

## **PAD 724 – Project proposal for term modeling project**

(See syllabus for due date.)

Working alone or with one other student, select a dynamic problem that shows promise as a focus for a term–long model–based policy study. In this project proposal you will describe that problem in sufficient detail to determine if the project is appropriate for a system dynamics study and if it can be suitably developed in the course of this term. If you have doubts, you are welcome to talk with me outside of class.

Following suggestions made in the last assignment of PAD 624, write a description of your proposed problem assuming that the audience for your proposal consists of people involved with PAD 724. (Presumably, the audience for your study is not the people in 724, but the audience for your project proposal can be thought of as having the modeling expertise at the level of 724.)

Please include specifically sections dealing with the following:

- Problem focus – what's it all about?
- Context – where does the problem arise? who knows about it?
- Audience – who will read your study? whom are you trying to influence?
- Model purposes – why are you building this model?
- Model boundaries
  - Temporal – what's the time horizon?
  - Conceptual – what's included and what's excluded?
  - Causal – what's endogenous and what's exogenous?
- Reference modes – graphs of real or hypothesized data that focus the study
  - Historical data, or anticipated data revealing the problem
  - Preferred behavior
  - Observed past policy behavior (if any)
- Initial policy options likely to be explored, including historical ones for validation
- Justification for approaching this problem with system dynamics, e.g., one or more of ...
  - Important and evident feedback loops
  - Observed policy resistance that looks like it comes from stock-and-flow / feedback structure
  - The beginnings of a stock-and-flow / feedback theory of the behavior of interest
- Bibliography and information sources, including people

The most useful references on problem conceptualization are

Randers, Guidelines for Model Conceptualization, in *Modelling for Management*.

Saeed, Slicing a Complex Problem for System Dynamics Modeling, in *Modelling for Management*

Sterman, *Business Dynamics*

Richardson and Pugh, *Introduction to System Dynamics Modeling with DYNAMO*