

The value of a Science Masters Program

Balancing depth with breadth of knowledge:

- Employers need employees who understand STEM, but not always at PhD-level, and also understand management and organizations.
- Many STEM employees must be able to work on teams that are diverse in terms of:
 - Knowledge (education)
 - Skills (experience)
 - Gender, age, race, and ethnicity

Value

SMP gives employers a chance to shape the graduate education of new employees,

including

offering them internships as a form of education and guidance.

It helps to ensure that there is a need for the new graduate.

Value

- Plus courses are often useful for doctoral students.
- NSF SMP provides funds to attract first-rate students and students who cannot afford conventional graduate or professional programs.
- It helps to break the graduate school supply-side "culture" that a master's degree is a form of failure (in some disciplines).
- SMP Graduates may pursue doctorates later on.

Value

Growing tendency in many universities to strengthen connections with their communities – local, regional, and even national.

A program like SMP helps develop these connections and break down silos of specialization.

Some Challenges: Economics

- Small Scale of many PSM and SMP programs
[There are probably diseconomies of small scale unless the SMP is part of a larger graduate school program in the same disciplines.]
- Greater efficiencies with multiple strands of SMP degrees
[A common core of “plus courses” helps to spread the cost of developing and teaching those plus courses over a larger student body.]

Some Challenges: Inertia

- Not all STEM faculties are well-suited to these programs.
- It takes faculty time and energy to develop effective relationships with potential employers of new MS graduates.
- SMP students are less likely to be as RAs and TAs than are PhD students.

Example: University of MD – Eastern Shore (Award 1011457)

"Quantitative Fisheries and Resource Economics" [Paulinus Chigbu, PI]

- Designed, managed in consultation with govt. agencies - e.g. NOAA
- Courses offered online; evening & weekend, too
- Online courses – collaborative with 6 universities [Living Marine Resources Cooperative Sci. Ctr. – NOAA]
- Plus courses on communication; leadership
- Part of a new HBCU Mid-Atlantic PSM Alliance

Example: Northwestern University (Award 1011618)

"Engineering & Global Health Technologies"

[Matthew Glucksberg, PI]

- Design medical devices for underserved populations (worldwide), including U.S.
- Training in product design, regulatory issues, intellectual property, & commercialization process
- Internships steeped in real efforts to identify and solve pressing problems
- Committed participation by the business school
- MS in Biomedical or Environmental Engineering