

MATH 55 (CCN 54026) Course Syllabus

Updated 8/27/2014

Fall 2014, TT 8:00am - 9:30am, Room 105 Stanley 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): TuTh 9:30-11:00am.

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: Mathematical maturity appropriate to a sophomore math class. MATH 1A-1B recommended.

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

Textbooks: Discrete Mathematics, Author: Rosen, Publisher: McGraw-Hill, Edition: 7th. 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 Tuesdays, 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 sent 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 13 or 14 quizzes in the discussion sections, given usually on Wednesdays. The top 10 quiz scores will be taken into account 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 exactly **the top ten** quiz scores will be counted, 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: again, 10 quiz scores will be used towards the final grade, including some possible 0s.**

Exams: There will be

- two in-class midterm exams on **Tuesday, September 30**, and **Tuesday, November 4**.
- a final exam on **Wednesday, December 17, 3-6pm**.
- **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**.

• **Are exams comprehensive?** The topics for each midterm 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. The final exam is comprehensive.

Grading: Grades are computed by taking 15% quizzes, 25% each midterm, 35% final. We will count only the top 10 quiz scores, and the final exam score will override any lower midterm score. This means that the final exam may count as 60% or 85% instead of 35%. The final letter grades will be based on a curve.

• **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 and must have completed at least 2/3 of the course work up to that point. 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 September 9, 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 the first exam you will need accommodations,**

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.

Drop Deadline: The results of the first midterm will likely be known **after** 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	Shishir Agrawal	MW 11-12PM	1043 Evans	sagrawal@math.berkeley.edu
2	Kim Laine	M 1-2PM, T 1-2PM	1041 Evans	laine@berkeley.edu
3	Doosung Park	MW 3-4PM	814 Evans	doosung@berkeley.edu
4	Eugenia Rosu	T 2-3PM, W 5-6PM	1087 Evans	rosu@math.berkeley.edu
5	Jacob Scott	T 4-5PM, Th 2:30-3:30PM	824 Evans	jnscott@berkeley.edu

Tentative Plan of the Course

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.

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| 1.1. Propositional Logic | 1.2. Applications of Propopositional Logic |
| 1.3. Propositional Equivalences | 1.4. Predicates and Quantifiers |
| 1.5. Nested Quantifiers | 1.6. Rules of Inference |
| 1.7. Introduction to Proofs | 1.8. Proof Methods and Strategies |
| 2.1. Sets | 2.2. Set Operations |
| 2.3. Functions | 2.4. Sequences and Summations |
| 2.5. Cardinality of Sets | 4.1. Divisibility and Modular Arithmetic |
| 4.2. Integer Representations | 4.3. Primes and GCD |
| 4.4. Solving Congruences | 4.6. Cryptography |
| 5.1. Mathematical Induction | 5.2. Strong Induction and Well-Ordering |
| 5.3. Recursive Definitions | 6.1. The Basics of Counting |
| 6.2. The Pigeonhole Principle | 6.3. Permutations and Combinations |
| 6.4. Binomial Coefficients | 6.5. Generalized Permutations |
| 7.1. Intro to Discrete Probability | 7.2. Probability Theory |
| 7.3. Bayes’ Theorem | 7.4. Expected Value and Variance |
| 8.1. Recurrence Relations | 8.2. Solving Linear Recurrences |
| 8.4. Generating Functions | 8.5. Inclusion-Exclusion |
| 8.6. Applications of I-E | 9.1. Relations |
| 9.3. Representing Relations | 9.4. Closures of Relations |
| 9.5. Equivalence Relations | 10.1. Graphs and Graph Models |
| 10.2. Graph Terminology | 10.3. Graph Isomorphism |
| 10.4. Connectivity | 10.5. Euler and Hamilton Paths |
| 10.6. Shortest-Path Problems | |