**SE 510 INTRODUCTION TO SYSTEMS SCIENCE**

**SCHEDULE OF LECTURE TOPICS, Fall Quarter, 2017**

Face-to-Face Lectures: Monday, 7-9 pm, Cal Poly, Studio D, CLA Bldg 98B-Rm 1-254. FtF# = Students are part of the streaming video; Online Lab, Usually 1/Wk, at home, anytime, anywhere via your PC on Internet. Feel free to make multiple appointments with Dr. T. throughout quarter for help with projects. All students will also want to take the following two online supplements to help with their project; when ready

1. **Observing Past Student Applied SPT Work as Models for IW’17 Posters/Presentations**
2. **Library Instruction on Use of CPP Search Engines and Endnote for completion of projects on time.**

**WK 1: SEP 25**

FACE-TO-FACE 1 : **Course Requirements;** **510 Function in MSSE Curriculum; SysEng & SysSci Needs**

ONLINE INFO LAB 1 **Systems Thinking Is Not Systems Science: Similarities, Differences, Synergies**

ONLINE INFO LAB 2 **Twenty-Five “Information Categories” per Isomorphic Systems Process**

ONLINE Bb DISCUSSION & PROJECT THRU WEEK; NO QUIZ DURING WEEKEND

**WK 2: OCT 2**

FACE-TO-FACE2: **Overview/Landscape of Systems Thinking & Prototype Systems Sciences: Domains**

ONLINE INFO LAB 3 **Intro to Hierarchies as an Isomorphic Systems Process (hereafter, ISP)**

ONLINE INFO LAB 4 **Introduction to Feedback as an ISP**

ONLINE DISCUSSION THRU WEEK; **ONLINE QUIZ DURING WEEKEND**

**WK 3: OCT 9**

FACE-TO-FACE 3&4: **SPT Intro: Basic SPT Contributions; Criteria for SysSci; SPT Tenets**

ONLINE INFO LAB 5 **Intro to Cycles & Cycling as an ISP**

ONLINE Bb DISCUSSION & PROJECT THRU WEEK; NO QUIZ DURING WEEKEND

**WK 4: OCT 16**

FACE-TO-FACE: **(Finish); SPT Intro: Tenets; Contributions & Overview**

ONLINE INFO LAB 6 **Intro to Self-Organization as an ISP**

ONLINE DISCUSSION THRU WEEK; **ONLINE QUIZ DURING WEEKEND**

**WK 5: OCT 23**

FACE-TO-FACE: **(Start) SPT: ISOMORPHIC SYSTEMS PROCESSES (ISP’s)**

ONLINE INFO LAB 7 **Intro to Networks as an ISP**

ONLINE Bb DISCUSSION & PROJECT THRU WEEK; NO QUIZ DURING WEEKEND

**WK 6: OCT30**

FACE-TO-FACE: **(Continue) SPT: ISOMORPHIC SYSTEMS PROCESSES (ISP’s)**

ONLINE INFO LAB 8 **Intro to Flows and Storage as ISP’s; Similarities to MIT SysDynamics & Odum**

ONLINE DISCUSSION THRU WEEK; **ONLINE QUIZ DURING WEEKEND**

**WK 7: NOV 6**

FACE-TO-FACE: **(Finish) SPT: ISOMORPHIC SYSTEMS PROCESSES (ISP’s)**

ONLINE INFO LAB 9 **Intro to Synergy, Synchrony, & Cooperation as an ISP**

ONLINE Bb DISCUSSION & PROJECT THRU WEEK; NO QUIZ DURING WEEKEND

**WK 8: NOV 13**

FACE-TO-FACE: **(Start)** **SPT: LINKAGE PROPOSITIONS**

ONLINE INFO LAB 10 **Intro to Fractals as an ISP’s**

ONLINE DISCUSSION THRU WEEK; **ONLINE QUIZ DURING WEEKEND**

**WK 9: NOV 20;**

FACE-TO-FACE: (**Finish)** **SPT: LINKAGE PROPOSITIONS**

ONLINE I LAB 11 **Intro to Symmetry and Duality (Counterparity) as ISP’s**

ONLINE Bb DISCUSSION & PROJECT THRU WEEK; NO QUIZ DURING WEEKEND

**WK 10: NOV 27**

FACE-TO-FACE: **SPT: SYSTEMS PATHOLOGY & SYSTEMS MIMICRY; Spin-Offs of SPT**

ONLINE ILAB 12 **Intro to Origins & Emergence as ISP’s**

ONLINE DISCUSSION THRU WEEK; **ONLINE QUIZ DURING WEEKEND**

**WK 11: DEC 4 to 8 Final, Evening of December 4th, All Projects Due by December 15th**

**Using the A plan, we will cover 14/55 Isomorphies (~25%) during the quarter in ~16 hours of InfoLab online coverage plus the 20 hours of Face-to-Face Lectures = 36 hours of learning. For a 3-unit course that’s exemplary. Congratulations! Using the B plan, we will cover 8/55 (~15%) isomorphies during the quarter in ~12 hours of InfoLab online coverage plus the FtF = 32 hours of learning which is sufficient for a 3-unit course.**