1116-VM-105 **Amber N. Lee*** (amber.lee@salem.edu), Salem College Dept. of Mathematics, 601 S Church St, Winston Salem, NC 27101, and **Anna Steinfeld** and **Zachary Abernathy**. *Compartmental Competition Model with Cancer Stem Cells in a Colon Crypt.* Preliminary report.

In response to recent support for the cancer stem cell (CSC) hypothesis, many mathematical models of tumor growth have incorporated this new paradigm. Cancer of the colon is a widespread disease with high mortality that has been identified as a strong candidate for the CSC hypothesis. We introduce a compartmental system of six ordinary differential equations to model the CSC hypothesis in the context of colorectal cancer. The model addresses the interactions of healthy and cancerous stem, transit (semi-differentiated), and fully differentiated cell populations at the cellular level within a colon crypt, with colorectal cancer originating from such a crypt. Global stability analysis of steady states in the model is achieved by two-dimensional phase plane analysis, resembling that of classical Lotka-Volterra competition dynamics. We find that cancer persistence is favored in our CSC model under biologically viable parameters, consistent with the cancer hypothesis. (Received July 24, 2015)