on the theme of image-based meshing and structural modeling. This week-long intensive program will introduce 12-20 students to principles, methods, and NBCR tools for generating high-quality three-dimensional meshes for numerical analysis in multi-scale modeling of subcellular, cell, tissue, and organ biophysics.

**Structural models will be derived** from structural data obtained primarily from 3D imaging modalities, including electron tomography, multi-photon and confocal microscopy, and whole-body medical imaging modalities like CT and MRI.

**The course will include:** (1) automated and manual segmentation and annotation strategies; (2) improving the quality of surface meshes and generating volumetric meshes with GAMer; 3) using Hex-Blender to construct 3D models as well as developing high-order finite-element meshes, including patient-specific organ models with Continuity. Participants will learn to build meshes and models that are suitable for a range of biophysical modeling applications from stochastic Monte Carlo, Brownian Dynamics simulations, subcellular and whole-cell transport to whole-organ biomechanics and electrophysiology investigations. Introductions and hand-on tutorials to: 4) SEEKR and BrownDye and; 5) cellPACK and cellVIEW tools.

**In consultation with** the course organizers, those accepted into the program will be encouraged to bring and work with their own data sets.