1. Exploring One-Variable Data

Weeks 1–4

探索单变量数据

They should be able to

1. Identify questions to be answered, based on variation in one-variable data. [Skill 1.A]
2. Identify variables in a set of data. [Skill 2.A]
3. Classify types of variables. [Skill 2.A]
4. Represent categorical data using frequency or relative frequency tables. [Skill 2.B]
5. Describe categorical data represented in frequency or relative tables. [Skill 2.A]
6. Represent categorical data graphically. [Skill 2.B]
7. Describe categorical data represented graphically. [Skill 2.A]
8. Compare multiple sets of categorical data. [Skill 2.D]
9. Classify types of quantitative variables. [Skill 2.A]
10. Represent quantitative data graphically. [Skill 2.B]
11. Describe the characteristics of quantitative data distributions. [Skill 2.A]
12. Calculate measures of center and position for quantitative data. [Skill 2.C]
13. Calculate measures of variability for quantitative data. [Skill 2.C]
14. Explain the selection of a particular measure of center and/or variability for describing a set of quantitative data. [Skill 4.B]
15. Represent summary statistics for quantitative data graphically. [Skill 2.B]
16. Describe summary statistics of quantitative data represented graphically. [Skill 2.A]
17. Compare graphical representations for multiple sets of quantitative data. [Skill 2.D]
18. Compare summary statistics for multiple sets of quantitative data. [Skill 2.D]
19. Compare a data distribution to the normal distribution model. [Skill 2.D]
20. Determine proportions and percentiles from a normal distribution. [Skill 3.A]
21. Compare measures of relative position in data sets. [Skill 2.D]

Stage	Use	Your notes
Starter 10 min · retrieval practice	Topic quiz 01 (10 questions, answers on sheet 2)	
Teach the new content	Handout 01 Slide deck 01 Vocabulary list 01	
Practice guided then independent	Exercise sheets 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10 Past-paper sheets 1.6, 1.7, 1.8, 1.9, 1.10	
Check before they leave	Unit test 1 (with mark scheme)	
Homework set from the Library	Any unused exercise sheet above Holiday homework pack	

2. Exploring Two-Variable Data

Weeks 5–8

探索双变量数据

They should be able to

1. Identify questions to be answered about possible relationships in data. [Skill 1.A]
2. Compare numerical and graphical representations for two categorical variables. [Skill 2.D]
3. Calculate statistics for two categorical variables. [Skill 2.C]
4. Compare statistics for two categorical variables. [Skill 2.D]
5. Represent bivariate quantitative data using scatterplots. [Skill 2.B]
6. Describe the characteristics of a scatter plot. [Skill 2.A]
7. Determine the correlation for a linear relationship. [Skill 2.C]
8. Interpret the correlation for a linear relationship. [Skill 4.B]
9. Calculate a predicted response value using a linear regression model. [Skill 2.C]
10. Represent differences between measured and predicted responses using residual plots. [Skill 2.B]
11. Describe the form of association of bivariate data using residual plots. [Skill 2.A]
12. Estimate parameters for the least-squares regression line model. [Skill 2.C]
13. Interpret coefficients for the least-squares regression line model. [Skill 4.B]
14. Identify influential points in regression. [Skill 2.A]
15. Calculate a predicted response using a least-squares regression line for a transformed data set. [Skill 2.C]

Stage	Use	Your notes
Starter 10 min · retrieval practice	Topic quiz 02 (10 questions, answers on sheet 2)	
Teach the new content	Handout 02 Slide deck 02 Vocabulary list 02	
Practice guided then independent	Exercise sheets 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9 Past-paper sheets 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9	
Check before they leave	Unit test 2 (with mark scheme)	
Homework set from the Library	Any unused exercise sheet above Holiday homework pack	

3. Collecting Data

Weeks 9–12

收集数据

They should be able to

1. Identify questions to be answered about data collection methods. [Skill 1.A]
2. Identify the type of a study. [Skill 1.C]
3. Identify appropriate generalizations and determinations based on observational studies. [Skill 4.A]
4. Identify a sampling method, given a description of a study. [Skill 1.C]
5. Explain why a particular sampling method is or is not appropriate for a given situation. [Skill 1.C]
6. Identify potential sources of bias in sampling methods. [Skill 1.C]
7. Identify the components of an experiment. [Skill 1.C]
8. Describe elements of a well-designed experiment. [Skill 1.B]
9. Compare experimental designs and methods. [Skill 1.C]
10. Explain why a particular experimental design is appropriate. [Skill 1.C]
11. Interpret the results of a well-designed experiment. [Skill 4.B]

Stage	Use	Your notes
Starter 10 min · retrieval practice	Topic quiz 03 (10 questions, answers on sheet 2)	
Teach the new content	Handout 03 Slide deck 03 Vocabulary list 03	
Practice guided then independent	Exercise sheets 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7 Past-paper sheets 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7	
Check before they leave	Unit test 3 (with mark scheme)	
Homework set from the Library	Any unused exercise sheet above Holiday homework pack	

4. Probability, Random Variables, and Probability Distributions **Weeks 13–16**

概率、随机变量与概率分布

They should be able to

1. Identify questions suggested by patterns in data. [Skill 1.A]
2. Estimate probabilities using simulation. [Skill 3.A]
3. Calculate probabilities for events and their complements. [Skill 3.A]
4. Interpret probabilities for events. [Skill 4.B]
5. Explain why two events are (or are not) mutually exclusive. [Skill 4.B]
6. Calculate conditional probabilities. [Skill 3.A]
7. Calculate probabilities for independent events and for the union of two events. [Skill 3.A]
8. Represent the probability distribution for a discrete random variable. [Skill 2.B]
9. Interpret a probability distribution. [Skill 4.B]
10. Calculate parameters for a discrete random variable. [Skill 3.B]
11. Interpret parameters for a discrete random variable. [Skill 4.B]
12. Calculate parameters for linear combinations of random variables. [Skill 3.B]
13. Describe the effects of linear transformations of parameters of random variables. [Skill 3.C]
14. Estimate probabilities of binomial random variables using data from a simulation. [Skill 3.A]
15. Calculate probabilities for a binomial distribution. [Skill 3.A]
16. Calculate parameters for a binomial distribution. [Skill 3.B]
17. Interpret probabilities and parameters for a binomial distribution. [Skill 4.B]
18. Calculate probabilities for geometric random variables. [Skill 3.A]
19. Calculate parameters of a geometric distribution. [Skill 3.B]
20. Interpret probabilities and parameters for a geometric distribution. [Skill 4.B]

Stage	Use	Your notes
Starter 10 min · retrieval practice	Topic quiz 04 (10 questions, answers on sheet 2)	
Teach the new content	Handout 04 Slide deck 04 Vocabulary list 04	
Practice guided then independent	Exercise sheets 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 4.9, 4.10, 4.11, 4.12 Past-paper sheets 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 4.9, 4.10, 4.11, 4.12	
Check before they leave	Unit test 4 (with mark scheme)	
Homework set from the Library	Any unused exercise sheet above Holiday homework pack	

5. Sampling Distributions

Weeks 17–19

抽样分布

They should be able to

1. Identify questions suggested by variation in statistics for samples collected from the same population. [Skill 1.A]
2. Calculate the probability that a particular value lies in a given interval of a normal distribution. [Skill 3.A]
3. Determine the interval associated with a given area in a normal distribution. [Skill 3.A]
4. Determine the appropriateness of using the normal distribution to approximate probabilities for unknown distributions. [Skill 3.C]
5. Estimate sampling distributions using simulation. [Skill 3.C]
6. Explain why an estimator is or is not unbiased. [Skill 4.B]
7. Calculate estimates for a population parameter. [Skill 3.B]
8. Determine parameters of a sampling distribution for sample proportions. [Skill 3.B]
9. Determine whether a sampling distribution for a sample proportion can be described as approximately normal. [Skill 3.C]
10. Interpret probabilities and parameters for a sampling distribution for a sample proportion. [Skill 4.B]
11. Determine parameters of a sampling distribution for a difference in sample proportions. [Skill 3.B]
12. Determine whether a sampling distribution for a difference of sample proportions can be described as approximately normal. [Skill 3.C]
13. Interpret probabilities and parameters for a sampling distribution for a difference in proportions. [Skill 4.B]
14. Determine parameters for a sampling distribution for sample means. [Skill 3.B]
15. Determine whether a sampling distribution of a sample mean can be described as approximately normal. [Skill 3.C]
16. Interpret probabilities and parameters for a sampling distribution for a sample mean. [Skill 4.B]
17. Determine parameters of a sampling distribution for a difference in sample means. [Skill 3.B]
18. Determine whether a sampling distribution of a difference in sample means can be described as approximately normal. [Skill 3.C]
19. Interpret probabilities and parameters for a sampling distribution for a difference in sample means. [Skill 4.B]

Stage	Use	Your notes
Starter 10 min · retrieval practice	Topic quiz 05 (10 questions, answers on sheet 2)	
Teach the new content	Handout 05 Slide deck 05 Vocabulary list 05	
Practice guided then independent	Exercise sheets 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8 Past-paper sheets 5.1, 5.4, 5.7, 5.8	
Check before they leave	Unit test 5 (with mark scheme)	

Stage	Use	Your notes
Homework set from the Library	Any unused exercise sheet above Holiday homework pack	

6. Inference for Categorical Data: Proportions

Weeks 20–23

分类数据的推断：比例

They should be able to

1. Identify questions suggested by variation in the shapes of distributions of samples taken from the same population. [Skill 1.A]
2. Identify an appropriate confidence interval procedure for a population proportion. [Skill 1.D]
3. Verify the conditions for calculating confidence intervals for a population proportion. [Skill 4.C]
4. Determine the margin of error for a given sample size and an estimate for the sample size that will result in a given margin of error for a population proportion. [Skill 3.D]
5. Calculate an appropriate confidence interval for a population proportion. [Skill 3.D]
6. Calculate an interval estimate based on a confidence interval for a population proportion. [Skill 3.D]
7. Interpret a confidence interval for a population proportion. [Skill 4.B]
8. Justify a claim based on a confidence interval for a population proportion. [Skill 4.D]
9. Identify the relationships between sample size, width of a confidence interval, confidence level, and margin of error for a population proportion. [Skill 4.A]
10. Identify the null and alternative hypotheses for a population proportion. [Skill 1.F]
11. Identify an appropriate testing method for a population proportion. [Skill 1.E]
12. Verify the conditions for making statistical inferences when testing a population proportion. [Skill 4.C]
13. Calculate an appropriate test statistic and p-value for a population proportion. [Skill 3.E]
14. Interpret the p-value of a significance test for a population proportion. [Skill 4.B]
15. Justify a claim about the population based on the results of a significance test for a population proportion. [Skill 4.E]
16. Identify Type I and Type II errors. [Skill 1.B]
17. Calculate the probability of a Type I and Type II errors. [Skill 3.A]
18. Identify factors that affect the probability of errors in significance testing. [Skill 4.A]
19. Interpret Type I and Type II errors. [Skill 4.B]
20. Identify an appropriate confidence interval procedure for a comparison of population proportions. [Skill 1.D]
21. Verify the conditions for calculating confidence intervals for a difference between population proportions. [Skill 4.C]
22. Calculate an appropriate confidence interval for a comparison of population proportions. [Skill 3.D]
23. Calculate an interval estimate based on a confidence interval for a difference of proportions. [Skill 3.D]
24. Interpret a confidence interval for a difference of proportions. [Skill 4.B]
25. Justify a claim based on a confidence interval for a difference of proportions. [Skill 4.D]
26. Identify the null and alternative hypotheses for a difference of two population proportions. [Skill 1.F]
27. Identify an appropriate testing method for the difference of two population proportions. [Skill 1.E]
28. Verify the conditions for making statistical inferences when testing a difference of two population proportions. [Skill 4.C]
29. Calculate an appropriate test statistic for the difference of two population proportions. [Skill 3.E]
30. Interpret the p-value of a significance test for a difference of population proportions. [Skill 4.B]
31. Justify a claim about the population based on the results of a significance test for a difference of population proportions. [Skill 4.E]

Stage	Use	Your notes
Starter 10 min · retrieval practice	Topic quiz 06 (10 questions, answers on sheet 2)	
Teach the new content	Handout 06 Slide deck 06 Vocabulary list 06	
Practice guided then independent	Exercise sheets 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8, 6.9, 6.10, 6.11 Past-paper sheets 6.2, 6.3, 6.4, 6.6, 6.7, 6.8, 6.10, 6.11	
Check before they leave	Unit test 6 (with mark scheme)	
Homework set from the Library	Any unused exercise sheet above Holiday homework pack	

7. Inference for Quantitative Data: Means

Weeks 24–26

定量数据的推断：均值

They should be able to

1. Identify questions suggested by probabilities of errors in statistical inference. [Skill 1.A]
2. Describe t-distributions. [Skill 3.C]
3. Identify an appropriate confidence interval procedure for a population mean, including the mean difference between values in matched pairs. [Skill 1.D]
4. Verify the conditions for calculating confidence intervals for a population mean, including the mean difference between values in matched pairs. [Skill 4.C]
5. Determine the margin of error for a given sample size for a one-sample t-interval. [Skill 3.D]
6. Calculate an appropriate confidence interval for a population mean, including the mean difference between values in matched pairs. [Skill 3.D]
7. Interpret a confidence interval for a population mean, including the mean difference between values in matched pairs. [Skill 4.B]
8. Justify a claim based on a confidence interval for a population mean, including the mean difference between values in matched pairs. [Skill 4.D]
9. Identify the relationships between sample size, width of a confidence interval, confidence level, and margin of error for a population mean. [Skill 4.A]
10. Identify an appropriate testing method for a population mean with unknown σ, including the mean difference between values in matched pairs. [Skill 1.E]
11. Identify the null and alternative hypotheses for a population mean with unknown σ, including the mean difference between values in matched pairs. [Skill 1.F]
12. Verify the conditions for the test for a population mean, including the mean difference between values in matched pairs. [Skill 4.C]
13. Calculate an appropriate test statistic for a population mean, including the mean difference between values in matched pairs. [Skill 3.E]
14. Interpret the p-value of a significance test for a population mean, including the mean difference between values in matched pairs. [Skill 4.B]
15. Justify a claim about the population based on the results of a significance test for a population mean. [Skill 4.E]
16. Identify an appropriate confidence interval procedure for a difference of two population means. [Skill 1.D]
17. Verify the conditions to calculate confidence intervals for the difference of two population means. [Skill 4.C]
18. Determine the margin of error for the difference of two population means. [Skill 3.D]
19. Calculate an appropriate confidence interval for a difference of two population means. [Skill 3.D]
20. Interpret a confidence interval for a difference of population means. [Skill 4.B]
21. Justify a claim based on a confidence interval for a difference of population means. [Skill 4.D]
22. Identify the effects of sample size on the width of a confidence interval for the difference of two means. [Skill 4.A]
23. Identify an appropriate selection of a testing method for a difference of two population means. [Skill 1.E]
24. Identify the null and alternative hypotheses for a difference of two population means. [Skill 1.F]
25. Verify the conditions for the significance test for the difference of two population means. [Skill 4.C]
26. Calculate an appropriate test statistic for a difference of two means. [Skill 3.E]
27. Interpret the p-value of a significance test for a difference of population means. [Skill 4.B]
28. Justify a claim about the population based on the results of a significance test for a difference of two population means in context. [Skill 4.E]

Stage	Use	Your notes
Starter 10 min · retrieval practice	Topic quiz 07 (10 questions, answers on sheet 2)	
Teach the new content	Handout 07 Slide deck 07 Vocabulary list 07	
Practice guided then independent	Exercise sheets 7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 7.7, 7.8, 7.9, 7.10 Past-paper sheets 7.2, 7.3, 7.4, 7.5, 7.8, 7.9	
Check before they leave	Unit test 7 (with mark scheme)	
Homework set from the Library	Any unused exercise sheet above Holiday homework pack	

8. Inference for Categorical Data: Chi-Square

Weeks 27–28

分类数据的推断：卡方

They should be able to

1. Identify questions suggested by variation between observed and expected counts in categorical data. [Skill 1.A]
2. Describe chi-square distributions. [Skill 3.C]
3. Identify the null and alternative hypotheses in a test for a distribution of proportions in a set of categorical data. [Skill 1.F]
4. Identify an appropriate testing method for a distribution of proportions in a set of categorical data. [Skill 1.E]
5. Calculate expected counts for the chi-square test for goodness of fit. [Skill 3.A]
6. Verify the conditions for making statistical inferences when testing goodness of fit for a chi-square distribution. [Skill 4.C]
7. Calculate the appropriate statistic for the chi-square test for goodness of fit. [Skill 3.E]
8. Determine the p-value for chi-square test for goodness of fit significance test. [Skill 3.E]
9. Interpret the p-value for the chi-square test for goodness of fit. [Skill 4.B]
10. Justify a claim about the population based on the results of a chi-square test for goodness of fit. [Skill 4.E]
11. Calculate expected counts for two-way tables of categorical data. [Skill 3.A]
12. Identify the null and alternative hypotheses for a chi-square test for homogeneity or independence. [Skill 1.F]
13. Identify an appropriate testing method for comparing distributions in two-way tables of categorical data. [Skill 1.E]
14. Verify the conditions for making statistical inferences when testing a chi-square distribution for independence or homogeneity. [Skill 4.C]
15. Calculate the appropriate statistic for a chi-square test for homogeneity or independence. [Skill 3.E]
16. Determine the p-value for a chi-square significance test for independence or homogeneity. [Skill 3.E]
17. Interpret the p-value for the chi-square test for homogeneity or independence. [Skill 4.B]
18. Justify a claim about the population based on the results of a chi-square test for homogeneity or independence. [Skill 4.E]

Stage	Use	Your notes
Starter 10 min · retrieval practice	Topic quiz 08 (10 questions, answers on sheet 2)	
Teach the new content	Handout 08 Slide deck 08 Vocabulary list 08	
Practice guided then independent	Exercise sheets 8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 8.7 Past-paper sheets 8.5, 8.6	
Check before they leave	Unit test 8 (with mark scheme)	
Homework set from the Library	Any unused exercise sheet above Holiday homework pack	

9. Inference for Quantitative Data: Slopes

Weeks 29–30

定量数据的推断：斜率

They should be able to

1. Identify questions suggested by variation in scatter plots. [Skill 1.A]
2. Identify an appropriate confidence interval procedure for a slope of a regression model. [Skill 1.D]
3. Verify the conditions to calculate confidence intervals for the slope of a regression model. [Skill 4.C]
4. Determine the given margin of error for the slope of a regression model. [Skill 3.D]
5. Calculate an appropriate confidence interval for the slope of a regression model. [Skill 3.D]
6. Interpret a confidence interval for the slope of a regression model. [Skill 4.B]
7. Justify a claim based on a confidence interval for the slope of a regression model. [Skill 4.D]
8. Identify the effects of sample size on the width of a confidence interval for the slope of a regression model. [Skill 4.A]
9. Identify the appropriate selection of a testing method for a slope of a regression model. [Skill 1.E]
10. Identify appropriate null and alternative hypotheses for a slope of a regression model. [Skill 1.F]
11. Verify the conditions for the significance test for the slope of a regression model. [Skill 4.C]
12. Calculate an appropriate test statistic for the slope of a regression model. [Skill 3.E]
13. Interpret the p-value of a significance test for the slope of a regression model. [Skill 4.B]
14. Justify a claim about the population based on the results of a significance test for the slope of a regression model. [Skill 4.E]

Stage	Use	Your notes
Starter 10 min · retrieval practice	Topic quiz 09 (10 questions, answers on sheet 2)	
Teach the new content	Handout 09 Slide deck 09 Vocabulary list 09	
Practice guided then independent	Exercise sheets 9.1, 9.2, 9.3, 9.4, 9.5, 9.6 Past-paper sheets 9.2, 9.5	
Check before they leave	*nothing in the Library for this stage yet*	
Homework set from the Library	Any unused exercise sheet above Holiday homework pack	