

COMP36111: Advanced Algorithms I

Lecture 0: Introduction and Course Organization

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2017–18

Outline

Syllabus

Resources

- Part A (up to reading week): Algorithms
 - Graph algorithms
 - Flow optimization and matching
 - String algorithms
 - Linear programming
 - Integer programming

- Part B (after reading week): Complexity
 - Turing Machines and computability
 - Computational complexity; propositional satisfiability
 - Hardness and reductions
 - Graph-theoretic algorithms (again)
 - Savitch' theorem and the Immerman-Szelepcsényi theorem.
 - Revision

- Coursework (25%)
 - Coursework A
 - Issue date: Thursday 5th October
 - Hand-in date: Thursday, 19th October @ 12:00 (SSO)
 - Review: Thursday 26th October
 - Coursework B
 - Issue date: Thursday 9th November
 - Hand-in date: Thursday, 23rd November @ 12:00 (SSO)
 - Review: Thursday 30th November
- Exam (75%)
 - Answer 3 questions in 2 hours.
 - Previous years' exams provide a guide to the style of questions.

Outline

Syllabus

Resources

- Course texts

Title: Algorithm design: foundations, analysis and internet examples

Author: Goodrich, Michael T. and Roberto Tamassia

ISBN: 0471383651

Publisher: Wiley

Year: 2002

Title: Introduction to the theory of computation

Author: Sipser, Michael

ISBN: 053494728X

Publisher: PWS Publishing Company

Year: 1997

- Principal course website

<http://studentnet.cs.manchester.ac.uk/ugt/2017/COMP36111/syllabus/>

- Course materials page

<http://studentnet.cs.manchester.ac.uk/ugt/2017/COMP36111/>

- homework exercises
- lecture overheads
- fun problems