

## Computer Science - Computer Science Option Transferring to UCO and colleges with Similar Patterns (AS)

### Associate in Science

Minimum of 62 credit hours

If you want to learn the fundamentals of computer science, Oklahoma City Community College offers an associate degree in science in computer science. You can select a program which will easily transfer to the University of Central Oklahoma or a number of other schools with similar patterns to continue your educational path toward a bachelor's degree in computer science. In this degree program, you'll take classes in software engineering including application development, web development, game development, robotics, data communications, computer security, telecommunications, computer networks and database management. OCCC provides a strong foundation in computer science and is a National Center of Academic Excellence in Information Assurance.

### Course Sequence

Course ID	Course Name	Credits	Type	Min Gd
<b>Suggested Freshman 1st Semester</b>				
SCL 1001	Success in College and Life	1	Life Skills	
CS 1143	Beginning Programming	3	Major	C
ENGL 1113	English Composition I	3	Gen Ed	
POLSC 1113	American Federal Government	3	Gen Ed	
MATH 1533	Pre Calculus and Analytic Geometry	3	Gen Ed	
PHYS	Any Physical Science	3-4	Gen Ed	
<b>Suggested Freshman 2nd Semester</b>				
CS 2163	Java	3	Major	C
CS 2453	Visual Basic	3	Major	C
ENGL 1213	English Composition II	3	Gen Ed	
HIST 1483	U.S. History to 1877	OR	Gen Ed	
HIST 1493	U.S. History 1877 to Present	3	Gen Ed	
MATH 1613	Trigonometry	3	Gen Ed	
<b>Suggested Sophomore 1st Semester</b>				
CS 2363	C++	3	Major	C
PSY 1113	General Psychology	3	Gen Ed	
MATH 2104	Calculus and Analytic Geometry I	4	Gen Ed	
COM 2213	Intro to Public Speaking	3	Gen Ed	
HUM	Humanities Elective	3	Gen Ed	
<b>Suggested Sophomore 2nd Semester</b>				
CS 2463	Advanced Java	OR	Major	C
CS 2553	Advanced Visual Basic	OR	Major	C
CS 2563	C#	3	Major	C
MATH 2214	Calculus and Analytic Geometry II	4	Gen Ed	
BIO	Biological Science	3-4	Gen Ed	
HUM	Humanities Elective	3	Gen Ed	
ELEC	Elective	1	Support	

### Course Grouping

Major Courses: (15 credit hours)

Computer Science: CS 1143 (C), CS 2163 (C), CS 2363 (C), CS 2453 (C), CS 2463 (C) or CS 2553 (C) or CS 2563 (C)

General Education Courses: (45 credit hours)

Communications: COM 2213

English: ENGL 1113, ENGL 1213

History: HIST 1483 or HIST 1493

Humanities: 6 credit hours of Humanities electives

Mathematics: MATH 1533, MATH 1613, MATH 2104, MATH 2214

Political Science: POLSC 1113

Social Sciences: PSY 1113

Biological Science: \*Any general education BIO except BIO 1023; Any general education Physical Science course chosen from ASTR, PHYS, CHEM, or GEOL prefixes \*at least one science course must include a laboratory component

Life Skills Courses: (1 credit hour) Life Skills: SCL 1001

Support Courses: (1 credit hour) Elective

### Program Notes

Notes: This program is designed for students planning to continue their education at a four-year college or university. See the general section for information and requirements about University Parallel/Transfer Programs.

Must have a grade of "C" or higher in all Computer Science courses.

## Degree Program Course Descriptions

### **BIO - Biological Science**

3 Credits Biological Science

### **COM 2213 - Intro to Public Speaking**

*Prerequisites: ENGL 0106 or adequate placement score*

3 Credits Given the principles of effective listening and speaking, the student will assimilate those skills into his or her physical and psychological worlds. After being exposed to public, business and professional speaking, the student will apply the principles of invention, organization, style, and delivery through practical exercises and will use the principles of rhetorical criticism in discussing speeches delivered in class.

### **CS 1143 - Beginning Programming**

*Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures; MATH 0313 or adequate math placement or by evaluation. § Criteria for evaluation is in division office.*

3 Credits Designed for Computer Science majors, this course affords students a basic understanding of computer programming. Students will utilize accepted programming concepts and perform number system conversions and arithmetic. In addition, they will design and code structured modular programs using design tools such as hierarchy charts, flowcharts, and pseudocode. This course satisfies the computer proficiency requirement.

### **CS 2163 - Java**

*Prerequisites: MATH 0313 or adequate math placement, CS 1143 or by evaluation. § Criteria for evaluation is in division office.*

3 Credits Student will develop object-oriented Java applications and applets, which demonstrate comprehension of fundamental programming structures, object-oriented programming, graphics, event handling, interface components, programming for the Internet, data structures, and exception handling. This course satisfies the computer proficiency requirement.

### **CS 2363 - C++**

*Prerequisites: CS 2163*

3 Credits This course is a continuation of the study of object-oriented programming covered in CS 2163 Java. Students will use C++ to write programs that demonstrate comprehension of the advanced object-oriented features of the C++ language and of common data structures. Topics include pointer manipulation, overloaded operators, friends, exception handling, templates, linked lists, stacks, queues, trees, and time complexity associated with sorts and

searches. This course satisfies the computer proficiency requirement.

### **CS 2453 - Visual Basic**

*Prerequisites: MATH 0313 or adequate math placement, CS 1143 or by evaluation. § Criteria for evaluation is in division office.*

3 Credits The students will use Visual Basic to create object-oriented, event-driven programs. This course teaches the students to handle the visual interface and also learn programming concepts that include objects, decisions, loops, dialog boxes, arrays, menus, subs, functions, files, simple data access and various other programming topics as they apply to Visual Basic. This course satisfies the computer proficiency requirement.

### **CS 2463 - Advanced Java**

*Prerequisites: CS 2163*

3 Credits Student will develop Java applications and applets, which demonstrate comprehension of advanced programming structures and practices, object-oriented programming, fundamental data structures (arrays, linked lists, stacks and queues), SWING, Java Beans, database programming (JDBC), and distributed computing (Sockets/RMI). This course satisfies the computer proficiency requirement.

### **CS 2553 - Advanced Visual Basic**

*Prerequisites: CS 2453*

3 Credits Students will expand their knowledge of Visual Basic as used in business applications both for Windows and for the Web. Included will be topics such as advanced controls, MDI programming, collections, object-oriented programming, multi-tier applications, data access, ADO.Net, ASP.Net, and report writing. This course satisfies the computer proficiency requirement.

### **CS 2563 - C#**

*Prerequisites: CS 2163*

3 Credits Students will develop C# programs using the .NET framework that demonstrate comprehension of language syntax, fundamental program structures, object-oriented programming, windows applications, web applications, and database applications. Students will use ADO.NET, XML, ASP.NET, SOAP, and REST to create their applications. This course satisfies the computer proficiency requirement.

### **ELEC - Elective**

3 Credits Elective

### **ENGL 1113 - English Composition I**

*Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures*

3 Credits The student will write well-developed compositions which demonstrate the principles of unity, coherence, and organization and which contain specific details and vivid language. The students will locate library material and incorporate researched materials into compositions.

### **ENGL 1213 - English Composition II**

*Prerequisites: ENGL 1103 or ENGL 1113 taken within the last year, with strong encouragement for immediate continuation.*

3 Credits In this advanced writing course, students will create essays that explore and evaluate a variety of issues and perspectives suggested by fiction, poetry, drama, essays, and other types of cultural texts. Students will refine and augment the writing techniques they learned in ENGL 1113 or ENGL 1103 to develop well-reasoned, well-structured arguments in a clear, fluid, and engaging prose style.

### **HIST 1483 - U.S. History to 1877**

*Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures*

3 Credits After analyzing events in American history from 1400 to 1877 in such areas as revolution, geographic and social mobility, political reform, government precedents and war, students will be able to identify patterns of present day mobility, describe governmental operations in their society and help resolve conflict in society based on the student's search for change, precedents, and conflict in the American past. A general education requirement.

### **HIST 1493 - U.S. History 1877 to Present**

*Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures*

3 Credits After analyzing events in American history from 1877 to the present in such areas as geographic and social mobility, political reform, government precedents and war, students will be able to identify patterns of present day mobility, describe governmental operations in their society and help resolve conflict in society based on the student's search for change, precedents, and conflict in the American past. A general education requirement.

### **HUM - Humanities Elective**

3 Credits Humanities elective

### **MATH 1533 - Pre Calculus and Analytic Geometry**

*Prerequisites: Adequate math placement OR co-enrollment in MATH 0531 and ENGL 0203,*

*adequate placement score, or by meeting determined placement measures*

3 Credits This course is intended to serve students for whom Calculus and Analytic Geometry I is a requirement. Topics will include conic sections, systems of equations (both linear and nonlinear), and a general discussion of functions with emphasis on polynomial, rational, exponential, and logarithmic functions.

### **MATH 1613 - Trigonometry**

*Prerequisites: Pre or Corequisite: MATH 1483 or MATH 1533 or adequate math placement and ENGL 0203, adequate placement score, or by meeting determined placement measures*

3 Credits The student will evaluate trigonometric functions and their inverses using both degree and radian measure; graph trigonometric functions and their transformations; identify properties of trigonometric functions; verify and apply trigonometric identities; solve trigonometric equations; solve problems involving right and oblique triangles, vectors, and indirect measurement; and identify and graph polar curves.

### **MATH 2104 - Calculus and Analytic Geometry I**

*Prerequisites: MATH 1533 and MATH 1613 or adequate math placement.*

4 Credits The student will compute, interpret, and apply the basic concepts of limits, differentiation, and integration to algebraic and transcendental functions and will solve applied problems that include rates of change, optimization, area, and total change in a function. This course satisfies the computer proficiency requirement.

### **MATH 2214 - Calculus and Analytic Geometry II**

*Prerequisites: MATH 2104 within the last year.*

4 Credits The student will use integration techniques to find antiderivatives, use integrals to solve problems from geometry and physics, use vectors to solve problems in higher dimensions, test infinite series for convergence, approximate functions by using series, solve elementary first-order differential equations, and analyze functions of three variables and their contour plots. This course satisfies the computer proficiency requirement.

### **PHYS - Any Physical Science**

3 Credits Any Physical Science

### **POLSC 1113 - American Federal Government**

*Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures*

3 Credits A study of the principles, structure, processes and functions of the United States federal government.

### **PSY 1113 - General Psychology**

*Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures*

3 Credits A survey of the major areas of study in psychology such as motivation, learning, physiology, personality, social psychology, abnormal behavior, perception, memory, cognition/thought, and treatment.

### **SCL 1001 - Success in College and Life**

*Prerequisites: ENGL 0106 or adequate reading/writing assessment scores*

1 Credit Students will learn best practices for academic, career, and personal success. Students will discover their individual strengths, interests, and values to create a personalized plan; select and utilize resources that are applicable to their growth and success; and engage as active and responsible members of the academic community. This course should be taken during a student's first semester of college work at Oklahoma City Community College and is a required course in degree plans to satisfy the Life Skills requirement.