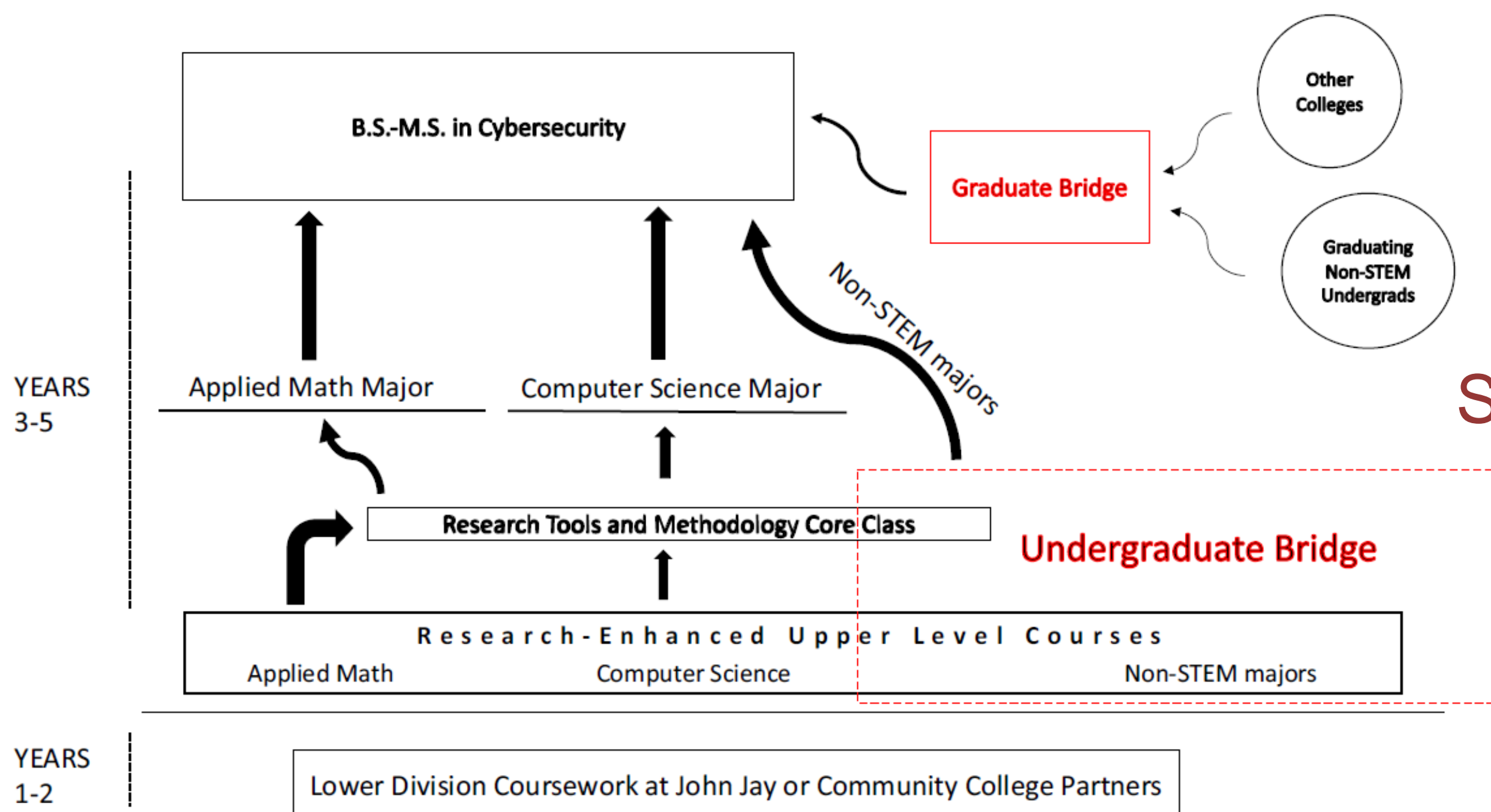


Cultivating and Developing Research Talent to Support Research in Cyber-Security



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<https://bsms.commons.gc.cuny.edu/>



Development of multi-disciplinary research talent through a research infused curriculum across Computer Science, Applied Mathematics, Criminal Justice and Cybercrime and related undergraduate majors.

Potential Impact:

- ❑ **Replication:** The cyber bridge program can be replicated elsewhere to increase undergraduate research at minority serving institutes and small colleges.
- ❑ **BS-MS model:** The research enhanced 5 year program and curriculum will serve as a model to other similar institutes.

*This project needs community support and mentors to make a larger impact, such as through **RET programs** and/or **meaningful inclusion** of MSI faculty in broader participation in research.*

Key Problem: Low research productivity at minority serving, liberal arts, teaching colleges

- Annual teaching load of research faculty is 18 credits
- Low participation of undergraduates in research
- Limited access to doctoral and graduate programs
- Isolation: Restriction in travel to conferences due to teaching schedule and lack of funds
- Low success rate in federal grant proposals and high overhead on grant funds

Approach:

- ❑ **Undergraduate Cyber Bridge** from non-STEM degree programs to a Master degree in Digital Forensics and Cybersecurity.
 - Criminal Justice, Security, Fire and Emergency Management and Forensics Psychology
- ❑ **Colloquium:** Invited speakers in cybersecurity
 - **2021-22 topics were:** Mobile browser security, Cryptocurrency, Quantum computing, ML for Cyber-safety, High performance computing
- ❑ **5 year BS-MS** in X+Digital Forensics and Cybersecurity
 - X = CS, Math, Criminal Justice, Forensic Psych, Security Management....

Cyber bridge courses

- Introduction to Cybercrime,
- One year of Python programming
- Research Methods in Cybersecurity
- Computer Architecture and Assembly
- Linux Operating System
- Computer Algorithm
- Precalculus
- Discrete Mathematics

Research immersion in 4th and 5th years through capstone + MS thesis

Societal Impact

Impact on minority participation in research, pipeline for community college students to the MS degree, diversity in the cyber workforce, doctoral programs, leadership positions and government

Education and Outreach

Casting a wider net to include students and faculty from multidisciplinary field in technical aspects of cyber-security
Breaking isolation through regular research events

Broader Impact and Broadening Participation

About 100 students participated in research enhanced courses in Spring 2022.
150-180 students attended colloquium's organized over video conference
The 5 year BS-MS in CS+Digital Forensics and Cybersecurity will take 40-50 juniors into the 5 year program

