CSC 364 001 – Data Structures and Algorithms

SYLLABUS - Fall, 2009

INSTRUCTOR: Lee Weiner

OFFICE: ST 344

EMAIL ID: weinerl@nku.edu

NKU Office Phone: 572-6025

Home Phone: 371-8861

OFFICE HOURS: Mondays & Wednesdays 3:30 – 4:30 PM (and by appointment)

Web Page: http://www.nku.edu/~weinerl/csc364001_091.html

COURSE CREDIT & PREREQUISITE: 3 cr. - CSC 360 (with a grade of "C" or better)


COURSE TOPICS: Analysis and efficient implementation of container types such as stacks, queues, hash table, search trees, balanced search trees and graphs; recursion and sorting algorithms.

STUDENT LEARNING OUTCOMES: By the end of this course, students should be able to:

1. Understand the basic algorithms and implementations of stacks, queues, hash tables, search trees, balanced search trees and graphs.
2. Define big-O and compare and contrast big-O values for the above data structures.
3. Apply a data structure or ADT to new problems and defend their selection.
4. Categorize an algorithm based on programming strategy.
5. Analyze and implement recursive algorithms.

ASSESSMENT: Student's grade in the course will be earned/calculated as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 programming projects</td>
<td>45%</td>
</tr>
<tr>
<td>2 midterm exams</td>
<td>30%</td>
</tr>
<tr>
<td>Comprehensive final</td>
<td>25%</td>
</tr>
</tbody>
</table>

At least 93 → A
At least 90 → A-
At least 87 → B+
At least 83 → B
At least 80 → B-
At least 77 → C+

At least 73 → C
At least 70 → C-
At least 67 → D+
At least 60 → D
Less than 60 → F

The midterm exams and final exam will assess student knowledge and comprehension of the various topics listed above, and the programming projects will assess the student's ability to use that knowledge to produce complete solutions to common programming requirements.

ATTENDANCE: Attendance is mandatory and will be taken, but will not directly count toward your grade. It may, however, be taken into consideration when making decisions regarding make-up exams and late assignments. If you arrive for class after I've taken attendance, you have been marked absent. It is your responsibility to let me know you were there, and to mark you present.
OTHER:

1. Make-up tests will not be given without prior consent of the instructor, and only for documented emergencies.
2. Projects will not be accepted late without prior consent of the instructor. Under no circumstances will a project be accepted more than 7 calendar days late or after the solution is discussed in class.
3. All work is individual; collaboration on code or cheating on tests can result in an "F" for the course and a letter in your department file.
4. Tests will be made up of material covered in class and readings specifically assigned by the instructor. The student is responsible for all material assigned or covered in class.
5. The last day to withdraw from the class without a grade is September 14. The last day to withdraw with a grade of "W" is November 2. The policy regarding mid-term grades can be found in the Departmental syllabus.
6. The final exam for this class will be at 1:00 PM on Monday, December 14.
7. Disability Services: Students with disabilities who require accommodations (Academic adjustments, auxiliary aids or services) for this course must register with the Disability Services Office. Please contact the Disability Service Office immediately in the University Center, Suite 320 or call 859-572-6373 for more information. Verification of your disability is required in the Disability Services Office for you to receive reasonable academic accommodations. Visit the website at www.nku.edu/~disability/.
8. The instructor reserves the right to change this syllabus as he deems necessary.
9. The instructor will take a dim view of anyone who makes fun of his hair in class.

Reading Assignments for CSC 364*

*Additional readings may be assigned during the course.

Data Abstraction and Problem Solving with Java, 2nd Edition,
Carrano, Frank M. and Prichard, Janet J.

1. Recursion (Review) Chapter 3
2. Data Abstraction Chapter 4
3. Linked Lists Chapter 5
4. Stacks Chapter 7
5. Queues Chapter 8
6. Advanced Java Topics Chapter 9
7. Algorithm Efficiency, Sorting Chapter 10
8. Trees Chapter 11
9. Tables and Priority Queues Chapter 12
10. Balanced Search Trees, Hashing Chapter 13
11. Graphs Chapter 14

*Additional readings may be assigned during the course.