CSC 250 Class Information and Syllabus

COURSE NUMBER: CSC 250
COURSE TITLE: Foundations of Computer Science I
CREDITS: 3:3
PREREQUISITES: Grade of at least C (2.0) in MAT151 and CSC130, or
                  Transfer credit for MAT151 and CSC130

INSTRUCTOR: Name: Leong Lee
                  Office: Petty 155
                  Office Hours: Tues/Thur 2pm-3pm, Mon/Wed 4pm-5pm, or by appointment
                  Phone: 336-334-9724
                  E-mail: l_lee2@uncg.edu

CLASS WEB SITE: Please refer to blackboard.

CATALOG DESCRIPTION: An introduction to the fundamental ideas underlying contemporary computer science with a focus on the computation and construction of objects.

STUDENT LEARNING OUTCOMES: Upon successful completion of this course students should be able to

1. recognize the tools and techniques that are necessary to practice the art and science of computing (CO1, knowledge);

2. describe the main ideas covered in each topic (CO3, comprehension);

3. use knowledge of and solve problems related to discrete structures, logic, and computability. (CO4, application);

4. analyze algorithms (CO5, analysis);

5. construct objects such as functions and grammars. (CO6, synthesis);

6. select suitable techniques to prove statements (CO2, evaluation).

TEACHING METHODS AND ASSIGNMENTS FOR ACHIEVING LEARNING OUTCOMES: Class will meet twice a week for 75 minutes. Class time will include brief overviews of the material, but students are expected to have completed the textbook readings before class so that the majority of class time can be used for discussing the material, answering questions and clarifying topics from the book, and working through examples. Frequent un-announced in-class quizzes will be given.

Excused Absences for Religious Observances: The university allows for a limited number of excused absences for religious observances --- students who plan to take such an absence should notify the instructor at least two weeks in advance so that accommodations can be made (also see the late work policy at the later part of this syllabus).

Late Policy and Makeup Exams: Assignments are due at the beginning of class on the due date, and may be turned in up to 7 calendars days late with a 25% late penalty. No assignment will be accepted more than 7 calendar days after the original due date! If the instructor adds assignments to ensure that students keep up with reading assignments, these will not be accepted late for any reason. Students with planned absences, whether for university events, religious observance, or other reason, are expected to make arrangements with the instructor to turn in assignments or take exams before the scheduled date of the assignment or test.

Exam/test dates are on the schedule on the following page — if there are any changes, they will be announced at least two weeks in advance if possible. A missed exam may be made up only if it was missed due to an extreme emergency and arrangements are made before the exam date. Exams may not be taken early or late due to personal travel plans.

EVALUATION AND GRADING: Each student activity will contribute to the final grade in the class according to the following percentages.

In-class quizzes	15%
6 chapter exercise assignments	30%
2 in-class written tests	35%
Cumulative final exam	20%

REQUIRED TEXTS/READING/REFERENCES:

J. L. Hein, Discrete Structures, Logic, and Computability, Third Edition, Jones & Bartlett Publishers, 2009. ISBN: 978-0763772062.

ACADEMIC INTEGRITY POLICY: Students are required to sign the Academic Integrity Pledge on any work they do. The pledge is the statement "I have abided by the UNCG Academic Integrity Policy on this assignment." For information on the UNCG Academic Integrity Policy, see http://academicintegrity.uncg.edu/.

Assignments (projects) in this class are for individual work, unless explicitly stated otherwise. General concepts and material covered in the class may be discussed with other students or in study groups, but specific assignments should not be discussed and any submitted work should be done entirely your own.

It is expected that the class textbook will be used as a reference, but if any other reference materials (including web sites) are used in preparing homework solutions they should be clearly cited. Any incidents of academic dishonesty will be handled strictly, resulting in either a zero on the assignment or an F in the class, depending on the severity of the incident, and incidents will be reported to the appropriate UNCG office.

ATTENDANCE POLICY: Attendance will not be taken in class, and is voluntary; however, all students are responsible for everything done or said in class (this can include changes in assignments, due dates, etc.). It is the student's responsibility to obtain notes from another student if they miss class — the instructor will not provide notes.

TOPICAL OUTLINE/CALENDAR:

Week / Date	Topic	Reading	Remarks / Due / Exam
1 8/23, Mon	**Topic 1: Elementary Notions and Notations** A Proof Primer	Sec. 1.1	
2 8/30	Sets (Definition , Operation, Counting Finite Sets, Multisets) Ordered Structures	Sec. 1.2.1-1.2.4 Sec. 1.3	
3 9/6	Graphs and Trees **Topic 2: Facts about Functions** Definitions and Examples	Sec. 1.4 Sec. 2.1	9/6, Mon: Labor Day
4 9/13	Constructing Functions Properties of Functions	Sec. 2.2 Sec. 2.3	
5 9/20	**Topic 3: Construction Techniques** Inductively Defined Sets Recursive Functions and Procedures	 Sec. 3.1 Sec. 3.2	
6 9/27	Grammars **Test I**	Sec. 3.3	Note: **Test I**
7 10/4	**Topic 4: Equivalence, Order, and Inductive Proof** Properties of Binary Relations Equivalence Relations	 Sec. 4.1 Sec. 4.2	10/8 Fri: Instruction ends for Fall Break 6pm
8 10/11	Order Relations	Sec. 4.3	10/13, Wed: Classes resume after Fall Break 8am
9 10/18	Inductive Proof **Topic 5: Analysis Techniques** Analyzing Algorithms	Sec. 4.4 Sec. 5.1	
10 10/25	Summations and Closed Forms Permutations and Combinations	Sec. 5.2 Sec. 5.3	
11 11/1	Discrete Probability Solving Recurrences	Sec. 5.4 Sec. 5.5	
12 11/8	Comparing Rates of Growth	Sec. 5.6	
13 11/15	**Test II** **Topic 6: Algebraic Structures and Techniques (Chapter 10)** Boolean Algebra	 Sec. 10.2	Note: **Test II**
14 11/22	Boolean Algebra	Sec. 10.2	11/23, Tue: Instruction ends for Thanksgiving holiday 10pm
15 11/29	Karnaugh Maps Review		11/29, Mon: Classes resume 8am
16, 17 Exam	**Final Exam**		12/8-11, 13-14: Final Exams Note: **Final Exam**

ADDITIONAL REQUIREMENTS:

Laptop/Cellphone Policy: Laptops can be both a benefit and a distraction in a classroom. While many students benefit from taking notes using a laptop, or having access to outside class-related resources during class, other students cannot resist the temptation of checking e-mail, chatting, or even playing games during class time. This class has a strict "no non-class related use" rule for laptops — if you are found violating this policy, then your in-class laptop privileges will be taken away. Cellphones are a distraction for everyone, and should be turned off during class. If there is a special situation where you need to have your phone on for a particular day, please let the instructor know the situation before class.

ADA STATEMENT: UNCG seeks to comply fully with the Americans with Disabilities Act (ADA). Students requesting accommodations based on a disability must be registered with the Office of Disability Services located in 215 Elliott University Center: (336) 334–5440.

UNIVERSITY CLOSINGS: If university facilities are closed due to flu outbreak or other emergencies, it does not mean that classes are cancelled. In such an event, please check the class web page and Blackboard site for information about if and how the class will proceed.