

# PUBH 6002 SYSTEMS SCIENCE AND POPULATION HEALTH

**Credit Points** 10

**Coordinator** Sandro Martins Sperandei ([https://directory.westernsydney.edu.au/search/name/Sandro Martins Sperandei/](https://directory.westernsydney.edu.au/search/name/Sandro%20Martins%20Sperandei/))

**Description** This subject will introduce students to applications of system science methods to population health problems in epidemiology that can be used to guide policy and program decision making. Students will be provided with an overview of the sorts of problems that might benefit from system science techniques, and the different types of dynamic modelling methods that can be used (e.g. system dynamics models, agent-based models) using a series of case studies focussing on a range of chronic disease outcomes. Participants will also have the opportunity to interact with example models, to explore model structures, underlying assumptions, and conduct scenario testing of suites of policy interventions.

**School** Medicine

**Discipline** Public Health

**Student Contribution Band** HECS Band 2 10cp

Check your fees via the Fees ([https://www.westernsydney.edu.au/currentstudents/current\\_students/fees/](https://www.westernsydney.edu.au/currentstudents/current_students/fees/)) page.

**Level** Postgraduate Coursework Level 6 subject

## Learning Outcomes

1. Compare and contrast system science methods with population health science methods in addressing complex health problems
2. Assess approaches to map complex systems
3. Articulate the importance of participatory approaches and stakeholder involvement in defining complex problems.
4. Analyse the principle elements of dynamic models and interpret their structure in terms of model behaviour
5. Critically apply system science approaches to a population health problem for a health policy audience

## Subject Content

1. Overview of system science approaches, and intersections with population health
2. Complex systems and problems that benefit from systems science techniques
3. Approaches to mapping complex systems
4. Dynamic modelling methods (system dynamics models, agent-based models)
5. Using models to guide decision making in health policy

## Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Type	Length	Percent	Threshold	Individual/ Group Task	Mandatory
Short Answer	1,000 words	20	N	Individual	N
Short Answer	1,500 words	30	N	Individual	N
Report	3,000 words	50	N	Individual	N