



Samantha Erwin



Postdoctoral Research Scholar

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### Computational Biology

#### Research emphasis:

Dr. Erwin's main research interest are the development of new computational tools to study infectious diseases. In the past she has developed mathematical models of HIV, HPV, and the general development of broadly neutralizing antibodies. Her current work focuses on developing robust tools to analyze high dimensional omics data from the gut microbiota.

#### Applications:

- Infectious disease
- Mathematical modeling
- Network analysis
- Mechanistic models.

#### Research Strengths:

- Parameter estimation
- Mechanistic model development
- Graphical models of omics data
- Interdisciplinary collaborations

#### Publications and Abstracts:

M Verma\*, **S Erwin\***, V Abedi, S Hoops, R Hontecills, A Leber, J Bassaganya Riera and SM Ciupe. Modeling the mechanisms by which HIV-associated immunosuppression influences HPV persistence at the oral mucosa. Plos One, 12(1):e0168133, 2017.

**S Erwin** and SM Ciupe. Germinal center dynamics during non-chronic and chronic disease. Math Biosci Eng, 14(3):655-71, 2017.

**S Erwin\***, A Huckaba\*, KS He and M McCarthy. Matrix Analysis to Model the Invasion of Alligatorweed (*Alternanthera philoxeroides*) on Kentucky Lakes. J Plant Ecol, 6:150-7, 2013.