

COL351: Analysis and Design of Algorithms

Ragesh Jaiswal, CSE, IITD

Administrative Information

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- Course Instructor:
 - Ragesh Jaiswal
 - Office: 403, SIT Building
 - *Email*: rjaiswal@cse.iitd.ac.in
 - Office hours: Email to set up time.
- Course Time/Place:
 - Lectures:
 - Tu, Wed, Fri 10-11, LH 416
 - Tutorials:
 - TBD
- Teaching Assistants:
 - Check course page

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- Grading Scheme

- ① *Homework*: 15% (6 Homework, includes programming)
- ② *Quizzes*: 15% (6 Quizzes)
- ③ *Midterms*: 30% (2 midterms, 15% each)
- ④ *Final*: 40%

- Homework and Quizzes:

- Schedule for posting and deadline for homework are posted on the course page. **Late submissions will not be allowed.**
- The schedule for quizzes are also posted on the course page.
- You will have to upload the PDF of your homework on *Gradescope*. When uploading, you may be asked to indicate which page(s) correspond to which problems.
 - Gradescope: A paperless grading system. Use the course code **MB8K7M** to register. **Use your IIT email address.**
- Policy on cheating: **Students using unfair means will be severely penalised.**

- Textbook: Algorithm Design by *Jon Kleinberg and Eva Tardos*.
 - I will be following this book very closely. So, it will be a good idea to get a copy of this book.
- Other reference books:
 - Algorithms by *Sanjoy Dasgputa, Christos Papadimitriou, and Umesh Vazirani*.
 - Introduction to Algorithms by *Thomas H. Cormen, Charles E. Leiserson Ronald L. Rivest, and Cliff Stein*.
- Course webpage:
<http://www.cse.iitd.ac.in/~rjaiswal/2016/col351/>.
 - The site will contain course information, references, homework, course slides etc. Please check this page regularly.

Recap. of Data Structures and Algorithms

Recap.

- What is an algorithm?

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 - A step-by-step way of solving a problem.
- How do we measure the performance of an algorithm?

- What is an algorithm?
 - A step-by-step way of solving a problem.
- How do we measure the performance of an algorithm?
- Main ideas for performance measurement:
 - Worst-case analysis: Largest possible running time over all input instances of a given size n and then see how this function scales with n .
 - Asymptotic order of growth: The worst-case running time for large n (e.g., $T(n) = 5n^3 + 3n^2 + 2n + 10$)

End