

SST SYSTEMS THINKING track

Overview & Agenda

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Many social and public health problems are difficult to address because they are the result of a complex system of contributing factors. In this track, we will explore complex problems in public health from a systems science perspective. We will first introduce complex systems and define the basic components of complex systems. We will then discuss the internal mechanics of systems and demonstrate how these give rise to overall system properties and principles. In depth examples and activities will be used to demonstrate and illustrate covered concepts. Students will then be encouraged to apply systems thinking to their own respective areas of expertise. The course will conclude with a survey of systems science methods that are commonly used to example complex problems embedded in systems which will support participants' further application of systems thinking.

By the end of the week, participants in the SST track will be able to:

- Describe a complex system and fundamental aspects of complex systems
- Develop experience with complex systems through demonstrations and examples
- Apply relevant systems concepts and thinking to public health or social problems of interest
- Consider different systems science methods and their value in examining complex problems

SESSION	TOPICS	ACTIVITIES
0 – Workshop prep		None
1 – Monday AM	Overview of complex systems and systems science	Introductions Warm up
2 – Tuesday AM	Components of complex systems	Build a complex system
3 – Tuesday PM	Mechanics of complex systems	Accumulation and feedback in supply chain problems
4 – Wednesday AM	Qualities of complex systems	Systems walking tour
5 – Wednesday PM	Systems Thinking and Applications	Deep dive into your system
6 – Thursday AM	Methods for Understanding Systems – Social Networks	Map your networks
7 – Thursday PM	Methods for Understanding Systems – Group Model Building, System Dynamics Modeling	Play with a system dynamic model Identify CBSD script to engage stakeholders in modifying the model
8 – Friday AM	Methods for Understanding Systems – Agent-based Modeling Methods for Understanding Systems – Other Research Designs Wrap up	Play with an agent-based model Reflections on the course