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An Attempt to Get and Keep Women Involved in Physics

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Outline

Issues for Women in Physics

- The "pipeline is leaky" in every step from junior high school till the senior professor level. [Freeman, 2004]
- Physics and other analytical majors are perceived in society as bad choices for women.[Hyde et al., 2008]
- Being vastly out-numbered by men in mathematics and physical science classes decreases women's confidence. [CMPWASE, 2007]

The Situation at CSB

The College of Saint Benedict:

- is a women's liberal arts college in St. Joseph, MN.
- is partnered with Saint John's University.
- has 90% first-year retention rate and a four-year graduation rate of 76%.

Science majors

Several science departments have low percentages of women majors:

Major	CSB %	National %
Physics	20	21
Mathematics	21	45
Computer Science	8	21

Development of our Program

Called MapCores — Mathematics, Physics, Computer Science, Reasearch Scholars

Timeline

- Spring 2007 — A group of math, physics and computer science faculty considering writing an NSF proposal for a program to increase the number of women in our majors.
- Summer 2008 — A slightly different group of faculty wrote and submitted a proposal for the NSF S-STEM program.
- Winter 2008-9 — Proposal rejected, first MapCores class recruited.
- Summer 2009 — Revised NSF S-STEM proposal submitted with psychology professor added to the team. [Nairn et al., 2008]
- Winter 2009-10 — Proposal accepted, second MapCores cohort recruited
- Fall 2010 — second cohort enrolled.

Curricular Program

Team taught by faculty from Mathematica, Computer Science, and Physics

- First Year — First Year Seminar class
  - Special section for our students only
  - Build cohort and support network
- Sophomore — 1 credit Problem Solving Seminar
  - Work on interesting cross-disciplinary problems
  - Maintain cohort and build skills
- Junior —- 1 credit Research Seminar
  - Work on mid-sized research projects
- Senior — Senior/Thesis Research projects

Non-curricular portion

Scholarship

- Yearly scholarship of $6000 per student — 11 per year for cohorts starting in 2009 and 2010 paid by grant. The rest covered by CSB at this point.
- Cross-cohort social activities — about 1 per semester.
- Encourage students to apply for REU experience, internships, etc.

Student Selection

Select students based on:

- Interview - finalists asked about interest in science, etc.
- GPA and ACT test scores
- Financial need
- membership in an under-represented minority or being from an under-represented area
- Attempts to balance majors within our program

Selection process:

- is intensive.
- builds on other programs.
- a great way to sell our majors.

Results to date

- Enrolled cohort of 12 in 2009, and 18 in 2010
- Cohorts bonding well
- Some attrition in first cohort - 9 students left
- Some switching of majors

Advice

If you want to do something, I suggest that you:

- Commit to do it.
- Build on your strengths.
- Garner support in your department and with your administration
- Be flexible.

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