
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 fulfill 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:



- 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 that will apply to all grade levels from
- 8 kindergarten through twelfth grade. The standards
- 9 established by the department shall focus on the
- 10 creation and use of software and computing
- 11 technologies at all grade levels from kindergarten
- 12 through twelfth grade;
- 13 (3) Establish dedicated computer science administrative
- 14 and leadership positions within the department;
- 15 (4) Establish means by which public school teachers may
- 16 become certified in teaching computer science; and
- 17 (5) Beginning with the 2021-2022 school year, ensure that
- 18 each public high school offers at least one computer
- 19 science course during each school year.
- 20 (b) Each computer science course offered by a public
- 21 school:



1 (1) Shall comply with the curriculum standards and
2 requirements established by the department pursuant to
3 this section; and

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

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

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

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

19 **§302A-B Computer science teacher development programs.**

20 (a) The department shall develop and implement professional



1 development programs for teachers who teach computer science
2 courses required under section 302A-A.

3 (b) The department may elect to fulfill the requirements
4 of subsection (a) by entering into a contract or arrangement
5 with one or more other entities to develop and implement the
6 computer science teacher development programs; provided that the
7 entity shall be:

8 (1) An educational agency, including a charter educational
9 agency, or a consortium of educational agencies in the
10 State;

11 (2) An institution of higher education located in the
12 State; or

13 (3) A nationally recognized provider of effective computer
14 science professional development, as determined by the
15 department based on information provided pursuant to
16 subsection (c).

17 (c) An entity that intends to enter into a contract or
18 agreement with the department pursuant to this section shall
19 first submit a proposal to the department that, at minimum,
20 shall address how the entity plans to:



- 1 (1) Instruct teachers with varying levels of knowledge and
2 experience in computer science;
- 3 (2) Provide teachers with concrete experience in hands-on,
4 inquiry-based practices;
- 5 (3) Utilize effective practices for professional
6 development;
- 7 (4) Emphasize the conceptual foundations of computer
8 science;
- 9 (5) Instruct teachers on how to effectively teach students
10 in computer sciences, including students from
11 demographic groups that are historically
12 underrepresented in computer science careers;
- 13 (6) Adapt its instruction to accommodate the particular
14 needs of teachers in different schools and districts;
15 and
- 16 (7) Meet other requirements established by the
17 department."

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



1 "§304A- Computer science; curricula plan; credits. The
2 University of Hawaii shall permit any applicant for admission to
3 a University of Hawaii campus for the 2022 academic year or any
4 academic year thereafter to fulfill:

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

15 SECTION 4. There is appropriated out of the general
16 revenues of the State of Hawaii the sum of \$ or so
17 much thereof as may be necessary for fiscal year 2018-2019 to
18 the department of education to fulfill its duties under section
19 2 of this Act.

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



1 SECTION 5. The appropriation authorized under this Act
2 shall not lapse at the end of the fiscal year for which the
3 appropriation is made. Any unexpended and unencumbered balance
4 of the appropriation made in this Act as of the close of
5 business on June 30, 2019, shall lapse.

6 SECTION 6. In codifying the new sections added by section
7 2 of this Act, the revisor of statutes shall substitute
8 appropriate section numbers for the letters used in designating
9 the new sections in this Act.

10 SECTION 7. New statutory material is underscored.

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



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 moneys to the Department of Education. Requires the University of Hawaii to permit applicants to fulfill certain admission requirements through computer science coursework. (SD2)

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