

**University of Florida**  
**College of Public Health & Health Professions Syllabus**  
**PHC 6103 Systems Thinking for Public Health**  
Summer A plus two weeks 2018  
Tuesday and Thursday 9 am - noon  
Delivery Format: On-Campus plus online  
Course managed on the Canvas System

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<b>Preferred Course Communications:</b>	<b>Canvas Email</b>

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### **Prerequisites**

Students will have graduate level competency with PowerPoint.  
Students will have graduate level narrative writing and data analytical skills.

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## **PURPOSE AND OUTCOME**

### **Course Overview**

The purpose of this course is to expose students to systems thinking and complexity theory with a special focus on addressing problems in public health and public health management. See detailed explanation of course content below.

### **Relation to Program Outcomes**

This course is designed to facilitate the pivot from categorical and knowledge based learning to a more emergent and synthetic understanding of the behavior of complex problems. Multiple systems, structures, processes and cultures will be considered in the context of a whole situation. The course is positioned within the curriculum to build on background and techniques acquired in the first year courses and to prepare students for internship and or job placement in a practical working environment.

### **Instructional Methods**

Lectures, classroom exercises, classroom discussion of readings, online discussions of special topics and an Individual project with iterative instructor feedback.

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## DESCRIPTION OF COURSE CONTENT

### PHC 6103 Systems Thinking for Public Health

#### Required Texts

“Thinking in Systems“, by Donella H Meadows

“Health Systems Thinking: A Primer” by James A Johnson, Douglas E Anderson and Caren C Rossow”

#### Highly Recommended

“The Fifth Discipline”, by Peter Senge

#### Important Notes

Other readings and assignments will be added on an as needed basis.

The sequencing of materials is subject to change.

#### Tentative Schedule

**May 14** Session 1) Introduction to systems thinking and complexity.

Background: Johnson Chapter 1

Four things that have helped us deal with complexity in the past.

Doubt: five rabbit holes that still vex the analytical approach.

Assignment: Read Ackoff and be prepared to discuss in next session

Assignment: Read Boulding

**May 16** Session 2) the nature of systems and the nature of systems in nature.

Review Ackoff “Systems, Messes and Interactive Planning”

Types of systems: Boulding’s Taxonomy

Assignment: identify a common system and relate it to its environment.

Post to Google Docs.

**May 21** Session 3) Simple closed systems in the general environment.

Discuss systems posted in Google Docs

More depth on some systems concepts

The radio Shack Exercise.

Assignment: read Meadows and prepare for discussion

Assignment: Read NYT Guano article and prepare for discussion

**May 24** Session 4) Guano: Intervening to pursue a desired state.

Discuss Meadows “Thinking in Systems”

Graded Assignment: Parse three subsystems from the guano article and describe their interactions.

Suggest an intervention that will lead to a desired state.

Due date: submit to Canvas Assignments by midnight May 30

**May 28** Session 5) A deeper dive into complexity.

Structure, process, function, agents and unintended consequences.

Some common structures and how they influence behavior.

Simple Bubble diagram - process and flow

Assignment: read North prepare for discussion

**May 30** Session 6) Diagramming complex systems relationships

Necessary and sufficient conditions

Senge's five disciplines - introduction

Discuss North – accelerating and balancing influences

Read Smith and prepare for discussion.

**June 4** Session 7) let's get practical.

The five disciplines leading to shared vision and team learning.

Personal Mastery, Mental Models, Shared Vision, Team Learning, System's Thinking

Discuss Smith

Discuss archetypes (sticker opportunity)

**June 6** Session 8) Archetypes.

Student presentations and discussion elucidating the Senge archetypes.

**June 11** Session 9) Objective test (multiple choice, matching, short essay)

Material Covered: all material related to sessions 1 through 8.

The test is designed to test both understanding of system thinking concepts as well as the ability to synthesize the material to address typical situations.

**June 13** Session 10) Cultural complexity: the subtlest form of structure.

Preparing for offsite visit to a social system.

The importance of history. The importance of mission.

Complex Systems Thinking and Current Impasses in Health Disparities Research

**June 18** Session 11) Offsite visit (venue to be determined)

Cultural subsystems and their boundaries.

Unintended consequences of public policy.

**June 20** Session 12) Debrief offsite visit

Summary discussion.

Informal course evaluation.

**Graded independent project due on July 12.**

Major graded assignment: During the last two weeks you will work on a complex interactive system of your choosing. You will arrange two individual meetings with the instructor to discuss your project

(required and assessed as part of the grade). You will parse at least three subsystems, describe their stasis and identify the currents and the agents being exchanged. You will identify archetypes at play. You will predict an event or design a leveraged intervention in one of the subsystems that has ripple effects throughout. You will explore the potential for unanticipated consequences.

Deliverable: Your report will be about 5 pages – a combination of power point, word (or similar) and excel (if warranted) – that will be due on July 13.