MATH 16A (CCN 53613) Course Syllabus

Updated 1/21/2014

Spring 2014, TT 8:00am - 9:30am, Room 155 Dwinelle Hall

Instructor: Professor Zvezdelina Stankova

Office: Evans 713, *Tel:* (510) 642-3768
Tentative office hours (to be finalized within the first two weeks of classes): Tu 9:30-11am in Evans 713, Thur 9:30-11:00am in front of Dwinelle 155.
E-mail: (only for emergencies!) stankova@math.berkeley.edu
Class webpage for all materials: http://www.math.berkeley.edu/∼stankova/

Questions on Enrollment and Section Switching: Thomas Brown, thomasbrown@berkeley.edu, 510-643-9292, Evans 965. You need to see him in person to resolve enrollment questions. Students wishing to switch discussion sections will have to do this themselves on TeleBears; the switch will be possible only if there is room in the section. Do NOT ask the instructor or the GSI to switch you to another section or to enroll you in the class: we have no control over enrollment in the class and in sections.

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

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

Textbooks: Calculus & Its Applications V1 (Custom) Edition: 3rd. Author: Goldstein, ISBN: 9781269362672, Copyright Year: 2013, Publisher: Pearson Learning Solutions. This is a special version of the textbook, prepared exclusively for the UCB Math Dept. The correct edition is essential for getting the correct homework assignment and class material.

Homework: HW will be posted on the web every week. If you miss lecture,

• **do NOT e-mail instructor or GSI to ask for missed handouts and announcements.**

Instead, ask your classmates. HWs will not be graded or collected but must be done by the following Tuesday. Homework solutions will be ordinarily posted on the web on Mondays, a day before the quiz. Do **not** ask for solutions to be posted earlier: you must attempt to do your homework without help from posted solutions. HW solutions will be TAKEN OFF the web in a week or so after being posted; hence make sure that you download them and read them on time. No HW solution files will be send to students at any time: please, do NOT request them; ask instead your classmates for those missed HW solution files.

Quizzes: There will be approximately 14 quizzes in the discussion sections, given on Tuesdays. The lowest two quiz scores will be dropped when determining a student's final grade.

• **If you miss discussion sections when a quiz is taken, you cannot retake the quiz in another section, and your quiz score will be 0.**

Thus, when you miss discussion sections (for whatever reasons, including being sick or having a family emergency), keep in mind that only **two** quiz scores will be dropped, and **no further quiz scores will be dropped** regardless of your reasons. **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 assignments.

• **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 **Tuesday, February 18**, and **Thursday, April 3**.
- a final exam on **Thursday, May 15, 7-10pm**.
- **No make-up midterms or final exams**.

Every student must take the midterms and the final exam on these dates and at these times. Do **not** buy tickets to leave before or to come after an exam: you must be here at the three exams dates above.

- **Do not take this class if you have conflicts with any of this exam schedule (exceptions noted below).** Do not ask for earlier dates for the final due to flight reservations or other reasons: the final exams times are assigned campus-wide and there will be no personal exceptions.

Exam Content: A substantial portion of the exams will be **based on homework assignments**.

- **Exams are not comprehensive.** The topics for each exam will be based on the portion of the course between exams. Yet you cannot forget previous material since parts of it may come up in the solutions.

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

Emergencies: If you miss one of the midterms due to a *documented reason of a medical or family emergency*, the following adjustment will be made in calculating your grade: 15% quizzes, 35% other midterm, 50% final. A *documented reason of an emergency* 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 an *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.

Incomplete grades: Please, consult the university policies regarding incomplete grades. Incomplete "I" grade is rarely given. The only justification for an I grade is a

- **documented serious medical problem or a genuine personal/family emergency**.

The student also must have a passing grade (C- or above) up to the point of being given an incomplete. Falling behind in this course or problems with work load in other courses are not acceptable reasons.

Accommodations of Religious Creed and Conflict with Extra-Curricular Activities: Requests to accommodate a student's religious creed or conflicts of extra-curricular activity by scheduling tests or examinations at alternative times (or other accommodations as reasonably established by the instructor) must be in writing (not email) and submitted in person directly to the instructor during office hours: **by January 31, 2013.** No requests will be considered after that date. It is the student's responsibility to inform him/herself about material missed because of an absence, whether or not he/she has been formally excused.

Special Arrangements: If you are a student with a disability registered by the Disabled Student Services (DSS) on UCB campus, and if you require special arrangements during exams, you must provide me with the DSS 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. Do NOT ask to be given special accommodations, promising that in the future you will provide a DSS note. Observe this policy: no exceptions will be made.

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. Please,

• **don't make a big issue of bonus problems: there are only 3-4 bonus exam problems throughout the whole semester.**

• **I shall not discuss bonus credit policy or grading policy with students throughout the semester. Please, do not ask me in the middle of the semester if and how much your bonus problem(s) will increase your final grade: I will not know the answer to this question until after the final exam when the grades are computed.**

Thus, please, consult carefully the appendix for more detailed information on grading.

Drop Deadline: The results of the first midterm will likely be known **before** the drop deadline. Do not ask me or the GSIs if I think you are more likely to get, say, B- instead of C+: we will not know. The decision to drop the course will be entirely yours and you will have to make it based on your first several quizzes and the first midterm.

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. GSIs are instructed **not** to answer any questions outside of their realm of expertise as listed below.

Questions and Whom to Ask

#	Type of Questions	Person to Ask	When and How
1	enrollment and section placement	Thomas Brown, Evans 965	office hours
2	quiz and exam scores	the student's GSI	office hours
3	missed handouts and announcements	classmates	
4	admin. questions not addressed elsewhere	professor	office hours
5	math questions	GSIs, professor	sections, office hours
6	emergencies only	professor	office hours, e-mail, phone

• 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 or otherwise.

• For any missed information: ask your classmates.

• For final exam room and time assignment: check the UCB final exam scheduling on the web; do not send e-mail to professor or GSIs.

GSIs Contact Information

#	Name	Office Hours	Office	E–mail
1	Martinez, Maria	Mon 9-10:30AM	1037 Evans	martinez@math.berkeley.edu
2	Monson, David	Fri 9-10:30A	866 Evans	gregorymonson@berkeley.edu
3	Safdari, Mohammad	Wed 2-3:30PM	789 Evans	safdari@berkeley.edu
4	Youcis, Alex	Thursday 3-4:30PM	852 Evans	ayoucis@berkeley.edu
5	Zhang, Te	Wed 3:30-5PM	1041 Evans	tezhang@math.berkeley.edu
6	Wong, Michael (MATH 98)	Mon-Thu 10AM-4PM	103 Chavez	mjwong@berkeley.edu
7	Wiley, Joseph (MATH 98)	Mon-Thu 10AM-4PM	103 Chavez	josephawiley@gmail.com

Discussion Sections

DIS#	Time	Place	GSI
DIS 101	Tue 9:30-11AM	7 EVANS	Maria
DIS 102	Tue 3:30-5PM	3113 ETCHEVERRY	Alex
DIS 103	Tue 11-12:30AM	736 EVANS	Maria
DIS 104	Tue 9:30-11AM	41 EVANS	David
DIS 105	Tue 3:30-5PM	891 EVANS	Mohammad
DIS 106	Tue 9:30-11AM	47 EVANS	Alex
DIS 107	Tue 12:30-2PM	41 EVANS	Maria
DIS 108	Tue 12:30-2PM	70 EVANS	Mohammad
DIS 109	Tue 12:30-2PM	122 LATIMER	David
DIS 110	Tue 2-3:30PM	45 EVANS	David
DIS 111	Tue 2-3:30PM	47 EVANS	Mohammad
DIS 112	Tue 2-3:30PM	70 EVANS	Te
DIS 113	Tue 3:30-5PM	45 EVANS	Te
DIS 114	Tue 5-6:30PM	41 EVANS	Te
DIS 115	Tue 5-6:30PM	39 EVANS	Maria
DIS 116	Tue 5-6:30PM	31 EVANS	Alex
MATH 98	MWF 11AM-12PM	113 Chavez	Michael
MATH 98	MWF 3-4PM	113 Chavez	TBA
http://slc.berkeley.edu/math_stat/math16a.htm			

Tentative Plan of the Course [1][2]

1. Functions, Graphs, Examples, Operations with Functions
2. Linear and Quadratic Functions, Exponents and Power Functions
3. Applications of Functions and Graphs
4. Slopes of Lines and Curves. The Derivative
5. Limits and the Derivative
6. Differentiability and Continuity
7. Differentiation Rules
8. Rate of Change
9. Midterm I. In-class
10. Increasing and Decreasing Functions
11. Maxima amd Minima Tests
12. Curve Sketching
13. Optimization Problems
14. Application to Business
15. Product and Quotient Rules. The Chain Rule
16. Implicit Differentiation and Related Rates
17. Exponential Functions
18. Logarithmic Functions
19. Derivatives and Properties of $\ln x$
20. Midterm II. In-class
21. Exponential Growth and Decay
22. Compound Interest
23. Applications to Economics
24. Antidifferentiation
25. Riemann Sums
26. The Fundamental Theorem of Calculus
27. Areas in the xy-Plane
28. Applications of the Definite Integral
29. Review for Final Exam

[1] *Note:* Particular topics 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.

[2] The two midterms and the final exam are included in the above Tentative Plan; the actual dates for all exams are indicated earlier in this handout.

Appendix on Bonus versus Regular Credit

The main points of the scoring (regular & 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 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; and to give an incentive to more advanced students to do harder problems and challenge themselves to the level of their own ability.