

Curriculum Guide Statistics

Unit 1: Exploring and Understanding Data

Biblical Worldview Essential Questions:
What are examples of data God gives in the Bible?

18 Lessons (4 weeks)

S#1, S#2, S#3, S#4

Objectives	Methods	Resources	Assessment
The students will <ol style="list-style-type: none">1. Analyze data.2. Distinguish between categorical and quantitative variables.3. Understand and use various ways of displaying categorical data.4. Understand and use various ways of displaying quantitative data.5. Compare and contrast two or more sets of data using boxplots.6. Use and understand standard deviation and the Normal model.	<ul style="list-style-type: none">• Watch introductory video by the textbook authors• PowerPoint based lecture with notetaking guide• Teacher demonstration of homework problems.• cooperative learning groups• individual assistance• partner work• homework	<ul style="list-style-type: none">• Stats: modeling the world, 3rd Ed., David E. Bock . . . [et al.]; Pearson Education, 2010	<ul style="list-style-type: none">• check homework• Quizzes• Tests• Oral response• Student project

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Unit 2: Exploring Relationships Between Variables

Biblical Worldview Essential Questions:

Does prayer lower blood pressure?

<https://www.chegg.com/homework-help/case-study-15-p-4-called-prayer-lower-blood-pressure-one-res-chapter-4-problem-32e-solution-9781285463186-exc>

18 Lessons (4 weeks)

S#3, S#10

Objectives	Methods	Resources	Assessment
<p>The students will</p> <ol style="list-style-type: none"> 1. Create a scatterplot from bivariate data. 2. Understand association between explanatory and response variables. 3. Calculate and interpret correlation between explanatory and response variables. 4. Use technology to find the Least Squares Regression Line (LSRL). 5. Interpret the slope and y-intercept of the LSRL. 6. Create and interpret a residual plot. 7. Understand the concepts of lurking variables and causation as it relates to LSRL. 8. Re-express data in order to use a LSRL. 	<ul style="list-style-type: none"> • Watch introductory video by the textbook authors • PowerPoint based lecture with notetaking guide • Teacher demonstration of homework problems. • cooperative learning groups • individual assistance • partner work • homework 	<ul style="list-style-type: none"> • Stats: modeling the world, 3rd Ed., David E. Bock . . . [et al.]; Pearson Education, 2010 	<ul style="list-style-type: none"> • check homework • Quizzes • Tests • Oral response • Student project

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Unit 3: Gathering Data

Biblical Worldview Essential Questions:

What are the three parts of inductive Bible study?

https://cmf.com/Portals/0/Acrobat/Training/Inductive_Format.pdf

15 Lessons (3 weeks)

S#1, S#2, S#3

Objectives	Methods	Resources	Assessment
The students will <ol style="list-style-type: none">1. Conduct a simulation using randomly generated numbers.2. Investigate statistical sampling methods.3. Distinguish between observational studies and experiments.4. Describe the elements of a statistical experiment.5. Conduct either an observational study or an experiment, and correctly interpret and present the results.	<ul style="list-style-type: none">• Watch introductory video by the textbook authors• PowerPoint based lecture with notetaking guide• Teacher demonstration of homework problems.• cooperative learning groups• individual assistance• partner work• homework	<ul style="list-style-type: none">• Stats: modeling the world, 3rd Ed., David E. Bock . . . [et al.]; Pearson Education, 2010	<ul style="list-style-type: none">• check homework• Quizzes• Tests• Oral response• Student project

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Unit 4: Randomness and Probability

Biblical Worldview Essential Questions:

Does randomness and probability have anything to do with God's purposes and designs?

20 Lessons (3 weeks)

S#4, S#5, S#6

Objectives	Methods	Resources	Assessment
The students will 1. Understand and use basic rules of probability. 2. Use Venn diagrams, probability tables, and tree diagrams to determine probabilities. 3. Calculate expected values of random variables. 4. Calculate binomial and geometric probabilities. 5. Use a Normal approximation to a binomial model	<ul style="list-style-type: none">• Watch introductory video by the textbook authors• PowerPoint based lecture with notetaking guide• Teacher demonstration of homework problems.• cooperative learning groups• individual assistance• partner work• homework	<ul style="list-style-type: none">• Stats: modeling the world, 3rd Ed., David E. Bock . . . [et al.]; Pearson Education, 2010	<ul style="list-style-type: none">• check homework• Quizzes• Tests• Oral response• Student project

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Unit 5: Inferences About Proportions

Biblical Worldview Essential Questions:

Can we make inferences from the proportions found in the Bible, such as in the construction of Noah's Ark and of the tabernacle?

25 Lessons (5 weeks)

S#3, S#7, S#8, S#9

Objectives	Methods	Resources	Assessment
<p>The students will</p> <ol style="list-style-type: none"> 1. Describe and use a sampling distribution model. 2. Understand and use the Central Limit Theorem. 3. Calculate and interpret confidence intervals for proportions and means. 4. Conduct a one proportion Z-test. 5. Calculate and interpret Type I and Type II errors and the power of a test. 6. Conduct a two proportion Z-test. 	<ul style="list-style-type: none"> • Watch introductory video by the textbook authors • PowerPoint based lecture with notetaking guide • Teacher demonstration of homework problems. • cooperative learning groups • individual assistance • partner work • homework 	<ul style="list-style-type: none"> • Stats: modeling the world, 3rd Ed., David E. Bock . . . [et al.]; Pearson Education, 2010 	<ul style="list-style-type: none"> • check homework • Quizzes • Tests • Oral response • Student project

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Unit 6: Inferences About Means

Biblical Worldview Essential Questions:

Can we make inferences from the means found in the Bible, such as in the number of years in each of the seven dispensations?

<http://www.thebookwurm.com/dispchrt.htm>

11 Lessons (2 weeks)

S#7, S#8, S#9

Objectives	Methods	Resources	Assessment
The students will 1. Use the T-distribution instead of the Normal distribution model. 2. Calculate the one-sample T-interval for means. 3. Conduct a one-sample T-test for the means. 4. Conduct a two-sample T-test for unpaired means. 5. Conduct a matched-pairs T-test for the means.	<ul style="list-style-type: none">• Watch introductory video by the textbook authors• PowerPoint based lecture with notetaking guide• Teacher demonstration of homework problems.• cooperative learning groups• individual assistance• partner work• homework	<ul style="list-style-type: none">• Stats: modeling the world, 3rd Ed., David E. Bock . . . [et al.]; Pearson Education, 2010	<ul style="list-style-type: none">• check homework• Quizzes• Tests• Oral response• Student project

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Unit 7: Inference When Variables Are Related

Biblical Worldview Essential Questions:

Why did the lifespans of the patriarchs from Noah to Joseph decrease exponentially?

10 Lessons (2 weeks)

S#9, S#10

Objectives	Methods	Resources	Assessment
The students will 1. Use the Chi-square distribution. 2. Perform a Chi-square test of goodness of fit. 3. Perform a Chi-square test for homogeneity. 4. Perform a Chi-square test of independence. 5. Construct a T-interval for the slope of a LSRL. 6. Conduct a T-test for the slope of the LSRL. 7. Read and interpret computer output for a T-test for the slope of the LSRL.	<ul style="list-style-type: none">• Watch introductory video by the textbook authors• PowerPoint based lecture with notetaking guide• Teacher demonstration of homework problems.• cooperative learning groups• individual assistance• partner work• homework	<ul style="list-style-type: none">• Stats: modeling the world, 3rd Ed., David E. Bock . . . [et al.]; Pearson Education, 2010	<ul style="list-style-type: none">• check homework• Quizzes• Tests• Oral response• Student project