Week	Main Topics	Description
1, Th	Introduction to course	Syllabus, TACC account, canvas and piazza account
2, T	Types of computers	Architectures (laptop, cluster, supercomputer). What computers look like and how the pieces interact
2, Th	Unix tools and environment, part 1	How to interact with a linux box and edit files
3, T	Unix tools and environment, part 2	Using TACC systems. ssh and remote access. How to transfer files and manipulate a machine remotely
3, Th	Unix tools and environment, part 3	Advanced Unix, tips and tricks
4, T	Version control	Overview of version control systems, Using Git
4, Th	Version control	
5, T	Representation of numbers	Floating point error and related numerical representation issues with computers
5, Th	Computing environments	Machines, operating systems, tools, differences
6, T	Compilers	What they are, how they work, and why we need them, how to use them
6, Th	Compilers	
7, T	Make	An introduction to build automation tools and how to use them

7, Th	Scientific libraries	BLAS, LAPACK and FFTW
8, T	Scientific libraries	
8, Th	Debugging	How to find bugs, and software to use for doing this
9, T	Performance analysis	How to find performance bottlenecks and bugs, and software to use for doing this
9, Th	Software testing/documentation	Best practices in software testing and documentation
10, T	Software testing/documentation	Best practices in software testing and documentation Overview, MPI, OpenMP
10, Th	Intro to parallel computing	
11, T	Intro to parallel computing	Overview, MPI, OpenMP What file formats are available, what metadata is, best practices for I/O on HPC systems
11, Th	Scientific Data	
12, T	Computer graphics	Graphics pipeline, rendering, openGL and Matrix Transforms and Operations
12, Th	Numerical Linear algebra	Intro to Interactive Methods
13, T	Numerical Linear algebra	Intro to Interactive Methods

13, Th	No Class Thanksgiving Holiday (Thursday Nov 23)	
14, T	Intro to Sci Vis	Introduction to Data Vis, Sci Vis and Paraview
14, Th	Intro to Sci Vis	Introduction to Data Vis, Sci Vis and Paraview Introduction to Info Vis tools (python/matplotlib, RShiny, d3)
15, T	Data analysis/vis tools	
15, Th	Immersive/Interactive visualisation	Tools/Libraries for data explorations with VR/AR