

CORNING COMMUNITY COLLEGE VIA SAYRE AREA HIGH SCHOOL
Math/Physics/Technology/Engineering (MPTE) Division
School Year 2017-18 (CCC-Fall 2017)

Course Number: Math 1310: Elementary Statistics

Instructor Name: Mr. Mark Noldy, M.Ed., LSSBB

School Phone: (570) 888-6622 ext.2124

Classroom Location: Room 124

School Email: mnoldy@sayresd.org

Website: PlanetNumeracy.com (Visit! Watch flipped content!)

Twitter: twitter.com/PlanetNumeracy (Follow! Turn on notifications! Re-tweet often!)

Facebook: facebook.com/PlanetNumeracy (Like!)

Office Hours: 7:40 – 8:00 and 3:21 – 4:00 (by appointment only)

My class schedule can be found at <https://planetnumeracy.com/2017-18-schedule/>

Course Description: Statistics is the art and science of analyzing data. The Elementary Statistics course is designed to reflect actual practice, where data analysis and design of data production join with probability-based inference to form a coherent science of data analysis. (4 credits)

Prerequisite: The *successful* completion of Algebra 2 (which hopefully includes an A or B on the final exam) and/or instructor recommendation. There is an assumption of proficiency in basic probability as it is not re-taught in Elementary Statistics. That's a Corning edict.

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Course Learning Outcomes/Global Learning Objectives:

Students will be able to:

- understand the definitions of basic statistical terms (GLO 694)
- perform descriptive analysis of single-variable data (GLO 1471)
- apply basic principles of probability (GLO 1480)
- demonstrate understanding of discrete probability distributions (esp. binomial distributions) (GLO 1493)
- solve problems involving normal probability distributions (GLO 1501)
- solve problems involving statistical inference: confidence intervals (GLO 1512)
- solve problems involving statistical inferences: hypothesis testing (GLO 1521)
- solve problems involving correlation and regression (GLO 1528)
- apply technology to various statistical procedures (TI-84, Minitab) (GLO 1533)

And time permitting, students will learn to:

- test “goodness-of-fit,” proportional independence, and homogeneity using Chi-square distribution
- analyze data using resampling methods (bootstrap distributions, randomization distributions, etc.)
- understand condition for selecting non-parametric tests (Run tests, Spearman’s rank-correlation test, and Kruskal-Wallis test)
- use advanced diagnostics for regression analysis (e.g., post-hoc regression analysis)
- implement design of experiments with Analysis of Variance (ANOVA)

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Textbook Information / Supplemental Course Materials

- ✓ **Textbook required:** *The Basic Practice of Statistics*, 6th edition, by Moore, Notz, Fligner; ISBN: 978-1-4641-02547
- ✓ **Calculator required:** TI-84 graphing calculator (I have CLASSROOM calculators.)
- ✓ **Minitab software required but provided.** Software is available on school machines.
- ✓ **Quadrille paper** is recommended for scratch work and for some homework assignments.
- ✓ **A binder** is required to create a portfolio of notes, handouts, homework, etc.
- ✓ **Stapler** may be needed for stapling HW and other assignments, though some are submitted electronically.
- ✓ **PlanetNumeracy.com** will be used for the online flipped component, for retrieving course documents, and other computery stuff.

Tentative Outline / Timeline of Course Topics [see attached course outline]

Chapters 1 – 25 (excluding Ch. 12)

Quarterly Evaluation/HS Grading Policy: The breakdown is as follows:

Class Participation	5 %
Homework/Labs	10 %
Quizzes (online)	35 %
Exams/Projects (in class)	50 %

Each quarter, the worst grade will be eliminated provided at least ten grades have been recorded. That is, there will be no grade drop if there are 9 or fewer grades for the quarter.

End of the Year CCC letter grades will be assigned as follows:

The high school average will be applied to the table below. Please note the Final Exam score is also counted as the final test of the 4th quarter. (This prevents students from “phoning it in” at the end of the year.)

Test Average	93-100	90 -92	87-89	83-86	80-82	77-79	70-76	60-69	below 60
ACE Grade	A	A-	B+	B	B-	C+	C	D	F

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Components of Course

Class time:

Class time will consist of mini-lectures with collaboration on chapter exercises in the computer laboratory, where you will be fleshing out notes, and learning to use Minitab for statistical analyses. “Stare Method” will not work in this course. ACE Statistics is a **college-level** course. I will not be spoon-feeding you. Moreover, much of the needed practice on skills as well as your individual concept development will come from **reading** the text and **watching** the online video content. The successful student will be doing a good bit of preparatory work outside of class (about 30 minutes to an hour each evening), and reviewing ideas daily to make connections. To maximize learning, it is important that we use class time wisely and productively, so please be on time, and be prepared.

Homework (HW) & Lab Assignments:

- Expect an online quiz at the end of each chapter on PlanetNumeracy.com. These assess your understanding of the readings, note-taking on the videos, classroom note-taking, and often all of these. Whether students have done assignments will be apparent based on documented online activity, and even more so based on classroom test scores.
- HW will be primarily from the textbook. We will be using the computer lab for these HW assignments, often using *Minitab*. All assignments will be done in a Word document (**not** Google Docs) according to my provided template and submitted electronically by 3:21 p.m. of the due date.
- Other hand-written assignments will be done on quadrille paper.
- There will also be specific lab assignments using real data that will require computer usage (*Minitab* and/or the Internet). Plan accordingly for use of high school computers if you do not have access outside of school. Lack of access is not a viable excuse to skip the work. Remember this is a college course that **you** chose to take. Use a public library, a friend’s computer, etc.
- No prior knowledge of *Minitab* is required, although being computer literate is certainly beneficial.
- No assignments will be accepted after the deadline. They are scored as a zero.

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Quizzes:

There are twenty-one (21) online quizzes during the year. You may take them as many times as needed to achieved the recommended score of 100%. Once you have passed, you will then be permitted to move on to the next unit.

- No makeup quizzes will be needed as they are 100% online. A missing quiz will be recorded as a temporary zero. Once you have earned a score, the score will supersede the temporary zero.
- Remember that for HS, your worst score will be dropped each quarter provided ten grades are in the gradebook. This is designed to accommodate for a bad day or the ***extremely rare*** instance of an absence.

Project:

A four-part (EDA, DOE, Analysis, Inference) statistical project will be assigned involving collecting, summarizing, and analyzing of data and the presentation thereof. The final version of the project will be presented the last full week of May 2018. All projects are due the assigned day of that week. Ten percent will be deducted for each school day any part of the project is late. The Project is a Test Grade. A rubric will be distributed prior to Easter break, and I will provide you with lots of research questions and suggestions throughout the course, so keep the antennae tuned.

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Tests:

There will be 8 (maybe only 7) 40-minute timed exams during the course as well as a 120-minute timed cumulative final exam (provided by CCC and augmented by me) given in accordance with Mr. Handrick's final exam schedule. The final exam will also count as the last test grade for the 4th quarter. This practice also prevents students from "phoning it in" at the end of the HS year.

- Extra time is not provided, unless you have such an accommodation (e.g., IEP, 504, etc.).
- If an emergency arises and you cannot make it the day of an exam, you must **contact me BEFORE** to obtain permission to re-schedule an **alternative** form of the assessment. Your classmates want their exam results as soon as possible, and test results are not returned until every student has written the exam.
- 0 is recorded for missed exams, until they are written.
- I reserve the right to give a final score for a missed exam as a 0 if it is not written within three days of an excused absence.
- Unexcused absences earn a 0.
- Again, your research project is weighted as a test.

Test Corrections (HS grade only):

Correcting your tests after you get them back is beneficial to learning, especially since the content builds on itself. Although I have no way of knowing, surely you realize that if you just copy the correct answer from a classmate, you will not learn. Corrections can only boost your grade and make it easier to study for the final exam.

- How do you participate? On **separate sheet of paper**, correct anything you got wrong. Submits the corrections along with the original exam. Be thorough. **DO NOT MAKE CORRECTIONS ON THE TEST PAPER ITSELF.**
- When are corrections due? The sooner the better! But all corrections are due by 3:30 p.m. the third day after the exam is returned to the class. (Another reason not to miss class!)
- What happens with your corrections? I will check the corrections and modify your exam grade as warranted. Then, they will be returned to you along with the original exam.
- Do exam corrections help your grade? They can... Absolutely! You can earn **up to** half credit on corrected items. Example, if a question is worth 4 points, then you earn **up to** 2 points with correction on that question... **There is no risk to you!**
- Do you have to do corrections to every incorrect item on every exam? No, but why wouldn't you?

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Attendance Policy:

Attendance and active participation in class is expected.

- I do not distinguish between “excused” and “unexcused” absences. Whatever the reason, if you are not in class, then you are missing content. If you are involved with activities that will cause you to miss extensive class time, then a college level statistics course may not be right for you. Or you will need to make regular flex period appointments with me.
- I do not directly penalize for absences, but there are natural consequences that ensue as a result of chronic absenteeism and chronic tardiness. Such consequences include (but are not limited to) missing a quiz and taking a zero, missing class announcements, missing content, missing an exam and taking a zero, or missing HW and Lab submissions and taking a zero. Therefore, absences and tardiness can result in low grades and serious gaps in your learning.
- If you are absent, you are still responsible for learning missed material and obtaining assignments and/or any handouts provided that day. Be sure to read the next topic and complete the HW on that topic to stay as caught up as possible. Use flex period judiciously.
- Please notify me of serious illness, expected absences, or extenuating circumstances.

Student Withdrawal Policy / Last Day to Drop: If for any reason a student must withdraw from this course, it is the student’s responsibility to do so by contacting Corning’s Registrar’s Office. A grade of “W” will be assigned if the withdrawal occurs before **November-17, 2018**, the official drop deadline for this course, and a grade of “WF” or “WP” thereafter. If a student simply stops attending rather than officially withdrawing, he or she will receive a grade of “F” for the course. Instructors may drop students for non-attendance. Check with CCC, but as I understand it, there is no refund of tuition if a student withdraws after the deadline.

Electronics Usage: Except for appropriate calculators, students are strictly prohibited from using electronic devices in this class, including cell phones, laptops, etc. Such activities as phoning, web-surfing, texting, and so forth represent significant classroom distractions that interrupt the learning process for you and other students in the class. Cell phones and devices with Internet access may not be used as calculators.

Classroom Conduct: A student who creates a disturbance in class may be directed to leave the class. Failure to comply with such a directive could result in SASD consequences as well as suspension or dismissal from the College after an appropriate hearing. Ask Mrs. Richmond for a copy of the CCC Course Catalog to see the “Code of Student Conduct.”

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Academic Honesty Policy: The principles of integrity, respect and ethical behavior are long standing traditions at CCC (and SASD). It is expected that all students will recognize these values and adhere to all aspects of student conduct and academic honesty inside and outside of the classroom. The act of academic dishonesty is one in which a student is trying to gain an unfair academic advantage or is ***avoiding*** actions required by a course, which have been designated to improve some aspect of the student's education. Knowingly and willfully aiding, collaborating, and or "keeping quiet" regarding such a violation of the Academic Honesty policy, even if not personally committing any violation, is considered academic dishonesty.

If a violation of this policy is believed to have occurred, the instructor will conduct an investigation. The minimum penalty for academic dishonesty is a 0 on the assessment. The maximum penalty is expulsion from the class and/or the College including vacating any and all previously earned CCC credits. Please see the "Code of Student Conduct: Academic Honesty" section in the CCC Course Catalog for further information. (Again, ask Mrs. Richmond.)

Students with Disability Information: Students with learning, physical, or psychological disabilities who wish to receive accommodations are required to self-identify by making a formal request for services, and to provide current documentation that reflects the nature of the disability (not only to Sayre but to CCC as well). Reasonable legal accommodations in the classroom will be provided for students with appropriately documented disabilities. Confidentiality will be maintained at all times.

Class Cancellation: Class "cancellations" must sometimes be planned due to other school events (e.g. class trip, blood drive, prom decorating, etc.). Cancellations may also occur spontaneously as a result of unforeseen events (e.g., fire drill, drug dogs, etc.).

Other: If you are having difficulties, please do not wait until proverbial 11th hour to seek assistance. Also, if there are aspects about the course that you do not like, understand that the curriculum is pre-ordained by Corning, and I am duty-bound as a certified ACE instructor to adhere to it. Another general rule of thumb you have no doubt learned is that college students spend 2-3 hours outside of class for *each* hour in class. This rule of thumb certainly applies to a college-level statistics course. With 40-minute classes, the successful student may be spending 80-120 minutes daily outside of class.

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TIME	MODULE	UNITS
Sept	1) Exploring Data: Variables and Distributions	Chapter 1 Picturing Distributions with Graphs Chapter 2 Describing Distributions with Numbers Chapter 3 The Normal Distributions TEST 1: Chapters 1-3
Oct	2) Exploring Data: Relationships	Chapter 4 Scatterplots and Correlation Chapter 5 Regression Chapter 6 Two-Way Tables* TEST 2: Chapters 4-6
Nov	3) Producing Data	Chapter 8 Producing Data: Sampling Chapter 9 Producing Data: Experiments TEST 3: Chapters 8-9
Dec	4) Probability and Sampling Distributions	Chapter 10 Introducing Probability Chapter 13 Binomial Distributions Chapter 11 Sampling Distributions TEST 4: Chapters 10-13
Jan	5) Foundations of Inference	Chapter 14 Confidence Intervals: The Basics Chapter 15 Tests of Significance: The Basics Chapter 16 Inference in Practice TEST 5: Chapters 14-16
Feb	6) Inference about Variables: Quantitative Response Variable	Chapter 18 Inference about a Population Mean Chapter 19 Two-Sample Problems TEST 6: Chapters 18-19
Mar	7) Inference about Variables: Categorical Response Variable	Chapter 20 Inference about a Population Proportion Chapter 21 Comparing Two Proportions TEST 7: Chapters 20-21
Apr	8) Inference about Relationships	Chapter 23* Two Categorical Variables Chapter 24* Inference for Regression Chapter 25* One-Way Analysis of Variance: Comparing Several Means
May	9) Project Presentations 10) Srs: June 1; Jrs: June 7	TEST 8: Chapters 23-25* TEST 9: Project Presentation TEST 10/11: FINAL EXAM

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