

Computer Science Graduation Requirements

Walla Walla College: **BS – CS (Standard Option)**

The graduation requirements shown below are subject to change.
For more information consult the WWC Bulletin, available online at

<http://www.wwc.edu/academics/bulletins/>

General Education Component

Health and PE (2 credits)

History and Social Science (12 credits)

- History (8)
- Social Science (4) Psychology – recommended

Humanities (12 credits)

- Fine Arts (0-8)
- Literature (0-8)
- Philosophy (0-8)

Language Arts (13 credits)

- ENGL 121,122, 223
- SPCH 101 – Recommended
- Foreign Language – Recommended

Religion (16 credits)

- 6 credits of RELB
- 6 credits of course numbers 300 and above.
- One SDA special

Mathematics and Science Component

Mathematics (27 credits)

- Discrete Mathematics (MATH 250)
- Calculus I-IV (MATH 181, 281, 282, 283)
- Linear Algebra (MATH 289)
- Statistics (MATH 206 or MATH 315)

Science (16 credits; 12 in sequence)

- Biology (BIOL 101-103)
- Chemistry (CHEM 141-146)
- Physics (PHYS 211–216 or 251-256)

Other science elective must enhance the student's ability to apply the scientific method.

Computer Science Component

Required (42 credits)

- CPTR 141 Intro to Programming
- CPTR 142-3 Data Structures and Algorithms
- CPTR 215 Assembly Language Programming
- CPTR 316 Programming Paradigms
- CPTR 345 Theory of Computation
- CPTR 352 Operating System Design
- CPTR 415 Introduction to Databases
- CPTR 425 Introduction to Networking
- CPTR 454 Design and Analysis of Algorithms
- CPTR 495 Colloquium (4 quarters; 1 during the senior year)
- CPTR 496-498 Seminar

Electives (20 credits)

- CPTR 235 System software and programming
- CPTR 245 Object-oriented system design
- CPTR 350 Computer Architecture
- CPTR 355 Computer Graphics
- CPTR 435 Software Engineering
- CPTR 445 Introduction to Artificial Intelligence
- CPTR 460 Parallel and Distributed Computation
- CPTR 464 Compiler Design

Electives from CIS, ENGR, GRPH and MATH require departmental advisor's approval.

Cognates (3 credits)

- ENGR 354 Digital Logic

29 credits of free electives to bring total credits up to the 192 required for graduation and 60 upper division credits.

The minimum acceptable grade for any required or elective CPTR course is 2.0. A student's overall GPA must not fall below 2.0.

Hardware and Embedded Systems Emphasis

Computer Science Electives:

- CPTR 350 Computer Architecture
- ENGR 355 Embedded System Design
- ENGR 356 Engineering Electronics
- ENGR 433 Digital Design
- ENGR 435 VLSI Design

Additional Cognates:

- ENGR 228 Circuit Analysis
- ENGR 351 Linear Network Analysis
- MATH 312 Ordinary Differential Equations
- PHYS 251-256 Principles of Physics

Program Goals: (BS – CS; standard option)

To prepare students

1. for a professional career in the computer field,
2. for further study in computer science, software engineering, or computer engineering and
3. for functioning in modern society.

Expectations: Prospective employers of the graduates of the program can expect graduates will understand the basic principles of

- the design of operating systems,
- algorithms, complexity and computability theory,
- programming languages,
- net-centric computing,
- software engineering including object-oriented programming,
- computer architecture and assembly language programming, and
- the social and professional issues of computing

and will be able to

- solve a wide variety of real-world problems,
- produce well documented programs, and
- work in teams.