STEM-X: Scientific Computing

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About

This is a homepage for the SNHU STEM-X Proposal on an introductory course and potential certificate in scientific computing. This project is being led by Dr. David Guo (Aeronautical Engineering) and Dr. Adam Gilbert (Mathematics). You'll find semi-regular updates about the state of the project reflected on this page.

Major Components

The major components of this initiative include each of the following items:

1. Development of a 200-level course on an Introduction to Scientific Computing
2. Identification and collaboration with faculty partners in other disciplines to find discipline-specific courses that utilize computational methods
3. Development of a culminating scientific computing experience in which students earn credit for applying computing techniques to solve a problem of interest for a partner
4. Package items 1 - 3 into a three-course certificate in Scientific Computing which can be earned by SNHU students

Tier I: SC2XX Introduction to Scientific Computing

The development of this course is the primary goal of this STEM-X proposal. We hope that demand for this course, and experience with scientific computing in general, will be a catalyst for the remaining proposal components. You can see this page for the current status of the Introduction to Scientific Computing course.

Tier 2: Identifying Partner Disciplines and Courses

We know that scientific computing techniques are leveraged across a variety of domains. This includes (but is not limited to) biology, engineering, operations research, etc. We seek to identify disciplines having a course which utilizes computational techniques for inclusion as part of an array of domain-specific courses serving as options for the second course in a Scientific Computing Certificate. We are drafting an informational sheet to be shared with interested faculty and degree programs. You can see the current state of that informational sheet here.

Tier 3: Partnership Experience and Certificate

It is important for students to gain experience working on problems with real-world implications and real-world urgency. In this third tier of our project, we seek to develop an experience where student teams serve in a semi-structured consulting role for a partnering entity. This partner could be a local business, a government agency, non-profit, etc. which needs help in solving a problem which will require teams to utilize computational methods, communicate their approach and progress regularly to the partner, and to deliver at least a partial solution on a timeline dictated by the partner. We have similar existing coursework at SNHU, like the MAT440: BIG Problems course or the work being done through Inkwell Studios. Once we begin engaging on this initiative, you'll be able to find a link to its current status here.