Syllabus for SySc 513 SYSTEMS APPROACH (4 cr hr)

Fall Quarter, 2008, TuTh 4:40-6:30pm, 458 NH
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This course provides a practitioner-oriented definition of systems, including importance of observer dependence and context, and ideas of meta-systems and subsystems (Lendaris); philosophical foundations, human dimensions, value systems and associated optimization/sub-optimization, casuistry, and aspects of life-cycle project management (Hall); inquiring systems (Mitroff & Turoff); key aspects of human learning organizations, systems thinking, and systems modeling (Senge); qualitative tools for the systems practitioner, including various graphical tools (Delp); structural modeling (Warfield); and the multiple perspectives aspect of the systems approach, both "horizontal" and "vertical" (Lendaris, Hall, and Linstone).

This course fulfills a core SySc requirement.

Prerequisites: Graduate status or permission of the instructor.

Teaching Style: Students read assigned papers and prepare "Cognitive Maps" as described in Rabow text (see below). Students participate in class dialogue of material.

Grade basis: Homework: 1/3; Class Participation: 1/3; Final Exam (take-home):1/3.

Homework format:
Upper left corner: Last name, First name.
Short homework identifier (e.g., Linstone, Ch 3, Cog Map)
Due date for assignment.
In first line of body, identify article or chapter being reported on [use **full citation format** -- see below for examples].
For assignments with with multiple components, start each component on a new page.

E-Mail to instructor: For any e-mails to me, please use (only) "**SySc 513**" in the Subject line.

Course Web Site: http://www.pdx.edu/sysc/courses_fall2008.html -- select Systems Approach

Text books available at Bookstore:
- Hall, A.D., *Metasystems Methodology, A new Synthesis and Unification*, Pergamon Press, NY, 1989. (Ch. 1, 2, 4-8, 10) **Course Pak** at Bookstore.
- Linstone, H.A., *Decision Making for Technology Executives*, Artech House, Boston, 1999. (Ch. 1-5, 9, A.5)
- Rabow, et al, *Learning Thru Discussion*, Sage, Beverly Hills, CA, 1994. (Full book)
- Senge, P.M. *The Fifth Discipline: The Art and Practice of the Learning Organization* (Revised Edition), Doubleday, 2006. (Full book)

Reading Packet at Smartcopy:
- Delp, et al, *Systems Tools for Project Planning*, Indiana Univ., 1977 (excerpts).

Readings .pdf files on course Website:
- Hall, Arthur D. III, "Three Dimensional Morphology of Systems Engineering", *IEEE Transactions on Systems Science and Cybernetics*, vol. ssc-5, no. 2, 1969
- Lendaris, G.G., "Appendix B: Interpretive Structual Modelling," in *The Use of Structural Modelling in Technology Assessment*, vol. 2, Portland State University, Systems Science 98-1, 1978.
- Lendaris, "On Human Aspects of Structural Modeling," *Technology Forecasting and Social Change, Vol. 14, pp 329-351, 1979,* excerpt.
- Lendaris, G.G., "On Systemness and the Problem Solver: Tutorial Comments," *IEEE, Vol. SMC-16, No.4*, July/ August, 1986.
- Malone, D., "An Introduction to the Application of Interpretive Structural Modeling", Chapter 14 in Baldwin, Ed., *Portraits of Complexity*, Batelle Memorial Institute, Columbus, OH, Monograph No. 9, 1975.
- Mitroff & Turoff, "Technological Forecasting and Assessment: Science and/or Mythology," *Tehnology Forecasting & Social Change*, American Elsevier, pp. 113-134, 1973.
- Turoff & Mitroff, "A Case Study of Assessment Applied to the 'Cashless Society' Concept," *Tehnology Forecasting & Social Change*, American Elsevier, 1974.
- Warfield, J.N., "The Organized Conduct of Inquiry," Ch.3 in *Societal Systems*, Wiley, 1976.
- Warfield, J.N., "Interpretive Structural Modeling", Chapter 14 in *Societal Systems*, Wiley, 1979