Analytic Geometry & Calculus 16A
Student Handout. Revised 10/13/05

Spring 2006, TT 2:10pm - 3:30pm, Room 155 Dwinelle Hall

Instructor: Prof. Zvezdelina Stankova ("Zvezda".)

Office: Evans 713, *Tel:* (510) 642-3768, *Office hours:* Tue 12:40-2:00pm, Thur 3:40-5:00pm.

E-mail: stankova@math.berkeley.edu, *Webpage:* http://www.math.berkeley.edu/∼stankova/

Head TA: TBA, *Office:* TBA, *E-mail:* TBA

Regular Office hours: TBA

Extra office hours for first two weeks of classes: TBA

Prerequisites: Three and a half years of high school mathematics.

Discussion Sections: Each student will be assigned to a discussion section. The discussion sessions, as well as lectures, are mandatory.

Textbooks: Goldstein, Lay and Schneider, "Calculus and Its Applications", Prentice Hall, 10th edition.

Homework: Homework will be assigned in class. HWs will not be graded or collected, but will be due on Wednesdays. Homework solutions will be distributed in discussion sessions on Mondays. If you miss a class, do NOT ask the professor or your TA for the homework assignments: ask your classmates.

Quizzes: There will be approximately 12 quizzes in the discussion sections, usually on Wednesdays. The lowest 2 quiz scores will be dropped when determining a student's final grade. **If you miss discussion sections when a quiz is given, you cannot retake the quiz in other section, and your quiz score will be 0.** Thus, when you miss discussion sessions (for whatever reasons, including being sick or having a family emergency), keep in mind that only **2** quiz scores will be dropped. Keep these 2 quizzes for the times when you are sick or have a genuine emergency. **No** exceptions will be made to this policy: please, do not bring to me or to your TA notes to be excused from quizzes. The quizzes will be based on the current or previous homework assignment.
For a student joining the course late: **no quiz scores will be dropped**; all quizzes from the time when the student joins the class will be counted towards the final grade. Thus, do **not** ask for exceptions to this policy.

Exams: There will be two in–class midterm exams: on **Feb 16, in–class,** and **April 4, in–class**; and a final exam on **May 12, 12:30-3:30pm**. There will be **no make-up midterms or final exams**. Every student must take the midterms and the final exam on these dates and at these times. There will be **no** exceptions. Do not take this class if you have conficts with any of this exam schedule. A substantial portion of the exams will be based on homework assignments.

Grading: Grades are computed by taking 15% quizzes, 25% each midterm, 35% final. The final letter grades will be based on a "curve". Please, consult the bonus credit appendix for more information and specific examples.

If you miss one of the midterms due to a *documented reason*, the following adjustment will be made in calculating your grade: 15% quizzes, 25% other midterm, 60% final. A *documented reason* means an official document on letterhead, dated and with appropriate signatures; such documents must be **submitted within a week of the missed midterm**, or else they will not be accepted and you will receive 0 points on the missed midterm. If you miss one of the midterms due to a *undocumented reason*, your final grade will be computed as: 15% quizzes, 0% the missed midterm, 25% the other midterm, 35% final. Note that a conflict with other exams, classes or activities will not be considered a reasonable excuse for missing a midterm. **Missing both midterms, or missing the final exam, will result in automatic failure of the course**, unless valid reasons are provided for requesting an incomplete grade. Please, consult the university policies regarding incomplete grades. Note that incomplete "I" grades are almost never given. The only justification for an I grade is a *documented serious medical problem or a genuine personal/family emergency*. I grades are rarely granted. Falling behind in this course or problems with work load in other courses are not acceptable reasons.

Special Arrangements: If you are a student with a disability registered by the Disabled Student Program (DSP) on UCB campus, and if you require special arrangements during exams, you must provide me with the DSP document and you must contact me via e-mail or in office hours at least **10 days** prior to each exam, explaining your circumstances and what special arrangements need to be done. If you do not contact me 10 days in advance, you will have to take the exam along with everyone else and under the regular conditions provided for the class.

Please, do **not** ask for retroactive excuses from exams based on DSP documents; and do **not** ask to be allowed special exam arrangements based on promised future DSP document. No exceptions will be made to this policy.

Reading Assignments: It is the students' responsibility to read carefully and thoroughly the assigned section(s) from the textbook and review their class notes after each class.

Bonus Work: Exams will consist of regular problems and bonus problems. Bonus problems are **not** substitutes for regular problems; they are usually harder and designed to provide extra challenge. Your final grade will be calculated via the above formulas using only your "regular" scores. After that, all the bonus credit from exams will be added up separately. Depending on what portion of the total bonus credit you have, and on my estimate of the difficulty of the overall assigned bonus work, your final grade may go up a step. However, I reserve the right to be the sole judge of how much (if at all) any bonus work can boost one's grade.

This raises a subtle point with the $midterm$ letter grades, as midterms involve both regular and bonus problems. Again, I will first determine your letter grade based on your regular problems, and then I will decide if any bonus credit is enough to increase your letter grade. The important thing to remember is that the midterm **letter** grades will disappear once I start calculating your final score, and that bonus credit can never decrease your grade! **I shall not discuss bonus credit policy or grading policy with students throughout the semester. Thus, please, consult carefully the appendix for more detailed information on grading.**

Questions: Please, refer to the following list for contact when you have questions regarding the course. Contacting the wrong people will simply result in redirecting you to the appropriate contact person, and thus, will waste your and our time. TAs are instructed **not** to answer any questions outside of their realm of expertise as listed below. **The professor will not answer any math or grading policy questions on e-mail**: professor's e-mail is only for emergencies. Administrative questions which are addressed in this handout or answered in lectures or sessions will not be answered on e-mail either.

#	Type of Questions	Person to Ask	When and How
1	enrollment and section placement	Head TA	office hours, e-mail
2	quiz and exam scores, missed handouts	the student's TA	office hours
3	other administrative questions (not addressed in this handout)	professor	office hours
4	math questions	TAs, professor	discussion sessions, office hours
5	emergencies only	professor	office hours, e-mail, phone
6	missed HW assignments or administrative announcements in class or section	your classmates	after appropriate class or discussion section

TAs Contact Information

#	Name	Office Hours	Office	E–mail
1	Arun Sharma	M,F 9-10, W 1-2	836 Evans	asharma@math.berkeley.edu
2	Matthew Rodriguez	TBA	TBA	mjrodrig@math.berkeley.edu
3	Taiyo Inoue	TBA	TBA	inoue@math.berkeley.edu

Discussion Sections

#	#	Time	Place	TA
54306	101	MWF 8 - 9am	187 Dwinelle	M. Anderson
54309	102	MWF 8 - 9am	258 Dwinelle	A. Sharma
54312	103	MWF 9 - 10am	187 Dwinelle	M. Anderson
54315	104	MWF 10 - 11am	2 Evans	J. Voight
54318	105	MWF 11 - 12pm	2 Evans	J. Voight
54321	106	MWF 12 - 1pm	156 Dwinelle	J. Brown
54324	107	MWF 1 - 2pm	183 Dwinelle	J. Brown
54327	108	MWF 2 - 3pm	105 Dwinelle	A. Sharma
54336	111	MWF 3 - 4pm	247 Cory	M. West, Head TA
54338 (PDP)	112	MW 1 - 3pm, F 11 - 12pm	230C Stephens	D. Ghioca

Tentative Plan of the Course[1]

1.	Jan 17	Functions, Graphs, Examples
2.	Jan 19	Operations with Functions. Quadratic Formula
3.	Jan 24	Applications of Functions and Graphs
4.	Jan 26	Slopes of Lines and Curves
5.	Jan 31	Derivatives and Limits
6.	Feb 2	Continuity and Differentiability
7.	Feb 7	Differentiation Laws
8.	Feb 9	Application of Derivative as a Rate of Change
9.	Feb 14	Properties of Functions and Graphs
10.	**Feb 16**	**Midterm I. In-class**
11.	Feb 21	Derivatives, Tests, Graphs
12.	Feb 23	More Graphing
13.	Feb 28	Optimization Problems
14.	Mar 2	More Optimization Problems
15.	Mar 7	Application to Business and Economics
16.	Mar 9	Product and Quotient Rules
17.	Mar 14	The Chain Rule and General Power Rule
18.	Mar 16	Implicit Differentiation and Related Rates
19.	Mar 21	Exponential Functions
20.	Mar 23	Logarithmic Functions
21.	**Apr 4**	**Midterm II. In-class**
22.	Apr 6	Exponential Growth and Decay
23.	Apr 11	Compound Interest
24.	Apr 13	Applications of Logarithmic Functions to Economics
25.	Apr 18	Antiderivatives
26.	Apr 20	Areas and Riemann Sums
27.	Apr 25	Definite Integrals and The Fundamental Theorem of Calculus
28.	Apr 27	More on The Fundamental Theorem of Calculus. Areas
29.	May 2	Applications of Integrals I
30.	May 4	Applications of Integrals II
31.	May 9	Review for Final
32.	**May 12**	**Final Exam. 12:30-3:30pm**

[1] *Note:* Particular topics and dates may change without prior notice, depending on how the course proceeds. Hence, I shall **not** honor excuses such as "I tried to follow the syllabus, but different topics were covered in class, and that's why I wasn't prepared to do well on the quiz/exam this week." If a student misses class/discussion, it is the student's responsibility to find out from classmates what is currently covered in class/discussions and to stay on top of the material.

Appendix on Bonus versus Regular Credit

The main points of the scoring (regular and bonus) are illustrated below via three hypothetical examples. **100r** means "100 regular points", **20b** means "20 bonus points". Student X, Y and Z receive the following scores:

Total / Student	Midterm 1 100r, 20b	Midterm 2 100r, 20b	Final Exam 140r, 27b	Quizzes 200r
Student X	85r, 8b	92r, 12b	128r, 2b	110r
Student Y	95r, 10b	95r, 19b	114r, 11b	123r
Student Z	90r, 14b	95r, 20b	134r, 22b	130r

To calculate final percentages, use the **weight formulas**

$$\frac{20(M1+M2+F)+6Q}{80} \text{ for regular points, and } \frac{3(M1+M2+F)}{40} \text{ for bonus \%.}$$

Total / Student	Regular% max 100%	Regular Grade	Bonus% max 5%	Adjusted % max 105%	Final Grade
Student X	84.50%	$B+$	1.65%	86.15%	$B+$
Student Y	85.23%	$B+$	3.00%	88.23%	$A-$
Student Z	92.00%	$A-$	4.20%	96.20%	A

Important points to remember: All numbers above are made solely for the sake of this example.

(1) The "weight formulas" are made under the assumption that the maximal total scores for the exams and quizzes are as shown in the second row of the table. These totals may change somewhat during this particular course; hence you can imagine that there will be a different weight formula reflecting again the relative weight of 25% each midterm, 35% final exam and 15% quizzes.

(2) The "regular grades" in the table above are determined solely on the regular scores, according to the following **hypothetical** cut-off points: • A: above 94%; • A-: above 88%; • B+: above 83%, and so on. The cut-off points for this course will most probably be different, and they will be determined solely by me at the end of the semester.

(3) The bonus total is set for 5% in the example, and is subject to change depending on my estimate of the overall difficulty of the bonus exercises.

(4) The final grades are computed first based **solely** on the regular points. Only then the bonus adjustment is made, and whoever gets into the next grade range receives a grade bump. For example, student X did not have sufficient bonus work to make the bracket for $A-$, so no raise here; on the other hand, students Y and Z got bumps in their final grades since they entered the next grade brackets with their bonus work.

(5) On the actual grading for this class, a bump of more than one step on account of bonus will not be allowed, e.g. B to A- will not be possible, but B+ to A- will be possible.

(6) Note that one can actually end up with more than 100% total, which will result in one simple A+. Finally, **one can earn 100% without doing any bonus problems.**

The reason for the above *unconventional* grading system is two–fold:

- To give a chance to medium and poor students to be able to get the best grade they can get without feeling any extra pressure to do harder problems.
- To give an incentive to more advanced students to do harder problems and challenge themselves to the level of their own ability.

The *traditional* bonus systems do in effect one of two things: either equalize very hard with not so hard problems (by giving students a choice of, say, 5 out of 7 problems on the exams), or force weaker students to sweat over very hard problems (by adding up all scores on exams). However, I want to be fair to all groups of students as much as possible. If one really wants to be fair to everyone, a more complicated system has to be designed, and the one described above is the best system I can think of in terms ot fairness to everyone.

Remember that I and the TAs will not discuss any grading or bonus policies during the semester. You are smart students - you can answer all your questions regarding grading policies from the examples above.