

CS 10A Course Outline as of Fall 2018**CATALOG INFORMATION**

Dept and Nbr: CS 10A Title: INTRO TO PROGRAMMING

Full Title: Introduction to Programming Concepts and Methodologies

Last Reviewed: 2/8/2021

| Units | | Course Hours per Week | | Nbr of Weeks | Course Hours Total | |
|---------|------|-----------------------|------|--------------|--------------------|--------|
| Maximum | 4.00 | Lecture Scheduled | 3.00 | 17.5 | Lecture Scheduled | 52.50 |
| Minimum | 4.00 | Lab Scheduled | 3.00 | 6 | Lab Scheduled | 52.50 |
| | | Contact DHR | 0 | | Contact DHR | 0 |
| | | Contact Total | 6.00 | | Contact Total | 105.00 |
| | | Non-contact DHR | 0 | | Non-contact DHR | 0 |

Total Out of Class Hours: 105.00

Total Student Learning Hours: 210.00

Title 5 Category: AA Degree Applicable

Grading: Grade or P/NP

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As:

Formerly: CS 10

Catalog Description:

Specification, design, implementation, testing, debugging, maintenance, and documentation of computer programs. Topics include algorithms, languages, software engineering, control structures, functions, and arrays. Numerous programs are written in C++. Intended for both computer science majors and for those seeking a general introduction to computer programming.

Prerequisites/Corequisites:**Recommended Preparation:**

Eligibility for ENGL 1A or equivalent; AND completion of MATH 155 and some computer experience

Limits on Enrollment:**Schedule of Classes Information:**

Description: Specification, design, implementation, testing, debugging, maintenance, and documentation of computer programs. Topics include algorithms, languages, software engineering, control structures, functions, and arrays. Numerous programs are written in C++. Intended for both computer science majors and for those seeking a general introduction to

computer programming. (Grade or P/NP)

Prerequisites/Corequisites:

Recommended: Eligibility for ENGL 1A or equivalent; AND completion of MATH 155 and some computer experience

Limits on Enrollment:

Transfer Credit: CSU;UC.

Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

| | | | |
|-------------------|----------------------|------------|-----------|
| AS Degree: | Area | Effective: | Inactive: |
| CSU GE: | Transfer Area | Effective: | Inactive: |

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|---------------|----------------------|------------|-----------|
| IGETC: | Transfer Area | Effective: | Inactive: |
|---------------|----------------------|------------|-----------|

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| CSU Transfer: | Transferable | Effective: | Spring 1989 | Inactive: |
|----------------------|--------------|------------|-------------|-----------|

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| UC Transfer: | Transferable | Effective: | Spring 1989 | Inactive: |
|---------------------|--------------|------------|-------------|-----------|

CID:

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|-------------------------|--|
| CID Descriptor:COMP 122 | Programming Concepts and Methodology I |
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|----------------------------|----------------|
| SRJC Equivalent Course(s): | CS10A OR CS10B |
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| CID Descriptor:COMP 112 | Introduction to Programming Concepts and Methodologies |
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| SRJC Equivalent Course(s): | CS10A |
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Certificate/Major Applicable:

Both Certificate and Major Applicable

Approval and Dates

| | | | |
|-------------------------|---------------------------|--------------------------|-------------|
| Version: | 011 | Course Created/Approved: | 3/9/1989 |
| Version Created: | 4/17/2017 | Course Last Modified: | 8/15/2021 |
| Submitter: | Dave Harden | Course last full review: | 2/8/2021 |
| Version Status: | Approved (Changed Course) | Prereq Created/Approved: | 2/8/2021 |
| Version Status Date: | 5/8/2017 | Semester Last Taught: | Summer 2021 |
| Version Term Effective: | Fall 2018 | Term Inactive: | Fall 2021 |

COURSE CONTENT

Student Learning Outcomes:

At the conclusion of this course, the student should be able to:

1. Describe the principles of structured programming and be able to describe, design, implement,
and test structured programs using currently accepted methodology.
2. Explain what an algorithm is and its importance in computer programming.

Objectives:

Upon completion of this course students will be able to:

1. Create correct and efficient algorithms.
2. Describe the software-development life cycle.
3. Employ the basic elements of the C++ language.

4. Implement algorithms using C++ flow-control constructs.
5. Write descriptive and helpful program documentation.
6. Implement algorithms using arrays.

Topics and Scope:

- I. Software life-cycle including design, development, styles, documentation, testing and maintenance
- II. Procedural versus objected oriented programming - Survey of Current Languages
- III. Program Design Tools and Programming Environments
- IV. Documentation
- V. Coding Conventions
- VI. Data Types, Variables, Expressions, Sequential Processing
- VII. Arrays
 - A. Declaring and allocating arrays
 - B. Multiple-subscripted arrays
- VIII. Control Structure
 - A. Selective structures: if and switch
 - B. Repetitive structures: loops
- IX. Algorithms including Simple Sorting and Searching
- X. File I/O
 - A. Files and streams
 - B. Sequential access files
- XI. Error Handling
- XII. Passing Parameters by Value and by Reference
- XIII. Principles of Testing and Designing Test Data

All topics are covered in both the lecture and lab parts of the course.

Assignment:

Lecture Related Assignments:

1. Read approximately 30 pages per week
2. Complete 2-8 examinations including final exam

Lab Related Assignments:

1. Complete 10-15 programming assignments, with documentation, using the C++ programming language

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

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| Written program documentation |
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| Writing 10 - 20% |
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Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Programming assignments

Problem solving
20 - 60%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

None

Skill Demonstrations
0 - 0%

Exams: All forms of formal testing, other than skill performance exams.

Exams, Final Exam: (Multiple choice, true/false, matching items, completion, programming problems)

Exams
20 - 60%

Other: Includes any assessment tools that do not logically fit into the above categories.

None

Other Category
0 - 0%

Representative Textbooks and Materials:

Starting Out with C++ From Control Structures through Objects. 8th ed. Gaddis, Tony. Pearson. 2014

OTHER REQUIRED ELEMENTS

STUDENT PREPARATION

| | | |
|-------------------------------------|----|---|
| Matric Assessment Required: | B | Requires Both English & Math Assessment |
| Prerequisites-generate description: | NP | No Prerequisite |
| Advisories-generate description: | U | User-Generated Text |
| Prereq-provisional: | N | NO |
| Prereq/coreq-registration check: | N | No Prerequisite Rules Exist |
| Requires instructor signature: | N | Instructor's Signature Not Required |

BASIC INFORMATION, HOURS/UNITS & REPEATABILITY

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|------------------------|----|--|
| Method of instruction: | 02 | Lecture |
| | 04 | Laboratory |
| | 72 | Internet-Based, Delayed Interaction |
| | 71 | Internet-Based, Simultaneous Interaction |
| Area department: | CS | Computer Studies |
| Division: | 72 | Arts & Humanities |
| Special topic course: | N | Not a Special Topic Course |
| Program status: | 1 | Both Certificate and Major Applicable |
| Repeatability: | 00 | Two Repeats if Grade was D, F, NC, or NP |
| Repeat group id: | | |

SCHEDULING

| | | |
|------------------------|------|-----------------------------------|
| Audit allowed: | Y | Auditable |
| Open entry/exit: | N | Not Open Entry/Open Exit |
| Credit by exam: | N | Credit by examination not allowed |
| Budget code: Program: | 0000 | Unrestricted |
| Budget code: Activity: | 0701 | Computer & Information Science |

OTHER CODES

| | | |
|---------------------------------|------------------|--|
| Discipline: | Computer Science | |
| Basic skills: | N | Not a Basic Skills Course |
| Level below transfer: | Y | Not Applicable |
| CVU/CVC status: | Y | Distance Ed, Not CVU/CVC Developed |
| Distance Ed Approved: | Y | Exclusively online or other technology based instruction |
| Emergency Distance Ed Approved: | N | None |
| Credit for Prior Learning: | N | Agency Exam |
| | N | CBE |
| | N | Industry Credentials |
| | N | Portfolio |
| Non-credit category: | Y | Not Applicable, Credit Course |
| Classification: | Y | Liberal Arts and Sciences Courses |
| SAM classification: | E | Non-Occupational |
| TOP code: | 0706.00 | Computer Science (Transfer) |
| Work-based learning: | N | Does Not Include Work-Based Learning |
| DSPS course: | N | Not a DSPS Course |
| In-service: | N | Not an in-Service Course |

