

Computer Science Department
CSC110 SLA - Introduction to Computing
With Service Learning
Spring 2008, 3 Credit Hours

<u>Instructor:</u>	Dr. Debra Burhans	<u>Office Hours:</u>	Tues: 3:30 – 5:00pm
<u>Office:</u>	Wehle 207E		Wed: 9 – 11 am
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CSC 110 SLA – Lecture T R 10:00 – 11:15 OM 224

CSC 110L A and B – Laboratory for course, Wednesdays (starts Jan 23)

Description of the Course

The course presents a broad overview of the field of computer science. It provides a more thorough understanding of computers for those who are seeking to gain more knowledge. The course is also intended to provide a foundation for those continuing on in Computer Science. A student who completes this course will have an appreciation of what a computer is, how it works, how computer systems are designed and built, and the many applications in which a computer is used. In addition, a student will become familiar with the limitations of computers, and with social and ethical problems associated with computers.

There is a service learning component in this course for which students will be expected to put in a minimum of **15** hours volunteer time working with people who need help using computers. The details of the service learning activity will be provided once classes begin.

Text and Materials

- *Computer Science Illuminated*, 3rd ed., by Nell Dale and John Lewis, Jones and Bartlett, 2007. bundled with:
- *Explorations in Computer Science*, by R. Mark Meyer, Jones and Bartlett, 2003.
- *Student Lecture Companion* by Nell Dale and John Lewis

Course Objectives

- Know aspects of the history and culture of computer science
- Present and explain ideas in written form
- Know ethical issues involved in the use of computers and responsibilities (e.g., privacy, copyright, security, honesty).
- Weigh different solutions and explain or argue why a particular choice was made
- Understand how and be able to evaluate a solution's advantages and disadvantages
- Understand the social impact of computing
- Know how an operating system works
- Know the standard von Neumann architecture
- Be able to use a database system
- Be able to design and implement a knowledge representation
- Know how to program in a high-level language
- Know how to debug a program

Upon successful completion of this course, students will know

- The history of the development of computer science
- The basic logic gates used in building computer circuits and how they work
- How to fill in a truth table, draw a circuit and write a Boolean expression for a circuit
- How to build a circuit, and then trace, and compute circuit delays
- What a sequential circuit is and how an adder, a multiplexer, and a comparator work.
- How to convert numbers between binary, octal, hexadecimal and decimal
- How a computer represents text, sounds, colors, and pictures
- What an operating system is and the services it provides
- What the major components of a computer are and the functions of each component.
- What an algorithm is and the importance of algorithms in computer science
- How to solve problems using spreadsheets and databases
- The tradeoffs of solving problems using spreadsheets, databases, or writing a new program
- How to write and trace simple programs in structured programming languages
- What a simulation does and why simulations are used
- What artificial intelligence is and several major AI algorithms
- How to analyze ethical implications in specific situations, and then defend a position
- What a computer network is, how it works, the various protocols used
- What the Internet is and the relationship between the Internet and the WWW
- How to prepare a simple HTML document and the differences between HTML and XML

Web Site

The URL of the CSC110 SLA is given above. The website will provide information about this course including schedules, assignments, syllabi, announcements, dates and notes.

Special Accommodations and Problems

If you have any condition, such as a physical or mental disability, which will make it difficult for you to carry out the work of the course or which will require extra time on examinations, please notify me in the first two weeks of the course so that we may make appropriate arrangements.

If you are not a native English speaker and are having difficulties, please consult with the instructor as soon as possible so that we can accommodate you.

Academic Misconduct

The definition of academic misconduct (cheating) is given on the Canisius College web site, along with penalties and procedures for appeals. Unless otherwise stated, all work handed in must be your own.

<http://www.canisius.edu/studentlife/standards/appenda.asp>

Grading

There is one grade for both lecture (CSC110) and lab (CSC110L). It will be determined by a weighted average of the following items:

Midterm	20%
Final	29%
Homework	6%
Quizzes	10%
Service Learning Report	10%
Lab Projects	25%
Total	100%

From this a letter grade will be determined based on the following cutoffs:

At least 95	A
Less than 95 but at least 90	A-
Less than 90 but at least 87	B+
Less than 87 but at least 83	B
Less than 83 but at least 80	B-
Less than 80 but at least 77	C+
Less than 77 but at least 72	C
Less than 72 but at least 67	C-
Less than 67 but at least 60	D
Less than 60	F

The instructor may revise the cutoffs downward. This will work to a student's advantage since a student may then get a higher letter grade.

- *Midterm* -- There will be one 75-minute midterm exam that will cover the first half of the course on **February 28th**. There will be an essay question on the exam. No make-up test will be given for any reason, so if you miss the test, you cannot take it later or take another one to make up for it. If you know ahead of the test date that you cannot take the test, please make arrangements with the instructor. You must do this by **January 31** at the latest. In case of a catastrophe that causes you to miss the test, you need to get a written statement from the Dean and be able to prove your excuse.
- *Final Exam* -- The final will cover material primarily taken from the second half of the course. There will be an essay on the final. Missing the final results in an automatic failure of the course with an FX.
- *Homework* -- There will be **7** homework assignments that will be handed in and graded. Each student is expected to do his or her own homework individually. There are no make ups for missed homework and a student will be allowed to drop the lowest grade from the set of all homework assignments.

- *Quizzes* - There will be **6** quizzes during the semester, about every other week. A missed quiz counts as 0 and still counts as part of the six. The lowest grade of all six will be dropped. **An absence from a quiz for any reason still counts as a missed quiz.**
- *Service Learning Report* -- Your service learning experience will provide the material for this report. The report fulfills a course requirement to build student skills in writing. Details will be given later.
- *Lab Projects* -- Everyone registered for CSC110 must also be registered for a lab section, CSC110L. The lab instructor will not be the same as the lecture professor. Your lab instructor will issue separate policies and projects for the lab. There will be approximately 10 lab projects throughout the semester. The projects will be introduced in lab during which time you will get hands-on instruction and some in-lab time to work. What you can't complete during the lab hour must be done outside of class. The lab instructor will compute a lab grade from 0-100% which will be incorporated in your overall course grade as shown above.
- **No Extra Credit!!** -- No extra credit will be allowed for anybody for any reason. The course has many opportunities for keeping up. Attend class regularly, work diligently, get help when you need it and your chances of getting a good grade will be that much greater.

Attendance

It is important that you attend class regularly to ensure your success in the course. Attendance will be taken every class and recorded. You will be given **4** free absences to cover any and all possibilities. This includes **death in the family, car problems, illness, hospitalization, athletic events or anything else that causes you to miss class.** Beyond the 4 absences, a **2-point** deduction will be taken from your final course grade for each additional absence. For example, if you had earned an 85% and had 7 absences, your final grade would be 79%. Do not bother to call in because no exceptions will be made for anybody no matter what reason. If the College closes due to weather or other emergency, no one will be considered absent. Anyone coming to class more than 20 minutes late is considered absent for that class.

Help!

During the course of the semester, it is usual for students to experience some difficulties and frustrations, and sometimes to get behind in their work. *If you are having such problems, do not suffer in silence!* **Come and visit the instructor very soon** so that we can discuss ways to help you. We will try to solve your problems in a cordial, non-judgmental atmosphere. However, you need to take the initiative of making initial contact. Often your instructor may not even know you are having troubles.

There are special Computer Science tutors who can help you with this course and the lab. Check with the departmental secretary (X2430) or look for signs in the glass showcase in the hall outside the Computer Science Department office in the Wehle Technology Center (room 207). You can also avail yourself of tutors in the Tutoring Center regarding other issues such as note-taking, test-taking, textbook reading strategies and English prose.

Date	Reading	Topic	Notes
Jan 15-17	Ch. 1	Course overview & Introduction	
		History of Computers	
Jan 22-24	Ch. 4.1 - 4.2	Gates & Boolean Functions	SL Site Selection HW#1 assigned
	Ch. 4.3 - 4.4	Simple Circuits & Delay Propagation	
	Ch. 4.4	Boolean Logic & Boolean Algebra	
Jan 29-31	Ch. 4.4 - 4.7	Complex Circuits	HW#1 Due Quiz #1 HW#2 assigned
	Ch. 2.1 - 2.2	Positional Notation	
	Ch. 2.2	Converting From Decimal To Other Bases	
Feb 5-7	Ch. 2.2	Using Numbers in Other Bases & Adders	HW#2 Due H#3 assigned
	Ch. 3	Data Representation	
	Ch. 5.1 - 5.2	Components & von Neumann Architecture	
Feb 12-14	Ch. 5.2	Fetch-Execute Cycle & Other Architectures	Quiz #2 SL Update #1 HW#3 Due
	Ch 10.1	Booting a Computer & Running a Program	
	Ch. 10.1	Operating System Fundamentals	
Feb 19		*** President's Day Holiday ***	
Feb 21	Ch. 10.2 - 10.4	Operating Systems' Responsibilities	
Feb 26	Ch. 12.2	Beginning Programming: Spreadsheets	Review for midterm
Feb 28		*** Midterm ***	
Mar 4-6	Handout	Robotran Basics & Syntax	HW#4 assigned
	Handout	Loops & Functions	
Mar 11-13	Handout	Event-Based Programming	HW#4 Due SL Update #2
	Handout	Programming Assignment	
Mar 18	Handout	Programming Assignment	Quiz #3
Mar 20-31		*** Spring/Easter Break ***	
April 1-3	<i>TBD</i>	Social Roles & Responsibilities	Quiz #4 HW#5 assigned
	Ch. 14.5 & p. 473	Ethics & Computer Security	
	Ch. 12.3	Databases & SQL	
	Ch. 12.3	Designing Databases & E/R Diagrams	
	Ch. 16.4	Simpler Data Storage	
April 8-10	Ch. 12.4 & p. 401	Information Security	HW#5 Due SL Update #3, Quiz #5
	Ch. 14	Simulations & Other Computer Uses	
	Ch. 13.1, 13.4	Thinking Machines & Neural Networks	
April 15-17	Ch. 13.2 - 13.3	Semantic Networks & Expert Systems	HW#6 assigned
	Ch. 13.5 - 13.6	Real-World AI	
	Ch. 15.1	Networking	
	Ch. 15.2 - 15.3	Network Protocols, Network Addresses	
April 22-24	Handouts, p. 499	Privacy	HW#6 Due Quiz #6 HW#7 assigned
	Ch. 16.1	History of the Internet and the World Wide Web	
	--	Browsing the Web	
April 29	Ch. 16.2, 16.4	HTML, XML	HW#7 Due
May 1	--	Course Review	SL Report Due