Model Definition

- **Variability Model**
  - Parameter Variability
  - Residual Variability
- **Parameter Model**
  - Fixed Effects
  - Random Effects
    - Gaussian Model
      - Linear/Nonlinear Covariate Model
    - General
  - Correlation Structure
    - Pair-wise
    - Matrix
- **Covariate Model**
  - Continuous
    - Interpolation
    - Transformation
    - Distribution
  - Discrete
    - Transformation
    - Distribution
- **Structural Model**
  - Algebraic Eqs
  - PK Macros
  - ODE
    - Initial Condition
  - DDE
    - History
- **Observation Model**
  - Continuous
    - Residual Error
  - Discrete
    - Count
    - Categorical
      - PMF
    - Time-To-Event
      - Hazard/Survival Fct
      - Censoring

Trial Design

- **Structure**
  - Arm
  - Cell
  - Epoch
  - Segment
  - Activity
    - Bolus
      - Dosing Times/Amounts
    - Infusion
    - Washout
    - Lookup Table
  - Observation Event
    - Epoch Ref/Period
- **Population**
  - Covariates
  - Demographics
- **Individual Dosing**
  - Dosing Times/Amounts

Modelling Steps

- **MONOLIX/NONMEM Dataset**
  - Mapping/Transformation
    - Column/Target/Category
- **Simulation Step**
  - Observations
    - Continuous
    - Discrete
      - Time Points
- **Estimation Step**
  - Operation
    - Algorithm
    - Property
  - Parameter Estimation
    - Intitial Estimate
    - Lower/Upper Bound
  - Objective Data
- **Step Dependencies**