CSCE 2100 Computing Foundations I

Instructor: Dr. Joseph Helsing, Joseph.Helsing@unt.edu
Office Hours: 2:00pm – 3:00pm, Monday/Tuesday/Wednesday
Meeting Time: 10:30am - 12:20pm, Monday/Wednesday

Teaching Assistants:
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Office Hours: TBD
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Office Hours: TBD
Qi Chen qichen@my.unt.edu
Office Hours: TBD

Course Description:
Introduces students to both data structures and formalisms used in computer science, such as asymptotic behavior of algorithms. Data structures and the formalisms used to both describe and evaluate those data structures simultaneously. By the end of the two-semester sequence of which this course is the first part, each student will have a solid foundation in conceptual and formal models, efficiency, and levels of abstraction as used in the field of computer science.

Required Textbook:
We will be using an online textbook this semester through zyBooks. The zyBook code is: UNTCSCE2100HelsingSummer2020

Optional Reference Textbook:
The Foundations of Computer Science, by Alfred Aho & Jeffrey Ullman
http://infolab.stanford.edu/~ullman/focs.html

Expected Student Outcomes:
Student Outcomes are measurable achievements to be accomplished by the completion of the degree. These outcomes are evaluated as part of our ABET accreditation process.

Computer Engineering Students:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Computer Science Students:

1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program’s discipline.
3. Apply computer science theory and software development fundamentals to produce computing-based solutions.
Information Technology Students:

1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program’s discipline.
3. Identify and analyze user needs and to take them into account in the selection, creation, integration, evaluation, and administration of computing-based systems.

Expected Course Outcomes:
Course Outcomes are measurable achievements to be accomplished by the completion of the course. These outcomes are evaluated as part of our ABET accreditation process.

1. Define and use the basic operations of sets, functions, and relations.
2. Define and demonstrate the basic properties of trees and graphs.
3. Use elementary graph and tree algorithms including traversals and searches.
4. Describe assertions in propositional logic form.
5. Describe simple circuits, I/O, and satisfiability using Boolean logic.
6. Use combinatorics and conditional probability in solving real-world problems.
7. Demonstrate a solid foundation in conceptual and formal models by describing loop structures in summation and/or product notation.
8. Demonstrate an introductory knowledge of finite state machines.

Attendance Policy:
Students are encouraged to attend all lectures in order to gain the full benefit of the course. While I will be posting my slides before class, they will not contain all of the content discussed during class, nor all of the examples presented. If you are not able to attend class or recitation, please email me as soon as possible.

Content Responsibility Policy:
Students are responsible for all content presented during class and required readings from the textbook. While attendance will not be taken in class, you will be expected to know and understand the requisite topics and concepts. If you are confused or unsure about anything, please ask myself or the TA’s.

Make-up Work Policy:
For most situations there will be no make-up work for any assessment in this course. However, in the event of an unavoidable absence for one of the reasons below, email me as soon as possible so we can work out a solution. The following events are grounds for make-up work: being a participant in a conference in which you are presenting; being in an athletic or other UNT associated event in which you are an active participant; a family emergency; a severe illness; military duty; or in certain cases and with some restrictions a religious event. Additionally, in the case of a missed assignment due to illness, make-up work will only be allowed by providing the instructor with a physical copy of a signed doctor’s note. See the UNT Attendance Policy for more information.

ODA:
The University of North Texas makes reasonable academic accommodation for students with disabilities. Students seeking reasonable accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with a reasonable accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You may request reasonable accommodations at any time, however, ODA notices of reasonable accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of reasonable accommodation for every semester and must meet with each faculty member prior to implementation in each class. Students are strongly encouraged to deliver letters of reasonable accommodation during faculty office hours or by appointment. Faculty members have the authority to ask students to discuss such letters during their designated office
hours to protect the privacy of the student. For additional information see the Office of Disability Accommodation website at http://www.unt.edu/oda. You may also contact them by phone at 940.565.4323.

**Academic Integrity and Collaboration:**
UNT policy 06.003 defines the following breaches of academic integrity:

1. **Cheating.** “Cheating” means the use of unauthorized assistance in an academic exercise, including but not limited to:
   a. use of any unauthorized assistance to take exams, tests, quizzes or other assessments;
   b. use of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments;
   c. use, without permission, of tests, notes, or other academic materials belonging to instructors, staff members, or other students of the University;
   d. dual submission of a paper or project, or resubmission of a paper or project to a different class without express permission from the instructor;
   e. any other act designed to give a student an unfair advantage on an academic assignment.

2. **Fabrication.** “Fabrication” means falsifying or inventing any information, data, or research outside of a defined academic exercise.

3. **Facilitating Academic Dishonesty.** “Facilitating academic dishonesty” means helping or assisting another in the commission of academic dishonesty.

4. **Forgery.** “ Forgery” means intentionally falsifying or altering a score, grade, or official academic University record or the signature of another.

5. **Plagiarism.** “Plagiarism” means use of another’s thoughts or words without proper attribution in any academic exercise, regardless of the student’s intent, including but not limited to:
   a. the knowing or negligent use by paraphrase or direct quotation of the published or unpublished work of another person without full and clear acknowledgement, or citation, or
   b. the knowing or negligent unacknowledged use of materials prepared by another person or by an agency engaged in selling term papers or other academic materials

6. **Sabotage.** “Sabotage” means acting to prevent others from completing their work or willfully disrupting the academic work of others

Cheating of any sort will not be tolerated in this course. Failure to adhere to these strict standards will be cause for disciplinary action that could be as severe as expulsion from the university. If it is determined a student cheated on any assignment in this course they will receive an F for their final course grade and an academic integrity report will be filed with the Office of Academic Integrity. Further, UNT is now maintaining a database recording any acts of academic dishonesty that is available to employers.

For more information see the UNT Student Academic Integrity Policy.

**Collaboration Policy:**
For each exam and quiz, all work is expected to be your own and no collaboration is allowed. However, for the weekly practice problems and any non-graded, practice assignments, students are encouraged to work together to solve problems.

**Syllabus Revisions:**
This syllabus may be modified as the course progresses should the instructor deem it necessary. Notice of changes to the syllabus shall be made through Canvas and/or in-class announcements.
**Assessment Policy:**
For each graded exam and quiz, you will be required to use Lockdown Browser with a webcam. You are not allowed to use your cell phones for any reason during an exam or quiz. For exams, a note sheet will be allowed, and the specifics of this will be discussed during the exam review.

**Grading Policy:**
Questions about posted grades must be discussed with the instructor within one week of the grades being posted. After one week, barring an exceptional circumstance, grades will not be altered.

**Grading Breakdown:**

<table>
<thead>
<tr>
<th>Assignments &amp; Examinations</th>
<th>Total Percentage</th>
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<tbody>
<tr>
<td>zyBook Activities</td>
<td>5%</td>
</tr>
<tr>
<td>Practice Problems</td>
<td>10%</td>
</tr>
<tr>
<td>Quizzes</td>
<td>15%</td>
</tr>
<tr>
<td>Exam 1</td>
<td>20%</td>
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<tr>
<td>Exam 2</td>
<td>20%</td>
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<tr>
<td>Final Exam</td>
<td>30%</td>
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</tbody>
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**Important Dates:**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>June 1</td>
<td>First Class Day</td>
</tr>
<tr>
<td>July 14</td>
<td>Last day to drop a course or withdraw</td>
</tr>
<tr>
<td>Aug 7</td>
<td>Final Exam 10:30am-12:20pm</td>
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</tbody>
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**Tentative Course Schedule:**

<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Topics</th>
<th>Exams</th>
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<tbody>
<tr>
<td>1</td>
<td>June 1,3</td>
<td>Intro; Abstraction &amp; Data Models</td>
<td></td>
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<tr>
<td>2</td>
<td>June 8,10</td>
<td>Sets</td>
<td></td>
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<tr>
<td>3</td>
<td>June 15,17</td>
<td>Relations</td>
<td></td>
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<tr>
<td>4</td>
<td>June 22,24</td>
<td>Graphs</td>
<td>Exam 1</td>
</tr>
<tr>
<td>5</td>
<td>June 29,July 1</td>
<td>Trees</td>
<td></td>
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<tr>
<td>6</td>
<td>July 6,8</td>
<td>Propositional Logic</td>
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<tr>
<td>7</td>
<td>July 13,15</td>
<td>Boolean Logic</td>
<td>Exam 2</td>
</tr>
<tr>
<td>8</td>
<td>July 20,22</td>
<td>Automata Theory</td>
<td></td>
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<tr>
<td>9</td>
<td>July 27,29</td>
<td>Combinatorics and Counting</td>
<td></td>
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<tr>
<td>10</td>
<td>Aug 3,5,7</td>
<td>Instruction Counting; Final Exam 10:30am-12:20pm</td>
<td>Final Exam</td>
</tr>
</tbody>
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