

1135-AE-3085      **Jeffrey C Humpherys\*** ([jeffh@math.byu.edu](mailto:jeffh@math.byu.edu)), TMCB 386, Department of Mathematics, Brigham Young University, Provo, UT 84602, and **Tyler J Jarvis** ([jarvis@math.byu.edu](mailto:jarvis@math.byu.edu)), TMCB 275, Department of Mathematics, Brigham Young University, Provo, UT 84602. *Applied and Computational Mathematics: A New Degree for 21st Century Discovery and Innovation.*

Faculty from BYU's Math Department have created a new upper-division curriculum in Applied and Computational Mathematics that can serve as a national model to expand the pipeline of young scholars in the mathematical sciences who will be well equipped to face the challenges of the 21st Century and become leaders in the globally competitive STEM workforce.

The main elements of this program are:

1. A new and completely redesigned upper-division lockstep curriculum that provides students with a rigorous foundation in mathematics, statistics, and computation.
2. Horizontal integration across multiple quantitative disciplines.
3. Socialization, soft skills and leadership training to foster team building among diverse groups of students.
4. A capstone experience, through either a research experience or an internship.

The curriculum development has been seeded by an NSF DUE TUES Phase II award, which is currently supporting the creation of 4 textbooks, which are being published by SIAM, and 4 lab manuals that are now freely available on GitHub.

In this talk, we examine several of the program's features, where we've had successes and failures, and how we've made improvements along the way. (Received September 26, 2017)