

# POLI30: Inference

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## Contact Information

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Office Hours: Tentatively Monday 10:00am - 11:50am

## Section Expectations

- ▶ Attendance
- ▶ Participation
- ▶ Reading
- ▶ Homework

## Requirements and Definitions of Concepts

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A **concept** is “an idea or mental construct that represents phenomena in the real world” (p. 9).

- ▶ Properties – What properties does the concept possess that are part of the “essence” of the concept?
- ▶ Definition – To which subjects does the concept apply, and how do we measure the properties of the concept?

## Clarifying a Concept

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To be valid, or even useful, a concept must be two things:

- ▶ Concrete – Must be built of things that we can put our analytic “hands” on.
- ▶ Variable – Do some people have more of the concept, and others less?

Should we define one concept in terms of another concept?

- ▶ How, then, can we improve upon our concept of marksmanship?

## Conceptual Definition

- ▶ After identifying the concrete, measurable attributes, we need to **define** how, and for whom those attributes describe a concept.
- ▶ The concept of [ ] is defined as the extent to which [ ] exhibit the characteristic of [ ]



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- ▶ After identifying the concrete, measurable attributes, we need to **define** how, and for whom those attributes describe a concept.
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- ▶ How would we apply this to marksmanship?

## Conceptual Definition

- ▶ After identifying the concrete, measurable attributes, we need to **define** how, and for whom those attributes describe a concept.
- ▶ The concept of [concept's label] is defined as the extent to which [the unit of analysis] exhibit the characteristic of [concept's measurement]

## Operational Definition

- ▶ Translation of an idea or a construct into something real, concrete, and measurable
- ▶ It describes explicitly how the concept is to be measured empirically
- ▶ A theory of measurement

## Measurement Error

- ▶ Distortions of the linkage between a concept and its empirical measure
- ▶ Two types of measurement error:
  - ▶ **Systematic Measurement Error** – consistent, chronic distortion of an empirical measurement
  - ▶ **Random Measurement Error** – distortion caused by any factors that randomly affect measurement of the variable across the sample

## Reliability and Validity

- ▶ **Reliability** – the extent to which it is a consistent measure of a concept
- ▶ **Validity** – the extent to which it records the true value of the intended characteristic and does not measure any unintended characteristics