



**STATE OF HAWAII  
BOARD OF EDUCATION**  
P.O. BOX 2360  
HONOLULU, HAWAII 96804

**House Committee on Education**

Tuesday, January 31, 2023  
2:00 p.m.  
Via Videoconference  
Hawaii State Capitol, Room 309

**House Bill 503, Relating to Computer Science Education**

Dear Chair Woodson, Chair Marten, and Members of the Committee:

The Board of Education (“Board”) respectfully provides **comments** on HB 503, which would, among other things, allow students to complete computer science courses as a substitute for science credits at the high school level to count towards graduation requirements and would require a computer science course credit as a graduation requirement at the high school level beginning with the 2030-2031 school year.

The Board generally opposes proposed legislation that diminishes the Board’s power to formulate statewide educational policy as envisioned and established by Article X, Section 3, of the Constitution of the State of Hawaii.

To this end, the Board has **strong concerns** with the intent and language of this bill. This measure would essentially alter the Board’s graduation requirements it set through Board Policy 102-15. Setting graduation requirements should be the role of the Board, and we believe the Legislature should leave the responsibility of determining educational requirements to the Board as a foundational part of statewide educational policy.

If the Legislature believes computer science education is a high priority, an appropriate alternative to the current language of this measure could be to require the Board and the Department of Education to analyze the need, impact, and feasibility of making computer science a graduation requirement and, based on this analysis, require the Board to determine whether such a change to the graduation requirements would be in the best interests of students and the public.

Thank you for this opportunity to testify on behalf of the Board.

A handwritten signature in cursive script that reads "William N. Arakaki".

Sincerely,

Bill Arakaki

Chairperson, Board of Education 2023 Legislative Ad Hoc Committee

JOSH GREEN, M.D.  
GOVERNOR



KEITH T. HAYASHI  
SUPERINTENDENT

STATE OF HAWAII  
DEPARTMENT OF EDUCATION  
KA 'OIHANA HO'ONA'AUAO  
P.O. BOX 2360  
HONOLULU, HAWAII 96804

**Date:** 01/31/2023

**Time:** 02:00 PM

**Location:** 309 VIA VIDEOCONFERENCE

**Committee:** House Education

**Department:** Education

**Person Testifying:** Keith T. Hayashi, Superintendent of Education

**Title of Bill:** HB 0503 RELATING TO COMPUTER SCIENCE EDUCATION.

**Purpose of Bill:** Allows students to complete computer science courses as a substitute for science credits at the high school level to count towards graduation requirements. Requires a computer science course credit as a graduation requirement at the high school level beginning with the 2030-2031 school year. Appropriates funds for teacher professional development in computer science.

**Department's Position:**

The Hawaii State Department of Education (Department) supports the intent of HB 503 and respectfully offers comments on this measure.

The Department agrees that Computer Science (CS) education is very important and that many job opportunities are computer-based. However, CS is only a piece of the knowledge that emerging scientists and engineers will need. Substituting CS for a science credit would not be aligned to the state-adopted next generation science standards (NGSS).

Further, the Department considers CS as a separate subject area with standards adopted by the Hawaii State Board of Education (Board), and is not considered as an equivalent substitute for high school level science courses. Although having CS as a "substitute" for a required science credit may increase the number of students who take CS and possibly open pathways for students to pursue a career in science or engineering, it should be noted that highly selective colleges seek students who have 3 or 4 pure science credits for admission.

The Department has begun preliminary internal discussions and plans to propose CS as a program of study option to fulfill a graduation requirement per Board Policy 102-15. As graduation requirements fall within the purview of the Board, the Department respectfully requests time to allow the Board the opportunity to consider whether CS should be part of the graduation requirements.

Thank you for this opportunity to provide testimony on HB 503.



david.miyashiro@hawaiikidscan.org  
hawaiikidscan.org

David Miyashiro  
Executive Director

January 31, 2023

Committee on Education  
Rep. Justin H. Woodson, Chair  
Rep. Lisa Marten, Vice Chair

Aloha Chair Woodson, Vice Chair Marten, and Members of the Committee,

**HawaiiKidsCAN strongly supports HB503**, which allows students to complete computer science (CS) courses as a substitute for science credits at the high school level to count towards graduation requirements; requires a computer science course credit as a graduation requirement at the high school level beginning with the 2030-2031 school year; and appropriates funds for teacher professional development in computer science.

Founded in 2017, HawaiiKidsCAN is a local nonprofit organization committed to ensuring that Hawaii has an excellent and equitable education system that reflects the true voices of our communities and, in turn, has a transformational impact on our children and our state. We strongly believe that all students should have access to excellent educational opportunities, regardless of family income levels and circumstances.

As CS skills become more foundational to quality academic and career success, Hawaii must ensure that students have equitable access to CS courses and credits. In Hawaii, we've made good progress, thanks to strong efforts from the Legislature, Hawaii Department of Education (DOE), and other partners, but much work remains. For example, just 20% of elementary schools offer computer science learning, and just 13.9% of students in the DOE were enrolled in a CS course in the 2021-2022 school year.<sup>1</sup> When you consider that Hawaii currently has 2,718 open computing jobs, and that these open jobs have an average salary of \$83,548, it's clear that we are not fully setting our kids up for success.<sup>2</sup> Additionally, the COVID-19 pandemic has cemented remote work in computing as a normal and common career choice, particularly in STEM fields, which opens up additional opportunities for employment for Hawaii residents without forcing them to leave for the continent to pursue high-quality jobs.

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<sup>1</sup> <https://public.tableau.com/app/profile/hidoe.dga/viz/ACT158PublicDashboard/Cover>

<sup>2</sup> <https://code.org/advocacy/state-facts/HI.pdf>

HB503 proposes a simple yet extremely powerful change Hawaii could make to change how CS credits are recognized in a student's path to graduation. States that count computer science as a core graduation requirement see 50% more enrollment in their AP Computer Science courses and increased participation from underrepresented minorities. Hawaii could follow suit by doing more than simply offering honors credit for Advanced Placement CS (which is the current case), and instead make CS count as a core requirement.

We respectfully request the following amendments:

- Computer Science Graduation Credit Requirement (Page 3, Lines 18-20): Change the credit substitution from a science course to an additional program of study option to the current high school diploma two (2) credit requirement in world language, fine arts, or career and technical education/JROTC. This will allow students to choose whether to fulfill this requirement with two (2) credits in one of the specified programs of study with the additional CS option.
- Computer Science Graduation Requirement (Page 4, Lines 1-3 and 16-20): We have been supporting the DOE in its efforts to propose computer science as a graduation requirement option to the Hawaii State Board of Education (BOE) and respectfully request the start date for this implementation be revised from the 2030-2031 school year to 2025-2026 school year for the graduation class of 2030.

Finally, there is one essential element required to ensure that every school can offer computer science, and that every school has the capacity to offer a range of introductory, intermediate, and advanced coursework: highly-qualified and well-trained computer science educators. There is clear evidence of this from other states, such as Arkansas, which first began investing in computer science education in 2015. Thanks to their strategic planning and large investments in computer science professional development, the state was able to remove computer science teachers from its critical teacher shortage list within five years. Therefore, we applaud this legislation for its inclusion of much-needed funding for computer science professional development to grow our computer science teaching staff and meet the needs and ambitions of our Hawaii students.

This bill builds on recent efforts by the legislature – Act 51 in 2018 and Act 158 in 2021 – to significantly boost computer science access and equity. Without additional action by the legislature, it's unclear if the Hawaii DOE will meet the ambitious targets of these laws, including:

- Beginning with the 2021-2022 school year, ensure that each public high school offers at least one computer science course during each school year.
- Beginning with the 2024-2025 school year, all public elementary, middle, and intermediate schools shall offer computer science courses or computer science content.

Mahalo for your consideration,

David Miyashiro  
Founding Executive Director  
HawaiiKidsCAN

**HB-503**

Submitted on: 1/30/2023 8:52:46 AM

Testimony for EDN on 1/31/2023 2:00:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Jessica Kuzmier	Individual	Support	Written Testimony Only

Comments:

I agree with this bill, as many people would shy away from science but choose computer science in its place. Also, computer science is a bona fide member of STEM education, and the skills are necessary for today's workplace and perhaps for an even broader range of professions than traditional hard science such as biology and chemistry. Mahalo.



**HB-503**

Submitted on: 1/30/2023 11:15:26 AM

Testimony for EDN on 1/31/2023 2:00:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Alec Marentic	Individual	Comments	Written Testimony Only

Comments:

I support the intent of this bill to expand access to computer technology curriculum in schools, but it is not immediately clear whether this substitution allowance aligns with accreditation requirements.

**HB-503**

Submitted on: 1/30/2023 12:41:18 PM

Testimony for EDN on 1/31/2023 2:00:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Erica Yamauchi	Individual	Support	Written Testimony Only

Comments:

Jan. 31, 2023

Committee on Education  
Rep. Justin H. Woodson, Chair  
Rep. Lisa Marten, Vice Chair

Aloha Chair Woodson, Vice Chair Marten, and Members of the Committee,

I am a parent with two young daughters in public school, and I also teach at UH-Mānoa, writing today in support of HB503.

As computer science skills become more foundational to quality academic and career success, Hawai‘i must ensure that students have equitable access to CS courses and credits. In Hawai‘i, just 20% of elementary schools offer computer science learning, and just 13.9% of students in the DOE were enrolled in a CS course in the 2021-2022 school year. When you consider that Hawaiæi currently has 2,718 open computing jobs, and that these open jobs have an average salary of \$83,548, it’s clear we could do more to help set our children up for success in today's job market.

We respectfully request the following amendments:

- Computer Science Graduation Credit Requirement (Page 3, Lines 18-20): Change the credit substitution from a science course to an additional program of study option to the current high school diploma two (2) credit requirement in world language, fine arts, or career and technical education/JROTC. This will allow students to choose whether to fulfill this requirement with two (2) credits in one of the specified programs of study with the additional CS option.
- Computer Science Graduation Requirement (Page 4, Lines 1-3 and 16-20): We respectfully request the start date for this implementation be revised from the 2030-2031 school year to 2025-2026 school year for the graduation class of 2030.

Thank you for the opportunity to testify.

Erica Yamauchi, Kaimukī/Wilhelmina Rise



I am Julie Reyes Oda, math teacher at Nānākuli High and Intermediate School, mom of three kids, and former HSTA Leeward President.

I am commenting on HB503, a bill related to computer science education.

Jobs related to computers continue to be in high demand and offer good wages here on the island. Many of the employers bring in their talent from the mainland or hire former active duty military to fill the openings. The intent of this bill is to give our local students at public schools exposure to computer science education no matter where you live. The intent is spot on.

The part of this bill that is questionable is considering computer science classes a science class or equivalent to a science class. One could say I have a little experience with computer classes and kids. Both of my adult sons went to college in the area of computers. My oldest enrolled at Point Loma in computer science and ended up graduating with a degree in business marketing. My middle just graduated last month from UH-West O'ahu with a degree in Information Security and Assurance (cybersecurity). My youngest, well, he is in public elementary school and would be a beneficiary of this bill.

On p. 3, it is noted that the one purpose of the bill is to allow "students to complete computer science courses as a substitute for science courses at the high school level to satisfy graduation credit requirements."

Computer science courses are not science courses. When searching for colleges for my middle son, colleges who did not have a computer program housed the degree under engineering. None of them that I saw housed the degree under science. In the DOE, we have engineering and it is STEM or a CTE pathway. CTE is career and technical education. Computer science should be a CTE pathway, not a replacement for science classes.

Speaking only for high schools, students have a varied number of credits that they can earn depending on the school. For example, at Nānākuli High and Intermediate, students can earn 7 credits per year. At neighboring Wai'anae High, students can earn 8 credits per year. That is the difference between having the opportunity to earn 28 or 32 credits excluding summer school or college courses. The Board of Ed requires 24 credits for graduation.

What I am also asking you to do, would be to remove this section on substitution for science courses. Allow schools to grow their computer science classes and programs and wait until this bill makes it a graduation requirement.

Thank you for putting computer science education up for discussion at the legislature this year. It is much appreciated.

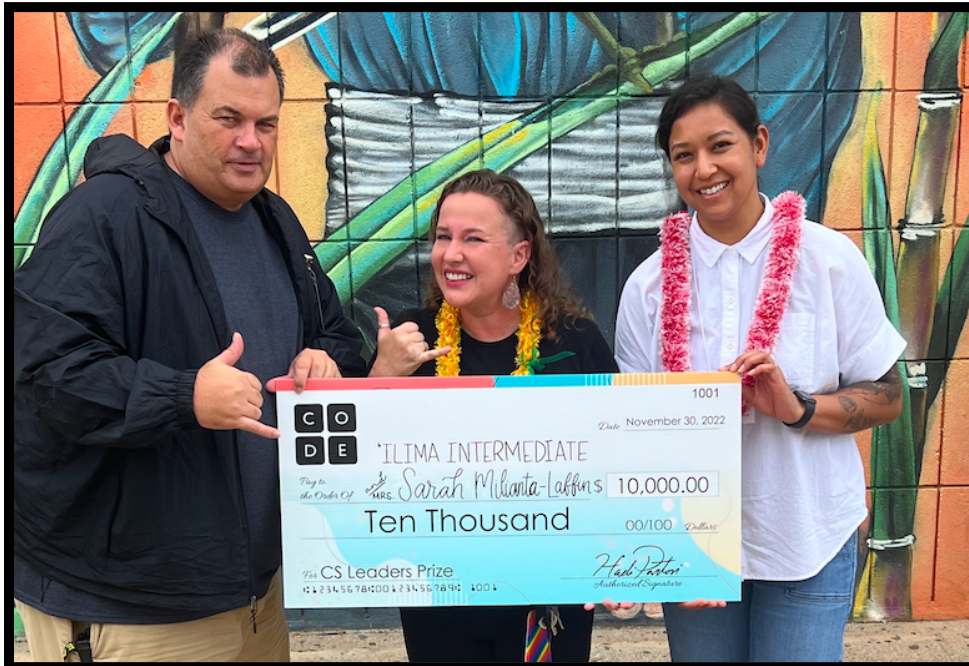
January 31, 2023

**Committee on Education**

Rep. Justin H. Woodson, Chair

Rep. Lisa Marten, Vice Chair

Aloha Chair Woodson, Vice Chair Marten, and Members of the Committee,



(Left) 'ilima Intermediate School Principal Shayne Greenland, (Middle) Sarah "Mili" Milianta-Laffin, (Right) Code.org Senior Program Director Amy B. Woodman (12/9/2022)

My name is Sarah "Mili" Milianta-Laffin. I teach Computer Science (CS) at 'ilima Intermediate School in Ewa Beach, and I'm also 1 of 2 Hawaii teachers to be awarded the prestigious 2022 Code.org CS Leaders Prize for expanding access to computer science in our community. **I'm writing to you today in strong support of HB503.**

All students in Hawaii deserve to have equitable access to CS courses and credits if we are setting them up to be successful in the future. When I survey my students at the beginning of my CS course, 84% of my students respond that they'd like a job that allows them to stay in Hawaii. We know that CS jobs pay well, and can be a part of building a future-ready workforce that will ultimately build a more resilient state.

CS Teachers like me respectfully request the following amendments:

Computer Science Graduation Credit Requirement (Page 3, Lines 18-20): Change the credit substitution from a science course to an additional program of study option to the current high

school diploma two (2) credit requirement in world language, fine arts, or career and technical education/JROTC. This will allow students to choose whether to fulfill this requirement with two (2) credits in one of the specified programs of study with the additional CS option.

Computer Science Graduation Requirement (Page 4, Lines 1-3 and 16-20): We respectfully request the start date for this implementation be revised from the 2030-2031 school year to 2025-2026 school year for the graduation class of 2030.

Mahalo for Reading, and Supporting Computer Science,

Sarah "Mili" Milianta-Laffin  
Computer Science Teacher  
'Ilima Intermediate School, Ewa Beach

**HB-503**

Submitted on: 1/30/2023 9:28:54 PM

Testimony for EDN on 1/31/2023 2:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Allison Mikuni	Individual	Support	Written Testimony Only

Comments:

**I am writing in support of HB503 as a parent of adult children educated in Hawaii's public school system. Computer science skills are foundational to quality academic and career success. Hawaii must ensure that students have equitable access to computer science courses and credits. In Hawaii, just 20% of elementary schools offer computer science learning, and just 13.9% of students in the DOE were enrolled in a computer science course in the 2021-2022 school year. Hawaii currently has 2,718 open computing jobs and these open jobs have an average salary of \$83,548. Why aren't our young people applying and being selected for these jobs? Is it because they don't qualify? It's clear that we are not fully setting our kids up for success.**

**We respectfully request the following amendments:**

- Computer Science Graduation Credit Requirement (Page 3, Lines 18-20): Change the credit substitution from a science course to an additional program of study option to the current high school diploma two (2) credit requirement in world language, fine arts, or career and technical education/JROTC. This will allow students to choose whether to fulfill this requirement with two (2) credits in one of the specified programs of study with the additional CS option.**
- Computer Science Graduation Requirement (Page 4, Lines 1-3 and 16-20): We respectfully request the start date for this implementation be revised from the 2030-2031 school year to 2025-2026 school year for the graduation class of 2030.**

Thank you for your consideration.

Allison Mikuni

Palolo, Oahu, Hawaii