System Dynamics Applications			
Course Schedule and Assignments			
Course meets 1:30 - 3:30 pm Wednesdays			
Date	**Topic**	**Assignments**	**Additional Readings**
January 26	Course overview	Ethridge, Chapters 2 and 3	
	The research process	Bell and Bell, "System Dynamics and the Scientific Method"	
February 2	Modeling overview	Meadows and Robinson, Chapter 1, Chapter 2 (pp. 19-26)	Sterman, Chapter 1 (pp. 33-39)
		Sterman, "A Skeptic's Guide to Computer Models"	
		Thornley, Chapter 1 (pp. 3-15)	
		Hannon and Ruth, Foreword, Chapter 1 (pp.3-11, 21-27)	
February 9	The SD modeling process	Sterman, Chapter 3 (esp. Table 3-1)	Meadows and Robinson, Chapter 2 (pp. 26-42)
	Review of SD paradigm	Ford, Chapter 15	
		Forrester, "System Dynamics and the Lessons of 35 Years"	
		Nicholson, "Some Thoughts on the Use of System Dynamics..."	
February 16	Problem articulation	Sterman, Chapter 3 (pp. 89-94)	
		Ethridge, Chapter 6	
		Written assignment on problem articulation due	
February 23	Differential equations and numerical integration	Sterman, Appendix A	Blanchard et al., Chapter 7 (pp. 621-638)
	Return of assignment on problem articulation	Thornley, Chapter 1 (pp. 15-31)	
		Blanchard et al., Chapter 1 (pp. 1-13, 20-24, 53-59,113-118)	
		Blanchard et al., Chapter 7 (pp. 607-617)	
March 2	Dynamic hypothesis	Sterman, Chapter 3 (pp.94-102)	
		Sterman, Chapter 5 (pp. 137-159)	
		Ethridge, Chapter 8	
		Meadows and Robinson, Chapter 3	
		Wrttten assignment on dynamic hypothesis due	
March 9	Using data in Vensim models	Vensim User's Guide Version 5, Chapter 16	
	Subscripts in Vensim models	Vensim User's Guide Version 5, Chapter 17	
	Initializing models in dynamic equilibrium	Sterman, Chapter 18 (pp. 716-720)	
	Return of assignment on dynamic hypothesis		
March 16	Co-flows and aging chains	Sterman, Chapter 12	
March 23	SPRING BREAK (no class)	RELAX!	
March 30	Simulation model I	Sterman, Chapter 3 (pp. 102-103)	Sterman, Chapters 6, 11, 13, 14, 15, 16 may be useful to revisit
		Randers, "Guidelines for Model Conceptualization"	
		Mass and Senge, "Alternative Tests for Selecting Model Variables"	
		Written assignment and simulation model due	
April 6	Sensitivity analysis in Vensim	Vensim User's Guide Version 5, Chapter 15	Ford, Appendix J "Comprehensive Sensitivity Analysis"
		Tank-Neielsen, "Sensitivity Analysis in System Dynamics Models"	
	Optimization in Vensim	Vensim User's Guide Version 5, Chapter 18	
	Return of assignment on simulation model		

April 13	Simulation model II	**Written assignment and simulation model due**	
April 20	Model evaluation and testing	Sterman, Chapter 21	Meadows and Robinson, Chapter 14
		Barlas, "Formal Aspects of Model Validity and Validation in SD"	Barlas, "Multiple tests for validation of SD type of simulation models"
		Thornley, Chapter 1 (pp. 31-41)	Barlas, "An autocorrelation function test for output validation"
	Reality Checks™ in Vensim	Vensim User's Guide Version 5, Chapter 14	
	Return of assignment on simulation model		
April 27	Evaluation of simulation model	**Written assignment and simulation model evaluation due**	
May 4	Policy analysis with simulation model	**Discussion of policy analyses with simulation model**	
	Return of assignment on model evaluation		
May 11		**Final paper due**	
		Thornley, Chapter 1 (pp. 41-44)	