

# Template for Modeling Project for the Course: Modeling in Cognitive Science

Author Name 1

Author Name 2

Author Name 3

Author Name 4

Author Name 5

## Introduction

What is the phenomenon you want to model? (0.5 points)

YOUR ANSWER GOES HERE

Why is that phenomenon relevant for understanding human cognition? (0.5 points)

YOUR ANSWER GOES HERE

## Methods

Why is this modeling method appropriate for understanding the phenomenon? (1 point)

YOUR ANSWER GOES HERE

Which hypothesis/hypotheses do you seek to test by contrasting two (or more) models? (1 points)

YOUR ANSWER GOES HERE

## Description of computational model(s)

Describe your models here.

What are the inputs, system properties, and outputs of your model(s)? (1 point)

YOUR ANSWER GOES HERE

Which assumptions does each model make? (1 point)

YOUR ANSWER GOES HERE

Describe the computational implementation of each model (e.g., model formulas) (1 point)

YOUR ANSWER GOES HERE

## Description of the experiment

Describe the experiment here.

Provide an overview of the experiment. What are the independent variables and dependent variables of the experiment? (0.5 points)

YOUR ANSWER GOES HERE

How much data were collected (number participants and trials)? (0.5 points)

YOUR ANSWER GOES HERE

## Model simulation

Describe the process of simulating data from the model(s). (1 point)

YOUR ANSWER GOES HERE

## Model fitting

Describe the process of fitting the model(s) to the data. Remember to describe any preprocessing steps of the data. (2 points)

YOUR ANSWER GOES HERE

## Parameter recovery

Describe how you performed parameter recovery for your models. (1 points)

YOUR ANSWER GOES HERE

## Model comparison (& recovery)

Describe your model comparison process here.

Describe how you compared the models. (1 point)

YOUR ANSWER GOES HERE

Optional: Describe how you performed model recovery. (0.5 bonus points)

YOUR ANSWER GOES HERE

## Results

### Simulation results

Present your simulation results here.

Which phenomena do the models capture and why? Make sure to support your argument with a plot. (1 point)

YOUR ANSWER GOES HERE

Which phenomena do the models not capture and why? (1 point)

YOUR ANSWER GOES HERE

### **Parameter recovery**

Present your parameter recovery results here.

**Which parameters can be recovered more reliably, which less reliably? (1 point)**

YOUR ANSWER GOES HERE

### **Optional: Model recovery**

Present your model recovery results here.

**Which models can be recovered more reliably, which less reliably? (0.5 bonus points)**

YOUR ANSWER GOES HERE

### **Model comparison**

Present your model comparison results here.

**Which models fit the data better and why? (1 points)**

YOUR ANSWER GOES HERE

### **Parameter fit**

Describe the results of fitting the winning model to the data.

**Which parameter values fit the data best? (1 point)**

YOUR ANSWER GOES HERE.

### **Discussion**

**Which hypothesis does your modeling support and why?. Base your answer on the model comparison (and model recovery) results. (1 point)**

YOUR ANSWER GOES HERE

**Which other insights does your model provide? Base your answer on the parameters fits of the winning model. (1 point)**

YOUR ANSWER GOES HERE

**What are potential weaknesses of your modeling study? (0.5 points)**

YOUR ANSWER GOES HERE

**What might be another computational modeling approach for gaining a deeper understanding of the phenomenon? (0.5 points)**

YOUR ANSWER GOES HERE

### **Acknowledgements**

List which group members have been responsible for which part of the group projects. E.g.,

- Author Name 1: Introduction; Methods (Model Implementation); Methods (Model Simulation)
- Author Name 2: Methods (Parameter Recovery); Results (Parameter Recovery)

### **References**