ECE 318 section J, Autumn 2018.

Book

"Algorithms in C++ parts 1-5",
by Robert Sedgewick, ISBN 020172684X or 978-0201726848.

Instructor

Dr. Stephen Murrell
Office: EB 516
email: stephen@rabbit.eng.miami.edu

Bulletin Description

Continuation of the programming sequence. Object oriented programming with C++, emphasizing the skills required of a professional programmer. Essential data structures and algorithms: graphs, hash tables, parsing, and text processing. Advanced sorting and data management algorithms. Advanced features of C++

Specific outcomes of instruction: The student will be able to:

1. Design and implement complete working programs making suitable use of complex data structures and algorithms.
2. Determine which techniques are appropriate for use in given circumstances.
3. Make use of the advanced features of object oriented programming as provided by C++

Topics

1. Inheritance and code reuse; protected and private members
2. Virtual methods and polymorphism; static and dynamic typing
3. Fast (O(NlogN) or better) sorting algorithms
4. Hashing, hash tables, and other fast data retrieval methods
5. Advanced tree structures and related algorithms
6. Graph structures and basic graph algorithms
7. Analysis of data structures and algorithms

Attendance

- You are adults and responsible for your own lives, I would like to be informed of any absences, and you must make up for anything you missed, and I'm not going to go over a whole class for someone who overslept or just didn't turn up. Missing a class is not an excuse for being late with an assignment.

Late Assignments

- Rare instances of lateness will be overlooked. Good excuses will always be considered. One of the hallmarks of a good excuse is that you didn't only think of it after the deadline passed. If you've got a reason for being late, tell me it before you actually are late.

- But some assignments are discussed and analysed in class. This may happen at any time after the due date, and after we have been over an assignment in class, it is possible that turning it in will not gain any credit.

Mid-Term Examinations

- There will be two mid-term examinations, one near the middle of the semester, and one nearing the end. Dates will be announced.

Final Examination

- Our final is on Wednesday 12th December at 5:00 pm. Make sure you know when your exam dates are, and don't accidentally book a flight home earlier. Final exam period is exceptionally busy, and it is not possible to offer pre-makeups.

Books

- You are not *required* to get the textbook, but one is strongly recommended.
- You certainly do not need the most up-to-date edition. Slightly older editions, used but in good condition, can be bought quite cheaply on line.

Collusion

- Studying in groups is very beneficial, and is strongly encouraged.
- All assignments and projects are strictly individual effort unless explicitly stated otherwise.
- Do not confuse those two points. With any programming assignments, once you get to making a detailed design, and well before you do any coding, it is time to stop working in a group. If a program starts off similar to someone else's, it is just about impossible to make it individual again, and that really shows up strongly in grading. No credit will be given for work you didn't do yourself.

Holidays

- In short, tell me by email during the first week of classes, of any religious holidays that would prevent you from participating in some class event (particularly a mid-term), and I will make every effort to accommodate you.