

DS 1000 (Data Science Concepts)
Section 001
Fall 2022/2023 Course Outline

1. Course Information

Course Information

Instructor

			<ul style="list-style-type: none"> - Measuring linear correlation (Pearson's correlation coefficient) 	<ul style="list-style-type: none"> - Linear correlation (Python function for Pearson's correlation)
6	Oct 10-14	5 Sections: 5.1, 5.2, 5.4 to 5.8	<ul style="list-style-type: none"> - Regression lines - Leastsquares regression lines - Examples of software regression output - Caution about correlation and regression - Association does not imply causation 	<ul style="list-style-type: none"> - Leastsquares regression fit - Interpretation of result table
7	Oct 17-21	6 Sections: 6.1-6.3	<ul style="list-style-type: none"> - Two-way contingency table - Relative risk, odds ratio - Simpson's Paradox 	<ul style="list-style-type: none"> - From raw data to two way table - Computing conditional and marginal proportions - Relative risk, odds ratio - Mosaic plot - Assig. 2 due Oct 21
8	Oct 24-28	8 Sections: 8.1 to 8.7	<ul style="list-style-type: none"> - Sampling 	
9	Oct 31-Nov 4	Reading Week		
10	Nov 7-11	9 Sections: 9.1 to 9.7	<ul style="list-style-type: none"> - Observational studies versus random experiments 	<ul style="list-style-type: none"> - Generating samples
11	Nov 14-18	12 Sections: 12.1, 12.3 to 12.7	<ul style="list-style-type: none"> - Introduction to probability 	<ul style="list-style-type: none"> - Assig. 3 due Nov 18
12	Nov 21-25	13 Sections: 13.1 to 13.6	<ul style="list-style-type: none"> - Rules of probability - Addition - Independence and the multiplication rule - Conditional probability - Venn diagrams - Tree diagrams 	<ul style="list-style-type: none"> - Venn diagram
13	Nov 28-Dec 2	15 Sections: 15.1 to 15.6	<ul style="list-style-type: none"> - Sampling distributions - Mean sampling distribution - Central limit theorem - Statistical significance 	<ul style="list-style-type: none"> - Mean sampling distribution
14	Dec 5-8	16 Sections: 16.1 to 16.4, 32	<ul style="list-style-type: none"> - Quantifying estimation uncertainty - Confidence intervals (Cis) for a population mean - Bootstrap confidence intervals 	<ul style="list-style-type: none"> - Building normal based Cis - Bootstrap samples - Bootstrap Cis - Assign 4. Due Dec 8

Sections:

Technical Requirements

Laboratory tutorials

Python and Jupyter Notebook are the main tools for laboratory tutorials. Instructions on how to install

Midterm and final exams

- There will be a 2-hour in-person closedbook midterm exam, and its time will be scheduled by the Registrar's Office.
- There will be a 3-hour in-person closedbook final exam, and its time will be scheduled by the Registrar's Office.

Rounding of marks

Across the Sciences Undergraduate Education programs, we strive to maintain high standards that reflect

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf

Clickers, specifically iClicker will be used in this class for instant feedback and graded assessments. Clickers will not be used for any marks towards the course.

Professionalism & Privacy

Western students are expected to follow ~~Student~~ Student Code of Conduct (<https://www.uwo.ca/univsec/pdf/board/code.pdf>). Additionally, the following expectations and professional conduct apply to this course:

All course materials created by the instructor(s) are copyrighted and cannot be sold/shared

Recordings are not permitted (audio or video) without explicit permission

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is offered throughout the Fall/Winter terms in the drop Learning Help Centre, and year-round through individual counselling.

Additional student