1116-VM-2680 **Torrey A Johnson*** (johnsotor@science.oregonstate.edu), Department of Mathematics, Oregon State University, Kidder Hall 368, Corvallis, OR 97331-4605. *Urn Models for Honeybee Swarm Site-Selection.* Preliminary report.

When a colony of honeybees outgrows a hive, it will swarm for the purpose of selecting a new home. The swarm engages in a fascinating process, during which the swarm's scout bees examine the surrounding environment for new homes and report back on quality and location. This "house-hunting" process continues until a sufficient number of scouts agree on a site. Swarms will very often choose the best site when many are available .

In this talk I will describe a discrete-time urn model for this process. In the most basic version, a single bee finds one of a number of potential sites (idealized as the colors of balls in an urn), and either recruits another bee to it or switches to another site. Recruitment or switching occurs according to site-dependent probabilities that encode site quality. The number of bees (balls) grows until a quorum threshold is reached, and the process terminates in a decision for the site with the most bees. Natural questions for such a model include whether or not the process finds the best site, the rate at which decisions are reached, and to what extent the speed of the decision impacts the quality of the site ultimately selected. This is based on work from my Ph.D. thesis and continuing work with my thesis adviser, Edward Waymire. (Received September 22, 2015)