

SUBJECT HANDBOOK ENTRY

Please provide the following information for **each** new subject proposed and for major changes to existing subjects:

Code:	
Title of the subject: <i>(no more than forty characters including spaces)</i>	Critical thinking with data
Credit points	12.5
Coordinator	Dr. Andrew Robinson
Semester of offer	1, repeat 2
Prerequisites and/or corequisites	None
Mode of delivery	Lecture, tutorial, on-line materials
Contact hours	36 lectures (three per week) 12 one-hour tutorials (one per week)
Estimated total time commitment: <i>(including non-contact time)</i>	120 hours
Description	<p>This subject teaches students to become critical users of data-based evidence. Future journalists, political scientists, sociologists, lawyers, health professionals, psychologists, , environmental scientists, business people, engineers, scientists and teachers will develop skills in identifying the strengths and weaknesses of arguments and reports based on quantitative evidence, and learn to evaluate reasoning that uses probabilistic ideas.</p> <p>Data-based evidence is found in the media, in academic research and in many aspects of everyday life. The subject examines ways of judging the quality of quantitative information, and the strength of conclusions drawn from it, including concerns in establishing causality. It discusses how variability may be characterised and modelled in a wide variety of settings including public opinion, health, sport, legal disputes, and the environment. It covers good and bad ways of examining evidence in data. The subject deals with judging the likelihood of events, common pitfalls in thinking about probability, measuring risk in medical contexts and quantifying uncertainty in conclusions. It describes how data-based evidence can contribute to the accumulation of knowledge.</p>
Assessment	Written work totalling 3000 words comprising five tutorial assignments (totalling 1000 words, due during semester, 20%) and one 2000 word assignment due after mid-semester (25%), weekly on-line quizzes (5%), a 2 hour written examination in the examination period (50%).
Prescribed texts	
Subject objectives	On completion of the subject, students should have gained an appreciation of how core concepts of probability inform real-world arguments based on empirical data. They should be able

	to critically assess data-based arguments and media reports, and construct sound data-based arguments. They will have knowledge of the potential flaws in people's reasoning about data and the likelihood of events.
Generic skills	Students with a breadth of knowledge across disciplines must be able to understand and critically evaluate the methodologies and research findings based on data. <i>Critical thinking with data</i> aims to provide students with these critical thinking skills. It will be important for any student wishing to develop generic research and problem-solving skills. The subject will expose students to the application of data-based evidence across a range of disciplines, and contribute to their developing interdisciplinary understanding.
Special computer requirements <i>(if applicable)</i>	Not applicable
Special computer skills required <i>(if applicable)</i>	Not applicable
Resources provided to distance students <i>(applicable only to distance education subjects)</i>	Not applicable