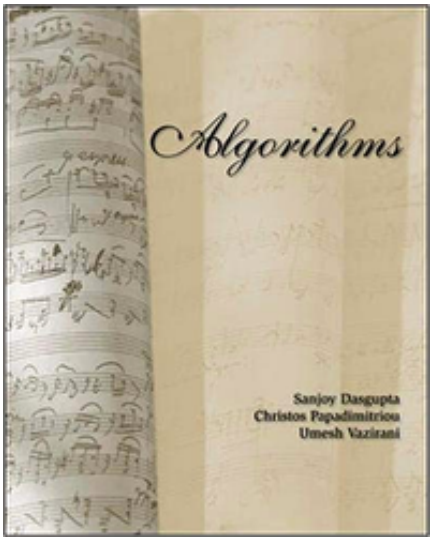
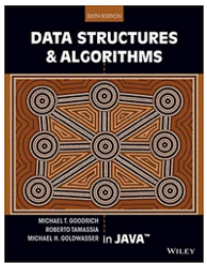
Lecutre 0 Welcome

Course information

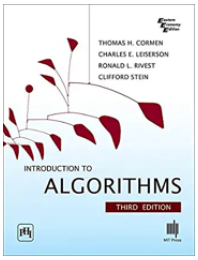
- This course introduces basic concept of design and analysis of algorithms.
- Textbook: **Algorithms** *by Dasgupta, Papadimitriou, and Vazirani*



- Recommendation books



Data Structures and Algorithms in Java by Goodrich, Wiley



Introduction to Algorithms by CLRS, MIT press

Algorithms, 4th edition by Sedgewick and Wayne.

- Online resources
  - MIT OCW: [http://ocw.mit.edu/6-006F11] youtube: https://www.youtube.com/watch?v=HtSuA80QTyo&list=PLUl4u3cNGP61Oq3tWYp6V_F-5jb5L2iHb
  - Standford University: http://openclassroom.stanford.edu/MainFolder/CoursePage.php?course=IntroToAlgorithms
  - Princeton University: http://algs4.cs.princeton.edu
- TA: Jeff

Prerequisties

- Programming: loops, arrays, functions, objects, recursion.
- Java / C++ / C
- Data structures: stack, queue, heap, tree, graph
- Mathematics: basic probability

Syllabus

- Design paradigms (20H)
  - **Divide and conquer** (6H)
  - **Dynamic programming** (8H)
  - **Greedy algorithms** (6H)
  - Randomized algorithms
- Analysis techniques (6H)
  - **Recurrences**
  - **Asymptotic analysis**
  - Probabilities analysis
- Graph algorithms (4H)
  - **Minimum spanning tree**
  - **Shortest path**
- **NP-completeness**(2H)

Evaluation

- Participation(attendance, quiz): 10%
- Homework 40%
- Final term 50%

* The evaluation might be modified slightly.

How to study

- Understanding lectures is not enough.
- Doing excercise on your own solutions.
- Teaching is best way to learn
- Tray to explain your idea to your friends
- Make study groups to discuss problems