Problem Solving and Programming, CSC 1100, Section 1
Tuesdays and Thursdays, 11:30am–12:45pm, Fall 2017

Contact information:
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Course Description:
This course involves problem-solving with algorithms, and their realization as computer programs using a structured, general purpose programming language. It covers data types, operators, expressions, assignment, input and output, selection and repetition control structures; modularity and procedural abstraction using functions with parameters; structured data types, arrays, pointers and strings.

Credit Hours:
3

Prerequisites:
Familiarity with basic concepts from high school algebra, geometry, and trigonometry.

Co-requisites:
CSC 1101 Problem Solving and Programming Laboratory.

Textbook:
C++ Programming: From Problem Analysis to Program Design, Seventh Edition
DS Malik

Software:
Microsoft Visual Studio 2015

Course contents:
An Overview of Computers and Programming Languages
Basic Elements of C++
Input-output
Control Structures I (Selection)
Control Structures II (Repetition)
User-Defined Function
Namespaces, the class string, and User-Defined Simple Data Types
Arrays
Records (structs)
Pointers

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Laboratory:
There are 22 lab assignments that cover the above topics. The goal is to illustrate the concepts discussed in class and to give students the opportunity to design a solution to a problem, and implement and test it.

Course Learning Objectives:
The course learning objectives are skills and abilities students should have acquired by the end of the course. Upon successful completion of this class, the student will be able to:

<table>
<thead>
<tr>
<th>#</th>
<th>CSC 1100 course learning objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Understand the history of programming languages.</td>
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<tr>
<td>2</td>
<td>Become familiar with the basics of C++.</td>
</tr>
<tr>
<td>3</td>
<td>Learn to read from the keyboard and files, and write to the screen and files.</td>
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<tr>
<td>4</td>
<td>Use control structures to alter the sequential flow of execution.</td>
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<tr>
<td>5</td>
<td>Use predefined and user-defined functions.</td>
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<tr>
<td>6</td>
<td>Understand the user-defined simple data type (enumeration type), the namespace mechanism of ANSI/ISO Standard C++, and strings (both string data type and C-String).</td>
</tr>
<tr>
<td>7</td>
<td>Explore arrays (one- and two-dimensional) and records.</td>
</tr>
<tr>
<td>8</td>
<td>Apply simple searching and sorting algorithms.</td>
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<tr>
<td>9</td>
<td>Use pointers to manipulate arrays and to implement dynamic memory allocation.</td>
</tr>
<tr>
<td>10</td>
<td>Apply problem-solving strategies to analyze, design, implement, document, and test a software application.</td>
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</tbody>
</table>

Assessment:
Homeworks 43%
Midterm Exam 29%
Final Exam 29%

Grading Scale:
- 93% and above A
- 90-92% A-
- 87-89% B+
- 83-86% B
- 80-82% B-
- 77-79% C+
- 73-76% C
- 70-72% C-
- 67-69% D+
- 63-66% D
- 60-62% D-
- 59% and below E

Grading Policies:
- This lecture is associated with a lab section.
- The lecture and lab sections are graded separately.
- If either is failed, only the failed part must be repeated.

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Homeworks
- There will be six homework assignments.
- Each one is worth up to 25 points.
- During class, we will discuss assignment material only after lecture material is completed.
- Homework files will be available on Blackboard.
- Completed homework files will be submitted via Blackboard. Unless otherwise noted, this will involve submitting one Microsoft Word document with your name somewhere in the file name.
- **On-time homework:** a homework is on-time if it is submitted via Blackboard by **11am** on the day it is due.
- **Late homework:** a homework is late if it is submitted via Blackboard between:
  - 11am on the day it is due, and
  - Two days later at 11:59pm.
  A late homework will be marked down 20%.
- **Too-late homework:** a homework will not be accepted after the late homework period.
- If your homework has corrections, they will be noted in your submitted file, and the file will be returned to you where you submitted it on Blackboard.
- Homework keys will be reviewed the first class session following the late deadline.

Quizzes
- There will be an unknown number of extra-credit pop quizzes.
- Each one is worth up to four points. Simply taking the quiz earns one point.
- Quizzes are closed-book and completed on paper.
- Completed quizzes will be returned and quiz keys will be reviewed the first class session following the quiz.
- Any unreturned quizzes after that session will be discarded.

Exams
- There will be two exams taken in class on paper.
- Each exam is worth up to 100 points.
- Both exams are closed-book and completed on paper. You may use one side of one 8.5”x11” sheet of paper for notes. **No one can help you during the exam – not me and not your neighbor.**
- All cellular telephones and similar electronic devices must be put away during exams.

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<table>
<thead>
<tr>
<th>Type (lecture)</th>
<th>Count</th>
<th>Points Per</th>
<th>Points total</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>6</td>
<td>25</td>
<td>150</td>
<td>42%</td>
</tr>
<tr>
<td>Midterm exam</td>
<td>1</td>
<td>100</td>
<td>100</td>
<td>29%</td>
</tr>
<tr>
<td>Final exam</td>
<td>1</td>
<td>100</td>
<td>100</td>
<td>29%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>350</td>
<td>100%</td>
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</tbody>
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● If a student is unable to take an exam on the scheduled exam day, an alternate scheduling of the exam must be arranged **before** that exam takes place.
● Completed midterm exams will be returned and the exam key will be reviewed during a following class session.
● Any unreturned midterm exams after that session will be discarded.
● Completed final exams will **not** be returned.

**Religious Holidays:**
Because of the extraordinary variety of religious affiliations of the University student body and staff, the Academic Calendar makes no provisions for religious holidays. However, it is University policy to respect the faith and religious obligations of the individual. Students with classes or examinations that conflict with their religious observances are expected to notify their instructors well in advance so that mutually agreeable alternatives may be worked out.

**Student Disabilities Services:**
- If you have a documented disability that requires accommodations, you will need to register with Student Disability Services for coordination of your academic accommodations. The Student Disability Services (SDS) office is located in the Adamany Undergraduate Library. The SDS telephone number is 313-577-1851 or 313-202-4216 (Videophone use only). Once your accommodation is in place, someone can meet with you privately to discuss your special needs. Student Disability Services' mission is to assist the university in creating an accessible community where students with disabilities have an equal opportunity to fully participate in their educational experience at Wayne State University.
- Students who are registered with Student Disability Services and who are eligible for alternate testing accommodations such as extended test time and/or a distraction-reduced environment should present the required test permit to the professor at least one week in advance of the exam. Federal law requires that a student registered with SDS is entitled to the reasonable accommodations specified in the student’s accommodation letter, which might include allowing the student to take the final exam on a day different than the rest of the class.

**Academic Dishonesty - Plagiarism and Cheating:**
Academic misbehavior means any activity that tends to compromise the academic integrity of the institution or subvert the education process. All forms of academic misbehavior are prohibited at Wayne State University, as outlined in the Student Code of Conduct ([http://www.doso.wayne.edu/student-conduct-services.html](http://www.doso.wayne.edu/student-conduct-services.html)). Students who commit or assist in committing dishonest acts are subject to downgrading (to a failing grade for the test, paper, or other course-related activity in question, or for the entire course) and/or additional sanctions as described in the Student Code of Conduct.
- **Cheating:** Intentionally using or attempting to use, or intentionally providing or attempting to provide, unauthorized materials, information or assistance in any academic exercise. Examples include: (a) copying from another student’s test paper; (b) allowing another student to copy from a test paper; (c) using unauthorized material such as a "cheat sheet" during an exam.
• **Fabrication**: Intentional and unauthorized falsification of any information or citation. Examples include: (a) citation of information not taken from the source indicated; (b) listing sources in a bibliography not used in a research paper.

• **Plagiarism**: To take and use another’s words or ideas as one’s own. Examples include: (a) failure to use appropriate referencing when using the words or ideas of other persons; (b) altering the language, paraphrasing, omitting, rearranging, or forming new combinations of words in an attempt to make the thoughts of another appear as your own.

• **Other** forms of academic misbehavior include, but are not limited to: (a) unauthorized use of resources, or any attempt to limit another student’s access to educational resources, or any attempt to alter equipment so as to lead to an incorrect answer for subsequent users; (b) enlisting the assistance of a substitute in the taking of examinations; (c) violating course rules as defined in the course syllabus or other written information provided to the student; (d) selling, buying or stealing all or part of an un-administered test or answers to the test; (e) changing or altering a grade on a test or other academic grade records.

**Course Drops and Withdrawals:**
In the first two weeks of the (full) term, students can drop this class and receive 100% tuition and course fee cancellation. After the end of the second week there is no tuition or fee cancellation. Students who wish to withdraw from the class can initiate a withdrawal request on Pipeline. You will receive a transcript notation of WP (passing), WF (failing), or WN (no graded work) at the time of withdrawal. No withdrawals can be initiated after the end of the tenth week. Students enrolled in the 10th week and beyond will receive a grade. Because withdrawing from courses may have negative academic and financial consequences, students considering course withdrawal should make sure they fully understand all the consequences before taking this step. More information on this can be found at: [http://reg.wayne.edu/pdf-policies/students.pdf](http://reg.wayne.edu/pdf-policies/students.pdf)

**Student services:**
- The Academic Success Center (1600 Undergraduate Library) assists students with content in select courses and in strengthening study skills. Visit [www.success.wayne.edu](http://www.success.wayne.edu) for schedules and information on study skills workshops, tutoring and supplemental instruction (primarily in 1000 and 2000 level courses).
- The Writing Center is located on the 2nd floor of the Undergraduate Library and provides individual tutoring consultations free of charge. Visit [http://clasweb.clas.wayne.edu/writing](http://clasweb.clas.wayne.edu/writing) to obtain information on tutors, appointments, and the type of help they can provide.

**Class recordings:**
Students need prior written permission from the instructor before recording any portion of this class. If permission is granted, the audio and/or video recording is to be used only for the student’s personal instructional use. Such recordings are not intended for a wider public audience, such as postings to the internet or sharing with others. Students registered with Student Disabilities Services (SDS) who wish to record class materials must present their specific accommodation to the instructor, who will subsequently comply with the request unless there is some specific reason why s/he cannot, such as discussion of confidential or protected information.

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