

INTRODUCTION

Engineers, social scientists, and managers frequently bring people and technology together to address complex problematic situations in an equitable way that benefits people and the environment. Multiple systems theories and approaches have been developed to address these situations, and typical courses in systems focus on a relatively small portion of the rich assortment of available approaches to addressing systems problems. This course introduces students to multiple systems theories and approaches via readings, class discussion, reflective writing assignments, and selected case studies and team projects. The course will emphasize critical thinking about how the theories and approaches relate to each other and how they might be applied individually and in combination to address complex problematic situations.

This document contains basic information about the SYS 350 class, including contact information for the instructor. The distribution of reading material, assignments, etc. uses Purdue's Brightspace site. Students must register for SYS 350 to access the class page on Brightspace.

All material needed for class should be available; if you find this is not the case, please e-mail the instructor. Any information given in class will supersede information given in this document.

Meeting Times and Location

Monday, Wednesday, Friday, 3:30 – 4:20 pm
WALC 3087

Instructor

Dr. C. Robert Kenley

Office: GRIS 370 Phone: + 1 765 494 5160 E-mail: kenley@purdue.edu

Web: <http://web.ics.purdue.edu/~ckenley/>

Office Hours: You have two options to request a meeting with Professor Kenley.

1. For a more seamless meeting request interaction, create an Exchange meeting request by accessing your purdue.edu account via a browser at <https://outlook.office365.com> or via the Outlook desktop application, which has Meeting Planning and Scheduling Assistant capabilities
2. Check the calendar link at Professor Kenley's web site, type up and send an e-mail that suggests a couple of times to meet, and wait for an e-mail response from Professor Kenley

SYLLABUS

Course Outcomes

As part of the Purdue Core Curriculum on Science, Technology, and Society, students will be able to understand and reflect upon the complex issues raised by technological and scientific changes and its effects on society and the global world by making sense of, evaluating, and responding to present and future changes that shape individuals' work, public, and personal lives.

This course will teach systems theories for understanding the complex problematic situations that result from the interaction of scientific and technological changes, values held by individuals and groups, and organizational and social structures. Students will also learn approaches applicable to the workplace and the public sphere that respond to these situations by addressing them in an equitable way that benefits people and the environment.

Course Goals

This course has two major goals:

1. Introduce multiple systems theories and approaches via readings, class discussion, reflective writing assignments, and selected case studies
2. Emphasize critical thinking about the theories and approaches
 - a. How they relate to each other
 - b. How they might be applied individually and in combination

Prerequisites

Undergraduate students from all majors with Upper Division standing are welcome.

Course Topics

Table 1 shows the nominal course topics. This is subject to change.

Table 1. Course Topics

High-Level Topics	Detailed Topics
Holism and Systems Practice	1. System Thinking and Approaches
	2. Systems language and Key Terms
	3. System Modeling
	4. Working in Groups and Teams
Improving Viability	5. The Viable System Model
Exploring Purposes	6. Soft Systems Methodology
	7. Critical Systems Heuristics
	8. Interactive Management
Understanding Human Systems	9. Family Systems Theory
	10. Organizations as Systems
	11. Soft Systems Approaches
Improving Goal Seeking	12. Systems Engineering
	13. Concept Generation and Concept Selection
	14. Causal Loop Diagrams
	15. System Dynamics
	16. Agent-based Modeling
Ensuring Fairness and Promoting Diversity	17. Service Learning
	18. Participatory Appraisal
Creative Holism	19. Total Systems Intervention
	20. Critical Systems Thinking and Practice

There is a Microsoft Excel Calendar File posted to Brightspace that serves as a master schedule for all class sessions and assignments that is updated regularly.

Policies

Academic Integrity

Academic integrity is one of the highest values that Purdue University holds. Individuals are encouraged to alert university officials to potential breaches of this value by either emailing integrity@purdue.edu or by calling 765-494-8778. While information may be submitted anonymously, the more information that is submitted provides the greatest opportunity for the university to investigate the concern.

Purdue's Honor Pledge was developed by students to advance a supportive environment that promotes academic integrity and excellence. It is intended that this pledge inspires Boilermakers of all generations to stay "on track" to themselves and their University.

As a Boilermaker pursuing academic excellence,
I pledge to be honest and true in all that I do.
Accountable together – We are Purdue.

Piazza Discussion Site

- **Do** use Piazza for any query that other students might also be interested in
 - **Do not** use e-mail
 - Anonymous posting to Piazza will be allowed
 - Excessive trolling will result in anonymous posting privilege for all students to be disallowed
- **Do** use e-mail for queries that are personal
 - Requests for regrading
 - Extraordinary circumstances that might require delaying due date for homework
- Students are expected to assist each other on Piazza
 - Course is graded using an absolute scale and not on a curve
 - Assisting each other can improve each other's level of learning and grades
 - **Will not** result in lowering anyone's grade
- Instructor's responses on Piazza
 - A timer delay of **4 hours** has been set to allow instructor to hold off on answering student questions immediately, thereby encouraging other students to answer questions. Only instructor can see the timer.
 - Will not respond to questions about a quiz or homework assignment after 12:00 noon U.S. Eastern Time on the day it is due

Assignments

The course format is that of a reading / discussion / case studies and projects. During many class periods, the students and instructor will discuss the related reading assignments. An Excel file that shows the reading assignments is posted to Brightspace, and the file may change as the semester progresses. Access to Brightspace is restricted to students currently enrolled in the course.

Course Materials

There is no required book for this course. There will be readings from journal articles, online texts, and other sources. These readings can be accessed either as files posted on the Brightspace site or via the links provided. For many of the links, you will have to log on using your Purdue Career Account when you are off-campus.

Discussion Guidelines

During class periods, the students and instructor will discuss the assigned reading material. Students are expected to read the assigned material, prepare their answers to the discussion questions in the Q&A files that are posted to Brightspace, and otherwise prepare for interactive sessions BEFORE the class period and must be prepared to participate.

Most the discussion should focus on assisting the entire class to bring themselves to a level at which they can evaluate the topics. This evaluation may include how the topics relate to previous class discussions, how and where they fit into the universe of systems theories and approaches, how the topics may improve systems thinking, and the practicality of the topics. Keep in mind that not everyone will share the same point of view.

Quizzes, Artifacts, and Reflections

Quizzes and assignments that request various artifacts and reflections will be required based on the readings. All quizzes and assignments are on Brightspace.

Team Project and Exercises

Students will complete two team projects and two team exercises during the term. These projects and exercises will provide students with the opportunities to practice applying some of the concepts and methods encountered during the term. Projects and exercises will require students to submit team reports and to complete individual peer evaluations of team members.

The project teams will be formed the first week of the term and a team charter will be required that will lay out the norms for operating the team and an initial schedule for how the team will complete the two exercises and the two projects. **Project teams have found that they need to meet at least once per week to be successful. Even when there are no team assignments during a given week, it will be valuable to meet as a team as a study support group.**

Final Case Study

The Final Case Study is an individual assignment that will provide students with the opportunity to practice applying some of the theories and approaches encountered during the semester. It will apply Critical Systems Thinking to evaluate how a complex situation can be addressed by using a combination of systems approaches to address the situation.

Missed or Late Work

The instructor will not accept late work.

In extreme circumstances, the instructor might accept late work with an appropriate penalty to the score. These circumstances most likely would be those that lead to a student filing to receive a grade of Incomplete in the class. For late homework to be considered for grading, the student

must provide the instructor a written request with justification as to why the circumstance is extreme.

Course Grades

There will be a numerical score for each assignment and quiz. The case studies and projects involve individuals or groups using the theories and approaches with no single correct answer, so the grading of the course will account for this. If students have a concern about a grade on their work, they should first bring it to the attention of the person who graded the work. Requests for reconsideration / regarding must be made within one week of when the work is returned to students.

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Computation of final course grades will use the following distribution of weights:

Assignment	Due Date	Weight	Team or Individual Score	Evaluators
Module 01 Quiz	25-Aug	1%	Individual	Instructors
Module 01 Reflection	25-Aug	1%	Individual	Instructors
Module 02 Quiz	27-Aug	1%	Individual	Instructors
Module 02 Reflection	27-Aug	1%	Individual	Instructors
Module 03 Quiz	30-Aug	1%	Individual	Instructors
Module 03 Artifacts and Reflection	30-Aug	1%	Individual	Instructors
Module 04 Quiz	1-Sep	1%	Individual	Instructors
Module 04 Artifacts	1-Sep	1%	Individual	Instructors
CATME Team Maker Survey	3-Sep	2%	Individual	Instructors
Module 05 Quiz	3-Sep	1%	Individual	Instructors
Module 05 Artifacts	3-Sep	1%	Individual	Instructors
Module 06 Quiz	4-Sep	1%	Individual	Instructors
Individual Reflection on Service Learning	8-Sep	1%	Individual	Instructors
Team Charter	10-Sep	2%	Team	Instructors
Module 09 Quiz	13-Sep	1%	Individual	Instructors
Module 10 Quiz	14-Sep	1%	Individual	Instructors
Team Reflection on Civic Engagement in Higher Education	15-Sep	2%	Team	Instructors
Team Report on Community Partner Viable System Model	17-Sep	3%	Team	Instructors
Module 15 Quiz	27-Sep	1%	Individual	Instructors
Module 15 Artifacts	27-Sep	1%	Individual	Instructors
Module 17 Quiz	30-Sep	1%	Individual	Instructors
Team Report on Purdue Viable System Model	1-Oct	3%	Team	Instructors
First Peer Evaluation Inputs on Rest of Team	1-Oct	2%	Individual	Instructors
First Peer Evaluation Result	1-Oct	3%	Individual	Peers
Module 18 Quiz	2-Oct	1%	Individual	Instructors
Module 19 Quiz	5-Oct	1%	Individual	Instructors
Module 19 Artifacts	5-Oct	1%	Individual	Instructors
Module 20 Quiz	8-Oct	1%	Individual	Instructors
Module 20 Reflection	8-Oct	1%	Individual	Instructors
Module 21 Quiz	11-Oct	1%	Individual	Instructors
Module 21 Reflection	11-Oct	1%	Individual	Instructors
Module 22 Quiz	12-Oct	1%	Individual	Instructors
Module 23 Quiz	15-Oct	1%	Individual	Instructors

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Assignment	Due Date	Weight	Team or Individual Score	Evaluators
Module 23 Reflection	15-Oct	1%	Individual	Instructors
Module 24 Quiz	16-Oct	1%	Individual	Instructors
Module 25 Quiz	20-Oct	1%	Individual	Instructors
Module 25 Reflection	20-Oct	1%	Individual	Instructors
Module 26 Quiz	21-Oct	1%	Individual	Instructors
Module 27 Quiz	23-Oct	1%	Individual	Instructors
Team Presentation to Community and University Partners	30-Oct	5%	Team	Instructors
Module 28 Quiz	3-Nov	1%	Individual	Instructors
Module 28 Reflection	3-Nov	1%	Individual	Instructors
Module 29 Quiz	5-Nov	1%	Individual	Instructors
Module 29 Artifacts and Reflection	5-Nov	1%	Individual	Instructors
SSM-CSH Team Report	8-Nov	10%	Team	Instructors
Module 32 Quiz	12-Nov	1%	Individual	Instructors
Module 32 Artifacts and Reflection	12-Nov	1%	Individual	Instructors
Module 33 Quiz	15-Nov	1%	Individual	Instructors
Module 33 Artifacts and Reflection	15-Nov	1%	Individual	Instructors
Module 34 Quiz	17-Nov	1%	Individual	Instructors
Module 34 Reflection	17-Nov	1%	Individual	Instructors
Team Exercises Report	17-Nov	4%	Team	Instructors
Second Peer Evaluation Inputs	17-Nov	2%	Individual	Instructors
Second Peer Evaluation Result	17-Nov	3%	Individual	Peers
Module 35 Quiz	19-Nov	1%	Individual	Instructors
Module 35 Artifacts and Reflection	19-Nov	1%	Individual	Instructors
Module 36 Quiz	22-Nov	1%	Individual	Instructors
Module 36 Reflection	22-Nov	1%	Individual	Instructors
Module 37 Quiz	1-Dec	1%	Individual	Instructors
Module 37 Reflection	1-Dec	1%	Individual	Instructors
Case Study: Critical Systems Thinking and Practice	4-Dec	10%	Individual	Instructors
Qualtrics Survey	4-Dec	1%	Individual	Instructors
Total		100%		

29% of the weighting is allocated to team results.
6% of the weighting is allocated to peer evaluation of individuals.
65% of the weighting is allocated to individual results.

Final letter grades for the course will use the table below. The total numerical score will be rounded to the nearest integer percent.

Numerical to letter conversion for final grades							
Score	Grade	Score	Grade	Score	Grade	Score	Grade
98 to 100%	A+	88 to 89%	B+	78 to 79%	C+	68 to 69%	D+
93 to 97%	A	83 to 87%	B	73 to 77%	C	63 to 67%	D
90 to 92%	A-	80 to 82%	B-	70 to 72%	C-	60 to 62%	D-

A total score of 59% or lower will always fail.

Attendance

The University Regulations Handbook reads: "Students are expected to be present for every meeting of the classes in which they are enrolled." If you must miss a class, you are responsible for the reading material, discussion, assignments, and/or announcements made. Excessive absence from the class will negatively affect the participation portion of the grade and seriously degrade your ability to complete the team exercises and projects.

Campus Emergencies

In the event of a major campus emergency, course requirements, deadlines, and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances. Information about these changes will be available from the public website for this course, Brightspace, or via e-mail.