DOID 325: Thinking with Models

Spring 2016, TBA

Teaching Notes (and Class Record)

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Preface

Chapter 1

Introduction

1.1 What the Course Is About

Goals for the course:

1. Develop in the students the facility for engaging in model-based reasoning, whether in science or policy making or other applications.

2. Develop in the students the facility for formulating models, whether in science or policy making or other applications.

3. Develop in the students the facility for thinking critically about models, whether in science or policy making or other applications.

Objectives for the course (in service to the goals):

1. Provide a general survey of models and modeling, whether in science or policy making or other applications.

2. Teach NetLogo as a modeling environment, especially for agent-based models.

3. Teach NetLogo programming, both for developing models in NetLogo and for a gentle introduction to programming for modeling and analysis of models.

4. Support hands-on learning leading to design, implementation, and analysis of models in NetLogo.

Structure of the course:

1. Will follow to a large extent the "SAIL" methods and philosophy: Structured, Active, In-class Learning.

   Most classes will be mostly given to doing in-class exercises. These are required. Some questions will be fairly easy and you should be able to do them if you pay attention in the short lectures and generally keep up with readings. Bs. Then there will be other questions that you should be able to get if you prepare for class (we'll have very definite material and instructions). As. During the class exercises, we will be here and available to answer questions and help you out.

   Grading: In-class exercises, plus the term project, and class participation. Maybe other assignments???

2. First 2/3 of course will focus on getting up to speed in NetLogo, then we'll do more survey stuff as you, in parallel, plan and implement your term projects, your models.

1.2 Thinking about Models: Some Basic Disctinctions

Three distinctions:

1. Parametric versus strategic decisions.

   And models.

2. Insight versus decision models.

3. Descriptive versus exploratory models.

1.3 Modeling Examples

SF Bay model, etc.

1.4 NetLogo

1.5 For Next Time

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