
Massachusetts Department of Higher Education

STEM Starter Academy

Equity and Diversity



July 2020

OVERVIEW: SSA AND MASSACHUSETTS' EQUITY AGENDA

What is SSA?

The STEM Starter Academy (SSA) is a Massachusetts Department of Higher Education (DHE) initiative to **recruit, ready, retain, and complete** significantly more students through community college STEM pathway programs that result in job placement within STEM professions or transfer to university STEM programs.

To address the need for a diverse population of skilled STEM graduates, **SSA (1) recognizes the untapped potential of underrepresented student populations; (2) supports differentiated approaches to meet student needs; and (3) curates best practices at scale to promote positive student outcomes.**

Through STEM-focused relationships and social networks, diverse students not only have access to but are accessing a continuum of supports (academic, experiential learning, and wrap-around).

Equity based programs:

- 1 Promote diversity and inclusion
- 2 Acknowledge and value diverse perspectives, cultures, and experiences
- 3 Develop responsive program design that promotes student success and advances the goal of equitable outcomes



SSA and the Equity Agenda

The Board of Higher Education (BHE) is committed to maintaining high levels of educational attainment for all students in the Commonwealth—particularly students from under-served and underrepresented populations. SSA supports this commitment by advancing equitable outcomes in STEM fields.

SSA Advances Equity

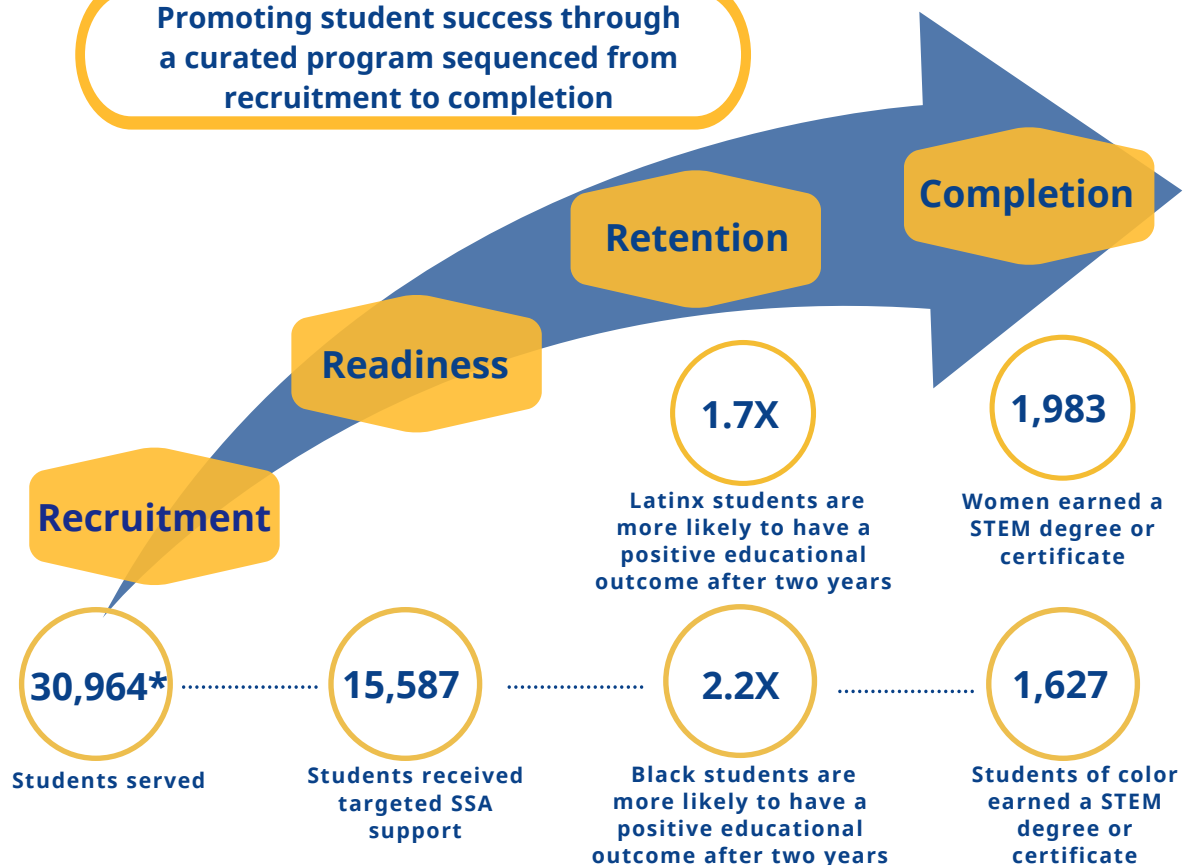
Promoting student success through a curated program sequenced from recruitment to completion

Promoting diversity in STEM education:

51%
Students of color

54%
Women

33%
Over 25 years old



*All counts as of Summer/Fall 2019

SSA DEMOGRAPHICS AND STUDENT OUTCOMES



Community College STEM Enrollment

Over time, Massachusetts' community colleges have become more racially/ethnically diverse. In fall of 2009, 34% of community college students were persons of color. By fall of 2019, 49% of community college students were persons of color. Changes in community college STEM enrollment have mirrored these shifts. In fall of 2009, 34% of STEM students were students of color. **By fall of 2019, a majority of community college students in the STEM pipeline were students of color (52%).**

While overall enrollment in community colleges has decreased since 2014, **the proportion of students that enroll in STEM programs has increased from 27% (2014) to 31% (2019).**



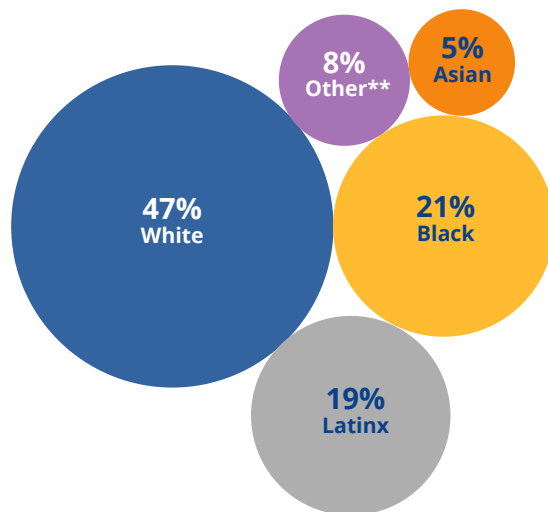
SSA Student Diversity

SSA participants reflect the racial/ethnic diversity of the overall population of community college students. This is important because women, Black, and Latinx workers continue to be underrepresented in the STEM workforce.*

SSA supports efforts to increase recruitment and retention of students who come from diverse backgrounds and who have been traditionally underrepresented in STEM. **To date, 51% of all students served by SSA have been persons of color.** More than half (54%) of SSA participants are women, and 33% are over 25 years of age.

*Adapted from the Pew Research Center (2018). This excludes health fields where women are 75% of the healthcare workforce.

SSA Student Profile and Outcomes



Black SSA students are 2.2 times as likely to graduate, transfer, be retained, or enter the STEM workforce after two years, and 2.1 times as likely to have similar positive outcomes after three years. **Latinx SSA students are 1.7 times as likely to have similar positive outcomes** after two years.***

SSA Student Fast Facts



"I feel like the [SSA program] takes stigma away because you see more women in science and math and you see different ethnicities. I think that is the beauty of [SSA]. I love going to a lab and seeing the diversity."
—Holyoke CC student

**The "other" category is primarily students who identify as "two or more races."

***Black and Latinx SSA participants from 2014–2019 were compared to similar non-participants.

SSA ADVANCES EQUITY

Attaining Equity within SSA

SSA focuses on identifying and supporting the varying needs of underrepresented populations through curated practices intended to promote equity. These practices reflect **five key aspects of equity*** in STEM education.

Equity is about **who** is being served and **how** they are being **supported**.

- 1 Equity in opportunity
- 2 Equity in content
- 3 Equity in infrastructure
- 4 Equity in pedagogy
- 5 Equity in student outcomes

1 Equity in Opportunity

SSA is committed to ensuring that students from groups that are traditionally underrepresented in STEM have **equitable access** and also are **accessing** STEM learning opportunities and experiences.

MassBay offers all STEM students the opportunity to participate in the STEM Mentor Program, which matches students with STEM professionals in one-on-one mentoring relationships. The STEM Mentor Program aims to recruit at least 30% of its students from underrepresented populations. As of 2018, 39% were students of color, 30% were women, and 23% were first generation to college.

2 Equity in Content

SSA offers students rigorous STEM course content with supports designed to address their individual learning ability, needs, and background.

Holyoke CC is located in an area with a large Spanish-speaking adult learner population. Math courses are a hurdle for many students attempting to graduate, and when coupled with a language barrier, passing these courses becomes a greater challenge. Therefore, Holyoke CC offers math courses in Spanish that result in higher engagement and passage rates.

3 Equity in Infrastructure

SSA gives institutions the flexibility to tailor supports to their unique student populations and promote high-levels of STEM learning for all students.

The research internship program at Massasoit CC provides opportunities for diverse groups of students to participate in scientifically-rigorous academic experiences. These students are supported through advising and mentorship in academic and career-relevant soft skills. Interns are paid, allowing for economic diversity. Additionally, interns are supported by staff, faculty, and peers which increases retention, graduation and transfer rates.

4 Equity in Pedagogy

SSA acknowledges and understands the importance of supporting teachers with the knowledge and skills necessary to successfully educate underrepresented STEM students.

SSA at Cape Cod CC supports an advisory board that convenes STEM faculty and industry partners to develop and refine curriculum that better prepares SSA students for careers in STEM industries.

5 Equity in Student Outcomes

Through curated experiences and relationships, SSA takes into account various student indicators (e.g. interest, motivation, academic level, student background) that are important for students to successfully advance in STEM fields.

*"Coming to this environment [at the Pathways Center] ...makes me feel like I do have a place...I'm not to be counted out because I'm a minority, [because] I come from an impoverished family, [or because] I'm a woman. I can study [science] if I want to. And I'll be successful...if I take advantage of the services that are here."
—Middlesex CC Pathways Center Peer Mentor*

*Adapted from Samuels and Enyia (2015); Allexaht-Snyder and Hart (2001); and Johnson (2005). Examples on this page are from interviews with SSA staff and institutional administrators.