February 7, 2022

Members of the Education Committee:

My name is Joanna Goode and I am the Sommerville Knight Professor of Education at the University of Oregon. I am a former high school math and computer science teacher. I have spent the past two decades studying equity and access to computer science education in K-12 classrooms. With the historical trend of staggering racial and gender disparities in computer science (CS) education, my research has identified how education policies and instructional practices shape opportunities for all students learn about beauty, joy, and awe of computer science.

I'd like to highlight three points in support of SB 1590.

First, the landscape of K-12 computer science education in Oregon is sparse
Oregon is the only state in the U.S. that has zero state education policies that support computer science education. As a result, there are few opportunities for students to learn about computer science. My own three middle school children do not have access to any coursework in computer science. At the Advanced level, fewer than 900 Oregon students took an Advanced Placement course in CS in 2020. (Across the United States, over 180,000 students took an Advanced Placement course in CS).

Second, without policies to support computer science education for all learners, existing computer science learning opportunities rarely are designed to engage _all students_. Girls, students of color, and other historically underserved students are systemically underserved in CS education. Because of competing priorities, scarcity of resources, and biased belief systems about who belongs in computer science classes, these advanced courses do not equally serve all Oregon's schools or students. In fact, only 10% of those Advanced Placement students identify as Black, Indigenous, OR Latinx (though these students make up 28% of Oregon's student population). Further, only 225 of these advanced CS students were girls.

Third, in today's society, CS is a literacy for all, not just a narrow career path for some. Every child in every school should have the opportunity to engage in authentic computer science learning in a classroom setting. Providing CS as part of a fundamental well-rounded education would likely benefit from the development of learning standards, teacher certification, state educational specialists, and other key support mechanisms. This plan would bring together a variety of educators and industry professionals to help make such recommendations to support and broaden CS learning opportunities.

Fourth, this legislation will support and build on existing literacy-based "CS for Oregon" project. This project is part of the national "CS for All" program, launched by the Obama administration and supported by the National Science Foundation (NSF), to democratize K-12 computer science. Since 2018, with two large NSF awards, my colleagues Jim Hook from PSU and Jill Hubbard from OSU Cascades, and I have

prepared and supported, through an evidence-based curriculum and extensive professional development, 67 high school teachers, from 41 schools across Oregon to teach the introductory high school course, *Exploring Computer Science*. We are heartened with the growing cadre of highly-prepared computer science teachers in Oregon and the resulting significant uptake in the diversity of students in *Exploring Computer Science* classrooms. Sustaining and scaling these efforts statewide requires a systemic and comprehensive state plan that attends to the needs of all students.

This is why we need SB 1590. It is 2022. The world is more dependent on technology than ever, as the pandemic highlighted in many arenas, including and especially education. The digital divide doesn't stop with devices and broadband access, but extends to include the gaps of knowledge necessary for students to become creators, and not just users, of technology. This is a critical moment for Oregon's legislature to address the overall scarcity and disrupt the racial/gender disparities in K-12 CS education. Convening a committee charged with the development of a long-term strategic plan in CS Education is a critical and necessary first step in bringing CS to all Oregon's students.

I thank you for your time and attention.

Joanna Goode
Sommerville Knight Professor