



Pathway to a STEM Baccalaureate Degree: Research Trends, Exemplary Practices, and Successful Strategies

The objectives of the Pathway to a STEM (Science, Technology, Engineering, and Mathematics) Baccalaureate Degree dissemination project are: 1) to develop media presentations in the form of educational videos that educate the public and college students about the pathway to a STEM baccalaureate degree from two-year colleges; 2) to develop a "Pathway2STEM Degree: Transfer Student Guide" (TSG) for prospective students attending two-year colleges that educates students about the transfer process; and 3) to develop a web site that will be used to disseminate educational resources to educators (two- and four-year institutions), academic counselors/advisors, Transfer Center coordinators, students in two-year colleges, business and industry, researchers, policymakers, and the public.



The significance of this work comes in the understanding that community colleges enroll a significant number of women and ethnic minorities in American higher education. Over one half of all students enrolled in American higher education attend community colleges. These institutions play a prominent role in the educational experiences of college students. In particular, the transfer function in community colleges provides the vehicle to prepare pre-STEM majors in providing the first two-years of a general education prior to transferring to a four-year college or university.



This project will impact a diverse audience including community college administrators, faculty, academic counseling, retention coordinators, other college personnel, and students. Additionally, the products from this project will also have an impact on high school teachers in educating them about the role and function of community colleges in serving as a viable pathway to a STEM bachelor's degree for students. The organizations that will be involved will include two- and four-year colleges and business and industry. The dissemination project will provide valuable resources for a diverse audience and will increase understanding of women and minorities in community colleges and the factors that influence or impede students' self-concept, educational aspirations, and academic preparation to pursue a pre-STEM emphasis in the community college and to be "transfer ready" to pursue a STEM bachelor's degree.

Three initiatives are under development (see details on the backside):

1. **Educational Videos**
2. **Transfer Student Guide: Pathway2STEM Degree**
3. **Website: Pathway2stemdegree**

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Dissemination Initiatives

1. Educational Videos:

A video instructional series on the “*Pathway2STEM Degree: Community College to University*” will be developed, produced and disseminated for college and high school students, college and high school classrooms, educators, policymakers, researchers, adult learners, and business and industry. The videos will comprise of four half-hour video programs and coordinated manuals. The series can also be used as a resource for faculty professional development and training for academic advisors, transfer coordinators and/or advisors. More importantly, these videos can be used as educational tools for community college and high schools students who aspire to pursue a STEM major. Further, the videos and resources will be disseminated and made available to business and industries to support their employees for continuing education and to view the community college a vehicle to pursue an associate degree or complete transfer requirements in a pre-STEM area.

- A. Pathway to a STEM Bachelor's Degree
- B. Research on Gender & Ethnicity in Science & Engineering
- C. Recruiting and Retaining Women and Minorities in Pre-STEM Majors



2. Transfer Student Guide:

The Transfer Student Guide (TSG) will provide community college students who have transfer aspirations to the four-year with a resource that will contain important information. Content information for the Guide will be based on the research literature and empirical data collected by the Principal Investigator. The Guide will be written in language that will be easily understood by high school students, college students, parents, and the education community.

The *Transfer Student Guide: Pathway2STEM Degree* publication could be used in orientation courses taught in community colleges for new, incoming students. Other courses in which instructors can utilize the publication include College Success (or College 101) classes. Instructors teaching in STEM areas in the community college could also utilize the TSG for students interested in pursuing a STEM bachelor's degree. The TSG is a publication that should also be utilized by Transfer Center directors, coordinators, and advisors. These individuals play a critical role in providing advice, information, and resources to prospective transfer students. The staff members in counseling/advising and Transfer Centers can use the Guide to conduct workshops for students about the transfer process, preparing for transfer to a four-year college or university.

- ◆ Transfer Process 101
- ◆ STEM Career and Educational Options
- ◆ Financing your College Education
- ◆ Understanding the Articulation Puzzle
- ◆ Navigating the Transfer Process
- ◆ Surviving the Transfer Experience



3. Website:

www.public.iastate.edu/~laanan/pathway2stem/homepage.html



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