - areas between curves

Wk 16 – Dec 5-7

Review for Final Exam

Wk 17 – Dec 12 - FINAL EXAM

Finals Week – No Classes Held

Final Exam Monday, Dec 12, 10 am – 12:15pm