

CSC 230: Elementary Data Structures and Algorithms  
Fall 2017

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**Credit Hours:** 3 credits

**Prerequisites:** A grade of C or better in CSC 130 or transfer credit for CSC 130

- This course is planned for undergraduate students in the Computer Science major or for students earning a minor in computer science.

**Meeting Times and Locations:**

CSC 230-01 .... MW .... 05.30-06.45pm .... Petty 150

CSC 230-02 ..... TR ..... 12.30-01.45pm ..... Petty 219

CSC 230-03 ..... TR ..... 03.30-04.45pm ..... Petty 150

**Instructor:** Chandana Ariyawansa(CA)

**Office:** Petty 163

**Office Hours:** MoTuWeTh 02.00-03.00pm or by appointment

**Email:** [chandana.ariyawansa@uncg.edu](mailto:chandana.ariyawansa@uncg.edu) (You must include CSC230F17-<section number>-actual subject line in the subject line of your emails)

**Catalog Description:** Advanced syntax of high level language taught in CSC 130. Emphasis on modularization and abstraction, big- $\mathcal{O}$  analysis of algorithms, design and use of abstract data types with various implementations.

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

1. apply the object oriented programming concepts object composition, inheritance and polymorphism
2. design abstract data types and interfaces
3. implement sequential abstract data types using both array and linked data
4. describe characteristics of elementary searching and sorting algorithms
5. implement recursive solutions to common computing problems
6. evaluate algorithm performance using asymptotic analysis

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

1. object composition and inheritance
2. design and implementation of elementary container data structures, including arrays, linked-lists, stacks and queues
3. mechanics and efficiency of elementary searching and sorting algorithms, including String handling algorithms
4. recursion
5. analysis of algorithms covered in this course

**Textbook Requirement:** Introduction to Java Programming Comprehensive Version, by: Y Daniel Liang. Pearson, 10th edition (ISBN: 978-0-13-376131-3)

**Course Delivery:** This course will consist of 150 minutes of lecture per week. Class lectures will be interactive and students will be expected to participate in class discussion. *Students must bring papers and pencils to work out the problems in class.* The assignments/exams in this course will include written, essay-type questions and short programming problems. Questions will be evaluated not only on content, but on how well the content is expressed.

**Evaluation and Grading Scheme:** Your grade is based on the following criteria.

Programming assignments .....	30%
Written Exam I .....	15%
Written Exam II .....	15%
Cumulative Final Exam .....	40%

Students will be graded strictly according to the scale below.

A+ .....	97% and above
A .....	93-96%
A- .....	90-92%
B+ .....	87-89%
B .....	83-86%
B- .....	80-82%
C+ .....	77-79%
C .....	73-76%
C- .....	70-72%
D+ .....	67-69%
D .....	63-66%
D- .....	60-62%
F .....	Below 60%

### Additional Notes:

#### Programming Assignments:

- This course includes *significant amount* of programming in Java and use of pseudo code to illustrate various algorithms. Students must be reasonably proficient in Java and ready to code *independently*. All programming assignments will be coded outside of class.<sup>1</sup>
- Programs that do not compile will not be evaluated. A score of 0 will be given if a program does not compile, REGARDLESS OF REASON.
- All programs will be submitted in Canvas. Programs will not be accepted via email. Canvas is sometimes offline for maintenance or other reasons. This is not an excuse for late work. Plan accordingly and do not wait until the last minute to submit your work.
- Good programming practices must be followed which include initial comments about the program. The instructor reserves the right to deduct for any assignment that is not well documented, of poor readability, or of otherwise unprofessional quality.

**NOTE: All assignments will count. There are no dropped grades!**

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<sup>1</sup>Student must use latest version of NetBeans IDE for coding.

**Exams:** The cumulative final exam will be given during the time specified on the University Registrar's Office Exam Schedule. Dates for in-class exams(Exam I and II) will be announced with ample time. Here are the final exam dates for different sections.<sup>2</sup>

CSC 230-01 .....Monday, December 4 – 07.00 - 10.00pm  
CSC 230-02 ..... Thursday, December 7 – 12.00 - 03.00pm  
CSC 230-03 .....Thursday December 7 – 03.30 - 06.30pm

**NOTE: All exams will count. There are no dropped grades!**

**Attendance Policy:** Regular class attendance is necessary to master the material in the course. Students are expected to take responsibility for their learning in this course. You are also expected to arrive for class on time and stay for the entire class period. Coming to class late and leaving early interfere with the class presentation and disturb the other students in the class. If you know you will arrive late or leave early, please notify me before class starts. If you must miss class, you are responsible for all assigned material plus everything covered in class. *Attendance is taken daily. The instructor reserves the right to drop any student who misses more than 3 classes.*

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.

**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.

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

**Email Communication:** I may use email to communicate with you. I will only use your UNCG email addresses. Please make sure to check your messages regularly. If you normally use a different email address, it is your responsibility to forward your UNCG messages to that address. **When you email me(or reply back), please use only your UNCG email.**

**Academic Integrity Policy:** Students are expected to abide by the UNCG Academic Integrity Policy, which is available at:

<http://sa.uncg.edu/handbook/academic-integrity-policy/>

Any infraction(s) will result in failure of the entire course and a final course grade of F. The instructor will also report the case to the university.

**Electronic Device Policy:** Cell phones and other electronic devices should be turned off prior to the beginning of class.

**Recording Policy:** No student may record any classroom activity without express written consent from the instructor. If you have (or think you may have) a disability such that you need to record or tape classroom activities, you should contact the Office of Accessibility Resources & Services <http://ods.uncg.edu/> to request an appropriate accommodation.

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<sup>2</sup>These dates and times must be rechecked to verify for any changes.

**Classroom Decorum:** You should arrive on time; habitual tardiness is disruptive. Eating and drinking is not permitted in class. Smoking is strictly prohibited in classroom. This includes e-cigarettes. 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.

**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 Accessibility Resources and Services located in 215 Elliott University Center: (336) 3345440 (or <http://oars.uncg.edu>).

**University Closings:** If university facilities are closed due to flu outbreak or other emergencies, it does not mean that classes are canceled. In such an event, please check the Canvas site for information about if and how the class will proceed.

**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.