



CIS - Object Oriented Software Development Certificate

This certification will enhance students' proficiency in the development by using Object Oriented programming languages. Upon completion of this certificate, the student will be able to use Java, C++, C#, etc. to develop object oriented programs.

Total Units: 23-27

First Year

Semester 1

3 Units

COURSE	UNITS	PRE-REQS^	SEMESTERS OFFERED*
CISP 300 ^Z Algorithm Design/Problem Solving	3	Intermediate Algebra	F, S, Su(O)

^Z At least one section of this course is offered with free textbooks and is labeled as zero textbook costs (ZTC). If it is a GE area class or elective, there may be several ZTC offerings to fulfill the GE requirement. Use the Free Textbook filter to find these courses. Learn more on the [ZTC page of the college website](#).

Semester 2

8 Units

COURSE	UNITS	PRE-REQS^	SEMESTERS OFFERED*
CISP 360 Introduction to Structured Programming	4	CISP 300 or MATH 400	F(P), S(P)
4 units from List A	4	See List A	See List A

Semester 3

8 Units

COURSE	UNITS	PRE-REQS^	SEMESTERS OFFERED*
CISP 401 Object Oriented Programming with Java	4	CISP 360	F(O), S(O)
4 units from List A	4	Seen List A	See List A

Semester 4

4-8 Units

COURSE	UNITS	PRE-REQS^	SEMESTERS OFFERED*
CISP 402 Java - Data Handling	4	CISP 401	Su(O) even year
Elective ¹	0-4		F, S

¹You must have passed the prerequisite course(s) with a "C" or better; Corequisite must be taken during the same semester; Advisory means it is recommended but not required to enroll in the course.

*(O) = online available (P) = partially online

Career

Options/Outlook:

Software Developers, Applications develop, create, and modify general computer applications software or specialized utility programs. Analyze user needs and develop software solutions. Design software or customize software for client use with the aim of optimizing operational efficiency. May analyze and design databases within an application area, working individually or coordinating database development as part of a team. May supervise computer programmers. **Career opportunities require more than two years of college study.**

A sample of reported job titles:

Application Developer, Application Integration Engineer, Applications Developer, Computer Consultant, Information Technology Analyst (IT Analyst), Software Architect, Software Developer, Software Development Engineer, Software Engineer, Technical Consultant

Projected job openings in California (2020-2030):

39,040

Projected growth in California (2020-2030):

¹ Suggestion-**CISP 430** Data Structures (4 units); Pre-req: intermediating programming in language of the structures (e.g., CISP 400 or 401); F(P), S(P); Adding CISP 430 will meet the requirements for the Certificate of Achievement in CIS Programming in C-C++.

List A-a minimum of 8 units from the following:

COURSE	UNITS	PRE-REQS [^]	SEMESTERS OFFERED*
CISP 370 Beginning Visual Basic	4	Advisory: CISC 310 or CISP 300	F(O), S(P)
CISP 400 Object Oriented Programming with C++	4	CISP 360	F(O), S(O)
CISP 405 Object Oriented Programming using C# on Visual Studio .NET	4	CISP 400	S(O) odd year

36% growth

Median Salary in California with advanced degree (2021):

\$120,730/yr

Source:

<https://www.onetonline.org/link/summary/15-1252.00>

About this map:

This program map represents one possible pathway to complete the program. Please see a counselor to create an education plan that is customized to meet your needs. This map is not a guarantee of course availability or financial aid applicability.

Zero Textbook Costs (ZTC):

The Zero Textbook Costs designation and logo are added to any course that provides free access to all required instructional materials. These are typically shared with students through Canvas. Courses that are designated as ZTC may still require students to purchase supplemental materials such as lab coats, a calculator, art supplies, etc. See full definitions and searching tips on the [Zero Textbook Costs](#) page of the college website.

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