**Sunday, October 22**

*Morning and Afternoon: Participants arrive and check into their hotel*

*All workshop activities take place in the Great Hall of* *Severance Hall, unless otherwise noted below.*

2:00 - 4:00 (Optional) **One-on-one Mentoring Sessions with Conveners** - Severance Hall Great Hall

- Coffee and snacks available

5:00 – 6:00 **Welcoming Remarks, Introductions, and Icebreaker** *- Maureen Kahn,* *Science Education Resource Center, Carleton College*

6:00 - 6:30 **Introduction: Teaching Computation and You** - *Lisa Kempler, MathWorks*

6:30 – 7:15 **Dinner**

7:15 – 8:00 **Convener Panel,** dessert and coffee - *facilitated by Lisa Kempler, MathWorks*

8:00 **Networking at local haunts**

**Monday, October 24**

*Breakfast at your hotel or in town.*

*All workshop activities take place in the Great Hall of Severance Hall, unless otherwise noted below.*

8:30 – 8:45 **Introduction and Goals for the Day**

8:45 – 10:00 **Invited Talks: Effective Approaches to Teaching Computation**

During/ between talks, participants record their impressions on:

* Approaches presenters shared that you've used. How did your experience compare?
* New approaches you learned worth considering in your courses.
* Surprises or new learnings
* Unsolved teaching/learning challenges?

Invited Presentations (55 minutes) - *facilitated by Kelly Roos*

* **Teaching Computation in Math Courses** - *Namyong Lee*
* **Teaching programming in Geoscience** - *Jillian Pearse*
* **Effectively Applying Computation in Capstone Projects** - *Sarah Patterson*
* **Applying Computation to Increase Student Learning** - *Silvio Simani*
* **Effective teaching approaches in Biophysics/Biomedical courses** - *Benjamin Bratton*
* **Teaching Computation in a Large Physics Course** -*Darren Maczka*

Table Discussions (facilitated, 15 minutes)

* Share briefly:  approaches that work, new ideas, unsolved challenges
* Each table comes up with a sample computational learning outcome/goal for two course types:
  + A programming course
  + A discipline-focused course with computation in support of the science/engineering focus

Group Report Out (5 minutes)

* A representative from each table reports on the 2 learning goals from their table

10:00 – 10:15 **Break**

10:15 – 11:45 **Learning Outcomes and Individual Work**

* Introduction to Learning Outcomes (10-15 minutes) - *Maureen Kahn, SERC*
* Introduction to Affinity Groups (5 minutes) - *Lisa Kempler, MathWorks*
* Affinity working group discussions (facilitated, 40 minutes)
  + Discuss:
    - What are good general learning outcomes in science/computation courses?
    - What are examples of learning outcomes in a course you teach?
* Individual Work (10 minutes)
  + Draft 1-2 learning outcomes for a course or teaching activity in your personal workspace.
* Group report out (15 minutes)
  + Return to Great Hall at 11:30 to report working group discussion results to the full group.

11:45 – 1:00 **Lunch**

1:00 – 1:45  **MATLAB Teaching Tools** *Harish Chintakunta, Evan Cosgrove, MathWorks*

1:45 - 2:15 **Round Robin: Practice with Live Scripts, MATLAB Online, MATLAB Drive**

2:15 – 2:30 **Break**

2:30- 3:30 **Invited Talks -** *facilitated by Kristi Closser*

* **Experiences teaching with MATLAB Grader**- *Frank Slomka*
* **Teaching Computation in Math Courses** - *Mahmud Akelbek*
* **Teaching programming in Science courses**- *Isabelle Gouirand*
* **Teaching Physics with MATLAB Hands-on** - *Ali Tabei*
* **Teaching Introduction to Programming (to 1st-year students)**- *Lynn Albers*
* **Teaching Computation in Labs -** *James Boyle*

3:30 – 4:00 **Table Discussions: Assessment of Learning Outcomes**

Groups will discuss techniques, strategies, and challenges for assessment and also identify assessment challenges.

Participants are encouraged to use their workspace page to keep notes and work on assessment in their course or activity.

* Affinity Group Discussions: Participants discuss:
  + How do you do assessment in your courses?
  + What challenges are associated with assessing your learning goals?
  + What techniques or tools can help?
* Individual Work
  + Spend the final minutes of the session thinking about an assessment plan for a course or teaching activity. Use your personal workspace page to keep notes.

4:00 - 4:15: **Effective Teaching Activities, Peer Review, and Curriculum Development at the Workshop**, *Dan Burleson, Convener and Review Editor*

4:15 – 5:30 **Individual Work Time: Curriculum/Teaching Activity Development**

* Use your personal workspace page for notes and resources.
* The following rooms are available: Severance Hall Great Hall, Sayles-Hill 250 (fits 8), Sayles-Hill 251 (fits 25), Sayles-Hill 252 (fits 18), Sayles-Hill 253 (fits 20), and Sayles Hill 254 (fits 8), Sayles-Hill Lounge (fits 20)
* Facilitators: Find a time to check in with participants
  + Options: sit together, drop-by, regroup.

5:30 – 6:00 **Group Reflection and Roadcheck** - *Maureen Kahn, Science Education Resource Center, Carleton College*

In this session workshop participants will reflect on the day. Please take a few minutes to complete the workshop roadcheck.

6:30 **Dinner -**catered in the Great Hall

**Tuesday, October**

*Breakfast at your hotel or in town.*

*All workshop activities take place in the Great Hall of Severance Hall, unless otherwise noted below.*

8:30 – 8:45 **Roadcheck Summary** - *Lisa Kempler, MathWorks and Maureen Kahn, Science Education Resource Center, Carleton College*

8:45 – 9:00 **Dan Burleson - Overview of the Day/Peer review/teaching activity reminders**

9:00 - 10:15 **Individual Preparation: Course/Teaching Activity**

**(**-Use this time to complete your teaching activities)

- Facilitators: Check in with participants, make sure deliverables for the group are clear, agree on return time.

- Ask for help, get tools questions answered, test your code

- Participants should prepare to present their curriculum plans in an easy to follow format -  Slides, poster, etc. - for sharing with their group

10:15 – 10:30 **Break**

Participants who received workshop stipends should take a few minutes to complete a W-9 or W-8BEN.

10:30 – 11:45 **Working Groups:** **Course/Teaching Activity Sharing and Feedback** - *Lisa Kempler, MathWorks*

Working group participants will meet to review their curriculum/teaching activities and get feedback and ideas from their peers.

Each participant - 5 minutes to present, 10 minutes of feedback/discussion

11:45 – 1:00 **Lunch**

1:00 – 2:00 **Workshop Synthesis and Next Steps**

In this final session, participants will share what they have gained, how their courses or activities have evolved, and how they can bring what they have learned to their departments, programs, and institutions. Please take a few minutes to complete the end of workshop evaluation.

2:00 **Shuttles to airport**