

Technical Elective Requirements for the Computer Science BA Degree Program WSU Tri-Cities - June 2016

As stated in WSU's [official catalog page for the Computer Science BA degree program \(BACS\)](#), six advanced Computer Science electives are required. At WSU Tri-Cities, students take CptS 323 – Software Design and Construction for one elective. The remaining five electives are selected from at least three separate Computer Science areas. In their selections, students will:

1. take their five electives from the updated list in Table 1, which only contains Computer Science courses, and
2. choose for these five electives a minimum of two 400-level Computer Science courses from the following list of six courses: CptS 427, CptS 440, CptS 442, CptS 460, CptS 471, CptS 481, each of which covers the application of algorithmic principles to analyze software design tradeoffs in design choices. These six courses are highlighted in boldface in Tables 1 and 2.

Table 1: BA Computer Science Electives

CptS 317 – Automata and Formal Languages	CptS 355 – Programming Language Design
CptS 360 – Systems Programming	CptS 421 – Software Design Project I
CptS 423 – Software Design Project II	CptS 427 – Computer Security
CptS 430 – Numerical Analysis	CptS 434 – Neural Network Design and Application
CptS 438 – Scientific Visualization	CptS 440 – Introduction to Artificial Intelligence
CptS 442 – Computer Graphics	CptS 443 – Human-Computer Interaction
CptS 450 – Design/Analysis of Algorithms	CptS 451 – Introduction to Database Systems
CptS 453 – Graph Theory	CptS 455 – Introduction to Computer Networks
CptS 460 – Operating Systems and Computer Architecture	CptS 464 – Distributed Systems Concepts and Programming
CptS 470 – Concepts in Biotechnology	CptS 471 – Computational Genomics
CptS 481 – Python Software Construction	CptS 483 – Topics in Computer Science
CptS 490 – Work Study Internship	CptS 499 – Special Problems

As noted, students must select electives from at least three separate computer science areas. These areas along with the related courses are presented in the following Table 2, which also highlights in boldface the six 400-level computer science electives from which students must select a minimum of two courses.

Table 2: Elective Computer Science Areas and Related Courses

Computer Science Area	Related Courses
Theory	CptS 317, CptS 450, CptS 453
Scientific Computing	CptS 430, CptS 438, CptS 470, CptS 471
Programming Languages	CptS 355, CptS 481
Hardware and Operating Systems	CptS 360, CptS 460
Graphics and Human-Computer Interface	CptS 442 , CptS 443
Software Systems	CptS 427 , CptS 451, CptS 455, CptS 464
Intelligent Systems	CptS 440 , CptS 434
Software Engineering	CptS 421, CptS 423
(See below)	CptS 483, CptS 490, and CptS 499

The selection of any of CptS 483, CptS 490, and CptS 499 as a technical elective is subject to the requirements described below.

- Instances of CptS 483 (Topics in Computer Science) may fit in one of the Computer Science areas in the table, depending on content. This determination will be made by the Curriculum Committee at the start of every semester in which that topic is taught for the first time.
- Instances of CptS 490 (Internship) may also qualify in one of the Computer Science areas in the table, depending on the determination of the Internship Coordinator (i.e., the CptS 490 Internship Faculty Supervisor) at the start of the semester.
- Instances of CptS 499 (Special Problems) may also qualify in one of the Computer Science areas in the table, depending on the determination of the Curriculum Committee in consultation with the CptS 499 instructor at the start of the semester.

The updated technical-elective requirements may be summarized as follows:

- 5 courses selected from the list in Table 2
- These courses are chosen from a minimum of 3 separate Computer Science areas from that list
- A minimum of 2 courses for the 5 electives are selected from CptS 427, CptS 440, CptS 442, CptS 460, CptS 471, CptS 481