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**Course Description**

**Statistical Reasoning** is a fourth mathematics course option for students who have completed Algebra II, Advanced Algebra, Accelerated Geometry B/Algebra II, or Accelerated Analytic Geometry B/Advanced Algebra. The course provides experiences in statistics beyond the GSE sequence of courses, offering students opportunities to strengthen their understanding of the statistical method of inquiry and statistical simulations. Students will formulate statistical questions to be answered using data, will design and implement a plan to collect the appropriate data, will select appropriate graphical and numerical methods for data analysis, and will interpret their results to make connections with the initial question. The Standards for Mathematical Practice through a Statistical Lens will provide the foundation for instruction and assessment. Topics should be introduced and assessed using simulations and appropriate supporting technology.

Content Area Standards:

The standards addressed in this course fall under the following subject are strands:

* Statistical problem-solving process
* Formulating questions
* Collecting data
* The role of random-ness
* Analyzing data
* Comparing distributions
* Bivariate comparisons
* Interpreting results and inference
* Simulations and margin of error
* Simulations and p-value
* Creating experiments and culminating projects

A more detailed description of the standards addressed in each unit can be found at www.georgiastandards.org

Standards for Mathematical Practice:

* Make sense of problems and persevere in solving them.
* Reason abstractly and quantitatively.
* Construct viable arguments and critique the reasoning of others.
* Model with Mathematics.
* Use appropriate tools strategically.
* Attend to precision.
* Look for and make use of structure.
* Look for and express regularity in repeating reason.

**Statistical Reasoning Unit Schedule**

\*\*Time spent on each unit is an approximation;

Some units may need less time, and some may need more time\*\*

**Unit 1**: Statistical problem-solving process 1.5 weeks 5%

**Unit 2**: Formulating questions 1.5 weeks 5%

**Unit 3**: Collecting data 1.5 weeks 5%

**Unit 4**: The role of random-ness 1.5 weeks 5%

**Unit 5**: Analyzing data 1.5 week 5%

**Midterm** **Exam**: ---------- 5%

**Unit 6**: Comparing distributions 1.5 weeks 5%

**Unit 7**: Bivariate comparisons  1.5 weeks 5%

**Unit 8**: Interpreting results and inference 1.5 weeks 10%

**Unit 9:** Simulations and margin of error 1.5 weeks 10%

Unit 10: Simulations and p-value 1.5 weeks 15%

Unit 11: Creating experiments and culminating projects 1.5 weeks 15%

**Final Exam:** 1.5 week 10%

More info on standards for these units can be found at

**https://www.georgiastandards.org**

**Grading Policy/Grade Improvement**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Grading Rubric** | |  |  |  |
| 4 | Uses appropriate concepts and correct answer is generated (e.g. calculation, figures, diagrams, graphs, tables, etc.).  Uses a strategy that leads to a solution of the problem.  All necessary work is shown and is neat and readable.  Mathematical representation is actively used as a means of communicating ideas related to the solution of the problem.  (Correct answer and associated work shown) | | | | |
| 3 | There is appropriate use of accurate mathematical representation.  Uses a strategy that leads to a solution of the problem that is not correct due to calculation errors or careless mistakes.  All necessary work is shown but work is sloppy but readable.  (May have correct answer, Unfinished work or not simplified, or calculation mistakes) | | | | |
| 2 | Uses a strategy that is partially useful, leading some way toward a solution, but not to a full solution of the problem.  Work is sloppy or questions are not discernable. Work is incomplete or explanation may not be clearly presented.  (May show some correct work but no correct answer and work is sloppy or incorrect) | | | | |
| 1 | Answers only or answers left blank.  The solution doesn't address any of the mathematical components presented in the problem. Work is sloppy work and questions are not discernable.  There is no use or inappropriate use of mathematical representations (e.g. figures, diagrams, graphs, tables, etc.). | | | | |
| 0 | No solution generated |  | | |  |

Assessments are graded by standard. Problems in the assessments will be graded on a 4-point scale. Short assessments will be given throughout the unit and tests will be given at the end of each unit. Multiple short assessments may be given at one time, but they will be graded separately. The most important thing is that the student understands the material.

**YOU ARE ONLY ALLOWED TO RETAKE ASSESSMENTS OR IMPROVE YOUR GRADE AFTER PROVING THAT YOU HAVE WORKED ON YOUR OWN.**

**Grading Scale**

90 – 100 % A

80 – 89 % B

74 – 79 % C

70 – 73 % D

69 & below F

**Academic Expectations**

* Come to class every day on time prepared with all materials necessary for learning
* Review/Study every night, which includes the concepts you understand and concepts you do not understand
* Be respectful of your classmates’ questions and opinions
* Participate in your own learning by asking questions

**Classroom Expectations**

Information on classroom expectations can be found in your classroom’s *Class Rules wall.*

**Tutoring/Grade Improvement**

Tutoring will be available by appointment only and through online sources. See your teacher for more information. All material covered in the units are eligible for grade improvement at any time during the semester. By demonstrating mastery of the standard, the student can increase any and all grades in the gradebook.

**Absences**

If you are absent from school for ANY reason, it is THE STUDENT’S RESPONSIBILITY to get any materials/notes/HW that was missed on the absent day. Any missed quizzes or tests will be assigned a grade of zero until the assignment is completed in tutoring. Students have one week to make up missed assignments following return to school after an absence. Students should check their Office 365 file for missed assignments and work that was returned.

**Cell Phones/Electronic Devices**

While cell phones and other electronics can be an important communication and safety device for families, their use during the school day is prohibited and can be quite disruptive. Cell phones or other unauthorized electronic devices that are visible or audible during the school day will be confiscated.

**SUPPLIES NEEDED**

To improve organizational skills, we require the following supplies:

* **Interactive Notebook**
* **#2 Pencils**
* **Erasers**
* **Graph paper**
* **Loose leaf lined paper**
* **TI-30XS or TI- INSPIRE or TI-84 Calculator**