

**Regis University  
College for Professional Studies  
School of Computer & Information Sciences  
Spring 8W1 2013**

**INSTRUCTOR INFORMATION:**

Name:	Mohamed Lotfy
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Turnaround Time	<b><u>Turnaround Time</u></b>  <b>Email &amp; Questions: Within 24-48 hours</b> <b>Homeworks &amp; Exams: Next class meeting after the due date</b>
	Course companion web site: <a href="http://academic.regis.edu/mlofty/">http://academic.regis.edu/mlofty/</a> and click on the CS208 link then choose the CS208 classroom link. The web site has additional course materials for the class.

**COURSE TITLE: Computer Science Fundamentals**

**COURSE NUMBER: CS 208**

**COURSE DESCRIPTION:**

Provides an introduction to Computer Science/Computer Information Systems. Includes numbering systems, mathematical and logical binary operations, basic concepts of computer organization, and operating systems. Introduces systems analysis and design, management information systems, databases, networking, assembly and high-level language program development environments.

**PREREQUISITE COURSES:**

None

## COURSE OUTCOMES:

Upon completion of this course, learners should be able to:

1. Explain what it means to study "Computer Science and Information systems" and describe the historical roots of the disciplines.
2. Identify and describe the basic hardware components of microcomputer systems.
3. Interpret the different numbering representations including binary, octal and hexadecimal, and how they relate to binary number systems.
4. Interpret and implement the signed and floating-point representations of binary numbers.
5. Identify the elements involved in program design.
6. Design algorithms; create structure charts and flowcharts to solve problems.
7. Practice and implement the concepts of structured programming using the C++ programming language
8. Practice and implement the concepts of assembly programming using an assembler.
9. Explain the basics of data communications and networking including the different network topologies and the OSI model.
10. Describe the functionality of current Operating Systems.
11. Describe and explain the different components of Management Information Systems.
12. Describe and explain the Systems Analysis and Design life cycle and the different IT conversion methods.
13. Describe and explain the structures of databases and their usages.
14. Identify the ethical, social, and privacy issues introduced by the usage of Information Systems.
15. Explain the behavior of programs that use the fundamental programming constructs introduced in this course.
16. Use the scientific method and other strategies to identify problem solutions.

## COURSE MATERIALS:

### Required Texts:

Schneider, G. M. & Gersting, J. L. (2013). *Invitation to Computer Science, 6th Edition*. Course Technology Cengage learning, ISBN # 978-1-133-19082-0

C++ Chapter free module accompanying Invitation to Computer Science. ISBN 0324788592\_184952. [Free Module](#)

### Required Resources:

Regis University, CS208-[Computer Science Fundamentals Supplemental Course Materials](#).

### Technology Tools:

1. A PC-compatible computer system running Windows XP, Vista, or Windows 7.
2. Microsoft PowerPoint® (part of Microsoft Office) or the free PowerPoint Viewer
3. An Assembler (Model Assembler provided).
4. A C++ Compiler

Students with Macs or Unix operating systems (also for Windows) can use the **Code Blocks C++ compiler** which can be downloaded (free) at:

<http://www.codeblocks.org/downloads/26>

**Dev-C++** (for Windows) which can be downloaded (free) at:

<http://www.bloodshed.net/dev/devcpp.html>

Version to download: *Dev-C++ 5.0 beta 9.2 (4.9.9.2) ( 9.0 MB) with Mingw/GCC 3.4.2*

Other ANSI standard C++ compilers can be used, but the facilitator will be most familiar with the Code Blocks and Dev-C++ compilers listed above, and will most likely use the Code Blocks and /or Dev-C++ compilers to grade your programs. If a student chooses to use another compiler, it is the student's responsibility to obtain any help needed to use the software, and to insure that all assigned programs compile and run correctly on the Code Blocks and /or Dev-C++ compilers.

As with most of Regis learning activities, using various software applications to accomplish assignments requires students to exercise a great deal of responsibility for learning how to successfully operate the software applications. There are, however, many quality books on the market that support novice users if you need them.

### PRE-ASSIGNMENT:

1. **Read** the following pages in your text, *Invitation to Computer Science*: Chapter 1 (all), Chapter 4 (Sec 4.1 – 4.3.2), and Ch 5 (all)
  2. **Read** the following pages in your CS208 Supplemental Course Materials: Chapter 1, Sections I-IV
  3. **Write** a three page (third page **MUST** be at least half full), double-spaced, computer-printed essay, using the APA format, which addresses:
    - your definition of a problem;
    - your experiences with problem solving (at work or elsewhere);
    - the steps you took to identify and resolve one or more problems;
    - a description of how you would define a generalized approach to problem solving based on your prior experiences;
    - anything else you'd like to discuss concerning this paper.
- **Classroom-based Format:** the essay is due the first night of class to receive credit.

### RELATED STANDARDS

Program Outcomes	
	This course enables students to achieve the following Program outcomes by the time of graduation:
	An ability to apply knowledge of computing and mathematics appropriate to the discipline
	An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution
	An understanding of professional, ethical, legal, security and social issues and

	responsibilities
	An ability to communicate effectively with a range of audiences
	An ability to analyze the local and global impact of computing on individuals, organizations, and society
	Recognition of the need for and an ability to engage in continuing professional development
<b>Regis Nine Educational Outcomes</b>	
	Content Knowledge in Discipline
	Diverse Cultures, Perspectives, and Belief Systems
	Arts, Sciences, and Humanities
	Critical Thinking
	Communication
	Technology
	Ethical and Social Responsibility
	Leadership in Service to Others
	Lifelong Learning
<b>Jesuit Themes - These are themes that are embedded as part of our interactions and instruction at Regis, but are not written in as activities</b>	
	Magis, Finding God in All Things, Unity of Hearts and Mind, Contemplatives in Action, Care of the Whole Person, Men and Women for Others

### Programming Assignments

There will be 4 programming assignments. Each programming assignment will involve writing three or four programs, using the concepts discussed in the book and class, and may also include submission of pseudo code, flowcharts, test data and/or test plans.

### Exams

There will be a midterm exam and a final exam. Exams will be timed; they might be open book, open notes, closed book, and/or closed notes. Exam questions will be cumulative, taken from reading assignments and class presentations.

### Participation

Because of the accelerated nature of the course, class participation is very important. Class participation/effort is important because we can all learn from each other. Your participation points can make a difference in the final grade. If the student doesn't participate during any given week, they will lose the participation points of that week.

Participation means:

1. Present in class every session
2. Effectively responds to questions from the facilitator
3. Contributes to classroom discussions, etc.

## Late Assignments

If you have not negotiated with the facilitator, assignments turned in late will be graded, then reduced by 15%. Assignments will not be accepted later than one week after due date.



## COURSE ASSIGNMENTS AND ACTIVITIES:

Week	Topics	Readings ICS = Invitation to Computer Science SCM = Supplemental Course Materials	Graded Assignments or Assessments and Associated Points
1	1. Course Introduction 2. Processing Hardware 3. Number Systems 4. Codes for Data Representation 5. (ASCII and Binary, Octal, & Hex Numbers) 6. Operations on Binary Numbers	ICS: Ch 1 (all), Ch 4 (Sec 4.1 – 4.3.2), and Ch 5 (all)  SCM: Ch 1, Sec I-IV	Problem Solving Essay 1.5%
2	7. Signed Numbers 8. Floating Point Numbers 9. Programming (Problem Solving & Program Design)	ICS: Ch 2 (all), and Ch 6 (Sec 6.1- 6.2.2)  SCM: Ch 1, Sec V-VI	Homework #1 8%  Attendance/Participation 1.5%
3	10. Programming (Languages) 11. C++ Language Introduction	ICS: Ch 9 (all), Ch 10 (10.2.4), and C++ Ch (Sec 1 - 3.2)  SCM: Ch 4, Sec I-III	Homework #2 8%  Attendance/Participation 1.5%
4	12. C++ Language Introduction (continued)	ICS: C++ Ch (Sec 3.3 – 4) SCM: Ch 4, Sec IV	Midterm Exam 20%  Attendance/Participation 1.5%
5	13. Assembly Language Concepts	ICS: Ch 6 (Sec 6.3)  SCM: Chap 2 (all)	Homework #3 8%  Attendance/Participation 1.5%
6	14. System Software 15. Data Communication/Networks 16. Including the Internet and the WWW	ICS: Ch 6 (Sec 6.4) ICS: Ch 7 (all)	Homework #4 8%  Attendance/Participation 1.5%
7	17. IS Analysis and Design 18. Files and Databases &E- Commerce	ICS: Ch 9 (Sec 9.6), Ch 14 (all), and Ch 10 ( Sec 10.3.1)  SCM: Ch 3 (all)	Homework #5 8%  Attendance/Participation 1.5%
8	19. Ethics, Privacy, and Security	ICS: Ch 8 (all) and Ch 17 (all)  SCM: Ch 6 (all)	Homework #6 8%  Final Exam 20%  Attendance/Participation 1.5%
			PERCENT 100

## COLLEGE FOR PROFESSIONAL STUDIES GRADING SCALE:

<b>Grading Scale and Equivalent Points</b>			
<i>Letter Grade</i>	<i>Percentage</i>	<i>Grade Point</i>	<i>*Minimum Course Equivalent Percentage</i>
A	93 to 100	4.00	93
A-	90 to less than 93	3.67	90
B+	87 to less than 90	3.33	87
B	83 to less than 87	3.00	83
B-	80 to less than 83	2.67	80
C+	77 to less than 80	2.33	77
C	73 to less than 77	2.00	73
C-	70 to less than 73	1.67	70
D+	67 to less than 70	1.33	67
D	63 to less than 67	1.00	63
D-	60 to less than 63	.67	60
F	Less than 60	0	Less than 60

\*See Maximum Percentages from Course Assignments and Activities Table.

## COLLEGE FOR PROFESSIONAL STUDIES POLICIES (LINKS):

You will be asked to enter a valid Regis University UserID and password to access the following policies.

### Academic Integrity

<https://in2.regis.edu/sites/spsdean/CPS%20Approved%20Policies%20and%20Procedures/Academic%20Integrity%20Policy%20and%20Board%20-%20December%202020,%202010.pdf>

### Attendance Participation

<https://in2.regis.edu/sites/spsdean/CPS%20Approved%20Policies%20and%20Procedures/CPS%20Syllabus%20Policies/Attendance%20Participation.pdf>

### Confidential Proprietary Information Policy

<https://in2.regis.edu/sites/spsdean/CPS%20Approved%20Policies%20and%20Procedures/CPS%20Syllabus%20Policies/Confidential%20Proprietary%20Information%20Policy.pdf>

### Dayton Memorial Library

<https://in2.regis.edu/sites/spsdean/CPS%20Approved%20Policies%20and%20Procedures/CPS%20Syllabus%20Policies/Dayton%20Memorial%20Library.pdf>

### Diversity

<https://in2.regis.edu/sites/spsdean/CPS%20Approved%20Policies%20and%20Procedures/CPS%20Syllabus%20Policies/Diversity%20at%20RU.pdf>

### Equal Access and Disability Services

<https://in2.regis.edu/sites/spsdean/CPS%20Approved%20Policies%20and%20Procedures/CPS%20Syllabus%20Policies/Equal%20Access%20Disability%20Services.pdf>

### Human Subjects Review (IRB)

<http://www.regis.edu/regis.asp?sctn=ars&p1=agr&p2=irb>

### Inclement Weather and Class Cancellation

<http://www.regis.edu/regis.asp?sctn=StuHandbook&p1=NavCampus&p2=Resc>

### Late or Incomplete Course Procedures

<https://in2.regis.edu/sites/spsdean/CPS%20Approved%20Policies%20and%20Procedures/CPS%20Syllabus%20Policies/Late%20Assignments%20Assignment%20Revisions%20Policy%20CPS.pdf>

### Learner Conduct

<https://in2.regis.edu/sites/spsdean/CPS%20Approved%20Policies%20and%20Procedures/CPS%20Syllabus%20Policies/Learner%20Conduct.pdf>

### Writing Assistance

<https://in2.regis.edu/sites/spsdean/CPS%20Approved%20Policies%20and%20Procedures/CPS%20Syllabus%20Policies/Writing%20Assistance.pdf>

## OTHER INFORMATION:

NOTE TO LEARNERS: On occasion, the course facilitator may, at his or her discretion, alter the Learning Activities shown in this Syllabus. The alteration of Learning Activities may not, in any way, change the Learner Outcomes or the grading scale for this course as contained in this syllabus. Examples of circumstances that could justify alterations in Learning Activities could include number of learners in the course; compelling current events; special facilitator experience or expertise; or unanticipated disruptions to class session schedule.