

## SYLLABUS FOR MA294 DISCRETE MATHEMATICS II

A. Kanamori (MCS 268, 353-9538, aki@math.bu.edu)

**Text:** Norman L. Biggs, *Discrete Mathematics*, second edition, Oxford University Press 2002.

**Description:** This course is designed to provide the basics in Abstract Algebra with an emphasis on applications. After reviewing Modular Arithmetic (chap.13), we cover the basic theory of Groups (chaps.20), and Rings and Fields (chap.22,23). We then proceed to applications in Error-Correcting Codes (chap.24), and depending on the time remaining, a mix of Generating Functions, Partitions, and Symmetry (chaps.25-27).

### Exercises:

*Chapter 13.* 13.1: 1–3. 13.2: 3,4. 13.3: 1–8. 13.5: 2,3.

*Chapter 20.* 20.2: 2–4. 20.3: 3–5. 20.4: 2. 20.5: 4. 20.6: 1–3. 20.7: 1–4. 20.8: 1. 20.9: 1,2.

*Chapter 22.* 22.1: 1–3. 22.2: 1. 22.3: 1,3. 22.4: 1,4. 22.5: 1–3,5. 22.6: 1–4. 22.7: 3,6. 22.8: 1–3.

*Chapter 23.* 23.1: 1,2. 23.2: 1,4. 23.3: 1,2,4. 23.4: 1–3. 23.5: 2–4.

*Chapter 24.* 24.1: 1,3. 24.2: 1–4. 24.3: 1–3. 24.4: 1,2. 24.5: 1–3. 24.6: 1,3.

*Chapter 25.* 25.1: 1–4. 25.2: 1–3,5. 25.3: 1,2,4. 25.4: 1–3. 25.5:1. 25.6:1,2.

**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 in general is not tolerated, and standing procedures will be implemented for anyone suspected of such behavior.