

COURSE PLAN, HF1013 - DISCRETE MATHEMATICS

PARTICULARS

Teacher and Examiner: Johnny Panrike (johnnyp@kth.se) **Examination:** Written exam (TEN1 5.0 credits, A-F) and two computer-based programming assignments (ÖVN1 3.0 credits, A-F). Final mark A-E based on both TEN1 and ÖVN1. There are two voluntary mid-term exams that give a bonus on the written exam. **Schedule:** Can be found at <http://www.kth.se/schema>.

IMPLEMENTATION

The course is given in 15 two-hour meetings when new material is presented ("Föreläsning" in the schedule), 7 two-hour meetings where exercises are worked with ("Övning" in the schedule) and two mid-term exams and one final four-hour meeting just before the written exam (one last "Övning"). Additionally, there are numerous opportunities to present the practical work ("Redovisning"). See the schedule for more details.

Preparations for meetings: The Study Plan. There are not so many pure lectures in the course, therefore course sessions are called "meetings". Each meeting requires that the student has prepared her/himself properly, generally by watching a video and working with material in advance. The preparations for each meeting are carefully outlined in `studyplan.pdf` - you are encouraged to take this document **very seriously**. It describes what you need to do for every meeting.

Course Literature. There are 3 free books on the course web, they are

1. "Introduktion till Diskret Matematik och Kryptering", by Panrike
2. "Discrete Math for Computer Science Students", by Bogart, Drysdale, Stein
3. "Lecture Notes in Discrete Mathematics", by Finan

References to content in this literature are made in `studyplan.pdf`.

Overview in time. There are two types of meetings, in the schedule they are marked as "Föreläsning" and "Övning" respectively, the ones marked "Övning" are numbered in **bold** font in the table below. At an Övning generally, solutions to recommended exercises will be presented. At a Föreläsning, new material will be presented and *Peer Instruction* will be conducted. Each meeting will also have time for discussions and questions so see to it that you prepare yourself thoroughly for each meeting. The following table outlines the layout of the course in time

Week	Meeting	Content
45	1,2,3,4	Logic and Set Theory
46	5,6,7	Number Theory, Cryptography and Proofs
47	8,9,10	Number Theory and more proofs
48	11,12,13	Repetition of the foundations and graph theory
49	14,15,16	Graph Theory, Relations, Functions
50	17,18,19	Counting, Combinatorics, Probability
51	20,21,22	The Binomial Theorem, buffer and repetition
52	NA	<i>Solutions to problems presented on the course web</i>
1	NA	<i>Solutions to problems presented on the course web</i>
2	23	<i>a long final exercise is given just before the written exam</i>
3	NA	<i>The written exam is this week. Be sure to sign up for it!</i>

If you cannot attend a meeting, for whatever reason, at least see to it that you work very much with the exercises. They will embody the main substance of the course and at the written exam you will be required to solve problems of the types handled in the exercises, particularly you should practice writing and understanding mathematical proofs. You should start with easy exercises and move on to more difficult ones so that you can really apply the concepts presented in the course. The recommended exercises are specified in `studyplan.pdf` be sure to base your whole approach to the problem-solving part of course on this document.

Computer-based programming assignments, forms of examination. (Labbar och tentor.) These are described in the documents `examination.pdf` and `assignments.pdf`. Of course the course web has a number of previous exams available.