STEM Symposium

Fall 2022, UVA

1. **Name and title**

   Meiqin Li, Assistant Professor, AGF

2. **Department:**

   Center of Applied Mathematics, SEAS

3. **Topic/Title**

   Incorporate MATLAB into active learning of Linear Algebra

4. **Description of your teaching practice of interest.**

   In the past, I taught Linear Algebra without MATLAB, and used the class time mainly for lecturing. From one side, it appeared challenging for students to understand so many abstract concepts in this passive way even very detailed explanation was present, and students were easily distracted, or the brains just became 'blank'. From the other side, it is not feasible for students to master problems if involving big dimensions matrices/linear systems just by hands.

   Now, instead of teaching this course in the above way, I use worksheets for each class. Students do worksheets as groups, which makes the classroom much more dynamic. Group discussion turns the passive learning to active learning, and it turns out that students like it more. Meanwhile, MATLAB is incorporated into the course to visualize abstract concepts, handle more complicated problems, and apply the knowledge of linear algebra in the real-world scenarios. MATLAB Grader is adopted for grading MATLAB assignments and projects. Students can get immediate feedback from Grader so they can learn from their mistakes.

5. **Tips for other faculty who might be interested in doing something similar.**

   - Any class if no group work in the class is adapted.
   - Any class compatible with MATLAB, or the other software.
   - MATLAB Autograder: https://grader.mathworks.com