

# An introduction to modeling in Stan

## Building a binomial model

Welcome to the fourth workshop of the BayesCog course!

### Purpose of this workshop

In this tutorial, we'll take the next step in our Bayesian journey by implementing our globe-tossing model using [Stan](#), a powerful probabilistic programming language. We'll revisit the same binomial problem, but instead of using grid approximation, we'll program our model in Stan to sample from the posterior more efficiently.

The goals of this workshop are to: - Understand how to translate our mathematical model into Stan code - Learn the basic syntax and structure of Stan programs - Compare the efficiency of Stan's HMC implementation with our previous approaches - Gain practical experience in fitting and diagnosing Bayesian models using modern computational tools

By the end of this tutorial, you'll have the foundational skills needed to implement more complex Bayesian models using Stan's probabilistic programming framework in future workshops.

#### Working directory for this workshop

Model code and R scripts for this workshop are **once again** located in the (`/workshops/02.binomial_globe`) directory. Remember to use the `R.proj` file within each folder to avoid manually setting directories!

The copy of this workshop notes can be found on the course [GitHub page](#).