# Course Outline – Seattle Central Community College

<table>
<thead>
<tr>
<th>Course Prefix &amp; No.:</th>
<th>Title:</th>
<th>Credits:</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 091</td>
<td>Descriptive Statistics with Algebra I</td>
<td>5</td>
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<table>
<thead>
<tr>
<th>Division:</th>
<th>Program/Department:</th>
</tr>
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<tbody>
<tr>
<td>Science &amp; Math</td>
<td>Mathematics</td>
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<thead>
<tr>
<th>Maximum Class Size:</th>
<th>Course length:</th>
<th>Prerequisite(s):</th>
</tr>
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<tbody>
<tr>
<td>32</td>
<td>11 weeks</td>
<td>In last 3 years: Placement Test Score into MATH 084</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Please see &quot;Additional Information&quot; below!</td>
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<thead>
<tr>
<th>Total Contact Hours:</th>
<th>Mode(s) of Delivery:</th>
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<tbody>
<tr>
<td>55</td>
<td>On campus self-contained</td>
</tr>
<tr>
<td>Lecture: 55 (11 h. = 1 cr.)</td>
<td>Correspondence</td>
</tr>
<tr>
<td>Lab: (supervised; 22 hrs.=1 cr.)</td>
<td>Tele-course</td>
</tr>
<tr>
<td>Clinical:</td>
<td>Online instruction</td>
</tr>
<tr>
<td>Other:</td>
<td>Hybrid (e.g., online and on campus)</td>
</tr>
<tr>
<td>(unsupervised; 33 hrs. = 1 cr.)</td>
<td>Other (please describe):</td>
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## Course Description
This course provides an introduction to statistics and algebra for non-STEM majors and is based on the Statway ™ curriculum for teaching statistics with integrated algebra. This is the first quarter of three in the STATWAY sequence. This sequence covers concepts and methods of statistics with an emphasis on data analysis. Topics for this course include methods for collecting data, graphical and numerical descriptive statistics, correlation, simple linear regression. Application problems will be taken from the fields such as business, economics, medicine, engineering, education, psychology, sociology and from culturally diverse situations. This sequence is recommended for students with majors that require no mathematics beyond freshman-level statistics. Completion of the MATH091, MATH092, and MATH136 sequence is equivalent to finishing a college level statistics course (such as MATH109 or MATH&146).

## Learning Outcomes
As a result of taking this course, students will be able to:
- Summarize and describe data graphically using dot plots, histograms, data plots, scatterplots and boxplots
- Summarize and describe data numerically using mean, median, standard deviation and quartiles
- Analyze linear data graphically, numerically and symbolically
- Examine, use, and interpret bivariate data
- Identify the pitfalls of bad sampling methods; use real-life data sets to discuss and identify good sampling techniques
- Discuss mathematical problems and write solutions in accurate mathematical language and notation
- Interpret mathematical solutions

## Program/Degree Outcomes
This course addresses the following program or degree outcomes:
- Have knowledge and skills in critical thinking and quantitative analysis
- Have effective skills for in-person interactions with individuals and within
- Understand methods and modes of inquiry specific to mathematics
- Demonstrate effective oral and written communication, teamwork and collaboration in mathematical settings
- Demonstrate academic honesty and ethical behavior

**Topical Outline and/or Major Divisions**

This course covers the following topics:

1. **Examine statistical studies and discuss an overview of the data analysis process**
   - Types of statistical studies
     - Observational vs. Experimental
   - Sampling methodologies
   - Experimental design
   - Data analysis process

2. **Analyze data graphically and numerically.**
   - Graphical displays
   - Measures of center
   - Measure of variability
   - Measures of relative standing
   - Comparing distributions
   - Numeracy. Topics may include but is not limited to the following:
     - Absolute difference
     - Relative difference
     - Units
     - Proportional reasoning
     - Square root of a number
     - Exponents
     - Scientific notation

3. **Examine, use, and interpret bivariate data**
   - Scatter plots
   - Correlation
   - Linear models
     - Interpret slope
     - Interpret intercepts
     - Evaluate expressions
   - Multiple representations
     - Tables
     - Graphs
     - Symbolic form
   - Linear regression
     - Interpretation
     - Extrapolation
     - Interpolation
   - Explanatory & Response Variables
4. Use appropriate technology as a tool for quantitative analysis.  
   StatCrunch  
   Graphing Calculator  
   Paper & pencil graphing

5. Discuss mathematical problems and write solutions in accurate mathematical language and notation.

6. Interpret mathematical solutions

<table>
<thead>
<tr>
<th>Distribution Area</th>
<th>None of the above/Elective</th>
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<tbody>
<tr>
<td>Additional Information</td>
<td>(1) Students need access to a computer because the textbook is an interactive online workbook. (2) It is also strongly recommended that students are proficient in English having passed English100.</td>
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<tr>
<th>CAC Use Only Special Designation(s)</th>
<th>QSR</th>
<th>IS</th>
<th>C</th>
<th>GS</th>
<th>US</th>
<th>None</th>
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Outline Prepared by: Statway™ Committee  
Date: Nov 2012