

---

---

# A BILL FOR AN ACT

RELATING TO INNOVATION IN EDUCATION.

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

1           SECTION 1. The legislature finds that the State of Hawaii  
2 has been developing a number of successful innovative education  
3 models and programs. The legislature further finds that  
4 experiential learning, using innovative methodologies that  
5 engage students in project-based, problem-solving learning, is  
6 an important and expanding strategy for preparing the next  
7 generation of Hawaii's youth for the global economy. Many of  
8 Hawaii's public schools have begun to experiment with applied  
9 and experiential learning programs, but these efforts often  
10 compete in funding and time for programs focusing on improving  
11 test scores.

12           Applied learning high school academies can and should be  
13 available to interested educators, schools, and students in  
14 areas such as agriculture, landscape education, marine science,  
15 astronomy, high technology, public health, visitor industries,  
16 human resource services, culture and language, environmental  
17 sciences, visual arts, performing arts, project EAST  
18 (environmental and spatial technology) program subjects,



1 science, technology, engineering, and mathematics (STEM) program  
2 subjects, or other thematic areas of interest to agencies, the  
3 University of Hawaii campuses, and Hawaii businesses. Applied  
4 learning has been most recently promoted in relationship to  
5 science and technology, such as with the project EAST program.

6 One challenge for our education system is that in an effort  
7 to comply with the No Child Left Behind Act of 2001, applied  
8 learning strategies and the necessary focus and flexibility to  
9 extensively develop applied learning programs for more students  
10 need special support, coordination, and attention.

11 The legislature further finds that over the last decade new  
12 approaches to generating higher participation and achievement by  
13 high school students in technical areas have emerged in Hawaii  
14 and throughout the United States in the form of technical  
15 academies run at selected high schools and effective contextual  
16 learning, learning in the context of practical applications,  
17 programs such as fostering interest and respect for science and  
18 technology (FIRST) robotics and project EAST. The applied  
19 learning academy model mixes high-quality instruction with  
20 practical, project-based contextual learning experiences that  
21 generate enthusiasm among students and show them the practical  
22 application of academic skills. These existing efforts deserve



1 continued support and organizational environments that will  
2 nurture their growth.

3 The purpose of this Act is to:

4 (1) Recognize, enhance, and expand applied learning  
5 opportunities for a wide range of student interests;

6 (2) Develop a closer relationship between the expertise  
7 and resources of the University of Hawaii and the  
8 public school system for grades kindergarten through  
9 twelve;

10 (3) Increase the quality of STEM teaching in Hawaii's  
11 schools through providing enhanced professional  
12 development opportunities for practicing teachers and  
13 attracting highly qualified people with STEM degrees  
14 to the teaching profession; and

15 (4) Increase the number of Hawaii high school graduates  
16 seeking degrees or certificates in STEM disciplines by  
17 providing scholarships to accredited institutions of  
18 higher education in Hawaii.

19 SECTION 2. Chapter 302A, Hawaii Revised Statutes, is  
20 amended by adding a new part to be appropriately designated and  
21 to read as follows:

22 **"PART . APPLIED LEARNING HIGH SCHOOL ACADEMY PROGRAM**



1           **§302A- Definitions.** Whenever used in this part, unless  
2 the context otherwise requires:

3           "Applied learning high school academy" means a department  
4 of education high school or a school within a school, with an  
5 approved five-year conversion plan to deliver an applied  
6 learning curriculum, including support for project EAST  
7 (environmental and spatial technology) programs, Hawaii  
8 excellence through science and technology programs, and STEM  
9 (science, technology, engineering, and mathematics) programs,  
10 linked to the mission of a state agency or University of Hawaii  
11 campus, college, program, or department, which includes a  
12 significant contribution of land, facilities, personnel, or  
13 other resources by that agency or university unit.

14           "Department" means the department of education.

15           **§302A- Applied learning high school academies.** (a) The  
16 department shall establish and administer an applied learning  
17 high school academy program.

18           (b) The applied learning high school academy program shall  
19 be administered by a director who shall:

20           (1) Collaborate with the director of business, economic  
21 development, and tourism to assess the workforce needs  
22 of the State and devise methods of meeting those needs



- 1           within the applied learning high school academy  
2           program;
- 3           (2) Assist schools, complex areas, and districts in  
4           establishing applied learning high school academy  
5           programs;
- 6           (3) Review school applications for approval of applied  
7           learning high school academy programs;
- 8           (4) Evaluate existing programs;
- 9           (5) Promote the conversion of existing academy programs  
10          and projects into applied learning high school  
11          academies such as project EAST (environmental and  
12          spatial technology), the Hawaii excellence through  
13          science and technology, and STEM (science, technology,  
14          engineering, and mathematics) programs;
- 15          (6) In collaboration with the University of Hawaii,  
16          initiate research and studies for the improvement of  
17          curriculum materials for specialty areas of applied  
18          learning high school academies;
- 19          (7) Ensure that the standards and criteria developed under  
20          this section satisfy the mandates of federally  
21          assisted vocational education;



- 1 (8) Develop in-service programs for teachers and  
2 administrators;
- 3 (9) Serve as a liaison with the representatives of  
4 business, industry, appropriate public agencies, and  
5 institutions of higher education to facilitate the  
6 dissemination of information;
- 7 (10) Promote links with private sector employers in Hawaii;
- 8 (11) Establish an advisory task force representing the  
9 diverse areas of industry in the State, which shall  
10 make annual recommendations on the development of  
11 curriculum, staffing, and strategies to establish a  
12 source of trained and qualified individuals and  
13 strategies for developing the applied learning high  
14 school academies program, including youth leadership  
15 throughout the public schools.
- 16 (c) The department may adopt rules pursuant to chapter 91  
17 for the purposes of this part.

18 **§302A- Applied learning high school academies;**  
19 **application and approval.** (a) Any school may submit a letter  
20 of intent to the department to convert a department high school  
21 or program within a high school to an applied learning high  
22 school academy, and also shall submit with the letter of intent



1 a conversion plan that includes a detailed five-year plan that  
2 shall include significant support of the high school by the  
3 co-sponsoring state agency or University of Hawaii campus.

4 (b) Applied learning high school academies may be  
5 developed with a focus on agriculture, landscape education,  
6 marine science, astronomy, high technology, public health,  
7 visitor industries, human resources services, culture and  
8 language, environmental sciences, visual arts, performing arts,  
9 project EAST (environmental and spatial technology) program  
10 subjects, STEM (science, technology, engineering, and  
11 mathematics) program subjects, or other thematic areas of  
12 interest to agencies, the University of Hawaii campuses, and  
13 Hawaii businesses.

14 (c) The conversion plan shall be approved by the director,  
15 the high school's school community council, and the complex area  
16 superintendent; provided that the evaluation of the conversion  
17 plan shall incorporate the following criteria:

18 (1) The degree to which the conversion plan strives to  
19 provide students with experiences outside the school  
20 walls;



- 1 (2) Opportunities for eleventh grade students to complete  
2 a semester-long academic internship in a local  
3 business or agency;
- 4 (3) Opportunities for twelfth grade students to develop  
5 substantial projects that enable the students to learn  
6 while working on problems of interest and concern in  
7 the community; and
- 8 (4) Opportunities for ninth and tenth grade students to  
9 "shadow" an adult through a workday, perform community  
10 service in a group project, or engage in lunches with  
11 outside adults on issues of interest.
- 12 (d) An applied learning high school academy's success  
13 shall be evaluated by the board following each five-year period,  
14 and may be renewed thereafter."

15 SECTION 3. Chapter 304A, Hawaii Revised Statutes, is  
16 amended by adding five new sections to be appropriately  
17 designated and to read as follows:

18 **"§304A-A Hawaii excellence through science and technology**  
19 **academy program; established.** (a) There is established within  
20 the University of Hawaii community college system, the Hawaii  
21 excellence through science and technology academy program. The  
22 purpose of the Hawaii excellence through science and technology



1 academy program shall be to establish applied learning science,  
2 technology, engineering and math academies and to add resources  
3 and support to the department of education to increase the  
4 readiness and motivation of Hawaii high school graduates to  
5 pursue post-secondary training and career options in science,  
6 technology, engineering, and math disciplines by linking the  
7 Hawaii excellence through science and technology academy program  
8 to applied learning high school academies.

9 (b) The Hawaii excellence through science and technology  
10 academy program shall be headed by a director appointed by the  
11 president of the University of Hawaii. The director shall  
12 create an advisory committee to provide guidance to the  
13 director. The Hawaii excellence through science and technology  
14 academy program advisory committee shall include representatives  
15 of the college of education of the University of Hawaii, the  
16 department of education, the Hawaii educational policy center,  
17 the charter schools administrative office, and businesses that  
18 would benefit from graduates of Hawaii excellence through  
19 science and technology academies.

20 The Hawaii excellence through science and technology  
21 academy program advisory committee shall develop performance  
22 measures to ensure that the program conducted is contributing



1 substantially and directly to an increase in high school  
2 graduates ultimately entering post-secondary science,  
3 technology, engineering, and math programs and pursuing science,  
4 technology, engineering, and math related occupations.

5 (c) The Hawaii excellence through science and technology  
6 academy program shall:

7 (1) Strive to enroll at least twenty-five per cent of the  
8 high school student body in academy programs within  
9 two years of its inception;

10 (2) Partner with the department of education and public  
11 charter schools to establish applied learning high  
12 school Hawaii excellence through science and  
13 technology academies established under part of  
14 chapter 302A- and appropriate public, nonprofit, and  
15 private agencies, to establish individual Hawaii  
16 excellence through science and technology academies  
17 throughout the State; and

18 (3) Have a lead instructor employed by the community  
19 college system with additional qualified instructors  
20 who may be hired by the community colleges.

21 (d) Hawaii excellence through science and technology  
22 academies shall develop a memorandum of agreement to work with



1 the host high school to implement the required applied learning  
2 academic programs for project-based, contextual learning  
3 programs designed to use and expand students' academic skills.

4 **§304A-B Fostering inspiration and relevance through**  
5 **science and technology pre-academy program; established.** (a)

6 There is established within the University of Hawaii, the  
7 fostering inspiration and relevance through science and  
8 technology pre-academy program, which shall be administered by  
9 the college of engineering. The mission of the fostering  
10 inspiration and relevance through science and technology  
11 pre-academy program shall be as follows:

12 (1) With respect to middle schools, to provide additional  
13 resources and expertise for the department of  
14 education to stimulate the interest and achievement of  
15 students in science, technology, engineering, and math  
16 skills and help prepare those students for entry into  
17 the Hawaii excellence through science and technology  
18 academy program, beginning in sixth grade; and

19 (2) With respect to students enrolled in the Hawaii  
20 excellence through science and technology academies,  
21 to support and complement the Hawaii excellence  
22 through science and technology academy's academic



1 programs with contextual learning projects, taking  
2 advantage of non-school hours, non-school days, and  
3 school vacation days to complement existing school day  
4 programs.

5 To achieve its mission, the fostering inspiration and relevance  
6 through science and technology pre-academy program shall house  
7 and provide direction for the robotics and space contextual  
8 learning program under section 304A-C and the research  
9 experiences for teachers program under section 304A-D.

10 (b) The goals of the pre-academy shall be to:

11 (1) Serve students between sixth and eighth grades, with  
12 contextual learning experiences in science,  
13 technology, engineering, and math related skills in a  
14 manner that complements the academic program at public  
15 high schools; and

16 (2) Motivate and engage students in science, technology,  
17 engineering, and math programs.

18 (c) The pre-academy program shall encourage partnerships  
19 with the Hawaii excellence through science and technology  
20 academies, other relevant programs within the University of  
21 Hawaii system, the department of education, interested schools  
22 in areas served by Hawaii excellence through science and



1 technology academies, project EAST (environmental and spatial  
2 technology) program subjects, and appropriate public and private  
3 agencies, to establish a program of contextual learning for  
4 middle school students in science, technology, engineering, and  
5 math disciplines. School participation in the fostering  
6 inspiration and relevance through science and technology pre-  
7 academy programs shall be voluntary.

8 (d) The fostering inspiration and relevance through  
9 science and technology pre-academy program shall support  
10 development of additional contextual learning projects and  
11 summer science, technology, engineering, and math programs for  
12 middle school teachers. For additional contextual learning  
13 projects, priority shall be determined in collaboration with  
14 participating teachers. Areas may include global positioning  
15 system technology, ocean science, astronomy, earth science and  
16 wireless communications technology, conservation biology, and  
17 other science, technology, engineering, and math skills  
18 stimulating subjects as appropriate.

19 (e) The fostering inspiration and relevance through  
20 science and technology pre-academy shall develop program  
21 evaluation measures to ensure that all programs conducted under  
22 the pre-academy are contributing to the advancement of science,



1 technology, engineering, and math academics in the middle  
2 schools through research.

3 **§304A-C Robotics and space contextual learning program;**  
4 **established.** (a) There is established within the University of  
5 Hawaii the robotics and space contextual learning program, which  
6 shall be administered by the college of engineering. The  
7 mission of the robotics and space contextual learning program  
8 shall be to develop science, technology, engineering, and math  
9 skills among students in fostering inspiration and relevance  
10 through science and technology pre-academy and Hawaii excellence  
11 through science and technology academy programs through  
12 robotics- and space-technology-based, contextual projects and  
13 competitions. The robotics and space contextual learning  
14 program shall work with existing programs to expand and deepen  
15 activities, including but not limited to, National Aeronautics  
16 and Space Administration explorer schools; fostering inspiration  
17 and relevance through science and technology robotics, lego  
18 league, and vex challenges or competitions; botball educational  
19 robotics programs; and underwater robotics challenges.

20 (b) The robotics and space contextual learning program  
21 shall coordinate and cooperate with the fostering inspiration  
22 and relevance through science and technology pre-academy and



1 Hawaii excellence through science and technology academy  
2 programs in establishing an integrated system of science,  
3 technology, engineering, and math related, contextual learning  
4 programs under the administration of the pre-academy. The  
5 robotics and space contextual learning program shall enlist,  
6 encourage, train, and support volunteer teachers and other  
7 mentors to conduct robotics and space-related programs at the  
8 school level.

9 **§304A-D Research experiences for teachers program;**  
10 **established.** (a) There is established the research experiences  
11 for teachers program within the University of Hawaii, which  
12 shall be administered by the University of Hawaii college of  
13 engineering. The purpose of the research experiences for  
14 teachers program shall be to support the development of middle  
15 school teacher skills and knowledge, and the development of  
16 middle school curriculum materials in science, technology,  
17 engineering, and math subject areas, with a focus on wireless  
18 communications.

19 (b) The research experiences for teachers program shall:  
20 (1) Educate teachers in the advances in technology in  
21 wireless communications and engineering;



- 1        (2) Enhance teacher research skills through the use of  
2        software and innovative uses of equipment;
- 3        (3) Provide teacher participants with hands on research  
4        experiences;
- 5        (4) Support teachers in developing classroom lessons and  
6        program activities that meet their course objectives  
7        and student performance standards; and
- 8        (5) Provide opportunities to share and collaborate with  
9        other teacher participants to ensure successful  
10       implementation of curricula and programs.
- 11       (c) Specific activities of the research experiences for  
12 teachers program shall include:
- 13       (1) Providing on-site lectures, demonstrations, and  
14       laboratory tours at the University of Hawaii and  
15       middle schools;
- 16       (2) Reviewing wireless communication concepts, methods,  
17       history, and applications;
- 18       (3) Reviewing engineering and relevant science concepts,  
19       research methodology, and real-world applications;
- 20       (4) Reviewing key components of inquiry-based teaching  
21       materials;
- 22       (5) Providing teachers with technical content support;



- 1        (6) Assisting teachers in adapting state-of-the-art
- 2        engineering research into a meaningful classroom
- 3        experience for students;
- 4        (7) Providing seminars to transfer relevant information
- 5        and experiences among teacher participants and
- 6        sponsors;
- 7        (8) Providing summer engineering workshop for teachers;
- 8        and
- 9        (9) Maintaining a website for content and program
- 10       dissemination.

11        **§304A-E Professional development program; established.**

12       (a) There is established within the University of Hawaii a

13       professional development program to provide practicing

14       elementary, middle, and high school teachers of science and

15       mathematics courses with opportunities to increase their

16       knowledge and understanding of recent developments in science,

17       technology, engineering, and mathematics. The professional

18       development program shall be administered by the University of

19       Hawaii college of education and shall be open to both

20       certificated and non-certificated teachers. Design of the

21       professional development program shall include evaluation of

22       best practices in other school jurisdictions.



1        (b) In recognition that the year-round public school  
2 calendar has shortened the summer period, that not all schools  
3 are on the same academic calendar, and that programs throughout  
4 the year, offered in a variety of formats, would facilitate  
5 immediate implementation in the classroom, the professional  
6 development program shall have the following attributes:

7        (1) Flexibility – the program shall provide a variety of  
8 options designed to meet the specific needs of  
9 Hawaii's teachers, which may include summer  
10 institutes, a combination of summer, after school, or  
11 weekend institutes, distance learning through video  
12 conferencing or other mechanisms, neighbor island  
13 locations, or other options; and

14        (2) Accountability – the program shall provide a method to  
15 track the student outcomes derived from participation  
16 in the program.

17        (c) The goal of the professional development program for  
18 practicing teachers shall be to provide training for two  
19 thousand six hundred teachers during the 2007-2009 biennium."

20        SECTION 4. There is established within the department of  
21 business, economic development, and tourism, the  
22 business/education internship and mentorship program. The



1 purpose of this program is to establish, with the cooperation of  
2 educational institutions, intern, mentorship, and other  
3 experiential learning arrangements within the business  
4 community, nonprofit sector, and government, for Hawaii high  
5 school students and Hawaii high school graduates attending  
6 college in Hawaii or elsewhere. The goals of this program shall  
7 be to provide Hawaii students with experience in the world of  
8 work to improve their career choices, and to provide  
9 opportunities for Hawaii employers to establish relationships  
10 with students who represent an essential source of skills for  
11 Hawaii's future economic growth and prosperity. The department  
12 of business, economic development, and tourism shall coordinate  
13 with the department of education and may contract with  
14 appropriate government, nonprofit, or for-profit entities to  
15 accomplish the purpose and goals of this program.

16 SECTION 5. There is provided funding to support a  
17 successful recruitment program currently funded under the United  
18 States Department of Education Transition to Teaching Program  
19 that has resulted in ninety new qualified mathematics and  
20 science teachers since it began four-and-a-half years ago. The  
21 Transition to Teaching program provides stipends as recruitment  
22 incentives for people who hold degrees in science, technology,



1 engineering, and math subjects to get their teaching  
2 certificates through the University of Hawaii's post  
3 baccalaureate certificate in secondary education program. The  
4 university's transition to teaching grant will expire in 2008.  
5 There is a chronic shortage of science and mathematics teachers  
6 and the post baccalaureate certificate in secondary education  
7 program is an effective method to address the problem, however,  
8 recruitment for potential science, technology, engineering, and  
9 math teachers is difficult and the incentive of stipends has  
10 proven effective. The goal of the program is to produce twenty  
11 new science or mathematics teachers each year.

12 There is appropriated out of the general revenues of the  
13 State of Hawaii the sum of \$ or so much thereof as may  
14 be necessary for fiscal year 2007-2008 and the same sum or so  
15 much thereof as may be necessary for fiscal year 2008-2009 for  
16 the Transition to Teaching program to provide stipends to  
17 attract science, technology, engineering, and math graduates to  
18 the University of Hawaii post baccalaureate certificate in  
19 secondary education program.

20 The sums appropriated shall be expended by the University  
21 of Hawaii for the purposes of this Act.



1 SECTION 6. There is appropriated out of the general  
 2 revenues of the State of Hawaii the sum of \$ or so  
 3 much thereof as may be necessary for fiscal year 2007-2008 for  
 4 planning and start-up grants for the applied learning high  
 5 school academy program established pursuant to section 2 of this  
 6 Act.

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

9 SECTION 7. There is appropriated out of the general  
 10 revenues of the State of Hawaii the sum of \$ or so  
 11 much thereof as may be necessary for fiscal year 2007-2008 and  
 12 the same sum or so much thereof as may be necessary for fiscal  
 13 year 2008-2009 for the operations of applied learning high  
 14 school academies established pursuant to section 2 of this Act;  
 15 provided that the funds appropriated shall be allocated on a per  
 16 pupil basis.

17 The sums appropriated shall be expended by the department  
 18 of education for the purposes of this Act.

19 SECTION 8. There is appropriated out of general revenues  
 20 of the State of Hawaii the sum of \$ or so much thereof  
 21 as may be necessary for fiscal year 2007-2008 and the amount of  
 22 \$ or so much thereof as may be necessary for fiscal



1 year 2008-2009 for establishing the Hawaii excellence through  
2 science and technology academy program established pursuant to  
3 section 3 of this Act.

4 The sums appropriated shall be expended by the University  
5 of Hawaii for the purposes of this Act.

6 SECTION 9. There is appropriated out of general revenues  
7 of the State of Hawaii the sum of \$ or so much thereof  
8 as may be necessary for fiscal year 2007-2008 and the amount of  
9 \$ or so much thereof as may be necessary for fiscal  
10 year 2008-2009 for establishing the fostering inspiration and  
11 relevance through science and technology pre-academy program  
12 established pursuant to section 3 of this Act; provided that the  
13 sums appropriated shall be allocated as follows:

14 (1) \$ for the robotics and space contextual  
15 learning program; and

16 (2) \$ for the research experiences for teachers  
17 program.

18 The sums appropriated shall be expended by the University  
19 of Hawaii for the purposes of this Act.

20 SECTION 10. There is appropriated out of the general  
21 revenues of the State of Hawaii the sum of \$ or so  
22 much thereof as may be necessary for fiscal year 2007-2008 and



1 the same sum, or so much thereof as may be necessary for fiscal  
2 year 2008-2009 for developing certificate programs for  
3 professional development in science, technology, engineering,  
4 and math disciplines for practicing teachers.

5 The sums appropriated shall be expended by the University  
6 of Hawaii for the purposes of this Act.

7 SECTION 11. There is appropriated out of the general  
8 revenues of the State of Hawaii the sum of \$ or so  
9 much thereof as may be necessary for fiscal year 2007-2008 and  
10 the same sum or so much thereof as may be necessary for fiscal  
11 year 2008-2009 for the business/education internship and  
12 mentorship program.

13 The sums appropriated shall be expended by the department  
14 of business, economic development, and tourism for the purposes  
15 of this Act.

16 SECTION 12. In codifying the new sections added by section  
17 3 of this Act, the revisor of statutes shall substitute  
18 appropriate section numbers for the letters used in designating  
19 the new sections in this Act.

20 SECTION 13. New statutory material is underscored.

21 SECTION 14. This Act shall take effect on July 1, 2007.



**Report Title:**

Education; Innovation Initiatives; Appropriation

**Description:**

Establishes the applied learning high school academy program that will link the curriculum of a school to the mission of a particular agency or University of Hawaii campus; establishes the Hawaii excellence through science and technology academy program to increase the readiness and motivation of public high school graduates to pursue post secondary training and career options in science, technology, engineering, and mathematics (STEM) disciplines; establishes the fostering inspiration and relevance through science and technology pre-academy program; establishes a professional development program to provide practicing public elementary, middle, and high school science and mathematics teachers with opportunities to increase their knowledge and understanding of recent developments in science, technology, and mathematics; provides stipends as an initiative for individuals who hold degrees in STEM subjects to obtain teaching certificates through the University of Hawaii's post baccalaureate certificate in secondary education program; creates the business/education internship and mentorship program; makes appropriations. (SD2)

