Lessons
(Tue Sep 05, 2017 12:00 AM - Wed Dec 20, 2017 11:59 PM)

Week 1: Logic, Sets, Function (Follow the Slides)

Week 2: Algorithm

part 1:
https://stream.nyu.edu/id/1_dytapde5?width=400&height=285&playerId=28658311

Part 2:
https://stream.nyu.edu/media/Algorithms-part2/1_m2xgu66g

Week 3:

Number Theory and Cryptography

Week 4

Induction and Recursion

https://stream.nyu.edu/media/Lecture4_Part2/1_3k0ub28k

Week 5: Graph (part 1)

https://stream.nyu.edu/media/Lecture5_Graph_part1/1_w8v6s61l

Week 6: Graph (part 2)

https://stream.nyu.edu/media/week7_Lecture6/1_kci9nl8t

Week 7: Relations

Part 1:
https://stream.nyu.edu/media/Lecture3_1/1_an31pxei

Part 2:
https://stream.nyu.edu/media/Lecture3_2/1_kcum0l36

Part 3:
https://stream.nyu.edu/media/Lecture3_Part3/1_jafllcst
Week 8:

Tree Part 1:

https://stream.nyu.edu/media/Tree_Part1/1_4vwx334p

Week 9:

Tree Part 2:

https://stream.nyu.edu/media/week9_tree_part2/1_i277wlv3

Week 10

Boolean Algebra

https://stream.nyu.edu/media/Lecture4_Part1/1_0ym02rpt

Week 11

Computational Modeling:

https://stream.nyu.edu/media/Model-Computation/1_zjvdt1hl

syllabus
(Tue Sep 05, 2017 08:00 AM - Wed Dec 20, 2017 11:59 PM)

CS 6003 - Foundations of Computer Science INET
Fall 2017
NYU Tandon School of Engineering, NYU

TENTATIVE OUTLINE

Instructor: Rajiv Raman

Contact Information: rr166@nyu.edu

Tentative Topics

• Propositional Logic, Predicate Logic.
• Boolean algebra.
- Proof techniques: Direct proofs, Contradiction, Contrapositive and non-constructive proofs.
- Mathematical Induction
- Sets, Functions and Relations.
- Counting Techniques.
- Pigeonhole principle.
- Estimates and order of growth.
- Recurrences and techniques to solve recurrences.
- Algorithms
- Trees and graphs.
- Modeling computation.

Textbook

Course Work and Grading
Your final grade will be determined roughly as follows:

<table>
<thead>
<tr>
<th></th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>10% (best 10 will count towards your grade)</td>
</tr>
<tr>
<td>Quiz</td>
<td>20%</td>
</tr>
<tr>
<td>(your worst quiz score will not count towards your grade).</td>
<td></td>
</tr>
<tr>
<td>Midterm</td>
<td>30%</td>
</tr>
<tr>
<td>Final</td>
<td>40%</td>
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Grade Conversion:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Minimum (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90</td>
</tr>
<tr>
<td>A-</td>
<td>85</td>
</tr>
<tr>
<td>B+</td>
<td>80</td>
</tr>
<tr>
<td>B</td>
<td>77</td>
</tr>
<tr>
<td>B-</td>
<td>73</td>
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<tr>
<td>C+</td>
<td>70</td>
</tr>
<tr>
<td>C</td>
<td>65</td>
</tr>
<tr>
<td>F</td>
<td>Below 65</td>
</tr>
</tbody>
</table>

Although the homework makes up a relatively small percentage of the final grade, it is a key component to mastering the course material. Experience has shown that you will not do well on the exams if you have not done the homework. Homework will be assigned biweekly.

Methods of instruction

The primary method of instruction is on line lectures supplemented with related readings from the text and supplemental notes that I have made up, assignments, quizzes and exams.

Exams

A midterm and a final exam will be given. They are 2.5 hour exams. The midterm exam covers the material from the beginning of the course up to the exam. The final exam covers the entire course with an emphasis on the material covered since the midterm. Exam questions are based on material from the text, homeworks, quizzes and lectures. These exams are closed book, no notes, and without the use of computers. The exams will be conducted over ProctorU. Absence from exams will be accepted only if the student has notified me prior to the exam with an acceptable reason.
Attendance at exams is mandatory. Make-up exams will only be given in the case of an emergency, such as illness, which must be documented, e.g. with a doctor's note. In such cases, you must notify me as early as possible, preferably before the exam is given. If you miss an exam without a valid excuse, you will receive a grade of zero for that exam.

Homework Assignments and Quizzes

Roughly 12 homework assignments will be assigned, each with a due date. It important that you master the material covered in the homeworks BEFORE you take the quizzes and exams on that material. **It is highly recommended that you start the homework assignments as soon as you can.** This will enable you to ask me a question if you get stuck. **You can ask me questions at any time via e-mail. I check my e-mails several times a day. Don't wait until the last minute. No late assignment submission is allowed.**

**Extensions on the due date for assignments will not be given.**

Academic Dishonesty

Absolutely no communication with other students is permitted on exams. I advise you that I will seek an F in the course for any cheating on an exam or homeworks. (See http://engineering.nyu.edu/academics/code-of-conduct/academic-dishonesty)

Policy on Collaboration

You may discuss the how to do the homework with other students, you must write up the solutions on your own. If you work with others, you must tell me who you collaborated with. If you work together, you **must** fully understand the work you submit. (See http://cis.poly.edu/policies/)

Withdrawal

You must formally withdraw from this course to avoid a failing grade by the last to withdraw date. This involves contacting the registrar to officially withdraw! If you need help with this you can also contact the Tandon online staff for assistance.

Schedule

(Tue Sep 05, 2017 11:59 PM - Wed Dec 20, 2017 11:00 PM)

**CS 6003 - FCS INET**

Course Calendar*
<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
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</table>
| Week 1  | Self Study: Logic and Proofs, Sets, Functions and Relations  
Get the textbook; Follow the lecture slides and read chapter 1 and 2 in the textbook; |
| Week 2  | Counting                                       |
| Week 3  | Algorithms and Growth of functions             |
| Week 4  | Induction and Recursion                        
Quiz 1   |
| Week 5  | Solving Recurrences                            |
| Week 6  | Graphs                                          
Quiz 2   |
| Week 7  | October 14, 2017: Midterm                      
It will be closed book and will cover the course material till last class. |
| Week 8  | Tree - Part 1                                  |
| Week 9  | Tree Part 2, Boolean Algebra                   |
Week 10
Computational Modeling
Quiz 3

Week 11
Final Exam,

*May slightly change

Office hours
(Tue Sep 05, 2017 08:00 AM - Wed Dec 20, 2017 08:00 AM)

Lectures or Weekly interactions: Wednesday 12pm-1pm EST

Office Hours:

Rajiv Raman: On demand by e-mail.

TAs' office hours - At NYU Class - Chat Room/Web

Disha Umarwani - Tue 11am-1pm EST, Office: 10.098