STA 2023, ELEMENTARY STATISTICS SYLLABUS  
Fall 2014

INSTRUCTOR: Zachary Foulk, MS  
Phone: 341-3573 (SPC Gibbs math office)  
Office Hours: appointment only (usually before/after class)  
E-mail: Foulk.Zachary@spcollege.edu

ACADEMIC DEPARTMENT: Mathematics  
Dean: Jimmy Chang  
Office: Social Arts Building, Room 215  
Phone: 341-4305

Academic Chairperson: David Kolonoski  
Office: Social Arts Building, Room 215  
Phone: 341-3573

COURSE PREFIX AND NUMBER: STA 2023

COURSE NAME: Elementary Statistics

REQUIRED TEXT: ELEMENTARY STATISTICS by Larson and Farber 6th Ed

REQUIRED MATERIAL: TI-84 Calculator

COURSE DESCRIPTION: Major topics studied: descriptive statistics,  
measures of central tendency and dispersion, probability, probability distributions,  
relative frequency distributions, sampling distributions, binomial distribution,  
normal distribution, the student's t distribution, the Chi-square distribution,  
estimation using confidence intervals, hypothesis testing, linear regression and  
correlation applications.

MEETING INFORMATION:

<table>
<thead>
<tr>
<th>Section</th>
<th>Location</th>
<th>Days</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>828</td>
<td>Gibbs, Social Arts Bldg, Rm SA-238, MW</td>
<td>8:00am-9:15am</td>
<td></td>
</tr>
</tbody>
</table>

1
### COURSE GOALS

1. The student will understand the methods for organizing and describing sets of data.
2. The student will understand how probability is used to make statistical inferences.
3. The student will be familiar with the fundamental concepts of random variable as they apply to statistical inferences.
4. The student will understand how sampling distributions are used to making statistical inferences.
5. The student will be familiar with the fundamental concepts of statistical inference as they apply to problems in other disciplines.
6. The student will understand the basic principles of simple linear regression and correlation and their applications to practical problems in today’s society.
7. The student will understand and apply the basic principles of nonparametric tests (distribution free tests).

### COURSE OBJECTIVES STATED IN PERFORMANCE TERMS:

1. The student will understand the methods for organizing and describing sets of data by:

   a. explaining the most commonly used sampling methods such as random sampling, simple random sampling, stratified random sampling, and cluster sampling.

   b. constructing and interpreting histograms and bar charts.

   c. calculating and interpreting the following measures of central tendency and dispersion from a given data set:

      | Measure       | Description                  |
      |---------------|------------------------------|
      | (1) Mean      |                              |
      | (2) Median    |                              |
      | (3) Mode      |                              |
      | (4) Variance  |                              |
      | (5) Standard deviation |                |
      | (6) Range     |                              |
      | (7) z score   |                              |
      | (8) t-score   |                              |
      | (9) Percentiles |                          |

2. The student will understand how probability is used to make statistical inferences by:

   a. constructing a sample space in order to find the probabilities of a given simple or compound event.
b. calculating probabilities of compound events using The Addition Rule and the Multiplication Rule of probabilities.

c. interpreting Type I (alpha) and Type II (beta) error as probabilities when making statistical inferences.

3. The student will be familiar with the fundamental concepts of random variables as they apply to statistical inferences by:

   a. identifying a random variable as being discrete or continuous.

   b. constructing the probability distribution for a discrete random variable from a given sample space.

   c. calculating the probability of a given event which is a realization of a random variable having a:
      (1) Binomial distribution
      (2) Normal distribution.

4. The student will understand how sampling distributions are used in making statistical inferences by:

   a. defining sampling distribution.

   b. applying the Central Limit Theorem to statistical inference problems.

   c. understanding that other methods, for example non-parametric methods, may apply if the distribution does not meet the stated criteria for the test,

5. The student will be familiar with the fundamental concepts of statistical inference as they apply to problems found in other disciplines by:

   a. stating the following for a hypothesis test:
      (1) the null hypothesis.
      (2) the alternative hypothesis.
      (3) the correct test statistic to be employed.
      (4) the appropriate conclusion for rejecting or failing to reject for a stated level of significance.
      (5) a conclusion or answer to the stated question.
b. estimating population parameters and testing a null hypothesis concerning a parameter using:

(1) the student t distribution applied to population means

(2) the normal distribution applied to population proportions.

(3) the chi-squared distribution.

6. The student will understand the basic principles of simple linear regression and correlation and their applications to practical problems in today's society by:

   a. constructing and interpreting scatterplots.

   b. computing the following from a given set of data points: least squares equation, the Pearson product moment correlation coefficient and the coefficient of determination.

   c. testing a hypothesis concerning the linear relationship between two variables x and y in order to answer the question "are x and y linearly related?"

   d. using the linear regression equation to predict the value of a response variable y given a particular value of a predictor variable x if the linear relationship is significant.

7. The student will understand and apply the basic principles of nonparametric tests (distribution free tests) by:

   a. formulating the null and alternate hypothesis.

   b. calculating the correct test statistic to be employed.

   c. determining the appropriate conclusion for rejecting or failing to reject the null hypothesis for a stated level of significance.

   d. stating a conclusion/answer to the original claim.
PREREQUISITES: MAT 1033 with a grade of “C” or better (recommend MAT 1033, with a grade of “C” or better taken within the last two years), or appropriate score on the SPC mathematics placement test.

ATTENDANCE POLICY

The college-wide attendance policy is included in the Syllabus Addendum http://www.spcollege.edu/webcentral/policies.htm. The policy notes that each instructor is to exercise professional judgment and define “active participation” in class (and therefore “attendance”), and publish that definition in each syllabus. For this class, attendance is defined as:

- Instructors are no longer required or able to withdraw students for any reason.

- The withdrawn student and the withdrawn student’s instructor will receive timely notification through SPC e-mail whenever a withdrawal occurs. This includes student self withdrawals as well as any kind of administrative withdrawal.

- Any student identified by an instructor as not attending at least ONCE during the first two weeks of class will be considered a “No Show” and will be automatically withdrawn with a grade of “W.”

- Students not actively participating in class (such as taking tests or turning in assignments) after the 60 percent point of the term will automatically receive a grade of “WF.”
SPECIAL ACCOMMODATIONS

If you wish to request accommodations as a student with a documented disability, please make an appointment with the Learning Specialist on campus. If you have a documented hearing loss, please contact the Program for the Deaf/Hard of Hearing at 791-2628. If you will need assistance during an emergency classroom evacuation, please contact your campus learning specialist immediately about arrangements for your safety. The Office of Services for Students with Disabilities can be reached at 791-2628 or 791-2710 (CL), 341-4758 (SP/G), 394-6108 (SE) 712-5789 (TS) or 341-4532 (AC).

All testing for students with ANY type of accommodations will be in the Testing Center, Room, AD 110, Administrative Building. Tests must be completed in the time frame designated by the instructor. Students are responsible for making appointments with the Testing Center to take tests within each test time frame. Late testing for ANY reason will result in a score of zero (0). No makeup tests are given for not completing a test with the designated time frame.

COURSE OVERVIEW

I will be lecturing following the textbook “Elementary Statistics” by Larson and Farber. The lectures will cover Chapter 1 thru Chapter 10 as outlined in the course schedule listed at the end of the syllabus. My lectures will emphasize the major concepts in each section. You will need to be able to calculate values manually and with the TI-84 calculator.

GRADING:

There will be 5 in class tests. The LOWEST test score is DROPPED. As such there are NO MAKEUP TESTS.

There are 5 online quizzes, one for each class tests. ALL QUIZZES COUNT TOWARDS YOUR GRADE.

There is NO FINAL EXAM. In place of the exam is a final project/report.

Points available for each graded item are as follows:

<table>
<thead>
<tr>
<th>Category</th>
<th>Max Points each</th>
<th># Required</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test</td>
<td>100</td>
<td>4</td>
<td>400</td>
</tr>
<tr>
<td>Online Quiz</td>
<td>20</td>
<td>5</td>
<td>100</td>
</tr>
<tr>
<td>Final Project</td>
<td>200</td>
<td>1</td>
<td>200</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>700</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
GRADING SCALE:
A = 630 or higher  
B = 560 – 629  
C = 490 – 559  
D = 420 – 489  
F = below 419

FINAL PROJECT: A format guide is posted in ANGEL for the final project. Please read the guides carefully and following all the instructions. If you have any questions, you need to IMMEDIATELY contact me through ANGEL. Do not wait or postpone your questions till the lecture class time as we have a very limited number of lectures for this course.

EXTRA CREDIT: You can earn 10% extra credit for the FINAL PROJECT by turning in the work early. See the course schedule for the due date.

ACADEMIC HONESTY
St. Petersburg College has an Academic Honesty policy. It is your responsibility to be familiar with the policies, rules, and the consequences of violations. Read about the policy at: http://www.spcollege.edu/webcentral/admit/honesty.htm. There is no tolerance for cheating and academic dishonesty. Discipline can range from a zero on that specific assignment to expulsion from the class with a grade of F. Note that copy/pasting published information, whether it's from your textbook or the Internet, without citing your source is plagiarism and violates this policy. Even if you change the words slightly, the ideas are someone else's, so you still have to cite your sources. Cheating, plagiarism, bribery, misrepresentation, conspiracy, and fabrication are defined in Rule 6Hx23-4.461, Student Affairs: Academic Honesty Guidelines, Classroom Behavior.

EMERGENCY PREPAREDNESS
In the event that a hurricane or other natural disaster causes significant damage to St. Petersburg College facilities, you may be provided the opportunity to complete your course work online. Following the event, please visit the college web site for an announcement of the College's plan to resume operations. This syllabus is currently available in ANGEL for your convenience. Log in to ANGEL to confirm that you have access, reporting any difficulty to the SPC Student Technical Call Center at 341-4357 or via email at Onlinehelp@spcollege.edu
CAMPUS SAFETY AND SECURITY

For information on campus safety and security, policies please contact daytime: 341-4657, after 7:30 pm: 791-2560, cell 639-3262. For information on registered sexual offenders on SPC campuses please contact campus security or the Associate Provost’s office. For general information, please go to the state of Florida’s website at http://www3.fdle.state.fl.us/sopu/index.asp

MINOR CHILDREN IN THE CLASSROOM

At NO TIME are students to bring any minor children to the classroom. If a child is brought to the classroom, security personnel will be notified to safely remove the child from the classroom.

STUDENTS’ EXPECTATIONS AND INSTRUCTOR’S EXPECTATIONS

Student Conduct
http://www.spcollege.edu/studentconduct/
http://www.spcollege.edu/ecampus/help/conduct.htm
Student Handbook
http://www.spcollege.edu/uploadedFiles/Students/StudentHandbook.pdf
Student, Faculty and Staff Expectations and Performance Targets
http://www.spcollege.edu/ecampus/help/expectations.htm

STUDENT SURVEY OF INSTRUCTION:

The student survey of instruction is administered in courses each semester. It is designed to improve the quality of instruction at St. Petersburg College. All student responses are confidential and anonymous and will be used solely for the purpose of performance improvement.
CLASSROOM ETIQUETTE/EXPECTATIONS:

1. Please turn off cell phones and beepers **BEFORE** entering the classroom.

2. Keep all conversation brief, quiet, and related to the topic during the lecture. This shows respect to me and the other students.

3. No eating or drinking in the classroom. This is a college policy to minimize any pest problems.

4. If you come in late or need to leave the classroom for personal matters during the lecture, please do so quietly. Let me know if you need to leave early.

5. No sleeping in class. If you can’t stay awake, please leave quietly. Sleeping and snoring in class is very distracting to everyone awake.

6. All students should conduct themselves in a professional matter at all times while in the classroom. All students should respect the instructor, fellow classmates, and any guest speakers at all times while in the classroom. Please do not disturb the class or you will be asked to leave.

TIPS ON PASSING THE COURSE SUCCESSFULLY:

1. Attend the lectures. I attempt to explain ideas the author assumes you know. We will cover a new concept **EVERY** lecture. You miss new information every time you miss a lecture. If you miss a lecture, you are responsible for learning the material presented during that lecture.

2. Read the sections **BEFORE** coming to class. This exposes you to the new concepts so you can follow the lecture and discussion. We will cover the sections as listed in the schedule and my lectures will follow the book. You can help yourself by reading ahead, attempting some of the homework and being prepared with questions on the material presented in class.

3. After each lecture, **DO** the homework **BEFORE** the next lecture. Plan at least 2 hours of study and homework for **EVERY** lecture hour.

4. Ask questions in class. If you don’t understand a concept or application, you need to ask for help right away. Each lecture uses the information presented in previous lectures. If you don’t keep up, it will be difficult for you to understand the new material.
5. Participate in class. We practice many problems during the lectures. If you have difficulty with a problem, ask for help. I can not help if I don’t know where you are having difficulty. Remember, a minimum of 2 hours study for every 1 hour of lecture. This is a minimum of 6 hours of studying EVERY week.

**CALCULATORS:** TI 84 calculators are required for this class.

**ADDITIONAL RESOURCES**

1. Learning Support Commons – SPC Gibbs Technical Building, Room 200 and Downtown Campus, Room 314. Free tutors, lectures on tapes and CDs etc.

2. SPC Mathematics Web Site [http://www.spcollege.edu/math/](http://www.spcollege.edu/math/) has other information to help you.

**STUDENTS’ RESPONSIBILITIES**

1) Students are responsible for **ALL** the requirements, policies, and procedures listed in the course syllabus and published by Saint Petersburg College. Students should email the instructor through ANGEL immediately concerning any questions about syllabus requirements, class policies, class procedures, or college policies.

2) Students are responsible for regularly checking and reading any email postings in ANGEL AND their SPC Student email account. Any college, course, or syllabus changes will be posted in ANGEL.

3) The primary means of communications with the instructor is through the ANGEL email account. The first method students should use to contact the instructor is with an email message in ANGEL. **ALL** other methods are considered secondary. There is no assurance or guarantee the instructor will receive any message sent by **ANY** secondary method.

**SYLLABUS CHANGES**

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<table>
<thead>
<tr>
<th>Lecture - Date</th>
<th>Assignment</th>
<th>Recommended Homework</th>
<th>Due Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – 18 Aug</td>
<td>1.2</td>
<td>1.2: 1-31 odd</td>
<td></td>
</tr>
<tr>
<td>2 – 20 Aug</td>
<td>1.3, 2.1</td>
<td>1.3: 1-37 odd, 2.1: 1-43 odd</td>
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</tr>
<tr>
<td>3 – 25 Aug</td>
<td>2.2, 2.3, 2.4</td>
<td>2.2: 1-10 odd, 2.3: 1-59 odd, 2.4: 1-47 odd</td>
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</tr>
<tr>
<td>4 – 27 Aug</td>
<td>2.4, 2.5</td>
<td>2.5: 1-51 odd</td>
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</tr>
<tr>
<td>5 – 3 Sep</td>
<td>Review Ch 1 &amp; 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 – 8 Sep</td>
<td>Test Ch 1 &amp; 2</td>
<td></td>
<td>Quiz 1, 12:01am</td>
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<tr>
<td>7 – 10 Sep</td>
<td>3.1, 3.2</td>
<td>3.1: 1-77 odd, 3.2: 1-31 odd</td>
<td>Final Project Data Type</td>
</tr>
<tr>
<td>8 – 15 Sep</td>
<td>3.3, 3.4</td>
<td>3.3: 1-25 odd, 3.4: 1-53 odd</td>
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<tr>
<td>9 – 17 Sep</td>
<td>4.1, 4.2</td>
<td>4.1: 1-37 odd, 4.2: 1-31 odd</td>
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<tr>
<td>10 – 22 Sep</td>
<td>Review Ch 3 &amp; 4</td>
<td></td>
<td></td>
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<tr>
<td>11 – 24 Sep</td>
<td>Test Chap 3 &amp; 4</td>
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<td>Quiz 2, 12:01am</td>
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<tr>
<td>12 – 29 Sep</td>
<td>5.1, 5.2</td>
<td>5.1: 1-55 odd, 5.2: 1-19 odd</td>
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<tr>
<td>13 – 1 Oct</td>
<td>5.3, 5.4</td>
<td>5.3: 1-39 odd, 5.4: 1-37 odd</td>
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<tr>
<td>14 – 6 Oct</td>
<td>5.4, 6.1</td>
<td>6.1: 1-55 odd</td>
<td></td>
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<tr>
<td>15 – 8 Oct</td>
<td>Review Ch 5 &amp; 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 – 13 Oct</td>
<td>Test Ch 5 &amp; 6</td>
<td></td>
<td>Quiz 3, 12:01am</td>
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<tr>
<td>18 – 20 Oct</td>
<td>7.1, 7.2</td>
<td>7.1: 1-51 odd, 7.2: 1-41 odd</td>
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<tr>
<td>19 – 27 Oct</td>
<td>7.2, 7.3</td>
<td>7.3: 1-27 odd</td>
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<tr>
<td>20 – 29 Oct</td>
<td>7.4</td>
<td>7.4: 1-17 odd</td>
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<tr>
<td>Lecture - Date</td>
<td>Assignment</td>
<td>Recommended Homework</td>
<td>Quiz Due Date</td>
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</tr>
<tr>
<td>21 – 3 Nov</td>
<td>Review Ch 6 &amp; 7</td>
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<tr>
<td>22 – 5 Nov</td>
<td><strong>Test Ch 6 &amp; 7</strong></td>
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<tr>
<td>23 – 10 Nov</td>
<td>8.2, 8.3</td>
<td>8.2: 1-21 odd</td>
<td>Final Project</td>
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<td></td>
<td>8.3: 1-19 odd</td>
<td>Data Due</td>
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<tr>
<td>24 – 12 Nov</td>
<td>8.3, 8.4</td>
<td>8.4: 1-19 odd</td>
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<td>9.2: 1-29 odd</td>
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<tr>
<td>26 – 19 Nov</td>
<td>9.2, 9.3</td>
<td>9.3: 1-33 odd</td>
<td></td>
</tr>
<tr>
<td>27 – 24 Nov</td>
<td>10.2</td>
<td>10.2: 1-21 odd</td>
<td></td>
</tr>
<tr>
<td>28 – 1 Dec</td>
<td>Review Ch 8, 9 &amp;10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>29 – 3 Dec</td>
<td><strong>Test Ch 8,9&amp;10</strong></td>
<td></td>
<td>Quiz 5, 12:01am</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Extra Credit</td>
</tr>
<tr>
<td>30 – 8 Dec</td>
<td><strong>Final Project Due</strong></td>
<td></td>
<td>Final Credit</td>
</tr>
</tbody>
</table>

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