

# Chapter 1 Notes

## DS 632

Classifications of simulation models:

1. Discrete versus continuous: Continuous – temperature, pressure, concentration. Difference and differential equations. Discrete – queue length, machine busy or not, machine down or not, number of parts produced. Those are integers. Differential equations not applicable. A model might combine both: e.g., there's a blast furnace, temperature continuous variable, but changes very suddenly when door opened (door open/closed is discrete).
2. Deterministic versus stochastic: Deterministic – no random variation incorporated in model. Stochastic – random variation.
3. Static versus dynamic: Static – no simulation clock. Dynamic – simulation clock drives model forward through time.

Verification versus Validation

Verification: “Did I build the model right?” Is it working as I intend?

Validation: “Did I build the right model?” The right model matches the system I want to study.

Verification comes first, and validation involves the user or client more.

When fixing a model error, be careful not to introduce a new error.

Three ways this class is UNrealistic:

1. Data is spoon-fed.
2. Models are small.
3. We finish a model and then start another. Really, models can have a long life.