



# Tohoku International School

## Secondary School Course Syllabus

<b>Course Title:</b> Statistics and Probability	<b>Teacher:</b> Mr. Zane Clifford <b>Email:</b> zclifford@tisweb.net
<b>Grade Levels:</b> Grade 11 - 12	<b>Time Frame:</b> 37 weeks
<b>Course Description:</b> <p>The key concepts in Statistics and Probability are measurement, modeling, and working with data (collecting, analyzing, and communicating). This course explores in greater depth many of the concepts already encountered in Grade 8 Math, Algebra, and Geometry. Students who complete this course successfully should be ready to take Trigonometry and Math Analysis or other higher math courses in college.</p> <p>This course will prepare students for success in college, and in their careers and daily lives in the 21<sup>st</sup> century. Students will develop their abilities to understand and solve mathematical problems, think critically, and communicate ideas clearly. As students explore the material presented in this course, they should begin to see the connections and applications between mathematics and the world around them.</p>	
<b>Course Philosophy:</b> <p>What is Statistics and Probability?</p> <p>In what areas of society is mathematics used in a practical way? How is a country's census information collected, analyzed, and utilized? How is education data used to investigate the link between the level of education and patterns of creating families and fertility? Can the wording of a survey question and the way the data are presented introduce bias? Are exit polls a good way of predicting the results of an election? This is why we study Statistics and Probability. Examining these types of questions can lead students to a better understanding of the importance of the branch of mathematics known as statistics and the role it can play in our lives.</p>	
<b>Course Objectives:</b> <p>By the end of this course, students will be able to:</p> <ul style="list-style-type: none"><li>• Explain and solve various mathematical concepts through tables, equations, graphs and diagrams</li><li>• Apply various statistical formulae and concepts to real world contexts</li><li>• Solve and evaluate questions using a variety of statistical tools and methods</li><li>• Construct, evaluate and interpret data</li><li>• Identify various features and solve problems related to the field of Statistics</li><li>• Identify various features and solve problems related to the field of Probability</li></ul>	
<b>Units of Study:</b> <ul style="list-style-type: none"><li>• Number and Algebra</li><li>• Descriptive Statistics</li><li>• Probability</li><li>• Data Analysis and Statistics</li><li>• Math Project</li></ul>	

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*A community of learners preparing for life in an evolving global society*

## Statistics and Probability (Cont'd)

### Assessments

#### Project – 15%

Each student will be expected to complete a major project at the end of the school year. The project is an opportunity to show that the student can apply mathematics to an area that interests him/her. A good project should be clear and easily understood by a non-mathematician, and self-explanatory all the way through. Students will present their projects to each other in class. More detailed information, including criteria for grading, will be provided later this school year.

#### Quizzes – 20%

Students should expect several quizzes per unit. They will always be announced in advance. Students may use their graphing calculator and math notebook on most quizzes. When a quiz is returned to a student, s/he has the option of revising any mistakes on that quiz, re-submitting it, and receiving up to half the points missed. Students will have **one week** to submit revisions.

#### Tests – 40%

At the end of each chapter or unit of study, there will be a test to assess each student's understanding. They will always be announced in advance. Students may use their graphing calculator and math notebook on most tests. When a test is returned to a student, s/he has the option of revising any mistakes on that test, re-submitting it, and receiving up to half the points missed. Students will have **one week** to submit revisions.

#### Final Exam – 15%

At the end of each semester, there will be a 90-minute exam on all of the major topics covered during that term. Students may use their graphing calculator and one page (A4 size) of handwritten notes, front and back. Their page of notes will be turned in along with their exam.

#### Learning Skills – 10%

Attendance, organization, homework completion and the ability to take initiative and work independently and in groups all play a role in student success and are important for achieving the course expectations.

### Course Specific Materials Required

- Graphing calculator (TI-84 Plus or equivalent)
- Pencils, erasers, etc.
- Graph paper notebook
- Homework/handout folder
- Ruler/straightedge
- Textbooks: Mathematical Studies (Standard Level), by Blythe, Fensom, Forrest, and Waldman  
Big Ideas Math: Algebra 2 by Larson, Boswell  
Integrated Mathematics 3 by Rubenstein, Craine and Butts