“You have cancer.” What unfortunate words. To patient, family and friends, cancer brings a maelstrom of emotions including fear and hope. It can be a horrific disease of genetic mutations and unregulated proliferation. But, cancer is much more, and knowing this can empower the patient and suggest new therapies. Cancer may be a speciation event. A cell lineage goes from being part of the whole body program to becoming its own program – it becomes the unit of natural selection. Thus, cancer cells inhabit a tumor ecosystem where they experience much the same hazards and opportunities present in the ecology of any creature. Furthermore, like nature, they evolve adaptations to better acquire resources, avoid the hazards of the immune system, and occupy new spaces and organs of the patient. The failure of therapy happens when cancer cells evolve resistance. Understanding the evolutionary and ecological game that goes on between treatment strategies and the cancer cells offers new insights and hope. Such therapies aim to use drugs more sparingly and judiciously. We can and should anticipate and steer the cancer cells’ evolution. In this way, otherwise incurable cancers may be managed as a livable, chronic disease, or better yet cured by beating cancer at its own ecological and evolutionary “chess” game.

If you would like to visit with Dr. Joel Brown, please contact Kim With at kwith@ksu.edu.

Coffee & cookies served preceding the seminar in Ackert Hall, Room 225