Development of Open Access Version of Applied Numerical Computing Course

Final Project Report

The objective of the project was to develop an open access version of the Applied Numerical Computing course with screencasts and course materials available online for asynchronous learning of course modules by learners beyond the OSU classroom-based course offerings.

Dr. Ford Versypt offered the Applied Numerical Computing course in Fall 2020, which was delivered in a hybrid of in-person, online synchronous, and online asynchronous formats. Duncan Mullins, a PhD student from Dr. Ford Versypt's lab who took the course last year, was supported by the CACHE grant as the graduate teaching assistant (TA) for the fall semester to aid in the conversion of the course. Financial support for such a TA enabled the broader dissemination of the open source version of the Applied Numerical Computing course and supported the hybrid delivery modes. All expenses were allocated for August – December 2020. The full final financial reports and account close outs are not available yet from the university, but the expected expenditures total to $4,877 for salary and benefits for the TA.

Funded activities August – December 2020: One graduate TA worked with the instructor 10 hours/week in the Fall 2020 semester: (1) to convert the course materials (mostly .m, .py, .tex, and .pdf files) into Markdown/html, MATLAB Live Scripts, and Jupyter Notebooks for interactive demonstrations of the Git, LaTeX, MATLAB, and Python lesson plans, in-class problems, and assignments; (2) to capture Dr. Ford Versypt's outlines and lectures into both screencasts and written narrative explanations; and (3) to disseminate the materials online.

Materials were first disseminated online in conjunction with the synchronous class in Fall 2020 via the learning management system and YouTube. Now that the term has ended, all of the course modules are available for asynchronous learners as a GitHub repository. The external course webpage is https://github.com/ashleefv/ApplNumComp This is ready for being linked as a module on the Teaching Resources page on the CACHE website. The videos produced and curated by Dr. Ford Versypt are embedded in the corresponding lessons in the GitHub repository and are also available as a YouTube playlist https://youtube.com/playlist?list=PL1oVUZB5VSAgWBzDImheoYgiCiV90LTAh

All of the videos were captioned for accessibility. PDF versions of the video transcripts are also available upon request (this is mentioned on the course repository README file/homepage).

In addition to the materials posted, biweekly 45-minute synchronous sessions were recorded live during the semester, but these videos are currently online as unlisted YouTube videos and are not publicly shared. In the future, we may extract relevant brief discussions from these videos to augment the videos currently available in the lessons in the GitHub repository.