Syllabus Fall/2006

Csc 10
CSc 10

Introduction to Programming

Fall/2006

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Webct

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Office hours: Mon/Wed 1:45- 2:50 PM and by appointment

Prerequisites: None

Primary Textbook: The Logic & Design of Computer Programs by Jim Messinger.
Software: Visual Logic by Vanguard Computer Systems
Lab Activity Manual: In-lab activities for 10 using Visual Logic by Meyers and Stephenson

The primary textbook can be purchased at the CSUS Bookstore. The Visual Logic software, we will be using this software during our in-lab sessions, is already installed on the lab machines in the Engineering and Computer Science (ECS) labs.

The lab activity manual is not available at the bookstore. You will be given instructions for obtaining the materials needed for the lab period for Csc 10 during the first class session.

Supplies: You will need at least two 3 1/2" floppy diskettes or a flash drive to start the semester. One will be for your general use in the class, the other for backup.

Use of Computer Labs: The lab that is assigned to us is not available for use outside of class time. We will post a schedule of open lab times and locations by the third week of the semester. In the meantime, use your lab time wisely. Many of our labs are heavily scheduled and quite full, but occasionally there are extra seats in the scheduled labs. Some instructors will permit students who are not enrolled in their lab to use the vacant seats, but you must ask permission first. You will often be asked not to use the printer. Please be especially quiet and courteous when visiting in another scheduled lab.
will be required to apply for and receive a log-in user name and password for use during your in-lab class period. This user name and password is also required for logging on to any computer in any of the open lab locations. You will receive further information in your first lab class at the beginning of the semester.

**E-mail Account:** Every student will be required to have an electronic mail (e-mail) account. If you have an account through a commercial provider, that will satisfy the requirement. If you do not have such an account (or even if you do), you can obtain one (free) from CSUS. All registered students are entitled to a SacLink account, which will provide you with e-mail capability. (In addition, a SacLink account will provide you with dial-in access from a home computer, assuming you have a modem and the appropriate software running on your home system.) Even without dial-in access (or your own computer), you can always use your SacLink account to send and receive e-mail from the computers in the on-campus labs.

If you prefer, you are also entitled (as an Engineering or Computer Science student) to an account on one of the ECS (Engineering and Computer Science) computers. This account will have your name as the account name (or something close to that, if there are duplicates), which is sort of nice, but not essential. However, an ECS account does not provide dial-up access. (You can use your SacLink dial-up access to reach the ECS account, though.)

**Mailing List:** Every student in the class is required to subscribe to the CSc 10 mailing list. This list is sort of like a bulletin board. Any mail sent to the list is automatically re-directed to every e-mail account that is subscribed to the list. Therefore, the list can be used (by me) to send information to all students in the class (for example, when I recognize an error in a handout, or something like that.) The list can also be used as a discussion group for CSc 10-related material. While there are obviously some limits on what you should be discussing (answers to assignments would be going beyond the limits), you are welcome to use the list to send requests for clarification of issues in the text, lab, lecture, or assignments. Another student might answer directly to you, or someone might post an answer back to the entire list group, or I might answer directly to you or to the entire group. **Please reserve this list for CSc 10-related information.** This is not the place to post jokes.

To subscribe to the csc10 mailing list, send an e-mail message. Address it to:

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majordomo@ecs.csus.edu
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Do not put anything in the "subject" line. In the body of the mail message, put only:

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subscribe sueslist
end
```

(Note that there is no blank in "sueslist".)
Notice that you do not include your mailing address – that is taken automatically from the return address, and it is that return address account that gets subscribed to the list. Also notice that there is no space in the name of the list, sueslist.

Be sure your email program is not sending mail in html format. Set it to send only plain text.

If you are successful in getting on the list, you will receive a message that specifically welcomes you to the “sueslist”. If you do not get that message, you are not correctly enrolled on the list! Note: One of the early quizzes this semester will require that you be subscribed to the list, or you lose points! Get on the list!!

Once you are subscribed, you can send messages to the list by addressing the email to: sueslist@ecs.csus.edu (The "majordomo" email address is only for subscribing, unsubscribing, etc.)

Web Site: I will maintain a world-wide-web home page with information that may be of interest to students in this class. On the site, you will find copies of the syllabus, assignment handouts, other handouts, corrections to errors found in the textbooks, and other miscellaneous information relating to this class. Check it occasionally. As shown at the beginning of this syllabus, the web address is:

http://ecs.csus.edu/~stephenk

Course description: This is an introductory course on computer program design and development. The design techniques, which you will learn in this course, can be applied to any programming language. We will be using Visual Logic to demonstrate these design techniques.

Lecture/discussion, 50 minutes, technical activity/laboratory, 1 hour & 40 minutes.

Credits: 3 units.

Participation: You will be expected to think rather than learn by rote. I will attempt to stimulate thought, but I can't think for you. My job is not to give you answers -- it is to help you discover answers for yourself. Be inquisitive, ask questions (there are no "dumb" questions, only dumb silences), keep up with the course material on a regular basis, and make an effort to understand the issues. Be an active participant in the learning process.
**Attendance at discussion/lecture:** During ADD/DROP period (first two weeks of school), any student who misses two consecutive class periods may be dropped from my rolls (but it's still your responsibility to officially drop). It is important that you attend all classes and that you submit your work on time. Attendance may be taken. There will be frequent pop quizzes (see pop quizzes section below.) Each student is responsible for material presented and announcements made in class. Exams will definitely include information presented in class, which is not available from the text. If you are forced to miss a class, please make the effort to obtain notes and announcements from a classmate or my class notes on Webct. If you have any problem understanding the information you receive in such circumstances, please take the time to come to my office hours so that I can help to clear up the problems. If my office hours are not convenient for you, I will be happy to schedule an appointment at any other mutually suitable time.

**Attendance at activity sessions:** You are expected to be present for the activity session. There will be frequent individual activities, including problem solving using visual logic. A portion of your grade is based on your participation in these activities. A sign in sheet will be used to determine the attendance at the activity sessions. It is your responsibility to make sure you sign in as you enter the lab.

Course Objectives: Successful students will demonstrate ability to:

- Read and analyze Problem descriptions
- Analyze the input and output needs for a specified problem
- Develop or choose appropriate algorithms for solving problems
- Design algorithms using the control structures of structured programming
- Represent algorithms using an approach acceptable in the modern software development industry
- Simulate the execution of algorithms using a systematic desk-checking approach
- Describe the relationship between simulated execution of algorithms (desk-checking) and the actual computer execution of programs that implement those algorithms
- Develop a modular design for a software implementation to solve a problem
- Describe several approaches for communication of data within a modular software design
- Translate an algorithm into an executing program in a modern programming language
Retaking CSc 10: Read carefully!
The Computer Science Department has a policy whereby students will be allowed to take any CSc course a maximum of two times. Any student who fails to receive a passing grade after two attempts will not be permitted to retake the course without special authorization from the chair of the Computer Science Department. (Authorized withdrawal -- a grade of “W” -- does not count as an attempt.) If you have already taken CSc 10 twice previously, it is your responsibility to alert your instructor to that fact. If you do not, and if I find out on my own, you will be dropped from the course!

Exams: There will be two midterm examinations and one final examination during the semester. The dates for the midterm exams are in the SCHEDULE portion of this handout. The University determines final exam schedules. There will be no make-up exams except in cases where prior arrangements have been made (prior to the scheduled exam date, that is), and even then only with a letter from your doctor or employer or some similar evidence of overwhelming need to miss the exam. Exams are closed book, closed notes unless you are told otherwise.

Unless otherwise specified during class, you may be tested on any information presented in the reading assignments in the main textbook and in the supplementary textbook sections covered during the Activity periods. Additionally, you may be tested on any material covered in class.

Quizzes: The quizzes in this class will be taken from lecture, from textbook readings, and from the assignments. These quizzes will be short, usually consisting of only a few questions. If you are present for a quiz, you will always get at least one point for just putting your name on the page, so you are always better off to be present for a quiz, even if you don't know the material. Under no circumstances may any quiz be made up, although a student could be excused from a quiz for medical or other extreme situations, provided these are documented.

With the exception of week one, you are expected to have already completed the assigned reading for any given week on the first class day of that week, and material from that assigned reading will be included on pop quizzes. Quizzes are closed book, closed notes unless you are told otherwise.

Test Grading Note: Occasionally, it is deemed necessary to dispose of one or more test questions during or after the grading of exams or quizzes. This can occur when, due to the student responses, it is determined that a question is ambiguous or otherwise unfair. In such cases, ALL answers to the question will be considered correct. Those who "correctly" answered the question despite the unfairness will NOT receive any additional credit for their answer.
I am always open to discussion concerning grading of quizzes or exams. If you feel that any of your answers are correct even though they were marked incorrect, please feel free to discuss them with me. Incidentally, if I make an error in grading which works in your favor, you do not have to feel morally obliged to point it out to me. Consider it a gift!

**Cheating:** The University Policy on Academic Dishonesty is posted at http://www.csus.edu/admbus/umanual/UMA00150.htm. It should be considered as a part of this syllabus, and you are expected to read it carefully and abide by it.

Unless otherwise instructed (as, for example, team projects), all assignments, quizzes, and exams are to be entirely your own work. Any cheating will be dealt with immediately and vigorously. Don't cheat.

Be aware that discussion among students as to the general logic to solve a problem is not only allowed, but also encouraged. Likewise, I have no problem with students occasionally helping other students to find a particularly troublesome error in design or code. However, the design of an algorithm, and the coding of a program that implements that algorithm, must be the work of the student whose name appears on it. Giving help beyond the general (i.e., writing the pseudocode or code) for another student is cheating, just as surely as receiving that aid is cheating."

**Protecting Your Work:** Do not leave your program listings or pseudocode where they can be seen or taken by other people. Throw away old work at home. Do not give your system account password to anyone under any circumstances! Do not destroy any file associated with an assignment until the graded assignment has been returned to you. Keep all old assignments until your final grade has been assigned.

**Assignments:** The Lecture/Discussion assignment will require algorithms, represented in pseudocode and, later in the semester, structure charts, along with desk checks of the algorithms. Activity/Lab assignments will require completed Visual Logic Flow Charts and Output. **In order to receive full credit lecture assignments should be typed and your name should be on the top of the page.**

In order to receive full credit for the Activity/Lab Assignments your name should be typed at the top of the assignment. **Output should reflect the deliverables that are included in the Assignment Sheets.**

Timeliness of assignments is critical. The importance of timeliness will be reflected in severe grade penalties. I certainly will try to help you if unforeseen circumstances keep you away from class, but you must understand that, unless you are willing to commit yourself seriously to this class both by participating and by working on it on a regular
basis, you might as well not take it. The benefits you get from this class will be in direct proportion to the quality of your effort. **Any assignment not handed in by the announced due date and time will be penalized 20%. Furthermore, you will have only one week beyond the due date to receive any credit at all.** If you think your assignment is nearly correct at the due date and time, hand in the assignment as is. In any case, hand in whatever you have done by the beginning of the Lecture/Discussion period one week after the due date, since you will receive no credit after that time. (You may hand in late assignments at the CSc department office if you wish, but the deadlines explained above still hold - an assignment handed in at the CSc department office after the beginning of a Lecture/Discussion class period is just as late. **When you turn in an assignment at the department office, you must be sure that my name appears on the front of the assignment, and you must have the secretary time-stamp the assignment. Under no circumstances should any assignment be placed under my office door, although you may certainly turn in assignments directly to me when I am in my office or an Activity/Lab period. If you choose to ignore this advice and place an assignment under my office door, it will be considered to be "in" when I pick it up, which could easily be several days later than when you placed it there!)**

If you feel that there are special (non-academic) circumstances for which you should be granted special dispensation on timeliness, you may meet with me prior to the due date to discuss your circumstances and I will consider them.

**In-lab Activities:** There will be various activities throughout the semester. These may involve problem-solving activities, algorithm and program development, and who-knows-what else. In all cases, the activities will be completed during the lab/activity period. There is a special grading category for these activities. **You cannot receive in-Lab activity points unless you are present at the lab session.**

**Due Dates for Lecture/Discussion Assignments:** Every Lecture/Discussion assignment will be due at the beginning of your first scheduled Lecture/Discussion session for the week specified in the assignment handout. The assignments may be turned in via Webct or turned in (hardcopy) at the beginning of your first scheduled Lecture/Discussion session. As soon as that class period begins, any Lecture/Discussion assignments not handed in are automatically late.

**Due Dates for Activity/Lab Assignments:** During any week's Activity period, you are expected to be working on the current week's work. In order to avoid a situation in which students choose to attend a later Activity/Lab period than the one to which they are assigned in order to get another couple of days to work on the assignment, Activity/Lab Assignments will be due at the beginning of the first Lecture/Discussion session for the week specified in the assignment handout. For example, if an Activity/Lab assignment is shown as being due in week 5, and your scheduled Activity/Lab period is on Monday, then that assignment is due at the beginning of Monday’s Lecture/Discussion period for week 5. If you are scheduled for Wednesday’s
Activity/Lab, then your Activity/Lab assignment is due at the beginning of Wednesday’s Lecture/Discussion session for the week specified in the assignment handout. If you choose to attend a Lecture/Discussion period other than your scheduled one, that will have no effect on the due dates. The Activity /Lab Assignments can be turned in on Webct or turned in on your lab day before the Lecture/Discussion session begins.

Note: If you complete a lab/activity during the lab period, please show your completed work to me at that time, rather than waiting to turn it in at the due date. This is the best way to get immediate feedback.

**Workload for CSc10:** Please be advised that there is quite a bit of work in this class. There will be work during the scheduled activity/laboratory session every week. However, there will be activity/lab work and additional programming assignments, which cannot be finished during the scheduled activity/laboratory periods. Work done during the technical activity period is NOT considered "homework" - that is, there will be a "normal" load of work outside of activity period and lecture/discussion period -- the expected outside work is two hours outside for every hour in lecture/discussion.

**Design Before Using Visual Logic:** During the activity/laboratory session, or during office hours, I will be happy to assist you in your design and translating that design into visual logic, but in that order only. If you are having a problem, I will first look at your pseudocode to see if the problem is in your algorithm. If it is determined that the algorithm is correct, I may then help with the problems which are preventing you from implementing your algorithm in Visual Logic.

**Grading Policy:** The following grading policies will be followed in this class.

Within the **important constraints** listed in following paragraphs, the overall grade in this course will be based on these criteria:

- 92% - 100% A
- 90% - 91%  A-
- 88% - 89%  B+
- 82% - 87%  B
- 80% - 81%  B-
- 78% - 79%  C+
- 72% - 77%  C
- 70% - 71%  C-
- 68% - 69%  D+
- 62% - 67%  D
- 60% - 61%  D-
- 0% - 59%  F
If it is advantageous to the majority of students, a curve may be used in place of the straight numeric grading. If so, the median score will be a middle C.

However, there are other critical considerations, which you must understand.

1) In order to receive a grade of C- or higher, you must have an average grade of 70% for the In-lab activities, Lecture Assignments and Laboratory assignments, and you must have an average grade of 70% for the combined exams/quizzes. Those are threshold scores - if either of those averages is below 70%, you will not receive a grade above D+, no matter what the total percentage turns out to be.

2) Assuming you have met the 70% threshold for lab assignments and for exams, your total percentage will be based on the following weighting factors:

   Midterm exams:
   Exam One: 20%
   Exam Two: 20%
   Final Exam: 25%

   Lecture/Discussion Assignments: 15%
   Activity/Lab Assignments: 10%
   Pop Quizzes: 5%
   In-lab activities: 5%

There may be extra credit available at the instructor's option.

**Special note on "Passing Grade" criteria:** It is generally my policy that one terrible day should not be enough to wreck an entire semester. By this, I mean that, on occasion, a student's overall work (assignments, quizzes, exams, class participation) shows mastery of the subject, but one early exam was so low that it would be impossible to bring the exam average or the overall average up to a passing level. (Consider, for example, a score of 30 on the first midterm, but A and B scores on everything else for the semester, including the final exam. In such a case, the calculated grade could still be below one or more of the 70% thresholds, but that student clearly has mastered the subject matter for the course.) In such exceptional cases, I reserve the right to waive the threshold criteria, at my own discretion. However, you should be aware that I rarely if ever do so if the "direction" is wrong - that is, if the first scores are the high ones and the ending score is the low one.
**Discrepancies in grade recording:** It will be the responsibility of each student to keep track of his/her points on all quizzes, assignments, etc. I will provide a tally prior to the end of the semester. If there is any discrepancy, you should bring it to my attention immediately. **For this reason, it is also strongly advised that you retain all graded work, which has been returned to you, as proof in case of discrepancies.**

**Incompletes:** Incompletes will not be given. Computer Science department policy governs the assigning of "I" grades, and they are not given lightly. I will follow department policy to the letter. Please do not ask me to do otherwise.

**Drops:** This class will follow department policies regarding drops. After the sixth week, no drops will be permitted except for serious and compelling non-academic reasons, and will need approval from the chair of the CSc department, and in some cases, from the dean of the College of Engineering and Computer Science.

**Grade replacement:** If you are re-taking this course to replace a grade, you must file a petition. There are published University rules for grade replacement. Those rules are available from the CSc department office.
SCHEDULE for Fall/2006
Note: this is a tentative schedule which may be modified as conditions warrant.

All “Reading” sections for Lecture/Discussion refer to the main text, Computer Program Design Using Pseudocode.

Wk 1 (Week beginning 9/5)

Lecture/Discussion:

   Topics: Introduction to course, introduction to programming, how computers work.
   Reading: Introduction, Chapter 1

   Note: With the exception of week 1, the Reading is expected to be completed prior to the beginning of the first class session for the assigned week.

Activity:

   Topics: Diagnostic Test for any students with previous programming experience. Introduction to the Visual Logic environment
   Activity A (Lab Activity Manual - Webct)

Wk 2 (Week beginning 9/11)

Lecture/Discussion:

   Reading: Chapter 1 (continued). Chapter 2.

Activity:

   Topics: Variables, assignment statements, output
   Activity B (Lab Activity Manual - Webct)
Wk 3 (Week beginning 9/18)

Lecture/Discussion:

Topics: Structured Programming, design, and pseudocode. Desk checking.
Reading: Chapters 2 cont.

Activity:

Topics: Input and input prompts
Activity C (Lab Activity Manual - Webct)

Due:

Lecture Assignment 1 (Bricks in a Pickup Truck Problem)

(Due at the beginning of lecture, first class day of week)

Wk 4 (Week beginning 9/25)

Lecture/Discussion:

Topics: Developing algorithms using the Sequential Control Structure.
Precedence of arithmetic operators.
Reading: Chapter 3

Activity:

Topics: Arithmetic, precedence of operators, storing calculation results vs.
calculating within the output operation.
Activity D (Lab Activity Manual)
Wk 5 (Week beginning 10/2)

Lecture/Discussion:

Topics: Catch-up time and review
Reading: None

Midterm Examination 1 (in second Lecture/Discussion session of week)

Activity:

Topics: Putting together the first four weeks!
Activity E (Lab Activity Manual)

Due:

Lecture Assignment 2: Bricks in a Pickup Truck PsuedoCode

(Due at the beginning of lecture, first class day of week)

Wk 6 (Week beginning 10/9)

Lecture/Discussion:

Topics: Developing algorithms using the Conditional Control Structure.
If/Then/Else, character and string data.
Reading: Chapter 4 (Two weeks on conditional control structure)

Activity:

Topics: Conditional Control Structure
Activity F (Lab Activity Manual)

Due:

Lab Assignment 1: Visual Logic – Bricks in a Pickup Truck Problem Visual Logic

(Due at the beginning of lecture, on your lab day)
Wk 7 (Week beginning 10/16)

Lecture/Discussion:

Topics: Developing algorithms using the Conditional Control Structure (continued.) And, Or, Not, Nested If/Then/Else, Case Structure.
Reading: Chapter 5 & Chapter 8 (conditional control structure continued and introduction to data validation)

Activity:

Topics: Conditional Control Structure (continued)
: Activity G (Lab Activity Manual)

Wk 8 (Week beginning 10/23)

Lecture/Discussion:

Topics: Developing algorithms using the Loop Control Structure. Pre-test vs. post-test loops. Counter-controlled pre-test loops. Other conditions for loop termination in pre-test loops.
Reading: Chapter 6 (Two weeks on the iteration control structure more on data validation)

Activity: There is no in-lab activity this week. Use this time to work on Lab Assignment 2.

Due:

Lecture Assignment 3 – Desk Construction Problem – IF/THEN/ELSE

(Due by the beginning of lecture, first class day of week)
Wk 9 (Week beginning 10/30)

Lecture/Discussion:

Topics: Developing algorithms using the Loop Control Structure (continued.)
Post-test loops, nested loops, For-loops.
Reading: Chapter 6 & 8 (iteration control structure continued)

Activity:

Topics: Conditional Loops
Activity H (Lab Activity Manual)

Due:

Lab Assignment 2 – Visual Logic – Desk Construction Problem
(Due at beginning of lecture, on your assigned lab day.)

Wk10 (Week beginning 11/6)

Lecture/Discussion:

Topics: Catch-up time, review
Reading: None

Midterm Examination 2 (in second Lecture/Discussion session of week)

Activity:

Topics: Loops (continued)
Activity I (Lab Activity Manual)
**Wk 11** (Week beginning 11/13)

Lecture/Discussion:

- Topics: Designing and using modules. Introduction to communication of data between modules, flow of control, rationale for using modules, procedural abstraction and black boxes.
- Reading: Module 2 and Chapter 11

Activity:

- Topics: Loop problems for you to solve
- Activity J (Lab Activity Manual)

Due:

**Lecture Assignment 4: Grade Problem - Loops**

*(Due at beginning of lecture, first class day of week)*

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**Wk 12** (Week beginning 11/20)

Lecture/Discussion:

- Topics: Arrays. Single-dimensional arrays, subscripts, processing with For loops, searching and sorting, introduction to multi-dimensional arrays.
- Reading: Chapter 7 (Two weeks for this chapter)

Activity:

- Topics: Arrays
- Activity K (Lab Activity Manual) Those of you that have the Thursday Lab will have an extra week to turn in the lab, because of the Thanksgiving Holiday.

Due:

**Lab Assignment 3 - Visual Logic – Grade Problem - Loops**

*(Due at beginning of lecture, on your assigned lab day.)*

**Thanksgiving Recess – November 23-26**
**Wk13** (Week beginning 11/27)

Lecture/Discussion:

Topics: Arrays continued. Searching, sorting, parallel arrays, introduction to multi-dimensional arrays.
Reading: Chapter 7, Chapter 12 and Chapter 13 (continued)

Activity:

Topics: Arrays
Activity L (Lab Activity Manual)

**Due:**

Lab Assignment 3 - Visual Logic – Grade Problem- Loops
(Due at beginning of lecture, on your assigned lab day.)

**Wk14** (Week beginning 12/4)

Lecture/Discussion:

Topics: Sharing of data in modular programs. Functions. The “logical view” is more important for this class than the “implementation view”. We will cover as much as we have time for.
Reading: Chapter Module 2 and Chapter 11.

Activity:

Topics: **Visual Basic**
Activity M (Lab Activity Manual)

**Due:**

Lecture Assignment 5 (Subroutines for Test Score Array)
(Due at beginning of lecture, first class day of week)
Wk15 (Week beginning 12/11)

Lecture/Discussion:

Topics: Catch-up time and review
Reading: None

Activity:

Topics: Subroutines
Activity N (Lab Activity Manual)

Due:

Extra Credit: Subroutines for Test Scores Array in Visual Logic – Lab Assignment 4
(Due at end of last lab period of 15th week. Will not be accepted late!)

Wk 16 (Week beginning 12/18)

Final Exam: Exam will be cumulative, but emphasis will be placed on material from last third of course.

Tentative Final Schedule:

Mon/Wed 11:00 AM Class: Wed. Dec 20th 10:15 AM-12:15 PM
Mon/Wed 3:00 PM Class: Wed. Dec 20th 3:00 - 5:00 PM
Tues/Thurs 10:30 AM Class: Thurs. Dec 21th 10:15 AM-12:15 PM

Under no circumstances will any assignments be accepted this week.