SUPPORTING NEW STUDENTS IN A NEW WAY

AN HSTEM APPROACH TO FIRST YEAR SEMINARS

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MOTIVATIONS

Disconnect: Advantages contribute to STEM success vs. deficiency models focus on individuals closing gaps

The Privileged Poor discusses the influence high school education and opportunities has on success in STEM in college

The Emerging STEM Paths and Science Identities of Hispanic/Latinx College Students: Examining the Impact of Multiple Undergraduate Research Experiences discusses the importance of having multiple opportunities and support systems in STEM

"The experiences of the Privileged Poor and the Doubly Disadvantaged remind us that access is not inclusion"
-Anthony Jack (2019)

"The effect that coming from underfunded schools has on students at elite institutions is significant, making it less likely that they feel like they belong, less likely to ask for help...and this shows just how important it is to invest in improving education available to all students in order to level the playing field." -HSTEM STUDENT (2022)

"Specific to STEM, college students report higher levels of confidence in their ability to do scientific work and a deepened sense that science has the potential to make positive social change when they participate in UREs."
-Angela Fredrick (2021)

"Undergraduate research is tough to obtain. It's there, but it seems to be reserved for those who are "capable" of achieving them"
-HSTEM student (2022)

BRIEF PROJECT DESCRIPTION

Through my readings, I recognized the extent to which high school experiences can heavily influence success in college courses and how finding a stable support system and having accessibility to multiple opportunities encourages students of color to pursue STEM.

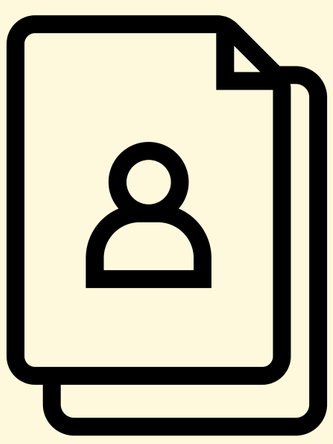
My high school offered a program, which I accredit much of my STEM-success to, that taught me a variety of vital skills which helped me to find a position and complete independent graduate-level research at a university.

Unfortunately, many students do not have these same opportunities, and they are often thrown into colllege with little to no idea how to navigate themselves in the field or how to obtain research or internship positions, so I felt that a class that could teach first year students these important skills would be highly beneficial in both STEM and humanities.

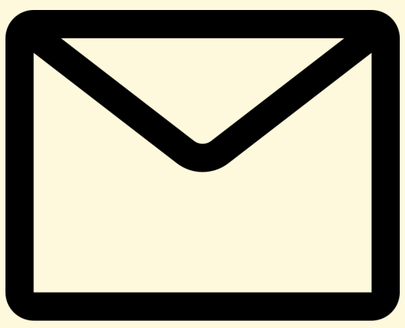
Since all first year students are required to take a First Year Seminar (FYS) course, my project proposes revamping the FYS curriculum and course material to focus on providing students with necessary skills, opportunities, and resources to succeed in STEM and other subjects. Students will be able to choose a FYS that caters most to their needs, whether that be more STEM or humanity oriented or a combination of both.

NECESSARY SKILLS AND RESOURCES

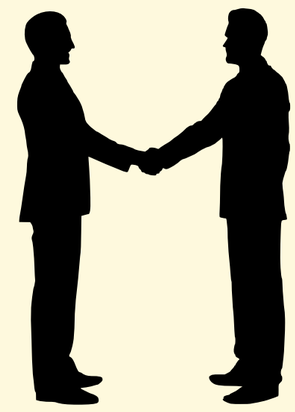
How We Can Fill Gaps in STEM education



Resume and cover letter writing



Devising professional emails, making phone calls, and applying to internships



The importance of office hours, networking with faculty, staff, and alumni

Scientific writing and reading, making poster boards and Powerpoints, presentation skills

On and off-campus academic and mental health resources

SIMILAR AMHERST PROGRAMS

Summer Bridge is very similar to this proposed FYS and provides students involved in the program with these additional opportunities:

- The **Intensive Advising Program** matches you with a faculty member who will meet with you every two to three weeks throughout your first year to get to know you and to provide academic, intellectual, and personal guidance.
- The **STEM Incubator Program.** In the summer between your first year and sophomore year, Summer Bridge students interested in the sciences and/or STEM will be invited to participate in this program, which provides a hands-on training program and internship in a science laboratory.
- The **Summer Bridge Research Institute (SBRI)**. In the summer between your first year and sophomore year, Summer Bridge students interested in the humanities and social sciences will receive an exclusive invitation to apply to participate in this program. SBRI introduces students to what it means to do research in the humanities and social sciences. It prepares students to take advantage of the range of research opportunities at the college and to use research skills in their chosen careers.
- The **Meiklejohn Fellows Program**, which offers the following benefits:
  - Guaranteed financial and professional development support for a summer opportunity (internship, research or other eligible experience) during students' first or second summer at Amherst. A stipend of up to $4,500 will be provided to participants who receive eligible unpaid summer opportunities.
  - Dedicated advising, programming, and career development support, including assistance from the Meiklejohn Fellows program director in the Loeb Center for Career Exploration and Planning in finding meaningful summer opportunities.
  - Opportunities to build personal, academic and career networks with other Meiklejohn Fellows, Amherst alumni, and the broader campus community.
- The **Office of Campus Diversity and Student Leadership (CDSL)**, which serves to provide support and advocacy to and on behalf of FLI students.

https://www.amherst.edu/offices/student-affairs/new/summer-bridge-program

The new FYS courses can implement some of these tactics and programs, and similar to Summer Bridge, can allow students to choose certain tracks such as humanities and social sciences, science, or quantitative and social sciences

SIMILAR OBJECTIVES AND VALUES

"Introduce students to **fundamental research skills** including how to find and cite scientific literature using databases and reference management tools, experimental design, hypothesis testing and science communication."
-STEM INCUBATOR

"Forge strong relationships between students and professors who can serve as mentors. Introduce students to Amherst staff that can **support them throughout their time at the College** and alumni working in scientific fields."
-STEM INCUBATOR

"In addition to taking ownership over their academic journey, participants will benefit from **opportunities to build an enduring intellectual and social community with one another**, to make connections with faculty and staff, and to engage in conversations about the benefits and challenges of being FLI at Amherst."
-SUMMER BRIDGE

"The college recognizes that students who have grown up facing financial hardship, and those from families without firsthand experience of college, often achieve this exceptional level of success in the face of significant societal obstacles. Amherst is also aware that **students with these backgrounds typically have not benefited from the social capital and resources that advantage students from more privileged circumstances.**"
-THE MEIKLEJOHN FELLOWS PROGRAM

ADDITIONAL PROPOSALS

As science professors are overwhelmed with courses to begin with, ways to support the success of new FYS courses is by hiring more professors to teach these classes and creating workshops in conjunction with the Loeb Center, Counseling Center, Health Professions, etc.

Including workshops and exercises in all types of FYS that are literary focused and writing intensive in order to promote success in future English classes, which are a requirement for pre-medical students.

A meeting can be held with the members of the First Year Seminar Committee to discuss the remodeling of the course structure

If changing the entire structure and curriculum of FYS is not feasible, perhaps incorporating these components to create a resource center that focuses on building the skills previously discussed

CONNECTIONS TO HSTEM LEARNING

Disconnect 2: Advantages contribute to STEM success vs. deficiency models focus on individuals closing gaps

Learning objective 1: Students will be able to reflect on their own experiences as humans in STEM and position them within the broader context of disparities and structures in STEM

Course component 1: Build community
Course component 4: Design interventions to enhance STEM in our local Amherst environment or beyond

HSTEM Process 3: Reflecting
HSTEM Process Step 4: Partnering

Relevant Campus Partners: Loeb Center, Q Center, Counseling Center, Health Professions

POTENTIAL IMPACT

The newly proposed FYS courses can take skills and techniques taught in pre-existing programs and implement them into a semester long course, available to all first year students who will be able to choose between science based, humanity based, or a combination of both subjects

The FYS will help students assimilate to college-style teaching and learning with other members of their class, while simultaneously gaining valuable life and academic skills to achieve success in whatever field they desire

Students who did not have access to opportunities and/or resources in their particular field will be able to build close relationships with professionals and professors and learn skills to find lucrative positions and internships to promote continuation in their studies

Students will feel more confident and comfortable in their abilities to succeed with resources and support systems, which will allow them to become more immersed in the Amherst community and in their field of choice