

North Carolina State University
Chancellor's Faculty Excellence Program
"Modeling the Living Embryo" Cluster presents:

Adrienne Roeder

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***"How variable cells make
reproducible organs in
Arabidopsis"***

**January 19th, 2021
Tuesday @ 11 am**



Zoom: <https://ncsu.zoom.us/j/92648648259?pwd=SVNWTWVXZm5Da2VnODQyWkxzTVFKUT09>

Development is remarkably reproducible, producing organs with the same size, shape, and function repeatedly from individual to individual. Yet, these reproducible organs are composed of highly variable cells. My laboratory focuses on the mechanisms that produce cellular heterogeneity and organ size and shape robustness. We use a combination of genetics, live imaging, computational image processing, mechanical assays, and computational modeling to determine how robustness emerges from the dynamics of cell division, cell growth, mechanics, and gene expression. We use *Arabidopsis* sepals as a model system because sepals are relatively unresponsive to the environment, there are four sepals on each flower so robustness can be assessed easily, and sepals are accessible for imaging and manipulation. Surprisingly we are finding that plants utilize stochasticity and heterogeneity to generate robustness in development. I will also describe our work on the control of *Arabidopsis* fruit size by fertilization.