

# Fifth Homework Assignment for Math 448

**Due: Wednesday, April 14th.**

All section references are to the text.

Problems to hand in for Math 448 and 748:

Chapter 9, exercise 9.24.

Chapter 10, exercises 10.2, 10.8.

Run the first two phases of the cost-scaling algorithm on the network shown in Figure 10.14 (a) on page 398.

Chapter 14, exercises 14.2, 14.4.

Additional problems to hand in for Math 748:

Chapter 14, exercise 14.16 and 14.18.

Math 448 students are also welcome to try these problems.

Some other problems you might try:

The book offers many useful practice questions.

Reading for the next two weeks:

For Wednesday, April 6th, Chapter 14.

For Friday, April 9th, Sections 11.1 to 11.4.

For Wednesday, April 11th, Sections 11.5 and 11.6.

For Friday, April 16th, Sections 15.1 to 15.3.

Notes:

Friday, April 2nd is a holiday, and class will not meet. On Friday, April 9th and Friday April 16th, we will have graduate student presentations and meet in room SUR 14-400 (rather than the usual room). Class will continue to meet at 10:30, with one hour of lecture followed by the graduate student presentation. There will also be graduate student presentations on Wednesday, April 14th (in SUR 3280) and on Thursday, April 15th at 3:30 in SUR 14-400. Details of the talks are on the back of this page.

This is the final homework assignment. The final exam will take place on **Saturday, April 24th at 15:30** in room **SUR 5060**. It is a three hour exam.

The final will cover everything through the end of Chapter 14.

## Presentations:

Arezou Zaresani, [Old01], Friday, April 9th, 11:30 a.m. in SUR 14-400.

Timothy Yusun, [Jai01], Wednesday, April 14th, 11:30 a.m. in SUR 3280.

Alex Goussiatiner, [BDK93], Thursday, April 15th, 3:30 p.m. in SUR 14-400 (O.R. Seminar).

Zhila Pirmoradi, [GJ99], Friday, April 16th, 11:30 a.m. in SUR 14-400.

## References

- [BDK93] Rainer E. Burkard, Karin Dlaske, and Bettina Klinz, *The quickest flow problem*, *Z. Oper. Res.* **37** (1993), no. 1, 31–58.
- [GJ99] Donald Goldfarb and Zhiying Jin, *A new scaling algorithm for the minimum cost network flow problem*, *Oper. Res. Lett.* **25** (1999), no. 5, 205–211.
- [Jai01] Kamal Jain, *A factor 2 approximation algorithm for the generalized Steiner network problem*, *Combinatorica* **21** (2001), no. 1, 39–60.
- [Old01] Jeffrey D. Oldham, *Combinatorial approximation algorithms for generalized flow problems*, *J. Algorithms* **38** (2001), no. 1, 135–169, Tenth Annual ACM-SIAM Symposium on Discrete Algorithms (Baltimore, MD, 1999).