Metropolitan State University of Denver
Regular Course Syllabus

CS - 1050 - Computer Science 1	Fall 2016

Status	completed
Tracking:	LAS 1617-44
Department	Mathematical and Computer Sciences, Department of
Status:	Active-Visible
Prefix:	CS
Course Number:	1050
Course Type:	Computer Science
Course Title:	Computer Science 1
Transcript Course Title:	Computer Science 1
Check All That Apply:	Required for Major, Required for Minor, Specified Elective, Elective
Credit Hours:	4
Schedule Type:	Lecture
Grade Mode:	Letter
Lecture:	60
Lab:	
Internship:	
Practicum:	
Other:	
Additional Student Work Hours per course:	120
Variable topics umbrella course:	No
If yes, number of credits/ repeats allowed	
Specified repeatable course:	No
If yes, number of credits/ repeats allowed	
Prerequisite(s):	CS 1030 with a grade of "C" or better, or readiness for MTH 1110
Corequisite(s):	
Prerequisite(s) and/or Corequisite(s):	
Banner Prerequisite(s):	
Banner Corequisite(s):	
Banner Prerequisite(s) and/or Corequisite(s):	
Level	Undergraduate
Class	
Program/Major	
Student attribute	
Catalog Course Description:	This is the first course in the computer science core sequence. Students learn a modern programming language and the basic skills needed to analyze problems and construct programs for their solutions. The emphasis of the course is on the techniques of algorithm development, correctness, and programming style. Students are also introduced to the fundamentals of software engineering and the software-development life cycle.

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Required Reading and Other Materials will be equivalent to:	Horstmann, Cay (2006). <u>Java Concepts,</u> 4th edition, Wiley.
Specific, Measurable Student Behavioral Learning Objectives:	Upon completion of this course the student should be able to: 1. Write and run a computer program that correctly solves a problem in the range from simple to medium difficulty. 2. Appropriately document a computer program. 3. Use modularity when writing programs. 4. Declare and define classes, methods, and variables. 5. Declare and utilize parameters and return values. 6. Utilize expressions, assignment, decision structures, and looping. 7. Use appropriate data types including integers, real numbers, characters, Booleans, arrays, and strings. 8. Write interactive programs and programs that use text files for input and output. 9. Utilize the top-down problem solving technique and stepwise refinement. 10. Determine the scope and visibility of an identifier. 11. Utilize testing and debugging techniques. 12. State the basic steps of the software life cycle.

Detailed Outline of Course Content (Major Topics and Subtopics) or Outline of Field Experience/ Internship	I. Computers and Programs
	     A. overview of computer systems, language translating, and development environments
	     B. algorithms, syntax, semantics, programs and subprograms
	II. Software Engineering
	     A. problem definition
	     B. modularity
	     C. top-down design, step-wise refinement
	     D. object-oriented design, class design
	     E. software documentation
	     F. software engineering life cycle
	III. Testing
	     A. error types and detection
	     B. debugging
	     C. exceptional conditions
	IV. Data Types, Variables, and Identifiers
	     A. integer, real, character, Boolean, string
	     B. finite precision errors
	     C. representation
	     D. scope and visibility
	     E. constants
	     F. operators, expressions, and operator precedence
	V. Input/Output
	     A. Interactive
	     B. reading and writing text files

	C. recognizing end of file
	VI. Classes
	   A. definitions of classes, methods, and objects
	   B. standard libraries
	   C. method arguments and return values
	VII. Decision Structures
	   A. conditional operators and logical expressions
	   B. if-then else, nested if-then else
	   C. case structures
	VIII. Looping
	   A. while, do while, for loops
	   B. infinite loops
	IX. Arrays
	   A. one and multi-dimensional arrays
	   B. processing using arrays including partially filled arrays
	   C. searching – linear
	   D. sorting -- selection

Evaluation of Student Performance	1. Homework and programming assignments 2. Quizzes and examinations 3. Final examination 4. Research papers and/or Book reports 5. Oral presentations As determined by the instructor. Written communication skills will be applied in this course.
Learning Objectives	
Distribution of Credit Hours	(4 + 0)

Steps	Edits	Decision	Date	
Originator				
Gerald Shultz	1	approve	10/03/2016 04:28PM	
Department Curriculum Committee Chair				
Clark Dollard	0	approve	10/05/2016 03:16PM	
Department Chair				
Lindsay Packer	2	approve	10/06/2016 11:19AM	
Dean's Office Tracking Assignment				
Kelsey Smith	1	approve	10/06/2016 02:49PM	
Substantive College Level				
Gerald Shultz	4	approve	12/09/2016 09:31AM	
Linda Lang-Peralta	0	approve	12/15/2016 04:39PM	
Mona Mocanasu	2	approve	12/14/2016 10:38AM	
Faculty Senate President				
Matthew Makley	0	None		
Erica Buckland	0	force-approve	12/22/2016 09:28AM	
AVP Academic and Student Affairs				
Bernice Harris	1	approve	12/22/2016 10:00AM	