

Consequences of Changing the STEM Education Program

The Budget Realignment process:

... should distribute resources to meet current institutional strengths and needs.

... should not be used to enact curricular or programmatic changes that directly affect student outcomes.

Moving the directorship and curricular offerings from Arts & Sciences to CHEPS would:

- Fail to use the existing expertise and leadership
- Damage the ongoing recruitment efforts
- Alter curriculum and potentially change the essential nature of the degree
- Fracture a program that is right now producing strong Math & Science majors with multiple career paths – including Teaching

Example of proposed curriculum change:

STEM 1030 - Step One/Step Two: Inquiry-Based Mathematics and Science Teaching

(2) Credit Hours

Introduction to mathematics and science teaching as a career. Discussions include standards-based lesson design; various teaching methods designed to meet instructional goals; behavior management strategies; and learner goals. The course emphasizes lesson planning and assessment of student learning. Students develop and teach five inquiry-based lessons, three to students in middle grades and two to students in grades three through five, all in local elementary and middle schools, and participate in peer coaching. Every semester. Field component.

Replacement course, as suggested by CHEPS:

EDUC 2010 - Education in the United States

(3) Credit Hours

Organization and historical development of education in the United States, philosophical concepts and their influences on contemporary education, current issues. Field component.

The STEM 1030 course is designed specifically for these majors...

E. Course Objectives:

Students will be able to...

- demonstrate science or mathematics content knowledge in the planning and teaching of two upper elementary grade lessons and three middle school lesson aligned with district curricula
- identify the unique attributes of adolescent students and implement teaching strategies that are effective in the middle school environment
- utilize exemplary sources of inquiry-based science and mathematics lessons
- write performance objectives aligned with national and state standards and assessments of those objectives for each lesson
- design and teach inquiry-based lessons using the 5E Instructional Model
- demonstrate awareness of personality and learning differences and discuss the implications for teaching and learning
- use probing questions to elicit feedback to determine students' acquisition of knowledge
- discuss strategies for achieving instructional equity
- demonstrate proficiency in the use of technology for professional productivity purposes
- plan for and implement safe classroom practices
- reflect on personal interest in teaching
- design and teach lesson that incorporate the use of technology
- use pre and post assessments aligned to performance objectives to evaluate student learning, to provide instructive feedback to middle school students, and as a basis for revising lesson plans
- provide instructive feedback to peers
- reflect on teaching experiences to revise lesson plans
- assess commitment to pursue teaching as a career

The fundamental question is this:

What is the natural home for a program which produces Mathematics, Biology, Chemistry, and Geology majors?

Answer:

The College that houses those majors, and their Departments. The College where their curriculum is developed and the money will be spent.

How to move forward from here?

First: Do no harm to students. Shield the curriculum and the program.

This is a budget realignment process, not a program design or curriculum process.

How to move forward from here?

Second: Savings through better cooperation:

- Program housed in A&S but seek a committed partner co-director in SOE
- Split the stipend between co-directors
- Focus on more co-teaching
- Additional savings offered by current STEM leadership