

## Network Programming (DM817) — Ugeseddel 1

### Welcome to the course DM817: Network Programming!

#### Litterature

- Main book (Ahuja): Ahuja, Magnanti og Orlin: ‘Network Flows’, available from the bookstore.
- We will also use Chapter 3 of the book Bang-Jensen and Gutin (BJG): ‘Directed Graphs, theory, algorithms and applications’, Springer Verlag 2000. This book is available for free download from the course page. **You should download a copy of Chapter 3 and bring it to the lectures!**
- On the DM817 spot of the semester shelf in the library you will find a number of other relevant books.

**Evaluation** ”Take home” exam. Around middle of May a set of problems will be posed which you have to solve individually (no collaboration!) and hand in your solutions around middle of June (dates will be precised in due time). The grades are according to the 7-scale with external examiner.

#### Time slots for the course in 3rd quarter

- Tuesday 8-10 in IMADA’s seminarroom
- Wednesday 16-18 in IMADA’s seminarroom
- Friday 14-16 in in IMADA’s seminarroom

#### Time slots for the course in 4rd quarter

- Monday 8-10 in IMADA’s seminarroom
- Tuesday 12-14 in IMADA’s seminarroom
- Thursday 10-12 in IMADA’s seminarroom

**Format** We will normally have 2 lectures and one exercise class per week, but it may differ each week so look at the weekly note!

In particular, we start with 3 lectures in week 5 so that you have time to think about the exercises and learn some material first. The material below may look frightening but much of it is known to you already from other courses and there is a big overlap between the pages in BJG and those in Ahuja.

**Instructor** Alessandro Maddaloni will be your instructor for the exercises and he may also take a few lectures along the way.

## Lectures Week 5, 2011

- Overview of the course.
- Selected parts of Ahuja Chapters 1+2. You should read all of chapter 1 (we may not cover all the examples but you should read the text). In Chapter 2 it is mainly sections 2.4-2.5 that will be covered.
- Ahuja Sections 3.3-3.5. Some of this will be left for self-study or may be brought up later.
- BJK sections 3.1-3.4.
- Ahuja 4.1-4.4.

**Problems for Wednesday February 8, 2012:** I expect you to have looked at all exercises before the class and for those that you could not solve, you should be able to say what prevented you from getting through!

- Ahuja 1.1, 1.2, 1.4, 1.5, 1.8, 1.9, 2.12, 2.21 (see definition of bipartite graph on page 31), 2.45, 2.51.
- Try to show that a directed graph is bipartite (same definition as for undirected graphs) if and only if it has no directed cycle of odd length.
- BJK problems 3.2, 3.7, 3.8.