DECEPTION BY NUMBERS: DATA IN THE NEWS

There is more misinformation and deliberate deceit in politics, advertising, health claims, and news reporting than ever. You need to be able to protect yourself from acting on disinformation and be alert to misleading errors. A functioning democracy requires a populace prepared to understand and challenge claims of fact in political statements. Misunderstanding data or probability can have dire consequences. Often, misinformation is false or biased data but just as often it is in the way the numbers are selected or presented. Graphs and charts can be especially misleading: a picture speaks more directly to our emotions.

The goal of this course is to cultivate a healthy skepticism so that you can better detect statistical sleight of hand, innumeracy, fallacies, and plain numerical error. This does not require high school mathematics, just basic arithmetic and, above all, common sense.

Topics will include how to detect fake news; sample bias; how to understand different types of 'average' and what these reveal and hide; why counting isn't as simple as 1-2-3; distortions in charts and graphs; becoming comfortable with very large and very small numbers; the meaning of commonly used but poorly understood statistical terms; the art of estimation and how to make reasonable guesses; various fallacies in analyzing data; and more.

Week	Topic(s)
1.	Fake news
	Lies, damned lies, and statistics
2.	Surveys: right and wrong ways to collect data
	Samples and sampling: detecting bias
	How averages do and do not work
3.	Counting and what counts
	Correlation does not imply causation
	Misleading graphs and charts
4.	Very large and very small numbers
	The significance of significance
	The base rate fallacy
5.	Growth: arithmetic and compound
	More ways to hide truth: ratios and percentages
	Units and dimensions
6.	Estimating: a valuable technique
	Forecasts and trends
	What could possibly go wrong?
	Testing for credibility

LEADER: Bernard Abramson is a retired corporate chief information officer with international management and consulting experience. He is also a former adjunct professor in the Master of Technology Management Program at Polytechnic University.
LOCATION: In-person
MONDAYS: 10:00 am to noon., 6 weeks beginning February 28 through April 4
MAXIMUM: 25