

JAN 19 2018

A BILL FOR AN ACT

RELATING TO EDUCATION.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

1 SECTION 1. The legislature finds that the importance of
2 computer science cannot be overstated. For example, fifty per
3 cent of Americans rank computer science as one of the most
4 important subjects of study, after reading and writing, and
5 seventy-five per cent of Americans believe computer science is
6 "cool".

7 The legislature further finds that computing-based
8 occupations make up more than two-thirds of all projected new
9 jobs in the science, technology, engineering, and mathematics
10 fields, commonly known as STEM fields. This means that college
11 graduates with computer science degrees are in high demand among
12 employers across the nation. Students who learn computer
13 science in high school are six times more likely to major in it,
14 and women who learn computer science in high school are ten
15 times more likely to major in it.

16 The legislature also finds that recent survey and research
17 results show a disparity between the demand for computer science



1 education and its availability. Although sixty-seven per cent
2 of parents and fifty-six per cent of teachers believe students
3 should be required to learn computer science, and ninety per
4 cent of parents want their children's schools to teach computer
5 science, only forty per cent of schools offer such courses.
6 Further, although seventy-one per cent of new STEM jobs are in
7 computing, only eight per cent of STEM graduates hold degrees in
8 computer science.

9 The legislature also finds a similar disparity at the state
10 level, where computer science has the potential to drive job
11 growth and innovation throughout the economy. As of December
12 2016, there were 1,343 open computing jobs in Hawaii, and the
13 average salary for these computing jobs was \$78,414, which is
14 much higher than the average state salary of \$47,740. However,
15 only one hundred fifty-five Hawaii students graduated with a
16 computer science degree in 2014, and only fourteen schools in
17 Hawaii offered the advanced placement computer science course in
18 2015-2016. The legislature finds that promoting computer
19 science education is a matter of statewide concern.

20 The purpose of this Act is to promote the knowledge of
21 computer science education in the State by:



- 1 (1) Requiring the department of education to:
- 2 (A) Develop and implement a statewide computer
- 3 science curricula plan for public school students
- 4 in kindergarten through twelfth grade; and
- 5 (B) Permit students attempting to graduate from
- 6 public high schools to fulfil some math and
- 7 science requirements through the satisfactory
- 8 completion of computer science coursework; and
- 9 (2) Requiring the University of Hawaii to permit
- 10 applicants to fulfill certain admission requirements
- 11 by demonstrating the satisfactory completion of high
- 12 school computer science coursework.

13 SECTION 2. Chapter 302A, Hawaii Revised Statutes, is

14 amended by adding two new sections to be appropriately

15 designated and to read as follows:

16 "§302A-A Computer science; curricula plan; public schools;

17 credits. (a) The department shall:

18 (1) Develop and implement a statewide computer science

19 curricula plan for public school students in

20 kindergarten through twelfth grade, which shall

21 include:



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- 1 (A) The goals of the computer science curricula;
2 (B) Strategies for accomplishing the department's
3 goals; and
4 (C) Timelines for carrying out the strategies
5 described in the plan;
- 6 (2) Establish and publish public school computer science
7 standards across all grade levels from kindergarten
8 through twelfth grade. The standards established by
9 the department shall focus on the creation and use of
10 software and computing technologies at all grade
11 levels;
- 12 (3) Establish dedicated computer science administrative
13 and leadership positions within the department;
- 14 (4) Establish means by which public school teachers may
15 become certified in teaching computer science; and
- 16 (5) Beginning with the 2021-2022 school year, ensure that
17 each public high school offers at least one computer
18 science course during each school year.
- 19 (b) Each computer science course offered by a public
20 school:



1 (1) Shall comply with the curriculum standards and
2 requirements established by the department; and

3 (2) May be made taught in a traditional classroom setting,
4 blended learning environment, online environment, or
5 any other technology-based environment that is
6 appropriate for participating students.

7 (c) The department shall permit any student intending to
8 graduate from a public high school in 2022 or any year
9 thereafter to elect to fulfill:

10 (1) One mathematics credit requirement by satisfactorily
11 fulfilling one computer science credit; provided that
12 the student has completed second-year algebra
13 requirements; and

14 (2) One science credit requirement by satisfactorily
15 fulfilling one computer science credit;
16 provided that the same computer science credit shall not fulfill
17 more than one credit requirement.

18 **§302A-B Computer science teacher development programs.**

19 (a) The department shall develop and implement professional
20 development programs for teachers who teach computer science
21 courses required under section 302A-A.



1 (b) The department may elect to fulfill subsection (a) by
2 entering into a contract or arrangement with one or more other
3 entities to develop and implement these programs; provided that
4 an entity shall be:

5 (1) An educational agency, including a charter educational
6 agency, or a consortia of educational agencies in the
7 State;

8 (2) An institution of higher education located in the
9 State; or

10 (3) A nationally recognized provider of effective computer
11 science professional development.

12 (c) An entity that intends to enter into a contract or
13 agreement with the department pursuant to this section shall
14 first submit a proposal to the department that, at minimum,
15 shall address how the entity plans to:

16 (1) Instruct teachers with varying levels of knowledge and
17 experience in computer science;

18 (2) Provide teachers with concrete experience in hands-on,
19 inquiry-based practices;

20 (3) Utilize effective practices for professional
21 development;



- 1 (4) Emphasize the conceptual foundations of computer
2 science;
- 3 (5) Instruct teachers how to effectively teach students in
4 computer sciences, including students from demographic
5 groups that are historically underrepresented in
6 computer science careers;
- 7 (6) Adapt its instruction to accommodate the particular
8 needs of teachers in different schools and districts;
9 and
- 10 (7) Meet other requirements established by the
11 department."

12 SECTION 3. Chapter 304A, Hawaii Revised Statutes, is
13 amended by adding a new section to be appropriately designated
14 and to read as follows:

15 "§304A- Computer science; curricula plan; credits. The
16 University of Hawaii shall permit any applicant for admission to
17 a University of Hawaii campus in 2022 or any year thereafter to
18 fulfill:

- 19 (1) One high school mathematics unit requirement by
20 demonstrating that the applicant satisfactorily earned
21 one computer science unit; provided that the student



1 also demonstrates that the student fulfilled second-
2 year algebra requirements; and
3 (2) One high school science unit requirement by
4 demonstrating that the applicant satisfactorily earned
5 one computer science unit;
6 provided that the same computer science unit shall not fulfill
7 more than one unit requirement."

8 SECTION 4. There is appropriated out of the general
9 revenues of the State of Hawaii the sum of \$ or so much
10 thereof as may be necessary for fiscal year 2018-2019 to the
11 department of education to fulfill its duties under section 2 of
12 this Act.

13 The sum appropriated shall be expended by the department of
14 education for the purposes of this Act.

15 SECTION 5. The appropriation authorized under this Act
16 shall not lapse at the end of the fiscal year for which the
17 appropriation is made. Any unexpended and unencumbered balance
18 of the appropriation made in this Act as of the close of
19 business on June 30, 2021, shall lapse.

20 SECTION 6. In codifying the new sections added by section
21 2 of this Act, the revisor of statutes shall substitute



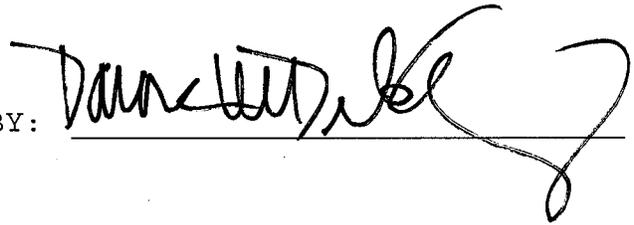
1 appropriate section numbers for the letters used in designating
2 the new sections in this Act.

3 SECTION 7. New statutory material is underscored.

4 SECTION 8. This Act shall take effect on July 1, 2018.

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INTRODUCED BY:

A handwritten signature in black ink, appearing to read "Dan Claitor", is written over a horizontal line. The signature is stylized and cursive.



S.B. NO. 2507

Report Title:

DOE; UH; Computer Science; Graduation; Admission; Appropriation

Description:

Requires the Department of Education to: (1) develop and implement a statewide computer science curricula plan for public schools; and (2) permit students to fulfill some graduation requirements through computer science coursework. Appropriates funds to the Department of Education. Requires the University of Hawaii to permit applicants to fulfill certain admission requirements through computer science coursework.

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