

## Requirements for the Bachelor of Science Degree in Computer Science with a Concentration in Information Security

<b>Total Units Required to Graduate</b>		<b>180-185 units</b>
<b>Major Requirements</b>		<b>128 units</b>
Major Courses	68	
Cognates	30	
GINS Cognates	30	
<b>Minor Requirements</b>		<b>0 units</b>
<b>Other University Requirements</b>		<b>52-57 units</b>
CSUB 101	2	
US History	5	
Area A	15	
Area B	5*	
Area C	10*	
Area D	10*	
Theme 1	0*	
Theme 2	0*	
Theme 3	0*	
GRE	5	
GWAR (Exam or Class)	0-5	
<b>Additional Units</b>		<b>0 units</b>

\* Computer Science General Education reductions are described in General Education Notes below.

### 1. **Introductory Courses (16 units)**

CMPS 150 – Introduction to Unix (or CMPS 215 – Unix Programming Environment)  
CMPS 221 – Programming Fundamentals  
CMPS 222 – Object-Oriented Programming  
CMPS 223 – Data Structures and Algorithms

### 2. **Intermediate Courses (30 units)**

CMPS 295 – Discrete Structures  
CMPS 312 – Algorithm Analysis and Design  
CMPS 335 – Software Engineering (project should have security focus)  
CMPS 350 – Programming Languages  
CMPS 360 – Operating Systems  
CMPS 376 – Computer Networks

### 3. **Advanced Courses – Information Security Focus (22 units)**

CMPS 490A and 490B – Senior Project (project should have security focus)

*Choose at least 15 units from the following list (one course must be 400-level):*

CMPS 215 – Unix Prog. Environment **AND** CMPS 216 – Unix System Administration  
CMPS 340 – Introduction to Digital Forensics  
CMPS 342 – Database Systems  
CMPS 445 – Data Mining and Visualization  
CMPS 451 – Vulnerability Analysis  
MATH/CMPS 475 – Applied Cryptography  
CMPS 476 – Advanced Computer Networks and Computer Security  
*Another 300-/400-level CMPS, ECE or MATH elective may be taken with the consent of a program advisor.*

### 4. **Required Cognate Courses (30 units)**

PHIL 316 – Professional Ethics (Theme 2)

MATH 201 – Calculus I **OR** MATH 231 – Calculus I for Engineering  
MATH 202 – Calculus II **OR** MATH 232 – Calculus II for Engineering  
MATH 203 – Calculus III **OR** MATH 233 – Calculus III for Engineering  
MATH 330 – Linear Algebra **OR** MATH 230 – Linear Algebra for Engineering  
MATH 340 – Probability Theory

**5. Global Intelligence and National Security (GINS) Cognate Courses (30 units)**

PLSI 304 – International Relations (Theme 3)

CRJU 440 – Terrorism

One GINS Intelligence Analytical Tools course selected from the following list:

GEOL 450 – Geographical Information Systems for Natural Sciences

CRJU 494 – Profiling Violence (Theme 3)

*Another GINS Intelligence Analytical Tools course may be used with the consent of a program advisor.*

*If a Geographical Information Systems (GIS) Tools course is not available, CMPS 371, CMPS 471, ECE 446, or ECE 447 may be substituted for the GIS course.*

At least 15 units of GINS Focus Area courses selected from the following list:

Up to 10 units of GINS strategic language courses.

HIST 325 – History of European Colonialism (Theme 2)

HIST 340 – Latin America

HIST 358 – America's Rise to Globalism

HIST 413 – The Middle East in World History

HIST 426 – China since 1800

PLSI 302 – American Foreign Policy

PLSI 303 – Global Security Issues

PLSI 308 – Government and Politics of China (Theme 3)

PLSI 309 – Government and Politics of Latin America

PLSI 323 – Government and Politics of the Middle East

PLSI 328 – Media, Propaganda, and Public Opinion (Theme 3)

PLSI 376 – Politics of International Terrorism

SOC 450 – Globalization and Social Change (Theme 3)

*Other GINS Focus Area courses may be used with the consent of a program advisor.*

**6. General Education Notes for 2013/15 Catalog**

- The Theme 1 requirement is satisfied for all Computer Science majors.
- PHIL 316, which is a required cognate course, satisfies the Theme 2 requirement.
- PLSI 304, which is a required cognate course, satisfies the Theme 3 requirement.
- MATH 201 and above satisfies the Area B4 requirement.
- Area B2 is waived for Computer Science majors.
- US History double-counts for 5 units of Area C for Computer Science majors.
- ABET student outcomes 3c and 3h waive 5 units of Area D for Computer Science majors.