CPSC1302 – Computer Science 2

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Class Meets: MWF 11:00-11:50 a.m. in Center for Commerce and Technology 405

CATALOG DESCRIPTION OF COURSE

CPSC 1302. Computer Science 2 (3-0-3) **Prerequisite:** CPSC 1301 and CPSC 1301L with a grade of C or better. This course is a continuation of CPSC 1301 and emphasizes programming using object-oriented methods. The fundamentals used in designing, developing and using classes, encapsulation, inheritance mechanisms, polymorphism and dynamic binding are covered.

Course Objectives: This course is the second in a two course sequence designed to introduce students to the fundamental concepts of computer science and programming. The course focuses on the design of algorithms to solve problems and the implementation of those algorithms in the programming language Java. Students will learn to manipulate arrays, to implement inheritance and polymorphism, exception handling, recursive programming, and basic data structures.

ACADEMIC OBJECTIVES

- The students will demonstrate the ability to read moderately complex programs written in a specific programming language and understand what these programs do
  - Strategies and Actions used to produce the outcome:
    - Study concepts of computer programming.
    - Read and write moderately complex programs in a programming language.
  - ABET Criteria covered: A, B, and C
  - Program Objectives covered: 2 and 3
  - Assessment Methods: Programming Assignments and Exams.
- The students will demonstrate the ability to design algorithms utilizing the principles of object-oriented programming (classes, encapsulation, inheritance mechanisms, polymorphism) to solve moderately complex problems
  - Strategies and Actions used to produce the outcome:
    - Study concepts of computer programming.
    - Read and write moderately complex programs in a programming language.
  - ABET Criteria covered: A, B, C, J and K
  - Program Objectives covered: 3
  - Assessment Methods: Programming Assignments and Exams.

- The students will demonstrate the ability to design algorithms utilizing some principles of programming (exception handling, recursive programming, and basic data structures) to solve moderately complex problems
    - Strategies and Actions used to produce the outcome:
        - Study concepts of computer programming.
        - Read and write moderately complex programs in a programming language.
    - ABET Criteria covered: A, B, C, J and K
    - Program Objectives covered: 3
    - Assessment Methods: Programming Assignments and Exams.
- The students will demonstrate the ability to write moderately complex programs in a specific programming language to implement these algorithms
    - Strategies and Actions used to produce the outcome:
        - Study concepts of computer programming.
    - ABET Criteria covered: A, B, C, J and K
    - Program Objectives covered: 3
    - Assessment Methods: Programming Assignments and Exams.
- The students will demonstrate the ability to follow specified style guidelines in writing programs, and understand how the guidelines enhance readability and promote correctness in programs
    - Strategies and Actions used to produce the outcome:
        - Study concepts of computer programming.
    - ABET Criteria covered: A, B, C, and J
    - Program Objectives covered: 2 and 3
    - Assessment Methods: Programming Assignments and Exams.
- The students will demonstrate the ability to edit, compile, debug and run programs in a specific programming language
    - Strategies and Actions used to produce the outcome:
        - Study concepts of computer programming.
    - ABET Criteria covered: A, B, and C
    - Program Objectives covered: 2 and 3
    - Assessment Methods: Programming Assignments and Exams.

MAJOR TOPICS

- Arrays
- Inheritance
- Polymorphism
- Sorting
- Searching
- Exceptions
- Recursion
- Collections and Data Structures

TEXTBOOKS

Required Text:

	**Java Software Solutions: Foundations of Program Design, 6th Edition** ISBN 0-321-53205-8 by John Lewis and William Loftus

Supplementary Books and Materials

- WebCT materials
- VideoNotes (**http://www.aw-bc.com/lewis/videonotes/index.html**)
- Class handouts & notes
- Software and manuals found in the computer labs and on the Internet

Software

To complete all lessons, assignments, labs, and tests, you will need to access a computer with:

- Windows XP/Vista, Linux, or Macintosh, Firefox or Internet Explorer, and PowerPoint
- Java 2 Platform, Standard Edition (J2SE)
- Java IDE (DrJava/BlueJ/Crimson Editor/Borland JBuilder/Eclipse)
- Java Source Code and Program Files from the textbook materials

The class material will be available via **WebCT Vista** at **http://colstate.view.usg.edu/**. This Web Site will contain class notes, class announcements, exam summaries, the course syllabus, test dates, and additional links.

Course Material Downloads

To download Java SDK: **http://java.sun.com/**
To download Dr. Java: **http://www.drjava.org/**
To download Crimson Editor: **http://crimsoneditor.com**
To download Blue J: **http://www.bluej.org/download/download.html**
To download Text Pad: **http://www.textpad.com/download/index.html**
To download Eclipse: **http://www.eclipse.org/downloads/**

ASSIGNMENTS FOR COURSE

- Readings from the textbooks
- Online materials available through WebCT
- Outside reading from popular computing periodicals is expected to enhance your knowledge of Computer Science
- Readings from documents found on the Internet
- Programming and non-programming assignments

ASSESSMENT CRITERIA

- **Lab Assignments** (100 pts.) [lowest ones will be dropped] – to be completed in the lab on Fridays and submitted by the end of the day
- **"Homework" Assignments** (250 pts.) [lowest one will be dropped] – due **before** 10 am on the class day
    - For each assignment, students will be expected to analyze requirements of the problem, design the algorithm and implement the algorithm by coding it into a Java program. Assignments will focus on one or more of the learning objectives. Assignments are due at the beginning of the class period of the due date. Assignments turned in after those times are considered late. Late assignments are not accepted for any reason. Programs should be submitted through the WebCT dropbox. Include your program source code and ancillary files as an attachment. Some assignments may require the submission of a UML class diagram.
- **Chapter Quizzes** (50 pts.) [lowest of six quizzes will be dropped]
- **One midterm test** (100 pts.)
- **One comprehensive FINAL EXAM** (200 pts)
    - Quizzes and exams will assess whether students have an understanding of data structures and how they work. Students will be expected to analyze the requirements of a problem, design the algorithm and code the solution in Java on the exam. Midterm and final exams test material from the lectures, readings and programming exercises. The exams may include multiple choice, fill in the blanks, short answer questions and programming questions (*you will be asked to write code*). All exams are closed book, closed notes, no calculators. If you miss any quiz or exam or are absent for that class, it will not be made up.
- **Class Participation** – will be considered for students who are on the borderline between two grades

A (90-100): The student fulfills or exceeds all of the assigned content requirements. The student's knowledge of the subject is accurate throughout. The student exhibits convincing range and quality of knowledge, having done appropriate research, if applicable.

B (80-89): The student fulfills all of the important assigned content requirements. The student's knowledge of the subject is accurate throughout except in minor details. The student seems informed on the subject, having done appropriate research, if applicable

C (70-79): The student fulfills most of the important assigned content requirements. The student's knowledge of the subject is generally accurate, though flawed. The student exhibits limited range or quality of knowledge, having done limited appropriate research, if applicable.

D (60-69): The student fulfills some of the important assigned content requirements. The student's knowledge of the subject is generally accurate, though flawed. The student exhibits limited range or quality of knowledge, having done minimal appropriate research, if applicable.

F (0-59): The student fails to address the important requirements of the course.
The student's knowledge of the subject is generally inaccurate. The student's knowledge of the subject lacks range or quality

Instructional Methods and Techniques

1. The class will meet for three fifty minute lecture / discussion periods each week. Fridays will often be spent in the lab.
2. Each student is expected to attend all class lectures, to read the textbook chapters and to make notes. Students will be expected to participate in classroom discussions, both in class and online.
3. Students must have access to computers for doing assignments.
4. The ACM recommends the following: “As a general guideline, the amount of out-of-class work is approximately ***three times*** the in-class time. Thus, a unit that is listed as requiring 3 hours typically entails a total of 12 hours (3 in class and 9 outside).” Students will be expected to spend this time outside class reading the book, online materials and other materials; writing solutions to homework exercises and programming projects.

How to Access the Course

This course includes WebCT Vista (Cougarview). You can access WebCT Vista at: **http://webct.colstate.edu/**

At this page, select the "Log on to" WebCT Vista link to activate the WebCT Vista logon dialog box, which will ask for your WebCT Vista username and password. Your Vista WebCT username and password are:

Username: lastname_firstname
Password: XXXX

Default password is your birthday in the format of DDMMYY.

If you try the above and WebCT Vista will not let you in, please use the "Comments/Problems" link on the WebCT Vista home page to request help. If you are still having problems gaining access a day or so after the class begins, please e-mail me immediately.

Once you've entered WebCT Vista, you will see a list of courses you have access to. The CPSC 1302 course is listed as "Computer Science 2". Next to this, you should see my name as the instructor. You may also see new discussion postings, new calendar postings, and new mail messages. Clicking on the name of the course will take you to the course's home page. If you do not see the "**Computer Science 2**" course in the list, please e-mail me **immediately**.

Once you have clicked on the course's name and accessed the particular course itself, you will find a home page with links to other sections and tools, and a menu on the left-hand side. Feel free to explore the areas in the course.

Website

It is your responsibility to frequently look at the course website to keep your knowledge of class activities current. For this course, the website is at **http://csc.colstate.edu/summers**. I may occasionally forget to announce details in class, but they may have been already posted on the site and/or in WebCT. If so, you will still be held responsible for them. For example, assignment due dates, corrections of errors, announcements, exam dates, changes to policies, and so on.

Discussion Etiquette

CSU is committed to open, frank, and insightful dialogue in all of its courses. Diversity has many manifestations, including diversity of thought, opinion, and values. Students are encouraged to be respectful of that diversity and to refrain from inappropriate commentary. Should such inappropriate comments occur, I will intervene as I monitor the dialogue in the discussions. I will

request that inappropriate content be removed from the discussion and will recommend university disciplinary action if deemed appropriate. Students as well as faculty should be guided by common sense and basic etiquette. The following are good guidelines to follow:

- Never post, transmit, promote, or distribute content that is known to be illegal.
- Never post harassing, threatening, or embarrassing comments.
- If you disagree with someone, respond to the subject, not the person.

Never post content that is harmful, abusive; racially, ethnically, or religiously offensive; vulgar; sexually explicit; or otherwise potentially offensive.

Student Responsibilities

As a student in this course, you are responsible to:

- manage your time and maintain the discipline required to meet the course requirements,
- come to class prepared to ask questions to maximize your understanding of the material,
- complete all readings,
- complete all assignments,
- complete all quizzes and exams,
- actively participate in discussions,
- submit the "one-minute paper" after each class, and
- read any e-mail sent by the instructor and respond accordingly.

"I didn't know" is **NOT** an acceptable excuse for failing to meet the course requirements. If you fail to meet your responsibilities, you do so at your own risk.

Instructor Responsibilities

As your instructor in this course, I am responsible to:

- lead the class discussion and answer students' questions,
- post weekly lessons outlining the assignments for the week,
- read all responses to discussion questions and comments to responses,
- actively participate in discussions when necessary,
- respond to students questions and concerns expressed in the "one-minute paper",
- grade assignments, quizzes, and exams, and post scores within one week of the end of the week in which they are submitted, and
- read any e-mail sent by the you and respond accordingly within 48 hours.

Although I will read every posted discussion question and response, I will not necessarily respond to every post.

Student Web Server Space

There may be times when you will want to use an actual Web server in response to discussion questions, for assignments, or for projects. All currently enrolled CSU students (including online students) can request free Web server space on the CSU student Web server. Simply go to **http://webs.colstate.edu/personal/** and click on the "Free Web Pages" icon. Then click on the link to request the account. Under normal circumstances, the account and space will be created in a matter of seconds. This server is also .NET capable.

CLASS ATTENDANCE: Class attendance is the responsibility of the student, and it is the student's responsibility to independently cover any materials missed. Class attendance and participation may also be used in determining grades. It is your responsibility to sign a roll sheet for every class meeting. At my discretion, I may drop you from the course for more than ***six (6)***

absences. Missing an exam or quiz is considered an absence. Missed classes caused by participation in documented, formal, University-sponsored events will not count as absences provided you notify me of such anticipated absences in advance and as soon as possible.

You are responsible for all class work missed, regardless of the reason for the absence(s). Late assignments will **not** be accepted, so if you are absent on the day an assignment is due, it is your responsibility to make alternate arrangements. No makeup exams or quizzes will be given, so please make sure you are present for all exams/quizzes. Refer to the CSU Catalog (**http://aa.colstate.edu/advising/a.asp#AbsencePolicy**) for more information on class attendance and withdrawal.

Academic dishonesty

Academic dishonesty includes, but is not limited to, activities such as cheating and plagiarism. It is a basis for disciplinary action. Collaboration is not permitted on assignments or exams/quizzes in this course. Any work turned in for individual credit must be entirely the work of the student submitting the work. **All work must be your own.** You may share ideas but submitting identical assignments (for example) will be considered cheating. **You may discuss the material in the course and help one another with debugging, however, I expect any work you hand in for a grade to be your own. .** A simple way to avoid inadvertent plagiarism is to talk about the assignments, but don't read each other's work or write solutions together. Keep scratch paper and old versions of assignments until after the assignment has been graded and returned to you. **If you have any questions about this, please see me immediately.**

For assignments, access to notes, textbook, books and other publications is allowed. Stealing, giving or receiving any code, diagrams, drawings, text or designs from another person (CSU or non-CSU) is not allowed. Having access to another person's work on the system or giving access to your work to another person is not allowed. It is your responsibility to keep your work confidential.

No cheating in any form will be tolerated. The penalty for the first occurrence of academic dishonesty is a zero grade on the assignment or exam/quiz; the penalty for the second occurrence is a failing grade for the course. For exams/quizzes, access to any type of written material or discussion of any kind (except with me) is not allowed. (**http://aa.colstate.edu/advising/a.asp#AcademicDishonestyAcademicMisconduct**)

Getting help

Student assistants in the Computer Center can help you with basic computer-related problems such as logging on to the network, saving your work, etc., but they are not obligated to help you with your assignments. There are several tutors at the Department of Computer Science lab (CCT450) who can help you with the assignments. Their schedule is posted in the Computer Science department. You can always contact me during my posted office hours, by e-mail, or by appointment.

Electronic Devices and Academic Integrity: All cell phones and pagers must be turned off prior to entering the classroom or lab. The use of any electronic device during a test or quiz is prohibited. This includes cell phones, handheld calculators, iPhones, Android phones, PalmPilots, Blackberrys, PocketPCs, and laptops. Any use of such a device during a test or quiz will be considered a breach of academic integrity.

CSU ADA statement

If you have a documented disability as described by the ***Rehabilitation Act of 1973*** *(P.L. 933-112* ***Section 504****) and* ***Americans with Disabilities Act (ADA)*** *and would like to request academic and/or physical accommodations please contact Joy Norman at the* ***Office of Disability Services*** *in the Center for Academic Support and Student Retention, Tucker Hall (706) 568-2330, as soon as possible. Course requirements will not be waived but reasonable accommodations may be provided as appropriate.*

ABET Criteria:

A. An ability to apply knowledge of computing and mathematics appropriate to the discipline;
B. An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution;
C. An ability to design, implement and evaluate a computer-based system, process, component, or program to meet desired needs;
D. An ability to function effectively on teams to accomplish a common goal;
E. An understanding of professional, ethical, legal, security, and social issues and responsibilities;
F. An ability to communicate effectively with a range of audiences;
G. An ability to analyze the local and global impact of computing on individuals, organizations and society;
H. Recognition of the need for, and an ability to engage in, continuing professional development;
I. An ability to use current techniques, skills, and tools necessary for computing practice.
J. An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices;
K. An ability to apply design and development principles in the construction of software systems of varying complexity.

CS Program Objectives:

Our graduates will have achieved:

1) A broad general education assuring an adequate foundation in science and mathematics relevant to computing.
2) A solid understanding of concepts fundamental to the discipline of computer science.
3) Good analytic, design, and implementation skills required to formulate and solve computing problems.
4) The ability to function and communicate effectively as ethically and social responsible computer science professionals.

COURSE OUTLINE (tentative)

DATE	Chapter / Description		Assignments/Quizzes
Week 1: (Aug 16-20)	Introductions 7.1-7.6	Review of CS 1 Arrays, 2D Arrays	Quiz 0 (ch 1-6)
Week 2: (Aug 23-27)	7.7 7.8-7.10	ArrayLists Graphics / GUI	
Week 3: (Aug 30-Sep 3)	8.1-8.3	Inheritance (subclasses, overriding methods, etc)	Quiz 1 (ch. 7) Assignment 1
Week 4: (Sep 6-10)	**Labor Day** 8.4-8.6	Visibility, designing, component class	
Friday, September 10: Deadline to withdraw (last day to drop classes and receive grade of 'W')			
Week 5: (Sep 13-17)	8.7-8.8	Extending Adapter class Timer Class	
Week 6: (Sep 20-24)	9.1-9.4	Polymorphism Sorting	Quiz 2 (ch. 8) Assignment 2
Week 7: (Sep 27–Oct 1)	9.4-9.6	Sorting, Searching Designing	
Week 8: (Oct 4 - 8)	9.7-9.10	Event Processing, Choosers, Sliders	
Fall Break October 9-12 (no classes)			
Week 9: (Oct 13-15)	REVIEW MIDTERM	Chapters 7-9	Assignment 3 Quiz 3 (ch. 9)
Week 10: (Oct 18-22)	10.1-10.3	Exceptions	
Week 11: (Oct 25-29)	10.4-10.8	Exceptions GUI	
Week 12: (Nov 1-5)	10.7-10.10 11.1-11.2	GUI Recursive Programming	Quiz 4 (ch. 10) Assignment 4
Week 13: (Nov 8-12)	11.3-11.4	Recursive Applications	
Week 14: (Nov 15-19)	12.1-12.2	Collections Dynamic Representation	Quiz 5 (ch. 11) Assignment 5
Week 15: (Nov 22-26)	12.3	Data Structures	
Thanksgiving Break November 24-26 (no classes)			
Week 16: (Nov 29–Dec 3)	12.4-12.5	Data Structures Generics	
Week 17: (Dec 6)	REVIEW		Quiz 6 (ch. 12) Assignment 6
Dec 11 (Sat)	10:30am - 12:30pm	**FINAL EXAM**	

Please return the following information to me as soon as possible.

CPSC 1302 (CRN 82089) Fall 2010

Student's name: _____ (please print)

Where can I reach you in case it becomes necessary? **

Email address that you use regularly: _____

Phone number(s): _____

Declaration: I have read, understood and agree to abide by the policies mentioned in the syllabus pertaining to the course. In particular, I agree to abide by the assignment policy/late work policy, attendance policy, academic dishonesty policy, website policy and exam policy.

(You must sign and date below).

Signature: _____ Date: _____

** Optional information