

# Cell-Cell Signaling

GCAT 2010 | Davidson College

Joyce Stamm and Talitha Washington

University of Evansville

July 10, 2010

# Team

Joyce Stamm

The Biologist

Research Area: Developmental Biology, Genetics

Talitha Washington

The Mathematician

Research Area: Differential Equations, Cellular Biology

# Levels

- 1 Learn about synthetic biology.
- 2 Develop a Discussion Course
  - Students learn and we also solidify our understanding so that a project can be developed
  - No pre-requisites, accessible to all, meet weekly
- 3 Develop a summer undergraduate research project
- 4 Submit internal UExplore grant (+ others) for next summer
  - February deadline
- 5 Submit grant to NSF
  - Interdisciplinary Training for Undergraduates in Biological and Mathematical Sciences (UBM)
- 6 Develop a long-term research program in this area

## Ideas to Explore in the Discussion Course

- Differentiation of cells during development
- Cell to cell signaling.
  - Can we model a system where we have cells that express varying levels of a signaling molecule, so that these cells signal to a receptor-containing cells and provide a readout that can be mathematically modeled?
- Question: "How can the same set of genes generate vastly distinct, stable, and often inherited gene expression profiles and, thereby, distinct phenotypes?"

*Get Busy!!*