Course title and number: Intermediate Programming & Design: CSCE 113-501, 502, 503

Term (e.g., Fall 200X): Fall 2014

Meeting times and location:
- MW 4:10-5:00 pm, Fermier Hall 103
- 501 Lab: MW 3:00-3:50 pm, Reed McDonald 111C
- 502 Lab: MW 5:45-6:45 pm, Reed McDonald 111H
- 503 Lab: MW 12:40-1:30 pm, Reed McDonald 111A

Course Description and Prerequisites
Continuation of ENGR 112; programming and design with C++; topics include design and implementation of functions, classes, and class hierarchies; software development strategies; error handling and exceptions; testing and debugging; type safety; strings; templates and the STL; graphics and GUIs; mathematical computation; and principles of object-oriented programming.
Prerequisites: ENGR 112 and MATH 151

Learning Outcomes
(A learning outcome is defined as a statement of what the student will know or be able to do upon successfully completing the course. It must be both observable and measurable. The outcomes may include competencies developed in the course. Learning outcomes define what students need to do to show mastery of course materials. Additional assistance with learning outcomes is available through the Center for Teaching Excellence http://cte.tamu.edu and the Office of Institutional Assessment https://assessment.tamu.edu.) THIS INFORMATION HAS BEEN PLACED HERE FOR REFERENCE ONLY. PLEASE REMOVE BEFORE PREPARING SYLLABUS.)

Learning Objectives
1. Provide students with knowledge of a computer program structure, design, development/implementation and testing.
2. Provide students with knowledge of object-oriented and generic programming concepts: objects, classes, inheritance, polymorphism, encapsulation, and type-independent algorithms.
3. Provide students with knowledge of lower level programming using pointers and memory management.
4. Provide students with knowledge of standard libraries classes and algorithms.
5. Provide students with opportunity of a team work environment.

Expected Outcomes
After this course students should be able to:
1. Design, implement and test programs: simple ones by writing them from scratch and more advanced ones by using Standard Template Libraries (STL) with focus on using basic C++ programming language principles and practices.
2. Complete a project designed, implemented and tested in a team using course objectives.

Instructor Information
Name: J. Michael Moore
Telephone number: 845-5475
Email address: jmichael@cse.tamu.edu
Office hours: MWF 11:30 am – 12:20 pm, MW 1:50-2:40 pm, by appointment
Textbook and/or Resource Material


Grading Policies

All assignments will be announced in class and posted on the course web page. If you cannot turn in an assignment on time, discuss the situation in advance with the instructor.

Grading breakdown

- **Homework & Programming Assignments 35%** -- Almost every week, there will be a short (about 10 minutes) quiz on the current material. Your top 10 quiz grades will count toward your semester grade.
- **Quizzes & class participation 10%** -- Homework will consist of written problems and programming assignments. More information is here.
- **Exams 45%** -- Three in-class exams, worth 15% each.
- **Final Exam (replaced by a project) 10%**

Grading Notes

- Your final grade will be determined based on homework assignments, quizzes, exams and the final project.
- All homework assignments will be announced in class and posted on the course web page. All programs must be written in C++, compiled and run on a CS departmental computer (Unix machine), and transferred to a course directory for grading using the CSNet turnin program. Each homework assignment will be graded focusing on: algorithm design, usage of data structures and/or new user-defined types and their implementation, its correctness, tests, a typed report describing implemented algorithms and data structures, and results of computational experiments. A late homework assignment will be accepted up to 3 working days with a 5% penalty for each late day.
- Quizzes are over material covered during lectures and assigned reading from the textbook.
- 2 points will be added to your final score if you have perfect lab attendance, or 1 point if you have only one absence.

Late Policy

A late homework assignment/lab will be accepted up to 3 working days with a 5% penalty for each late day.

Course Grades

Course grades will be assigned according to this scale:

<table>
<thead>
<tr>
<th>% total points</th>
<th>90-100</th>
<th>80-89</th>
<th>70-79</th>
<th>60-69</th>
<th>&lt; 60</th>
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<tbody>
<tr>
<td>letter grade</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>F</td>
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Attendance Policy

Student class and lab attendance is required and is counted as part of the final grade, see the grading section above. Class attendance will not be taken, but you are responsible to learn all material covered in class, read the assigned text from the textbook and do homework assignments. Make-up exams and quizzes will only be given with documented University-approved excuses, see University Regulations [http://student-rules.tamu.edu/](http://student-rules.tamu.edu/).

*There are no make-up quizzes or exams.* Please discuss unusual circumstances in advance with the instructor.

Course Topics

The course will cover the following topics. The relevant chapters of the textbook are
<table>
<thead>
<tr>
<th>week of</th>
<th>topic</th>
<th>chapter</th>
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</thead>
<tbody>
<tr>
<td>9/1</td>
<td>Introduction, Objects, Types, Values</td>
<td>Chs 2, 3</td>
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<tr>
<td>9/8</td>
<td>Computation, Errors, Exceptions</td>
<td>Chs 4, 5</td>
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<tr>
<td>9/15</td>
<td>Writing Program, Functions</td>
<td>Chs 6, 7, 8</td>
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<tr>
<td>9/22</td>
<td>Recursive Functions</td>
<td>Chs 8</td>
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<td>9/29</td>
<td>Classes</td>
<td>Chs 9</td>
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<td>10/6</td>
<td>I/O</td>
<td>Chs 10, 11</td>
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<tr>
<td>10/13</td>
<td>A Display Model, Graphics Classes</td>
<td>Chs 12, 13</td>
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<tr>
<td>10/20</td>
<td>Graphics Class Design, Inheritance and Polymorphism</td>
<td>Chs 14</td>
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<td>10/27</td>
<td>GUI</td>
<td>Chs 16</td>
</tr>
<tr>
<td>11/3</td>
<td>Vector and Free Store, Vectors and Arrays</td>
<td>Chs 17, 18</td>
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<tr>
<td>11/10</td>
<td>Vectors, Templates, and Exceptions, Containers and Iterators</td>
<td>Ch 19, 20</td>
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<td>11/17</td>
<td>Algorithms and Maps, Ideals and History</td>
<td>Ch 21, 22</td>
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<tr>
<td>11/24</td>
<td>Text Manipulation, The C Programming Language</td>
<td>Chs 23 and 27</td>
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**Tentative Exam Dates**

Exam 1: 9/24/14, Exam 2: 10/29/14, Exam 3: 12/03/14

**Americans with Disabilities Act (ADA)**

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit [http://disability.tamu.edu](http://disability.tamu.edu)

**Academic Integrity**

The Aggie Honor Code states "An Aggie does not lie, cheat or steal or tolerate those who do". More information on academic integrity, plagiarism, etc. is available at the Aggie Honor System Office web site [http://aggiehonor.tamu.edu](http://aggiehonor.tamu.edu), including:

- **Definitions of academic misconduct**, which includes plagiarism
- **List of sanctions that can be applied** if academic misconduct is found.

Please review this material.

For the assignments in this class, discussion of concepts with others is encouraged, but *all*
assignments must be done on your own, unless otherwise instructed. If you use any source other than the text, reference it/him/her, whether it be a person, a book, a solution set, a web page or whatever. You MUST write up the solutions in your own words. Copying is strictly forbidden. Every assignment must be turned in with this cover sheet, which lists all sources you used.