Credits: 3
Prerequisites: Grade of at least C in CSC 230 and CSC 250
Meeting Times: MW 5:30-6:45pm
Location: Petty 223

Instructor: Andrew A. Schaefer
Office: Petty 155
Office Hours: MW 3:30-5:30pm
Webpage: http://www.uncg.edu/~aaschaef

Email: aaschaef@uncg.edu Please include CSC330 in the subject line of your email, any email without this may be missed.

Catalog Description: Static and dynamic data structures emphasizing binary trees and graphs. Advanced programming techniques. Advanced sorting and searching algorithms. Hashing techniques. Performance analysis. Methods of developing large applications programs.

Student Learning Outcomes: Upon successful completion of this course, a student should be able to:

1. understand and use the advanced features of Java such as inheritance and generics
2. understand and use linear and non-linear data structures
3. have a solid introduction to advanced programming techniques and performance analysis
4. greatly improve their programming ability through the study of advanced data structures and through programming practices

Course Topics: The topics that will be covered during the course of the semester include:

1. Java features: inheritance, files, exceptions, interfaces, generics
2. Linear structures: arrays, linked lists, stacks, queues, and collections
3. Algorithms: recursion, divide-and-conquer, backtracking, dynamic programming, greedy, and applications to sorting, compression, etc
4. Binary trees: concepts, representations and traversals, heaps, search trees, 2-3-4 trees, red-black trees
5. Associative structures: sets, maps, hash tables
6. Graphs: concepts, representations and traversals

Final Exam: There will be a comprehensive Final Exam on Monday, December 9, 7:00-10:00pm.

Exams: Exams will be closed book, closed notes.

Assignments: All assignments will be announced in class along with due dates. Assignments are due before the start of class on the scheduled due date; late assignments will not be accepted. Each student should complete all assignments independently.

Attendance Policy: Students are expected to attend class regularly. It is the student’s responsibility to obtain the information that was presented during a class that was missed.

Makeup Policy: You may not make up exams without prior arrangements, a written medical excuse or a documented emergency. Makeup exams are at the sole discretion of the instructor, if you fail to make up the exam within a reasonable period of time, you will receive a zero.

Blackboard Policy: You should check Blackboard regularly for course announcements. Grades from assignments and exams will be posted to Blackboard. It is the student’s responsibility to inform the instructor of missing or misreported grades within one week after they are posted.

Grading Policy: Each of the following components will contribute the indicated percentage to your overall grade:

- Project .................15%
- Homework ............35%
- Exam I ..................15%
- Exam II .................15%
- Final Exam ............20%

Grading Scale: Final Grades will be determined based on the following scale:

- A+ [97%, ∞)  
- A  [93%, 97%)  
- A- [90%, 93%)  
- B+ [87%, 90%)  
- B  [83%, 87%)  
- B- [80%, 83%)  
- C+ [77%, 80%)  
- C  [73%, 77%)  
- C- [70%, 73%)  
- D+ [67%, 70%)  
- D  [63%, 67%)  
- D- [60%, 63%)  
- F  [0, 60%)

Academic Integrity Policy: The UNCG Academic Integrity Policy is available here: http://sa.uncg.edu/handbook/academic-integrity-policy/. Any student who violates this policy will receive a zero for the work and is subject to a reduction of the final grade of this course (up to ”F”). The instructor will report the case to the university.

Electronic Device Policy: Cell phones and other electronic devices should be turned off (or muted) prior to the beginning of class.
**Classroom Decorum:** You should arrive on time; habitual tardiness is disruptive. Eating and drinking is not permitted in class. Disruptive behavior will not be tolerated, you will be asked to leave. A pattern of disruptive behavior may result in your withdrawal from the course.

**Withdrawal:** A syllabus constitutes an agreement between the student and the course instructor about course requirements. Participation in this course indicates your acceptance of its teaching focus, requirements, and policies. Please review the syllabus and the course requirements as soon as possible. If you believe that the nature of this course does not meet your interests, needs or expectations, if you are not prepared for the amount of work involved - or if you anticipate that the class meetings, assignment deadlines or abiding by the course policies will constitute an unacceptable hardship for you - you should drop the class by the drop/add deadline, which is located on the Academic Calendar. For more information, please visit the Office of the University Registrar.

**Disclaimer:** This syllabus is intended to give the student guidance in what may be covered during the semester and will be followed as closely as possible. However, the instructor reserves the right to modify, supplement and make changes as needs arise.