Math 3B – Calculus II
Peralta Class Code 23052

Spring 2014

Class Hours & Location: TuTh 10:00am – 12:15pm, Tu Rm 311, Th Rm 216
Instructor: Kelly Pernell
Office Hours: Mon – Thu 9:30 – 10am, Mon & Tue 1:30 – 2:30pm, Th 1hr by appt. Rm 353
Contact Info: kpernell@peralta.edu; Office: BCC, Rm 353; Phone: 510-981-5034
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, 7th Edition
by James Stewart
Brooks/Cole Publishing

Chapters 6 – 11 will be covered.

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.

Electronic devices such as cell phones, smart phones, and mobile tablets, are not permitted during exams.

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 four midterm exams and one comprehensive final exam for this class. (Exam 1 - Ch 7, Exam 2 - Ch 6 & 8, Exam 3 - Ch 11, Exam 4 - Ch 9 & 10, Final – Ch 6 – 11).

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 15 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 in-class exams, homework verification activities, and participation. The percentage breakdown for each component is as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-Person Exams (Including Final)</td>
<td>80%</td>
</tr>
<tr>
<td>Homework</td>
<td>10%</td>
</tr>
<tr>
<td>Participation</td>
<td>10%</td>
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</tbody>
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At the end of the course I will drop your lowest exam score. This includes the final exam.

Exams

Midterm exams will include material and examples presented in lecture, 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. *The Final Exam will take place on the Tuesday of Final Exam week during class time 10am – 12:15pm.*

Together, the exams, including the final exam, are worth 80% of your course grade.

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

*Absolutely no make-up exams will be given.*

You are allowed to use a *non-graphing* scientific calculator during each exam. Other electronic devices such as smart phones and tablets are NOT permitted during exams.

Homework

Homework is worth 10% of your course grade. I expect you to read the text as part of your homework assignment. Homework problems will be assigned for each chapter. They can be found on my BCC faculty page. Please note you can find answers to all problems on the last page of each assignment.

The most important things to practice while doing homework are identifying processes to solve problems and actually writing the steps to arrive at the answers. You cannot simply write the correct answer from the back pages to demonstrate your mathematical understanding. The same thing goes for exams. In order to receive full credit, you must write all steps to demonstrate you know the process to analyze and solve the problem.

The best way to prepare for each exam is to read the textbook, do all assigned homework problems, do a few extra problems from the textbook, and supplement these things with study groups, tutoring, and/or internet tutorials and videos. Most importantly, **DO YOUR HOMEWORK.**

*Please* practice your mathematics writing skills. In order to demonstrate understanding, it’s critical to know how to write your steps.

Tutoring is available in BCC’s Learning Resources Center, located on the first floor. I encourage you to form study groups with other classmates and help each other with homework.
Please save all homework problems you complete neatly in a file, folder, binder, or ringed notebook. Never throw away the work you do to complete homework. It is the only evidence outside of class time of your efforts to succeed in the course.

Participation
To receive 10% of your grade, you must attend class regularly, do your homework, and show up to take all your exams on the days they are given.

While attending class, you must 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 will lose participation points if they request make-up exams and/or regularly miss class.

Anyone caught cheating will lose all participation points.

Students who miss more than one consecutive week of class without contacting me to explain 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.

Cheating Policy
Cheating is a very serious offense that I will not tolerate. If you are caught cheating on an exam you will be given a grade of 0% for that exam. Both, or all, parties involved will be charged. In addition, your grade will drop by one level (e.g. No one caught cheating will earn an A in the course.)

Offenses during an exam include, but are not limited to, talking to another student during an exam, staring at another's exam for answers or ideas, copying another's exam, using prohibited materials such as notes, graphing calculators or electronic devices during an exam.

Student Learning Outcomes
Upon completion of this course, students will:

1. Evaluate definite and indefinite integrals using a variety of integration formulas and techniques;

2. Apply various techniques of integration to finding areas, volumes, surface areas, and lengths of curves (arc length) and to solving work problems;

3. Solve some types of differential equations; apply them to solve real life problems

4. Manipulate, test, and apply various series, including Taylor and Maclaurin series;

5. Graph, differentiate and integrate functions in polar and parametric forms.
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.

Tentative Calendar of Topics

Wk 1 – Jan 21, 23
Review of Fundamental Theorem of Calculus
  7.1 Integration by Parts
  7.2 Trigonometric Integrals

Wk 2 – Jan 28, 30
  7.3 Trigonometric Substitution
  7.4 Integration of Rational Functions by Partial Fractions
  7.5 Strategy for Integration
  7.6 Integration Using Tables

Wk 3 – Feb 4, 6
  7.7 Approximate Integration
  7.8 Improper Integrals
  Review Chapter 7

Wk 4 – Feb 11, 13
  EXAM 1 – Ch 7 - Tuesday, February 11th
  6.1 Areas Between Curves
  6.2 Volumes

Wk 5 – Feb 18, 20
  6.3 Volumes by Cylindrical Shells
  6.4 Work
  6.5 Average Value of a Function

Wk 6 – Feb 25, 27
  8.1 Arc Length
  8.2 Area of a Surface of Revolution
  8.3 Applications to Physics and Engineering
  8.4 Applications to Economics and Biology

Wk 7 – Mar 4, 6
  Review Chapters 6 & 8
  EXAM 2 – Ch 6 & 8, Thursday, March 6th
Wk 8 – Mar 11, 13
11.1 Sequences
11.2 Series
11.3 The Integral Test and Estimates of Sums
11.4 The Comparison Tests

Wk 9 – Mar 18, 20
11.5 Alternating Series
11.6 Absolute Convergences and the Ratio and Root Tests
11.7 Strategy for Testing Series

Wk 10 – Mar 25, 27
11.8 Power Series
11.9 Representations of Functions as Power Series
11.10 Taylor and Maclaurin Series

Wk 11 – Apr 1, 3
Review for Exam 3
EXAM 3 – Ch 11 – Thursday, April 3

Wk 12 – Apr 8, 10
9.1 Modeling with Differential Equations
9.2 Direction Fields and Euler’s Method
9.3 Separable Equations

Wk 13 – Apr 15, 17
Spring Break – No classes meet

Wk 15 – Apr 29, May 1
9.4 Models for Population Growth
9.5 Linear Equations
10.1 Curves Defined by Parametric Equations
10.2 Calculus with Parametric Curves

Wk 14 – Apr 22, 24
10.3 Polar Coordinates
10.4 Areas and Lengths in Polar Coordinates
10.5 Conic Sections

Wk 16 – May 6, 8
10.6 Conic Sections and Polar Coordinates
Review for Exam 4 – Ch 9 & 10

Wk 17 – May 13, 15
EXAM 4 – Ch 9 & 10 – Tuesday, May 13th
Review for Final Exam

Wk 18 – May 20
Finals Week – No Classes Held
FINAL EXAM Tuesday, 10am – 12:15pm