

College/School of Education Programs

Case Study

University of Washington

Category	Description
Program Title	Secondary Teacher Education Program - Computer Science (STEP CS)
Location	University of Washington, Seattle
Location of Students	Residential
Program Website	https://education.uw.edu/programs/teacher/cs-endorsement
Dates of Initial Program Design & Implementation	2020-2021
Target Audience	Pre-service teacher educators enrolled in the STEP CS Masters in Teaching. In-service teachers are eligible to take courses a la carte as non-matriculated students.
Program Level	Graduate
Grade Levels	6-12
Program's Primary Purpose	Prepare teachers to engage in culturally-responsive, critical CS pedagogy in both standalone CS courses or as integrations. Help teachers earn Washington state's CS endorsement.
Program Approach	The program is an optional 5th quarter following a 4 quarter, 1-year Masters in Teaching, graduating teachers with both a CS endorsement and an endorsement in math, science, language arts, or social studies.
Funding	The program was initially supported by an NSF CSforAll RPP grant, but has since also received support from Washington state and Google, as well as teaching load from the UW Information School and Paul G. Allen School of Computer Science & Engineering. We hope to sustain the program through philanthropic and state support.
State CS Ed Policy Certification, licensure, incentives for teachers, Praxis exam	Exam-based CS endorsement (K-12 CS NES Exam), with no incentives. State investments have largely been in in-service professional development.
Program Description	STEP CS primarily focuses on CS pedagogical content knowledge spanning methods, assessment, and difficult conversations, while developing some CS

Overview of the program	content knowledge, but through a critical sociotechnical lens, rather than a strictly technical lens. Students focus on CS throughout the entire quarter in a highly interactive, cohort based model that builds self-efficacy, CS teacher identity, and a commitment to equity in justice in both CS teaching and CS more broadly.
Program Goals The goal for the program for teacher preparation – Preparing teachers to do what?	The program prepares teachers for two types of CS teaching: 1) standalone CS electives in middle and high school, 2) integrations of CS in math, science, arts, social studies, or language arts. The focus goes beyond programming, to engage questions about data, data science, ethics, policy, creativity, and more.
Standards Used in Program Design The standards used in the design of the program	● CSTA Learning Standards ● CSTA Teaching Standards ● Teaching Tolerance Social Justice Standards ● Next Generation Science Standards ● Common Core Math
Course Descriptions Brief description of relevant courses – 2-4 sentences	● EDTEP 574 Assessment in Secondary Education - Computer Science (3) ● Surveys approaches to formative and summative assessment of computer science knowledge from both equity and psychometrics perspectives, and impacts of assessments on identity, interest, self-efficacy, and mindset. Emphasizes deliberate practice on computer science assessment design and critique and the tradeoffs of assessment automation technologies in supporting learning. Recommended: experience with at least one programming language; and EDTEP 573. ● EDTEP 577 Justice and Equity in Computer Science Teaching (3). Covers foundational intersections between computer science content knowledge and issues of diversity, equity, inclusion, and justice. Addresses these issues in the computer science classroom, as well as society more broadly, developing critical consciousness of computer science and society. Recommended: previous coursework in computer programming. Offered: Sp. ● EDTEP 590 Teaching Computer Science in Secondary Schools (3). Skills in developing, rehearsing, enacting, and reflecting upon developmentally appropriate computer science lesson and unit plans. Students write learning objectives that consider prior knowledge and specific needs of a diversity of learners, developing skills to deconstruct and analyze lessons and plan the scope and sequence of longer units of study. Draws upon culturally relevant computing, project-based learning, and critical consciousness. Recommended: previous coursework in computer programming; and completion of other EDTEP methods courses. ● EDTEP 602 Field Experience Computer Science - Secondary (5). Practice teaching computer science in a supervised middle or high school placement in partner schools and districts who are working to diversify the teaching field. Candidates critique their own practices and receive feedback on ways to align their practices with equity and justice teaching pedagogy. Recommended: prior teaching experience, either through prior field placements or as an in-service teacher. Credit/no-credit only.

Course Sequence	Students take all four courses above simultaneously, full-time.
Alignment with CSTA Teacher Standards (List by Course Number)	
Standard 1: CS Knowledge and Skills	EDTEP 577
Standard 2: Equity and Inclusion	EDTEP 577, EDTEP 590, EDTEP 574
Standard 3: Professional Growth and Identity	EDTEP 577, EDTEP 590, EDTEP 574, EDTEP 620
Standard 4: Instructional Design	EDTEP 590, EDTEP 574, EDTEP 620
Standard 5: Classroom Practice	EDTEP 590, EDTEP 574, EDTEP 620