

Promoting a Socially Relevant, Interdisciplinary Approach to Science

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Abstract: Promoting **S**tudents **E**ngaging **I**n **S**cientific and **M**athematical **I**nterdisciplinary **C**ollaborations (SEISMIC) requires careful thought. At Bridgewater State University, teams of SEISMIC Scholars are supported by an NSF S-STEM grant for low-income, academically talent STEM majors. SEISMIC Scholars engage throughout a three-year period in a series of humanities, social-science, service learning and STEM research courses that explicitly help Scholars frame their studies of Science and Mathematics as socially relevant and fundamentally interdisciplinary. This poster will report on the structure of the SEISMIC courses, providing examples of assignments and activities, all of which help to tie students together in a community that views Science as socially relevant and culturally informed.

Research Teams & Research Problems

All research teams combine multiple majors.

Sample Early Projects:

- Capturing DNA molecules using optical tweezers
- Disrupting Circadian rhythms in mice, relating to stress and diet
- Identifying pathogens in regional ticks
- Using wavelet mathematical models to detect cancer tumors

Sample Senior Research:

- Developing apps to record water contaminants by location
- Examining regional health disparities to create public awareness campaigns
- Creating STEM focused mentoring in diverse high school settings

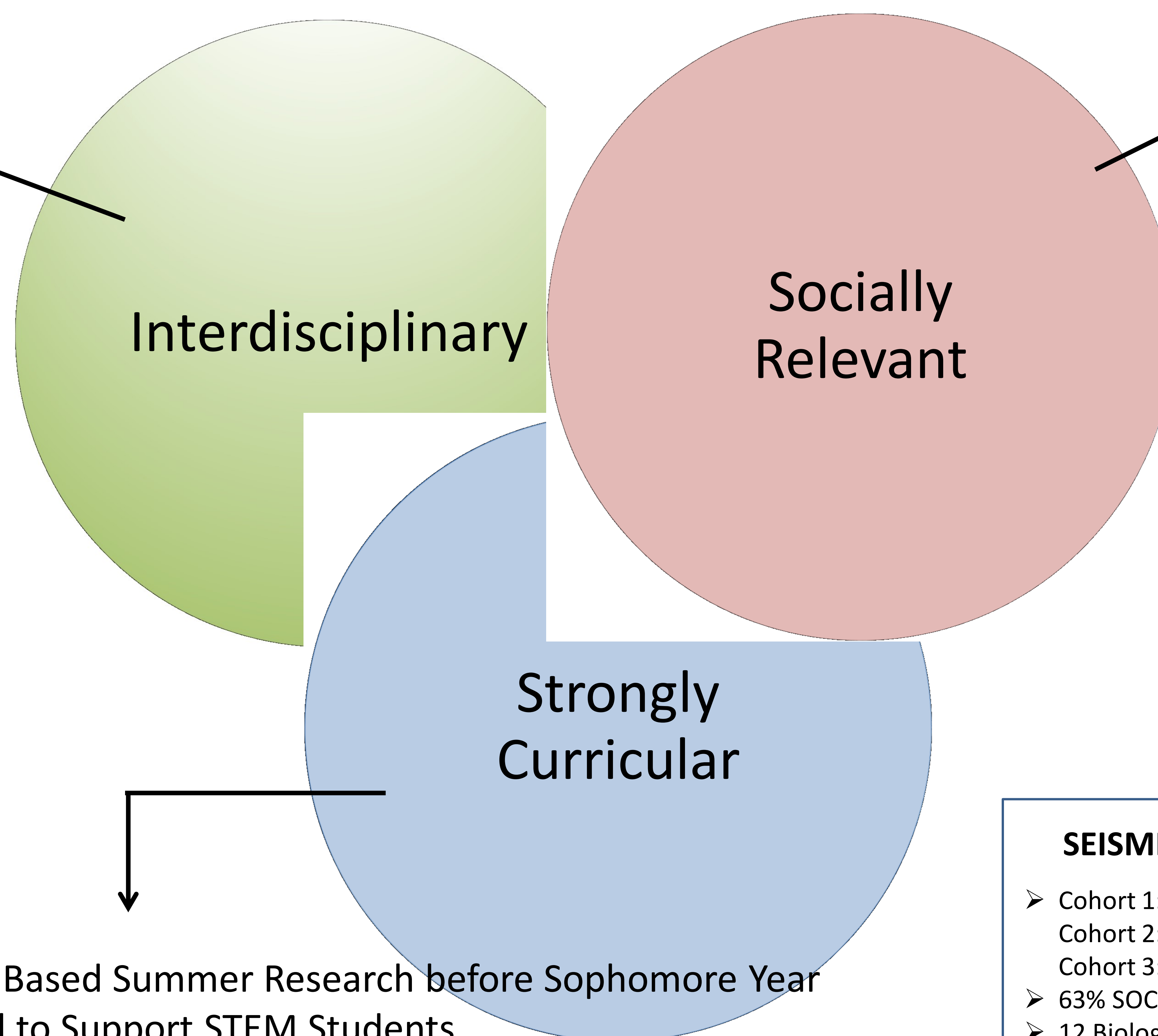
CHEM 299: Course & Lab Based Summer Research before Sophomore Year

NSCI 160: Building Capital to Support STEM Students

PHIL 261: Science, Values and Society

PSYC 230: Cultural Psychology with STEM-Service Learning

NSCI 410: Course & Lab Senior Interdisciplinary Research



STEM Service Learning, Humanities & Social Sciences

Our goal is to contextualize science and be aware of impacts on multiple communities.

Science, Values and Society

- Focus on evidence and proof, ethics, and relevance
- Case studies in public policy and health

Cultural Psychology

- Examines the culture of science in the U.S. and around the world, including the lack of diversity in STEM in the U.S.
- STEM outreach projects provide service learning with diverse groups of children

SEISMIC Scholars Descriptive & Retention Data

- Cohort 1: 11 students seniors)
- Cohort 2: 8 students (juniors)
- Cohort 3: 8 students (sophomores)
- 63% SOC & 52% female
- 12 Biology, 6 Chem, 4 Comp Sci, 4 Physics, 1 Math
- Control group = students eligible but not selected at time of Cohort 1
- Eligibility: Income, GPA in Fall Fresh. Year, Grade in Intro Class

