Spring 2009
CS 23021 Section 600
Computer Science I - Programming And Problem Solving

Department of Computer Science
Kent State University Stark

TR 11:00 AM - 12:15 PM - Room MH 306 (Instructor: Dr. Angela Guercio)

Laboratory: F 11:00 AM - 1:00 PM - Room MH 306 (Instructor: Ms. Shannon Steinfadt)

<table>
<thead>
<tr>
<th>Class Instructor</th>
<th>Lab Instructor</th>
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<tbody>
<tr>
<td>Dr. Angela Guercio</td>
<td>Ms. Shannon Steinfadt</td>
</tr>
<tr>
<td>Office: 424, Main Hall</td>
<td>Office: 310G desk 4, Main Hall</td>
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<tr>
<td>Phone: 330 244-3424 (KSU ext. 53424)</td>
<td>Phone: 330 244-3311 (KSU ext. 53311)</td>
</tr>
<tr>
<td>Best way to contact me: e-mail to <a href="mailto:aguercio@kent.edu">aguercio@kent.edu</a></td>
<td>Best way to contact me: e-mail to <a href="mailto:ssteinfa@cs.kent.edu">ssteinfa@cs.kent.edu</a></td>
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<tr>
<td>Office Hours: TR 11:30am - 1:30pm 4:35pm -5:15pm F 10:15am - 10:55am other times are available by appointment</td>
<td>Office Hours: TR 11:30am -12:30pm Other times are available by appointment</td>
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</tbody>
</table>

- Class Webpage:
  - http://www.personal.kent.edu/~aguercio/Spring09/CS23021Sp09.html
- Lab Webpage:
  - http://www.personal.kent.edu/~aguercio/lab23021/index.html

Course Information

Class Webpage: http://www.personal.kent.edu/~aguercio/Spring09/CS23021Sp09.html
- all important class information will be posted on the class webpage, readings, assignments, notes, deadlines, cancellations, ect..
- You must CHECK THE CLASS WEBSITE REGULARLY!!!

Prerequisites: CS10051 with a grade of C or better.
This means that a C- in CS10051 is not sufficient to meet the prerequisite.
For more details, please visit http://www.cs.kent.edu/programs/ugrad/planner.html
**Credit:** 4 Credit Hours

**Required Text:**

The Online Book Resources can be found at [http://www.aw-bc.com/savitch/](http://www.aw-bc.com/savitch/)

Any other texts or papers that I might require you to read will be given in class.

**Emergency:** In case of an emergency please contact the security on campus.

- **Security phone on campus:** #53123
- **Security cell phone** (330) 705-0430 or, of course, 911.

I recommend that you program into your cell phone the previous numbers.

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**Course Outline and Objectives**

This course will introduce you to the Object Oriented paradigm. This course will teach you how to write programs using the object-oriented paradigm language C++, and will cover the syntax of the language. Particular attention will be paid to program design and the problem-solving methodologies, which should be used to produce a program of good quality.

The course outline covers
- The C++ basic features;
- Procedural Programming and Object Oriented Programming;
- Variables, Data Types and Expressions
- Functions
- Classes and Objects
- Class Properties
- Inheritance
- Arrays and Vectors
- Pointers
- Testing and Debugging

**The objectives of the course are:**
- To introduce you to the object-oriented paradigm of the C++ language
- To teach you how to write a C++ program and how use the C++ compiler
- To introduce you to the most important elements of computing
- To deepen your program design abilities before proceeding in study of more complex problems and language features.
- To show that there are several ways to solve problems but some solutions are more efficient, better readable and easier to maintain than others. Being a program designer is different from being a ‘brute force’ programmer: problem-solving methodologies are essential for the scope and the language is the media through which we express those techniques.
• To teach you good programming habits.
• To empower you with the use of data structures.
• To learn how to select methodologies to apply to a series of sample problems. Examples of several classes of problems will be discussed in class.
• To give you hands-on experience in designing and testing C++ programs on different environments.
• To show you the interesting features of C++ such as pointers.
• To satisfy requirements the computer systems major and minor.

ATTENTION!!!

CS23021 is a prerequisite for CS33001. A grade of C or better is required to take CS33001. This means that a C- is not sufficient to meet the requirement.

Class Requirements and Expectations

• Regular class attendance is REQUIRED.

There tends to be a strong correlation between class attendance and grade performance. If you will miss a class or a lab, let me know ahead of time. In any case, you are responsible for bringing yourself up to date on class material and assignments.

Since class participation and regular attendance are part of the final grade, if you miss more than 5 classes without a documented reason or without making prior arrangements with me, your final grade will be dropped one grade (A to B, B+ to C+ and so on).

• Laboratory attendance is MANDATORY.

Labs attendance is MANDATORY. Labs will be completed partly in class and partly at home. Labs completed ONLY at home (without having completed the required part in class) will not be accepted. Exception will be made only in case you have received a specific instructor permission or you have a health professional's excuse.

• Reading ahead is REQUIRED.

The readings are posted online on the class webpage. You must read the material before class and again after the class. Roughly we will cover 1 to 2 chapters per week.

Regular study of the material is REQUIRED. We will roughly cover 1 chapter per week.
• **COMPLETE the assigned homework (i.e. projects and exercises).**

  Assignments will be issued on a regular basis and they will be posted online on the class webpage.

  The class webpage will list the assignments for each week at the beginning of that week so that you can better schedule your work.

  The projects will require heavy use of the computer and will be time consuming. Please, plan accordingly.

  Since the course assumes that you have mastered some ability to program, most of the programming activities will be part of your homework. However programming activity will be performed in class whenever possible and compatible with the lecture schedule.

• **REVIEW the graded Homework/Projects/Lab Reports.**

  Homework, Projects, and Labs will be graded and some difficulties will be discussed in class. Review the mistakes.

  Late Homework/Projects/Labs will not be accepted if returned after the solution is given or discussed.

  If you have difficulties doing your homework or your project or your Lab please contact me or come to see me or your Lab instructor. **Do not procrastinate! Homework, Projects, and Lab should be started immediately.** You will find out that they will often require more time than you have planned, due to unexpected and unfortunate computer events (which often occur and therefore should be part of your planning)!

• **Return work ON TIME**

  All the homework and project should be zipped and e-mailed as an attachment to aguercio@kent.edu **AND** a printed copy should be returned to the instructor as well.

  All the printed copies of the Homework or the Projects are due **before or at the beginning of class.** All assignments, either printed or submitted via e-mail, turned in one day late will get **3 points per day penalty** including those returned after the beginning of class.

  For all Homework or Projects that are e-mailed, the instructor will acknowledge the receipt within 24 hours via e-mail. The time of your e-mail will be compared against the work deadline. The reply is your receipt that the work has been turned in (not that it is correct!). If you do not receive a receipt, it is YOUR responsibility to contact me to see if the assignment has been lost.
in transmission. **Important:** once you submit your files **DO NOT OPEN THEM AGAIN!** If your e-mail didn’t reach me or something happened to your files, I may need to ask you to resubmit your files by logging on in my presence to check the modification dates on your files and make sure that they haven’t been modified after the due date.

**What to expect to find in your Computer Science II class**

- The class should be interactive. In-class exercises are designed to encourage participation. There will be cooperation between you and I, open discussions about problems and possible solutions. You are responsible for taking good notes. Handouts will be given only when necessary.

- You will be exposed to traditional lecture methods on the blackboard as well as PowerPoint presentations. Your will participate in group activities and collaborative learning will be used to discuss possible solutions to problems as well as to provide critical observation to problem solutions. Formal and informal groups will be formed in class to work together. In some cases, you will be required to work on your own. In those cases, I expect appropriate academic behavior from you. Exchange of information, when forbidden, will not be tolerated.

- You will work both with and without a computer. When working with a computer (your homework activity) you will experiment hands-on with the concepts that have been covered in class. The projects are designed to complement the theoretical studies. Exercises of problem analysis and design, without the use of the computer, will reinforce the ability to strive for the optimal design of a problem’s solution.

- Expect to commit some time each day to practice the syntax of C++, to study the language, to program and to observe, analyze solve and report the solution of the assigned lab problems.

**The Secret Key (not so secret after all!) of how to succeed in this CS class is to:**

1. work conscientiously and do all the homework that has been assigned;
2. extrapolate, from the examples provided to you, techniques and answers to problems;
3. spend several hours at the computer to solve problems as well as reading material;
4. be alert and participate in class discussions;
5. learn from other people mistakes;
6. be critical of your own work. Question every step you are making; ask yourself “Is this step correct?” “Are there other easier or alternative and more efficient steps? Did I use the data structure in the appropriate way?”
7. attend class regularly;
8. spend time studying the theoretical concepts. Memory helps, but it is practice that reinforces the theory;
9. do all the above consistently through the whole semester, be confident about what you are doing and don’t be afraid to ask for help;
10. Think and enjoy!
I am very confident that you can make the above commitment and that you can maintain it during the semester. I am sure that you have all the ability to be successful!

Exams

There will be 2 100-points Mid-Term Exams which will cover the topics of the previous 5 weeks.

The 100-points Final Exam will cover the topics of the last 5 weeks of the course.

All exams are closed books, closed notes.

Retake exams are not available.

Make-up exams will only be given in case of serious need (written verification for your inability to take an exam is required) and only when I have been notified prior to the exam being issued, otherwise you are considered absent for that exam and the grade of your exam is automatically 0.

Grading

Your grade will be based on
1. Your homework and group projects
2. Your participation in discussions concerning the homework, class topics, and material
3. Your laboratory attendance and activity.
4. Your exams

The COURSE is formed of two independent parts.

TO PASS THE COURSE, YOU MUST PASS EACH PART GIVEN BELOW INDEPENDENTLY!

---- i.e. an A in PART II and an F in PART I, is NOT a passing grade.

Part I
Laboratory Attendance and Reports 30%

Penalty for late lab report: 3 points × day

Part II
Homework and Class Participation 10%

Penalty for homework: 3 points × day

Exam 1 20%
Exam 2 20%
Final Exam 20%
<table>
<thead>
<tr>
<th>Points</th>
<th>Grade</th>
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<tbody>
<tr>
<td>92.5-100</td>
<td>A</td>
</tr>
<tr>
<td>89.5-92.4</td>
<td>A-</td>
</tr>
<tr>
<td>87-89.5</td>
<td>B+</td>
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<tr>
<td>82.5-86.9</td>
<td>B</td>
</tr>
<tr>
<td>79.8-82.4</td>
<td>B-</td>
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<tr>
<td>77-79.8</td>
<td>C+</td>
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<tr>
<td>72-76.9</td>
<td>C</td>
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<tr>
<td>70-72</td>
<td>C-</td>
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<tr>
<td>60-69.9</td>
<td>D</td>
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<tr>
<td>00-59.9</td>
<td>F</td>
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Even though I have never found it necessary to change the grading distribution and the number of assignments and exams specified in the syllabus during the semester, I reserve the right to change the method of assigning grades, including changing the number of assignments or exams if I consider it necessary.

Course Withdrawal
If you are considering withdrawing from this course, please inform your instructor and consult a staff member in the Student Services Office, 134 Main Hall. Withdrawal from a course can affect financial aid, student status, or progress within your major. For withdrawal deadlines, please refer to [http://www.registrars.kent.edu/home/TermUpdate/sche_adj.htm](http://www.registrars.kent.edu/home/TermUpdate/sche_adj.htm).

Academic Honesty Policy
When assignments must be individually and independently done, if some students turn in substantially the same solution or program of another student, in my judgment, the solution will be considered a group effort. All involved in the group effort homework will receive a zero grade for that assignment. Policy on academic dishonesty involving programming can be found at [http://www.cs.kent.edu/programs/grad/DishonestyPolicy.pdf](http://www.cs.kent.edu/programs/grad/DishonestyPolicy.pdf). A condensed version of the Administrative Policy And Procedures Regarding Student Cheating And Plagiarism has been added to the last page of this syllabus.

Use of the intellectual property of others without attributing it to them is considered a serious academic offense. Cheating or plagiarism will result in a failing grade for the work or for the entire course. Repeat offenses result in dismissal from the University. University guidelines require that all infractions be reported to the Student Conduct Officer on our campus (see Academic Sanctions below).

Students with Disabilities
Kent State University recognizes its responsibility for creating an institution atmosphere in which students with disabilities can succeed. In accordance with University Policy Subpart E…104.44, if you have a documented disability, you may request accommodations to obtain equal access in this class. Please contact the disability coordinator on campus, Kelly Kulick in Student Accessibility Services, located in the Student Success Center, lower level of the Campus Center, phone (330) 244-5047, or kkulick@kent.edu. After your eligibility for accommodations
is determined, you will be given a letter which, when presented to instructors, will help us know best how to assist you.

Classes Canceled – Campus Closings
Announcements of class cancellations and/or campus closings will be made on the campus home page. In the case of an emergency, weather-related or otherwise, please check the web page at http://www.stark.kent.edu for information on the buildings and times of the closing. While information may be broadcast by radio and television, this should be confirmed by the web page, which is the official announcement of the campus and which will be the information used to determine issues related to student attendance, rescheduling of tests, and other concerns.

Conduct
Students and faculty behavior at the Stark Campus is governed by the guidelines set forth in The Digest of Rules and Regulations. That document can be found in the University telephone directory. Information can be found at the Office of Judicial Affairs at http://www.kent.edu/administration/emsa/judicial.cfm.

Recycling
KSU Stark Campus recycles. Recycling saves energy, which is currently generated by expensive and vanishing fossil fuels. Recycling one aluminum can saves enough energy to run a TV for three hours! Please take a few seconds to separate your trash. Aluminum cans and plastic and glass bottles may be placed in the blue recycling bins, and all types of paper may be placed in the blue recycling trash cans. All other waste may be placed in the black, brown or gray trash cans.

Important Dates to Remember:
- Last day to withdraw before grade W is assigned, is Feb 1, 2009
- Last day to drop the class is April 5, 2009
- Exam 1 is Thursday, Feb 19
- Exam 2 is Thursday, March 19
- Final Exam is Tuesday, May 12 (1:00pm – 3:00pm)

Spring Recess: March 23 – March 29
Classes End: May 10, 2009

Tentative Outline of the Course

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>Jan 20</td>
<td>Introduction to C++</td>
</tr>
<tr>
<td>Jan 22</td>
<td>Introduction to C++</td>
</tr>
<tr>
<td>Jan 27</td>
<td>Basic C++: Variables and I/O</td>
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<tr>
<td>Jan 29</td>
<td>Basic C++: Control Flow</td>
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<tr>
<td>Feb 3</td>
<td>Applications of C++ Statements</td>
</tr>
<tr>
<td>Feb 5</td>
<td>Procedural Abstraction and Functions that return a value</td>
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<tr>
<td>Feb 10</td>
<td>Procedural Abstraction and Functions that return a value</td>
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<tr>
<td>Feb 12</td>
<td>Functions for all Subtasks</td>
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<tr>
<td>Feb 17</td>
<td>Review and practice</td>
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<tr>
<td>Date</td>
<td>Topic</td>
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<tr>
<td>Feb 19</td>
<td>Exam 1</td>
</tr>
<tr>
<td>Feb 24</td>
<td>I/O Streams</td>
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<tr>
<td>Feb 26</td>
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<td>Mar 4</td>
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<tr>
<td>Mar 10</td>
<td>Abstract Data types: Structures definition, Classes</td>
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<tr>
<td>Mar 12</td>
<td>More Flow of Control</td>
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<td>Mar 17</td>
<td>Review and practice</td>
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<tr>
<td>Mar 19</td>
<td>Exam 2</td>
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<td>Mar 23-29</td>
<td>Spring Recess</td>
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<td>Mar 31</td>
<td>Loop control. Testing</td>
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<td>Apr 2</td>
<td>Graphics</td>
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<td>Apr 7</td>
<td>Arrays</td>
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<tr>
<td>Apr 9</td>
<td>Arrays</td>
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<tr>
<td>Apr 14</td>
<td>Review and Practice</td>
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<td>Apr 16</td>
<td>Two Dimensional Arrays and C_Strings</td>
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<td>Apr 21</td>
<td>Strings and Intro to Vectors</td>
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<tr>
<td>Apr 23</td>
<td>Vectors and Intro to Pointers</td>
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<td>Apr 28</td>
<td>Pointers and Dynamic Array</td>
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<tr>
<td>Apr 30</td>
<td>Project Presentations</td>
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<tr>
<td>May 5</td>
<td>Review and Practice</td>
</tr>
<tr>
<td>Tuesday, May 12</td>
<td>1:00pm-3:00pm</td>
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</table>

**ADMINISTRATIVE POLICY AND PROCEDURES REGARDING STUDENT CHEATING AND PLAGIARISM**

*Condensed Version*

For complete policy and procedure go to [www.kent.edu/policyregister](http://www.kent.edu/policyregister) 3342-3-01.8.

Cheating and plagiarism constitute fraudulent misrepresentation for which no credit can be given and for which appropriate sanctions are warranted and will be applied.

The university affirms that acts of cheating and plagiarism by students constitute a subversion of the goals of the institution, have no place in the university and are serious offenses to academic goals and objectives, as well as to the rights of fellow students.

“Cheat” means to intentionally misrepresent the source, nature, or other conditions of academic work so as to accrue undeserved credit, or to cooperate with someone else in such misrepresentation. **Cheating includes, but is not limited to:**

1. Obtaining or retaining partial or whole copies of examinations, tests or quizzes before these are distributed for student use;
2. Using notes, textbooks or other information in examinations, tests and quizzes except as expressly permitted;
3. Obtaining confidential information about examinations, tests or quizzes other than that released by the instructor;
4. Securing, giving or exchanging information during examinations;
5. Presenting data or other material gathered by another person or group as one’s own;
6. Falsifying experimental data or information;
7. Having another person take one’s place for any academic performance without the specific knowledge and permission of the instructor;
8. Cooperating with another to do one or more of the above;
9. Using a substantial portion of a piece of work previously submitted for another course or program to meet the requirements of the present course or program without notifying the instructor to whom the work is presented; and

10. Presenting falsified information in order to postpone or avoid examinations, tests, quizzes or other academic work.

“Plagiarize” means to take and present as one’s own a material portion of the ideas or words of another person or to present as one’s own an idea or work derived from an existing source without full and proper credit to the source of the ideas, words, or works. As defined, plagiarize includes, but is not limited to:

a. The copying of words, sentences and paragraphs directly from the work of another without proper credit;
b. The copying of illustrations, figures, photographs, drawings, models, or other visual and nonverbal materials, including recordings of another without proper credit; and

c. The presentation of work prepared by another in final or draft form as one’s own without citing the source, such as the use of purchased research papers.

STUDENT CHEATING AND PLAGIARISM: ACADEMIC SANCTIONS

The following academic sanctions are provided by this rule for offenses of cheating or plagiarism. Kent campus instructors shall notify the department chairperson and the student conduct office each time a sanction is imposed. Regional campus instructors shall notify the regional campus dean and the student conduct officer each time a sanction is imposed. Regional campus student conduct officer shall notify the Kent student conduct office each time a sanction is imposed by a regional campus Instructor. The following academic sanctions are provided by this rule for offenses of cheating or plagiarism. In those cases the instructor may:

1. Refuse to accept the work for credit; or
2. Assign a grade of “F” or zero for the project, test, paper, examination or other work in which the cheating or plagiarism takes place; or
3. Assign a grade of “F” for the course in which the cheating or plagiarism took place; and/or;
4. Recommend to the department chair or regional campus dean that further action specified in the rule be taken. The department chairperson or regional campus dean shall determine whether or not to forward to the academic dean or to the vice president for the extended university a recommendation for further sanction under this rule.

For information regarding the academic appeals procedure, please refer to page 107 of the 2008-2009 FlashGuide