

## Computer Science, Minor

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Students pursuing a minor in Computer Science are required to:

- Complete 24 credits.
- Complete a minimum of 12 credits in the minor that are not duplicated by the major or any other minor.
- Complete 6 credits upper division credits in the minor in residence at Chapman.
- Complete a minimum of 9 upper division credits in the minor.
- Achieve a 2.000 cumulative GPA in the minor and a 2.000 GPA for all upper-division coursework in the minor.

### lower-division requirements (15 credits)

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- [CPSC 230 - Computer Science I](#) 3 credits
- [CPSC 231 - Computer Science II](#) 3 credits
- [CPSC 285 - Social and Ethical Issues in Computing](#) 3 credits
- [MATH 250 - Discrete Mathematics I](#) 3 credits
- [CPSC 350 - Data Structures and Algorithms](#) 3 credits

### electives (9 credits)

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three of the following

- [SE 310 - Software Design](#) 3 credits
- [SE 320 - The Software Development Lifecycle](#) 3 credits
  
- [CENG 330 - Digital Logic Design I](#) 3 credits
- AND
- [CENG 330L - Lab - Digital Logic Design I](#) 1 credit
  
- [CENG 351 - Computer Architecture I](#) 3 credits

- [CPSC 353 - Data Communications and Computer Networks](#) 3 credits
- [CPSC 354 - Programming Languages](#) 3 credits
- [CPSC 349 - Human Factors](#) 3 credits
- [CPSC 355 - Human Computer Interaction](#) 3 credits
- [CPSC 356 - Android Application Development](#) 3 credits
- [CPSC 357 - iOS Application Development](#) 3 credits
- [CPSC 360 - Computer Graphics](#) 3 credits
- [CPSC 370 - Topics in Computer Science](#) 3 credits
- [CPSC 380 - Operating Systems](#) 3 credits
- [CENG 381 - Modeling and Simulation](#) 3 credits
- [CPSC 390 - Artificial Intelligence](#) 3 credits
- [CPSC 392 - Introduction to Data Science](#) 3 credits
- [CPSC 393 - Machine Learning](#) 3 credits
- [CPSC 402 - Compiler Construction](#) 3 credits
- [CPSC 406 - Algorithm Analysis](#) 3 credits
- [CPSC 408 - Database Management](#) 3 credits
- [CPSC 445 - High Performance Computing](#) 3 credits
- [CPSC 453 - Network Implementation and Security](#) 3 credits
- [CPSC 458 - Web Engineering](#) 3 credits

**total credits 24**

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