RESOLUTION TO APPROVE DISCONTINUANCE OF BACHELOR OF SCIENCE (BS) IN SYSTEMS BIOLOGY

Academic Area: College of Science

Degree program discontinuance effective Fall 2025.

This degree program has not met institutional and College of Science enrollment expectations since its initiation in 2014. Enrollment and graduation data indicate that the degree program will not meet the State Council of Higher Education for Virginia (SCHEV)'s productivity and viability standards when reviewed during the next review cycle. Based on the declining enrollment trends and the inability to recruit new students into the degree program, the Dean of the College of Science identified the discontinuation of the B.S. in Systems Biology degree program as one of the reinvestment areas for the college.

A teach-out plan for 26 current students will begin in Fall 2025 and continue through Spring 2031. This plan will allow seven (7) full years for students to complete the degree program. To ensure that students with challenges can meet the deadline, the discontinuation of the degree program has been extended three (3) years beyond the expected date for all students to graduate.

Attached: Materials prepared for approval by the State Council of Higher Education for Virginia (SCHEV)

RECOMMENDATION:

That the resolution to discontinue the Bachelor of Science (BS) in Systems Biology in the College of Science be approved.

November 19, 2024

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Proposed Intent to Discontinue
Virginia Polytechnic Institute and State University (Virginia Tech) requests to discontinue the Bachelor of Science (B.S.) degree program in Systems Biology (26.1104). The degree program is located in the College of Science.

Background
Since 2014, Virginia Tech has offered the Bachelor of Science (B.S.) in Systems Biology degree program in the College of Science. The purpose of the degree program was and remains to train students to utilize a systems approach to the study of biological, chemical, and physical process within living organisms. Students learn about the quantitative and computational methodologies that connect the biochemical and genetic properties of individual macromolecules to the physiological behavior of cells and tissues.

During the Spring and Fall of 2022, the B.S. in Systems Biology degree program was evaluated by the program faculty, program director, and the director of Academy of Integrated Science which serves as the college's administrative center for the degree program. Over the course of seven (7) meetings, the group reviewed the existing curriculum, program enrollment, and recruitment efforts. As a result of these meetings, the group made the decision to increase enrollment through curricular modifications as well as to enhance recruitment efforts. Through an evaluation of the curriculum, the group identified prerequisite course requirements that could be removed from several courses thereby allowing for a more streamlined pathway for students in the curriculum. In Spring 2022, the group also increased marketing efforts to Virginia high school students by advertising the program at college fairs and increasing the number of scholarships offered to students enrolling in the degree program. Despite these efforts, enrollment for the Fall 2023 semester did not increase.

In the Spring of 2024, the Executive Vice President and Provost asked the college deans to review their academic portfolios and identify reinvestment opportunities. On January 16, 2024, the Dean of the College of Science asked department heads and academy directors to propose opportunities for reinvestment from their respective areas. On February 12, 2024, after review of the enrollment trends, unsuccessful recruitment efforts, and resource needs of the B.S. in Systems Biology degree program, the Director of the Academy of Integrated Science, the college's coordinating center for the degree program, proposed the discontinuation of the Systems Biology degree program to the Dean of the College of Science as one of the college's reinvestment opportunities. On February 18, 2024, the Dean of the College of Science proposed the discontinuation of the B.S. in Systems Biology degree program and the plan was approved by the Executive Vice President and Provost. On February 26, 2024, the Systems Biology program faculty were informed via email by the Director of the Academy of Integrated Science about the plan to discontinue the degree program. On March 4, 2024, the dean of the College of Science announced during a meeting with the faculty teaching in the Systems Biology major that the college would move forward with the proposal to discontinue the B.S. in Systems Biology degree program.

On September 5, 2024, the College of Science Curriculum Committee voted unanimously to discontinue the degree program.

Rationale for Intent to Discontinue
The Bachelor of Science (B.S.) in Systems Biology is no longer a degree program that should be offered by Virginia Tech. There are three (3) reasons why the degree program should be discontinued at this time: 1) lack of enrollment, 2) productivity standards, and 3) reallocation of resources.

Enrollment
Enrollment in the B.S. in Systems Biology has not met institutional expectations. Records show enrollment has consistently declined since 2018. Records show student enrollment has not met sufficient levels for institutional requirements since 2020.

	2018	2019	2020	2021	2022	2023
Enrollment	**52**	**45**	**32**	**30**	**28**	**26**
New Enrollment	**18**	**6**	**9**	**9**	**7**	**6**
	2019	**2020**	**2021**	**2022**	**2023**	**2024**
Graduates	**6**	**19**	**9**	**9**	**5**	**-**

It is apparent that the degree program is no longer desirable for students at Virginia Tech. It has also become increasingly difficult to recruit new students into the program, despite targeted recruitment efforts. The lack of enrollment supports the need to discontinue the degree program at this time.

Productivity
Enrollment and graduation data indicate that the degree program will not meet the State Council of Higher Education for Virginia (SCHEV)'s productivity and viability standards when reviewed during the next review cycle. The current SCHEV Productivity data for the B.S. in Systems Biology shows the 5-year average data for FTEs at 40.0 and graduates at 9.6, just above the threshold requirements of 36 FTEs and 9 graduates. Additionally, the Virginia Tech enrollment data indicates the 5-year average data for FTEs and graduates will continue to decline with the declining enrollment. The institution has decided not to pursue efforts to maintain the degree program. Thus, discontinuing the degree program is needed at this time.

Reallocation of Resources
During a Spring 2024 university strategic planning session, the Executive Vice President and Provost asked the college deans to review their existing academic portfolios to identify reinvestment opportunities. As part of this process, the Dean of the College of Science, Dean's Office staff, including the Academy of Integrated Science Director, and faculty evaluated the B.S. in Systems Biology degree program. As part of that evaluation process, the history of the degree program, 2022 efforts to revise the curriculum and support recruitment, and existing enrollment and graduation data were reviewed by the Dean, the academy director, and program faculty. Based on the declining enrollment trends and the inability to recruit new students into the degree program, the Dean of the College of Science identified the discontinuation of the B.S. in Systems Biology degree program as one of the reinvestment areas for the college. Thus, the Dean of the College of Science made the decision to discontinue the B.S. in Systems Biology

degree program.

Critical Shortage Area
The Bachelor of Science (B.S.) in Systems Biology is not in a critical shortage area. The curriculum will not be offered as a sub area in any other existing degree program offered by Virginia Tech.

Teach-out Plan
A total of twenty-six (26) students are currently enrolled in the Bachelor of Science (B.S.) in Systems Biology degree program. Nine (9) students are expected to graduate in Spring 2025. Seven (7) students are expected to graduate in the Spring 2026. Six (6) students are expected to graduate in Spring 2027. Four (4) students are expected to graduate in Spring 2028.

The last semester that students will be able to complete the B.S. in Systems Biology is Spring of 2031. This plan will allow seven (7) full years for students to complete the degree program. To ensure that students with challenges can meet the deadline, the discontinuation of the degree program has been extended three (3) years beyond the expected date for all students to graduate.

All faculty have been made aware of the impending closure. No faculty positions will be lost as a result of the discontinuance of the degree program. Faculty teaching core and required courses in the B.S. in Systems Biology degree program will teach coursework in other degree programs.

<u>"Stopped Out" Students</u>
Institutional records show eight (8) students have "stopped out" since 2017. These students have been considered. There is a seven (7) year period exists in which students may return and complete the B.S. in Systems Biology degree program. This group of students will be notified in writing about the discontinuation of the degree program. Students will also have the option to pursue another degree within the university.