

# CPSC1301 – Computer Science 1

**INSTRUCTOR(S):** Dr. Wayne Summers

Office: CCT 455

School phone: (706) 507-8170

Office Hours: MTWRF 10:00-11:30 a.m., MWF 12:00-1:00pm; via e-mail, WebCT discussions and by appointment

e-mail address: [wsummers@ColumbusState.edu](mailto:wsummers@ColumbusState.edu)

homepage: <http://csc.ColumbusState.edu/summers>

Office phone: (706) 507-8193

School FAX: (706) 565-3529


Class Meets: MWF 9:00-9:50 a.m. in Center for Commerce and Technology 208

## CATALOG DESCRIPTION OF COURSE

**Official Course Description:** This course includes an overview of computers and programming; problem solving and algorithm development; simple data types; arithmetic and logic operators; selection structures; repetition structures; text files; arrays (one-and-two-dimensional); procedural abstraction and software design; modular programming (including sub-programs or the equivalent). (3 credits).

**Prerequisites:** Math 1111 – College Algebra (or equivalent). *Co-requisite:* CPSC 1301L.

## TEXTBOOKS

Required Text:		<p><b>Text: Big Java, 4th Edition</b> ISBN 978-0-470-50948-7 by Cay Horstmann</p>
----------------	---	---

## Supplementary Books and Materials

- WebCT materials (<https://colstate.view.usg.edu/>)
- **WileyPLUS** (<http://edugen.wiley.com/edugen/class/cls209202/>)
- Class handouts & notes - <http://csc.ColumbusState.edu/summers>
- 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/Netbeans/JGrasp/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 Blue J:** <http://www.bluej.org/>

**To download JGrasp:** <http://www.jgrasp.org/>

**To download Java SDK:** <http://java.sun.com/>

**To download Eclipse:** <http://www.eclipse.org>

**To download Dr. Java:** <http://www.drjava.org/>

**To download Text Pad:** <http://www.textpad.com/download/index.html>

**Course Objective:** Upon completion of this course, students will demonstrate an understanding of fundamental concepts of computer programming, including problem solving and algorithm development, procedural abstraction and software design. Students will be able to use simple data types, control structures, array and string data structures. Students will demonstrate these basic skills in programming by writing several significant programs. Students will use good software engineering principles and developing fundamental programming skills in the context of a language that supports the object-oriented paradigm. Students will be familiar with standard debugging techniques and the social implications of computing.

#### **Course Outcomes:**

- The students will demonstrate an understanding of computing and computer science.
  - Strategies and Actions used to produce the outcome:
    - Study concepts of computing and computer science.
    - Class discussion about what is computing and computer science.
  - ABET Criteria covered: A, E, and G
  - Program Objectives covered: 2
  - Assessment Methods: Written Assignments, Quizzes, and Exams.
- The students will demonstrate knowledge of computer programming concepts.
  - 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: Written and Programming Assignments, Quizzes, and Exams.
- The students will demonstrate knowledge of basic syntax of a specific programming language
  - Strategies and Actions used to produce the outcome:
    - Study of concepts of computer programming.
    - Study the API for the programming language.
  - ABET Criteria covered: A, B, and C
  - Program Objectives covered: 2 and 3
  - Assessment Methods: Written and Programming Assignments, Quizzes, and Exams.
- 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: Written and Programming Assignments, Quizzes, and Exams.
- The students will demonstrate the ability to design algorithms utilizing the principles of object-oriented programming 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, and C
  - Program Objectives covered: 3
  - Assessment Methods: Written and Programming Assignments, Quizzes, 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, and C
  - Program Objectives covered: 3
  - Assessment Methods: Written and Programming Assignments, Quizzes, 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: Written and Programming Assignments, Quizzes, 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: Written and Programming Assignments, Quizzes, and Exams.

## MAJOR TOPICS

1. An Introduction to Computers and Programming Languages
2. Using Objects
3. Implementing Classes
4. Fundamental Data Types
5. Decisions
6. Iteration
7. Arrays and ArrayLists

## ASSIGNMENTS FOR COURSE

- Readings from the textbook
- 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

- **Programming Assignments** (300 pts.) [lowest one will be dropped] – due **before** 8 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.
- **Chapter Quizzes** (120 pts.) [lowest of seven quizzes will be dropped]
- In-class / homework assignments (up to 100 pts.)
  - Each Friday will include a variety of computer science activities that may or may not be computer programming. Many of these will have assignments that may be completed in class or at home.
- **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. Class time on Monday and Wednesday will focus on Java while Fridays will cover other computer science topics.
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. This means you **MUST** read the book before coming to class!!!!
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.Columbusstate.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 1301 course is listed as "Computer Science 1". 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 1**" 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.ColumbusState.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.columbusstate.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://ace.columbusstate.edu/advising/a.php#AttendancePolicy>) 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://ace.columbusstate.edu/advising/a.php#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 the Americans with Disabilities Act (ADA) and subsequent amendments and would like to request academic and/or physical accommodations, please contact the Office of Disability Services in the Schuster Student Success Center (room 221), 706-507-8755, 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. 15-19)	Introduction Chapter 1: 1.1-1.5: Computers, Programming	Time Management <b>Binary Numbers</b>	
Week 2: (Aug. 22-26)	Chapter 1: 1.5-1.8 Java programs Chapter 2: 2.1-2.3 Types, Variables, Assignment	History of Computing - <b>Advent of the Computer</b> <b>History of Computing: A</b> <b>Study Abroad Approach</b>	Quiz 1 (ch. 1)
Week 3: (Aug.29-Sept.2)	Chapter 2: 2.4-2.8: Objects, Classes, Methods, API	Jeliot Visualization	Assignment 1
Labor Day			
Week 4: (Sept.6-9)	Chapter 2: 2.9-.2.13 Testing Programs Graphics Applications	Mainframes Tour	Quiz 2 (ch. 2)
Week 5: (Sept. 12-16)	Chapter 3: 3.1-3.5 Implementing Classes	Security, Reliability (voting machines) <b>Information Assurance</b>	Assignment 2
Week 6: (Sept. 19-23)	Chapter 3: 3.6-3.9 Unit Testing Shape Classes	Computer Graphics	Quiz 3 (ch. 3)
Week 7: (Sept.26-30)	Chapter 4: 4.1-4.3 Number Types Arithmetic/Math functions	Security, Reliability (Floating Point Bug) <b>Privacy in the 21st</b> <b>Century</b>	Assignment 3
Week 8: (Oct. 3 - 7)	Chapter 4: 4.4-4.6 Static, Strings, Input	Unicode	Quiz 4 (ch. 4)
Fall Break – OCT. 10-11			
Week 9: (Oct. 12-14)	REVIEW [chapters 1-4] MIDTERM		
Week 10: (Oct. 17-21)	Chapter 5: 5.1-5.3 If statement, Comparing, Multiple alternatives		Assignment 4
Week 11: (Oct. 24-28)	Chapter 5: 5.4-5.5 Boolean Expressions	AI	Quiz 5 (ch. 5)
Week 12: (Oct. 31-Nov.4)	Chapter 6: 6.1-6.3 While, for loops	First bug (Grace Hopper) <b>cipher-machines</b>	Assignment 5
Week 13: (Nov. 7-11)	Chapter 6: 6.4-6.6 Nested loops, Boolean	Debugging	Quiz 6 (ch. 6)

	expressions, debugger		
Week 14: (Nov. 14-18)	Chapter 7: 7.1-7.4 Arrays, ArrayLists, wrappers, for-each	Internet Worm	Assignment 6
Week 15: (Nov.21-22)	Chapter 7: 7.5-7.6 Array algorithms		
Thanksgiving – Nov. 23-27			
Week 16: (Nov. 28-Dec. 2)	Chapter 7: 7.7-7.8 2-D arrays regression testing	Security, Reliability (Therac-25)	Quiz 7 (ch. 7)
Week 17: (Dec. 5)	REVIEW (Chapters 1-7)		Assignment 7
		<b>FINAL EXAM</b>	

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

**CPSC 1301 (CRN 83870/83871) Fall 2011**

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

