

SYLLABUS FOR MA293 DISCRETE MATHEMATICS I

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Texts: Norman L. Biggs, *Discrete Mathematics*, second edition, Oxford University Press 2002. Required supplementary text (will be put on library reserve): Seymour Lipschutz and Marc Lipson, *Probability*, Schaum Outline Series, second edition.

Description: This course is designed to provide the basics in Discrete Mathematics with an emphasis on Combinatorics and Probability. (MA294 is devoted primarily to Discrete Structures.) Part I of the text lays the basis for doing mathematics in logic, sets, and numbers. Part II then proceeds with combinatorics. Finally, we deal with probability through random variables from the supplementary text.

Exercises:

Chapter 1. 1.2: 6. 1.3: 1–3. 1.4: 4,5. 1.6: 2. 1.7: 1,2,5,7.

Chapter 2. 2.2: 1–3. 2.3: 1,2. 2.4: 1,2,4,5.

Chapter 3. 3.1: 2. 3.2: 2. 3.3: 3. 3.4: 2. 3.5: 4. 3.6: 1. 3.7: 1,2,8,9.

Chapter 4. 4.1: 2. 4.2: 2,3. 4.3: 2. 4.4: 1–3. 4.5: 3. 4.6: 1–4.

Chapter 5. 5.1: 1,2. 5.2: 1,2. 5.3: 1,2. 5.4: 1–3. 5.5: 1–4.

Chapter 6. 6.1: 1. 6.2: 2,3. 6.4: 3,4. 6.5: 5. 6.7: 1,5.

Chapter 7. 7.2: 1,2. 7.3: 1,4. 7.4: 3. 7.7: 1–3.

Chapter 8. 8.1: 1–3. 8.3: 1,2. 8.4: 1–4. 8.6: 3,4. 8.7: 4,8,11.

Chapter 9. 9.3: 1,2. 9.4: 2. 9.5: 2.

Chapter 10. 10.2: 1–3. 10.4: 1–3. 10.5: 1,2,4. 10.6: 1,2. 10.7: 1,5,7,8.

Chapter 11. 11.1: 7,8. 11.2: 4. 11.3: 2,3. 11.4: 1–3,5. 11.5: 2,3.

Chapter 12. 12.1: 2,3. 12.3: 3–5. 12.5: 1,3,4. 12.6: 1,3,4. 12.7: 1,2,4,5,11,14.

Probability Book. Chap 3: 45,47,58. Chap 4: 54–57,61,62,65,66,73,75,78,83,85. Chap 5: 56,58,62,63,66.

Grading and Procedures: The course is broken down into 9 units as follows: Final, 3; Three exams, 3; Exercises, 2; and Attendance, 1. The two percentage-wise worst units are dropped, and the rest are given equal weight in calculating the grade. Make-up exams will usually not be given; any missed in-class exam will become one of the units to be dropped from the grade. Exercises will be regularly assigned and collected; the discussion sessions will be largely devoted to them.

Incompletes and Withdrawals: The incomplete grade *I* is given only in exceptional cases to students who have maintained a good record through much of the course and suddenly find themselves in difficult circumstances (illness, death in the family). Others who find early on that they are not keeping up are urged to drop or withdraw from the course. Please be aware of the last date to process a Withdrawal; Currently, it seems to be in the 8th week of the semester.

University Warning: Students are expected to know and understand provisions of the CAS Academic Conduct Code. Plagiarism or cheating is not tolerated, and standing procedures will be implemented for anyone suspected of such behavior.