Mission, Vision and Purpose

Mission Statement:

Our mission is to expose future scientists and engineers to the simulation scientific method of problem identification, modeling, simulation and evaluation. Exposure will be gained through a combination of graduate course work, which spans the simulation science pipeline and individual student involvement in computational engineering and science research efforts.

Vision Statement:

The Computational Engineering and Science Program at the University of Utah trains students to perform cutting edge research, which spans the simulation science pipeline. Students will be able to identify and advance the simulation science pipeline within computational engineering and science endeavors, and thus will spearhead a new generation of simulation scientists prepared as interdisciplinary “bridge-builders” that facilitate interconnections between disciplines that typically do not interact.

Our Purpose:

The primary purpose of the Computational Engineering and Science program is to train students in the use of advanced computing hardware and modern computational, graphical, and mathematical techniques for the solution of problems in science and engineering that are inaccessible without such integrated expertise. Based upon this purpose, the goal of the CES program is to provide a mechanism by which a graduate can obtain integrated expertise and skills in all areas that are required for the solution of a particular problem: the realization of the problem in its engineering or scientific context, the translation of the problem into a precise mathematical statement through mathematical modeling, the formulation of the numerical methodology for solving the problem, the selection of the appropriate computer architecture and algorithms, and the effective interpretation of the results through visualization and/or statistical reduction.
The M.S. degree in Computational Engineering and Science can serve as a stepping-stone for students who want to pursue professional careers or continue in Ph.D. programs in computational chemistry, physics, computational medicine, bioinformatics, engineering, and many computer science disciplines including graphics, robotics, and visualization.