

19th House District

Parts of NE Franklin County
Including Columbus, Gahanna,
New Albany, Westerville, Minerva Park,
and area townships



134th General Assembly Committees

Energy and Natural Resources
Health
Higher Education and Career Readiness
Primary & Secondary Education
Technology and Innovation, Ranking Member

Representative Mary Lightbody 19th House District

Testimony to the Higher Education and Career Readiness Committee
House Bill 663
December 6, 2022
Mary Lightbody, Ph.D.

Chairman Young, Ranking Member Ingram, and fellow members of the House Higher Education and Career Readiness Committee, thank you for allowing me to testify in support of House Bill 663, which would establish a loan repayment program for first time STEM teachers in grades 7-12 through the Ohio Department of Education and the Chancellor of Education.

This legislation is designed to address Ohio's chronic shortage of science, technology, engineering, and math (or STEM) educators in many areas of the state. According to reports by the US Department of Education, Ohio has seen shortages of teachers in at least one STEM field every year since the beginning of its annual reporting in 1990.¹ These shortages have been exacerbated by the effects of the pandemic and its immense toll on educators and schools. This is especially true in already underserved and underfunded communities across the state of Ohio.

This legislation would more specifically create a loan repayment program and fund for STEM teachers who participate in the program and agree to teach for at least five years at the 7th-12th grade level in school districts across the state that are classified by the Ohio Department of Education as hard to staff or hard to serve. Typically these schools serve families with low social and economic status, have high percentage of students who qualify for the free and reduced lunch program, have persistently low performance ratings on the state report card, and have difficulty attracting and retaining STEM teachers (especially for physics, chemistry, and calculus). This requirement will help us attract more Ohioans who excel in STEM fields to attend teacher prep programs in Ohio and teach for five years to help reach diverse students and open doors to workforce opportunities for them in 21st century jobs that we need to be able to fill. Finally, the program created by this legislation will only operate for ten years after the bill goes into effect.

As a former science teacher and education professor, I know the importance of making sure that high school students across Ohio have science and math teachers who love their content areas, are enthusiastic, creative, and able to teach the content so students both understand the content and enjoy the classes. A quality education in high school STEM fields creates critical thinkers, increases science literacy, enables the next generation of innovators, and empowers the next generation of workers. Science,

¹ <https://tsa.ed.gov/#/reports>

technology, engineering and mathematics play a key role in the sustained growth and stability of the Ohio economy and that of the United States as a whole.

As we continue to invest in the future of our great state, it is time we invest in the STEM education of our children and in teachers. We need Ohio students graduating from our high schools to have a solid knowledge in STEM fields, and the teachers most likely to be successful in this are those teachers who love the content area and can share their delight in the content with their students. We need to have a clear pathway to help our workforce develop skills to solve problems, make sense of information, and know how to collect and evaluate evidence to make rational decisions. Our challenge is to make sure that, no matter where Ohio children and youth live, they have access to quality learning environments and well prepared and knowledgeable teachers. A zip code should not determine their STEM fluency.

Thank you again for the opportunity to testify today. The importance of STEM education for Ohio students is immeasurable, and I hope you will support our efforts to address Ohio's teacher shortages in these areas. I would appreciate any questions you may have that would help me further refine the legislation for consideration in the next General Assembly, as I do intend to bring the bill back again.

Information on the number of teachers with a science licensure in Ohio provided by the Ohio Department of Education, October 30, 2019

2018-2019 School Year

15076 individuals holding credentials with science teaching fields

7434 of those individuals actually teaching science courses

Credential Type	Teaching Field	Count
Adolescent to Young Adult (7-12)	Biology or Life Sciences	2004
Adolescent to Young Adult (7-12)	Chemistry	694
Adolescent to Young Adult (7-12)	Earth Science	259
Adolescent to Young Adult (7-12)	Integrated Science	1673
Adolescent to Young Adult (7-12)	Physics	251
Designated Subject (4-12)	Biology or Life Sciences	14
Designated Subject (4-12)	Chemistry	3
Designated Subject (4-12)	Integrated Science	9
Designated Subject (4-12)	Physics	3
Designated Subject (Grades K-12)	Biology or Life Sciences	91
Designated Subject (Grades K-12)	Chemistry	39
Designated Subject (Grades K-12)	Earth Science	5
Designated Subject (Grades K-12)	Integrated Science	73
Designated Subject (Grades K-12)	Physics	21
High School (7-12)	All Sciences 7-8	816
High School (7-12)	Biology or Life Sciences	2898
High School (7-12)	Chemistry	1318
High School (7-12)	Comprehensive Science	625
High School (7-12)	Earth Science	699
High School (7-12)	General Science (9-12)	661
High School (7-12)	Integrated Science	1885
High School (7-12)	Physical Science* *	62
High School (7-12)	Physics	739
Middle Childhood (4-9)	Science (4-9)	6185
Middle Childhood (4-9)	Science Generalist (4-6)	1

State of Ohio Licensure areas (<http://education.ohio.gov/Topics/Teaching/Licensure>)

Adolescence to Young Adult (AYA) Licensure

This license requires a baccalaureate degree (or higher) and allows you to teach students in grades 7 through 12 in one specific content area. Specific content areas include the following:

- Integrated Language Arts
- Integrated Mathematics
- Integrated Social Studies

There are 11 science fields in the AYA license. Some licenses would allow you to teach just one specific area in science, while others would allow you to teach multiple areas of science:

- Earth Sciences
- Earth Sciences/Chemistry
- Earth Sciences/ Physics
- Integrated Science
- Life Sciences (aka Biology)
- Life Sciences/Chemistry
- Life Sciences/Earth Sciences
- Life Sciences/Physics
- Physical Sciences: Chemistry
- Physical Sciences: Physics
- Physical Sciences (Chemistry and Physics)

Total cost is the total cost of attendance for that particular college. It includes:

- Tuition and fees (in-state tuition for public schools)
- Room and board (on campus)
- Books and supplies
- Other expenses (travel and personal)

Ohio Public Colleges

College	Bowling Green	Central State	Cleveland State	Cincinnati Main	Kent State	Miami Oxford	Ohio University	Ohio State	Shawnee State	U of Akron	U of Toledo	Wright State	Youngstown State	Average Ohio Public
City	Bowling Green	Wilberforce	Cleveland	Cincinnati	Kent	Oxford	Athens	Columbus	Portsmouth	Akron	Toledo	Dayton	Youngstown	
Total Cost	\$24,569	\$18,880	\$26,568	\$28,156	\$25,514	\$31,811	\$28,256	\$27,037	\$20,910	\$26,086	\$26,262	\$24,138	\$22,447	\$25,433
Family Income														
\$0 – \$30k	\$14,592	\$10,712	\$11,050	\$17,081	\$13,088	\$11,689	\$16,487	\$8,932	\$13,675	\$14,734	\$13,357	\$12,619	\$8,556	\$12,813
\$30,001 – \$48k	\$15,173	\$14,254	\$13,019	\$18,044	\$15,053	\$13,871	\$18,540	\$9,861	\$12,793	\$15,282	\$14,374	\$13,241	\$9,816	\$14,102
\$48,001 – \$75k	\$18,684	\$17,137	\$16,469	\$21,729	\$18,517	\$19,050	\$22,466	\$15,906	\$15,663	\$18,480	\$16,846	\$16,069	\$12,528	\$17,657
\$75,001 – \$110k	\$20,504	\$18,676	\$19,127	\$25,164	\$20,361	\$24,048	\$24,593	\$21,130	\$17,201	\$19,474	\$18,844	\$17,881	\$14,849	\$20,142
\$110,001+	\$20,811	\$18,608	\$19,382	\$25,534	\$20,570	\$26,131	\$25,434	\$23,918	\$17,331	\$19,704	\$19,157	\$18,179	\$14,992	\$20,750

<https://tamingthehighcostofcollege.com/net-price-of-ohio-colleges-by-income/>