

# MATH 119: ELEMENTARY STATISTICS

SPRING SEMESTER, 2020 (2/3/20-6/1/20); SYLLABUS DATE: 1/26/2020

CLASS # 21537

3.0 Units; Mon. and Wed., 8:10-9:35pm in Room MS418 (Mesa)

**INSTRUCTOR: Ken Kuniyuki**

**Email Address:** [kkuniyuk@yahoo.com](mailto:kkuniyuk@yahoo.com); there is no “i” before the “@.”

**Official Address:** [kkuniyuk@sccd.edu](mailto:kkuniyuk@sccd.edu) (esp. for official business like applications).

- I usually check my email at least once a day and my voice mail MTWTh.
- When asking about HW, let me know what you are thinking about the problem, so I know where to start addressing your question. Please go beyond: “How do you do this problem?” If you do that, I may just give a hint! **Photos help!**

**Office Voice Mail:** (619) 388-2396, checked MTWTh. (Long messages may be cut!)

**Office Hours:** MW 6:30-7:45pm, TTh 5:30-6:45pm in MS215-P.

**MY WEBSITE AT** <http://www.kkuniyuk.com> (or google “precalculus notes”)

- Ready access to the Internet and a printer will be assumed (and will prove very helpful), but the maximum number of course points can be earned without them. **Computers and printers are available at the LRAS/LRC (Library)**, see the 1<sup>st</sup>+4<sup>th</sup> floors. Let me know if you do not have access or if you see errors. Printed copies may be available.
- I expect to post **homework assignments; class notes; old and current exams and solutions; tips on test taking and reducing test anxiety;** and extra links, notes, info, and resources for interested students.
- I will try to help you form **study groups**. Email me.

**THERE IS NO REQUIRED TEXTBOOK. NOTES ARE ONLINE. HW PROVIDED.**

- Many people **bring tablets OR print the online lecture notes** (in color?) before class, preferably two-pages-to-a-side, double-sided.
- **Homework (HW)** assignments will be provided in-class and also online. Answers will be given in the session before the corresponding test.
- I used to use **Triola’s “Essentials of Statistics”** text. **Cheap, old editions** are sold on [ebay.com](http://ebay.com) and [amazon.com](http://amazon.com). Weiss and Peck are also respected authors.
- **My website** has Amazon links to other books and videos. Check [ebay.com](http://ebay.com). The LRAS/LRC (Library) may have old editions; see the **QA section**. The **Schaum’s Outline** paperbacks are much cheaper than textbooks, and they have many worked-out problems.

**Free websites with tutorials, statistical calculators, and tools:**

- **Stat Trek** at <https://www.stattrek.com>
- **Statistical calculators** at [http://www.tutor-homework.com/statistics\\_tables/statistics\\_tables.html](http://www.tutor-homework.com/statistics_tables/statistics_tables.html)

**Optional software:**

- **StatCrunch** at <https://www.statcrunch.com>  
This costs about \$13. You are not required to use it in this class, but you may want to get it if your program requires you to have some exposure to statistical software.

### Optional, cheap book with many worked-out problems:

- **Schaum's Outline of Statistics** by Murray R. Spiegel and Larry J. Stephens; Publisher: McGraw-Hill. Old editions should be fine, but 6<sup>th</sup> edition is © 2017, ISBN-10: 1260011461; ISBN-13: 978-1260011463; Amazon link: [https://www.amazon.com/Schaums-Outline-Statistics-Sixth-Outlines/dp/1260011461/ref=sr\\_1\\_1?keywords=schaum%27s+outline+statistics&qid=1562363963&s=gateway&sr=8-1](https://www.amazon.com/Schaums-Outline-Statistics-Sixth-Outlines/dp/1260011461/ref=sr_1_1?keywords=schaum%27s+outline+statistics&qid=1562363963&s=gateway&sr=8-1)

### Optional, cheap guide:

- **The Cartoon Guide to Statistics** by Larry Gonick; Publisher: HarperResource, 1993. ISBN-10: 0062731025; ISBN-13: 978-0062731029. Amazon link: [https://www.amazon.com/Cartoon-Guide-Statistics-Larry-Gonick/dp/0062731025/ref=sr\\_1\\_2?keywords=cartoon+guide+to+statistics&qid=1562364499&s=gateway&sr=8-2](https://www.amazon.com/Cartoon-Guide-Statistics-Larry-Gonick/dp/0062731025/ref=sr_1_2?keywords=cartoon+guide+to+statistics&qid=1562364499&s=gateway&sr=8-2)

## PREREQUISITES

- MATH 96 or Milestone M50 OR
- MATH 92 or Milestone M40 OR
- MATH 109 OR
- Students with Milestone M30 must enroll in Mathematics 119X (MATH 119 and 15A combination), or they may elect to enroll in MATH 92 or MATH 96 or MATH 96X

## COURSE DESCRIPTION

This course covers descriptive and inferential statistics. The descriptive portion analyzes data through graphs, measures of central tendency and dispersion. The inferential statistics portion covers statistical rules to compute basic probability, including binomial, normal, Chi-squares, and T-distributions. This course also covers estimation of population parameters, hypothesis testing, linear regression, correlation and ANOVA. Emphasis is placed on applications of technology, using software packages, for statistical analysis and interpretation of statistical values based on data from disciplines including business, social sciences, psychology, life science, health science and education. This course is intended for transfer students interested in statistical analysis.

Credit - Degree Applicable

Transfer Credit: UC,CSU

CSU GE: B4. Mathematics/Quantitative Reasoning

DIST GE: A2. Communications & Analytical Thinking

IGETC: 2. Mathematics

## COURSE LEARNING OUTCOMES (MATH 119 COURSE CLOs)

- #1 - Given a variety of situations, students will identify the appropriate hypothesis test.
- #2 - Utilize the correct procedure to conduct a hypothesis test and communicate in words the result of the hypothesis test.

## PROGRAM LEARNING OUTCOMES (DEPARTMENTAL / MATH)

"Students who complete the Mathematics program will be able to....."

- 1) Problem Solving: Apply appropriate mathematical definitions, properties, techniques, and/or technology to a variety of problem solving situations.
- 2) Interrelatedness of Concepts: Demonstrate knowledge of the interrelatedness of several mathematical concepts.
- 3) Communication and Reasoning: Demonstrate the ability to communicate mathematical reasoning both in the context of solving a problem and in the reasonableness of a solution.

## STUDENT LEARNING OBJECTIVES

**Technology-based statistical analyses are implemented throughout the entire course.**

1. Organize qualitative and quantitative data into meaningful charts and graphs.
2. Evaluate measures of location, central tendency and variation of data and probability distribution
3. Analyze data by implementing various scales of measurements and formalize results based on statistical procedures.
4. Evaluate probabilities using a variety of computational methods.

5. Analyze various discrete and continuous probability density functions, and use these to generate cumulative probability distribution functions, emphasizing the expected value and variance of the corresponding random variables.
6. Apply the appropriate probability distribution functions including the binomial, the normal, the Chi-Squared and the t-distributions, to calculate probabilities of random variable values in prescribed ranges.
7. Identify the standard methods of obtaining data and identify advantages and disadvantages of each.
8. Apply the Central Limit Theorem to sampling distributions.
9. Calculate confidence intervals using test statistics to determine the level of significance of the mean, the variance, and the sample proportion.
10. Formulate hypothesis tests discussing the differences between Type I and Type II errors.
11. Perform hypothesis tests for various random variables including means, one and two-sample proportions, and variance.
12. Evaluate correlation to determine the corresponding linear regression between two sets of data.
13. Apply ANOVA analysis of estimation and inference, and interpret corresponding statistics.

## ACCOMMODATIONS; DSPTS

- Students with disabilities who may need academic accommodations are encouraged to discuss their authorized accommodations from Disability Support Programs and Services (DSPTS) with their professors early in the semester so that accommodations may be implemented as soon as possible.
- The faculty member will work with the DSPTS Office to ensure that proper accommodations are made for each student. By law, it is up to the DSPTS Office to determine which accommodations are appropriate, not the student or the faculty.
- Students that need evacuation assistance during campus emergencies should also meet with the instructor as soon as possible to ensure the health and safety of all students.
- Students with disabilities or medical concerns who may need academic accommodations should notify their professors immediately. See the DSPTS website at [www.sdmesa.edu/dsps](http://www.sdmesa.edu/dsps) or go to the 4<sup>th</sup> floor of the golden Student Services Building; it could raise your GPA dramatically!! Phone: (619) 388-2780; for the hearing/speech impaired: (619) 388-2974; fax: (619) 388-2460.
- Give me test proctoring forms for DSPTS **at least one week** before taking a test.
- If you are involved in professional or college activities (e.g., military duty or athletics) that may, for example, hinder your ability to attend class, submit homework, and/or take exams, let me know **as soon as possible** so that accommodations may be made.

## ADDITIONAL HELP

**Websites!** My website has links that may prove helpful.

**Your fellow students!** My website may provide some help.

**Students have found tutoring services to be a critical resource!**

- **Mesa Tutoring and Computing Centers (MT2C): Math & Science Tutoring and Computing** (4<sup>th</sup> floor of the LRC / Library). Walk-in tutoring, group study rooms, computers. Possible Hours: MTWTh 9am-8pm, Fri. and Sat. 10am-3pm. <http://www.sdmesa.edu/mt2c>
- **NetTutor.** Free online tutoring. See: <http://www.kkuniyuk.com/Tutoring> OR <http://www.sdmesa.edu/academics/academic-support-programs/tutoring/Online-Tutoring.shtml>
- **Math workshops.** Check the monitors in our building and my website. <http://www.sdmesa.edu/academics/schools-departments/mathematics-natural-sciences/workshops/index.shtml>
- **STAR/TRIO Tutoring** (Room I4-308, on the 3<sup>rd</sup> floor of the golden Student Services Building). One-on-one weekly tutoring for eligible students (low-income, first-generation college, or disabled). Phone: (619) 388-2481. Email: [startrio@sdccd.edu](mailto:startrio@sdccd.edu). Web: <http://www.sdmesa.edu/star>

**Student resources:** <http://www.sdmesa.edu/student-services/student-services/ss-home-page/Helpful%20Resources%20for%20Students.pdf>

### **DEADLINES (SEE THE “VERY TENTATIVE SCHEDULE” AT THE END)**

Adding (*); Drops w/no “W”; Refunds	Tues.	Feb. 18	Week 3
Pass / No Pass petition	Mon.	Mar. 9	Week 6
Withdrawal deadline (**)	Fri.	Apr. 17	Week 10

(\*) Tuition and fees must be paid within two (?) days of adding a course, or by this deadline, whichever comes first.

(\*\*) If you do not withdraw from the class by this deadline, I must give you an evaluative grade (like A-F, Pass / No Pass).

### **GRADES / EXAMS**

- Bring a **scientific calculator** to all exams on which calculators are allowed. **Graphing calculators and cell phones will be forbidden;** grade reductions may result from their use. (See **COME TO CLASS WITH / CALCULATOR INFO.**)
- **There are no guarantees regarding makeup exams.** Even if one is allowed, you may get less time for a harder exam, and it might not be returned; also, it may hurt if you end up at a “borderline” grade. **Testing conditions may be very poor.** You must inform me **as soon as possible** if accommodations are necessary. **Promptly inform me if there is a problem taking an exam; do not expect do-overs of exams to be allowed.**
- **Points may be deducted** for messy work, lateness, failure to adhere to “good form and procedure” as presented in class, and the like!

**Your course score will be out of 600 points (600 points = “100%”), divided as such:**

**QUIZZES: 400 points (which is about 67% of 600 points)**

**-- 4 quizzes given, each worth 100 points (about 17% of 600 points)**

The quizzes are “closed book” and “closed notes,” but a scientific calculator may be allowed. (See **COME TO CLASS WITH / CALCULATOR INFO.**)

I expect to provide **formula sheets** on exams, and students will see copies of these beforehand.

**HOMEWORK (“HW”): 50 points (about 8%)**

**-- 10 points for each of 5 submissions (corresponding to the 4 quizzes and the Final)**

- Although you are strongly encouraged to do problems as soon as you can, homework will typically be **collected on the day of the corresponding exam,** (w/answers given the prior session), unless the due date is explicitly postponed.
- **Turn in HW on time. Expect late HW to be penalized;** the last HW must be turned in on time. Expect late HW to lose about two points for being one session late, four points for two sessions, and all points after that.
- **Make sure you clearly separate sections on your homework! Write your first name, last name, and “Math 119” on either a title page or on the upper right corner of the first page.** Contact me to encode your name for privacy.
- **Do not turn in a thick, bulky binder.** I collect many HWs, and the HW might not be returned to you for a while.

- On your homework, **show work where appropriate**. Points may be deducted from homework assignments that are turned in late, that are incomplete or illegible or messy, that are plagiarized, or that have insufficient work.
- **The HW is meant to help you learn and study for exams. Feel free to mark it up!** For grading, it will be scanned for completeness and overall integrity.
- **Failure to do homework in a timely manner can wreck your grade in this class - in terms of both points and exam preparation!**

**CLASS PARTICIPATION and ATTENDANCE: 30 points (5%)**

- This involves class attendance and promptness, disruptive behavior, and/or participation in office hours / tutoring (and other forms of communication) and in-class activities and exercises. **Giving me reasons for absences may help.**
- The final grade in this class will be affected by active participation, including attendance, as follows: **Students who engage in idle talking and other disruptive behaviors can lose up to 10 points here. Everyone else will get the full 30 points**, but this is a reminder that I use class participation as a **key factor in determining grade “borderline” cases. Many students have their grades influenced by their participation records. Good attendance can be rewarded.**
- **It is VERY important for you to be in class throughout the entirety of the scheduled time.** I consider tardiness and premature departures as forms of absences, particularly if habitual; many students are distracted by such behavior. Your attendance and tardiness record may also affect your grade. **Please inform me of reasons for absences (including medical priorities) ASAP.**
- Students who miss the first two weeks of class will be dropped.
- Students who miss three sessions may be dropped.

**FINAL: 120 points (20%)**

- The Final will be given **during the last class session, on Mon., June 1, in our regular room.**
- While not technically cumulative, it will tentatively cover Lessons 33-43, and parts of prior Lessons will be reviewed along the way. You’ll need to know a lot!
- The quizzes you take may be helpful! Keep them.
- **The Final is “closed book” and “closed notes,” but a scientific calculator may be allowed. (See COME TO CLASS WITH / CALCULATOR INFO.)** I expect to provide a **formula sheet**.

**The following are guarantees:**

	At least ... out of 600 points			
Course score	540 (90%)	480 (80%)	420 (70%)	360 (60%)
Grade guarantee	A	B or better	C or better	D or better

I do not reverse curve. The grade cutoffs may be lowered.  
 Percents might not be rounded up! **Class participation will be critical here.**

The course may be taken on a Pass / No Pass basis, but check your program requirements, first. The petition deadline is Mon., Mar. 9 (Week 6).

## **ZERO TOLERANCE FOR CHEATING!!**

- I have given '0's on tests due to cheating – it can devastate your grade and your ability to enroll as a student!
- Cheating is easier to detect than students think! I grade problem-by-problem and often compare student work. Exams may be photocopied any time (namely breaks).
- Possible penalties include assigned scores of "0" and action by the school dean. Refer to Policy 3100 in the Mesa College catalog.
- Collaboration outside of class is encouraged, but **copying is forbidden**, and any attempts to compromise exam security will not be tolerated.

*Students are expected to be honest and ethical at all times in the pursuit of academic goals. Students who are found to be in violation of Administrative Procedure 3100.3 Honest Academic Conduct, will receive a grade of zero on the assignment, quiz, or exam in question and may be referred for disciplinary action in accordance with Administrative Procedure 3100.2, Student Disciplinary Procedures.*

## **ZERO TOLERANCE FOR IDLE TALKING AND OTHER DISRUPTIONS!!**

- Students can **lose up to 10 class participation points** in their total course score. Deductions may be determined at the end of the semester.
- 'Borderline' grade cases **might not be moved up**.
- **Quick**, appropriate assistance to a neighbor is permitted, BUT MAKE SURE IT'S QUICK!! Mostly, you should TALK TO ME!
- Many students are distracted by **WHISPERING!** The holes in the ceiling carry noise very effectively.
- **REMEMBER TO TURN OFF YOUR CELL PHONE!!! DURING EXAMS, I WILL MONITOR CELL PHONE PLACEMENT. BEFORE ANY BATHROOM BREAK, YOU MUST CHECK IN WITH ME; LEAVE BEHIND YOUR CELL PHONE AND EXAM; EXAMS ARE SUBJECT TO PHOTOGRAPHING. VIOLATIONS MAY RESULT IN '0' SCORES!**

### **CLASSROOM BEHAVIOR AND STUDENT CODE OF CONDUCT:**

Students are expected to respect and obey standards of student conduct while in class and on the campus. The student Code of Conduct, disciplinary procedure, and student due process (Policy 3100, 3100.1 and 3100.2) can be found in the current college catalog in the section Academic Information and Regulations, and at the office of the Dean of Student Affairs (H-500). Charges of misconduct and disciplinary sanctions may be imposed upon students who violate these standards of conduct or provisions of college regulations.

**Disruptive behavior will not be tolerated; disruptive students may be removed from the class and are especially likely to be dropped from the course. Disruptive behavior includes, among other things, inappropriate talking, eating or drinking in class, tardiness, and premature departures. Your grade may be affected. Discuss personal scheduling issues with the instructor. Refer to Policy 3100 in the Mesa College catalog.**

## COME TO CLASS WITH / CALCULATOR INFO:

- You may want to bring the **online notes**, maybe on a **tablet**.
- Copies of **homework** assignments  
**We will discuss the homework during part of the session preceding the exam.**  
**We may have time to discuss homework after class.**  
**The homework is due on exam dates.**
- A scientific (**not graphing**) calculator - you will need one for the course.  
**Graphing calculators and cell phones will be forbidden on exams.**  
Some sections at City, Mesa, and Miramar (and at Cuyamaca and Grossmont) are more graphing calculator-based; check the online schedule.  
Many scientific calculators are like graphing calculators as far as WYSIWYG (What You See Is What You Get) entry goes. The Sharp EL733A is a good business calculator; the HP 30S has a large display; and the TI-30X IIS (which I have and which I can help you with) can also be good, though it relies on menus.
- **Some paper and a pencil or pen: for notetaking and in-class exercises**

## NO CHILDREN IN THE CLASSROOM

Check with the Child Development Center in Building R-100. Phone: (619) 388-2812.  
<http://www.sdmesa.edu/academics/schools-departments/child-development/child-development-center.shtml>

## RESPONSIBILITY TO ADD, DROP, OR WITHDRAW

**It is the student's responsibility to drop all classes in which they are no longer attending. Students who remain enrolled in a class beyond the published withdrawal deadline, as stated in the class schedule, will receive an evaluative letter grade in this class. If you decide to withdraw from this course, you are reminded to do so by Fri., Apr. 17. It is the instructor's discretion to withdraw a student after the drop deadline (Tues., Feb. 18) due to excessive absences (three or more in this class). Keep me informed of your status if you miss several roll calls in a row!**

Petitions to add, drop, or withdraw after the deadline will not be approved without proof of circumstances beyond the student's control which made him/her unable to meet the deadline. Lack of money to pay fees is not considered an extenuating circumstance. Students anticipating difficulty in paying fees before the add deadline should check with the Financial Aid Office about sources of funds or other alternatives for which they may be eligible. **Expect "late" adds, drops, and withdrawals to no longer be accepted.** Please discuss your plans to withdraw from class with your instructors. They may have other options for you that may allow you to continue in class.

## INSTRUCTOR ABSENCE (DISTRICT POLICY)

If neither the instructor nor a substitute appears at the beginning of the scheduled class time, students shall wait 15 minutes; if neither the instructor nor a substitute appears within those 15 minutes, students may leave the classroom.

## DO YOU NEED THIS CLASS?

Make sure that you check [www.assist.org](http://www.assist.org) to see that your major requirements for transfer have not changed. Bear in mind that the site needs updating.

## **STUDENT SERVICES SUPPORT:** **SAN DIEGO MESA JOURNEYS TOOL**

The San Diego Mesa Journeys tool (<http://www.sdmesa.edu/mesa-journeys/>) provides free access to over 30+ support programs and services to help you succeed. The “Your Mesa Journey” tool is a short survey asking various questions about your demographics and educational goals. Based on your responses, the application will then provide you a list of recommended programs and services that may help you with your educational journey here at Mesa College. Please complete it today at: <http://www.sdmesa.edu/mesa-journeys/>

**NOTES / CLASS CONTACTS (SEE MY WEB SITE)**



# **MATH 119 VERY TENTATIVE SCHEDULE (version 1)**

(May be changed arbitrarily; keep checking my website!)

L = Lesson Number

HW = Discuss Homework. Homework is typically due on test dates.

<b>SPRING 2020; Week #</b> (Holidays / Deadlines)	<b>MONDAY</b>	<b>WEDNESDAY</b>
<b>1</b>	2/3 (Day 1) L1 / L2 / Polls!	2/5 (Day 2) L3 / L4 / L5
<b>2</b> Holiday (Fri., 2/14)	2/10 (Day 3) L6 / L7	2/12 (Day 4) L8 / L9 (start)
<b>3</b> Holiday (Mon., 2/17); Add; Drop w/no W; Refund (Tues., 2/18)	2/17 <b>HOLIDAY</b>	2/19 (Day 5) L9 (finish) / L10
<b>4</b> <b>There's a 2/29 on Sat.!</b>	2/24 (Day 6) HW (discussing it)	2/26 (Day 7) <b>QUIZ 1</b>
<b>5</b>	3/2 (Day 8) L11	3/4 (Day 9) L12 / L13
<b>6</b> Pass / No Pass deadline (Mon., 3/9)	3/9 (Day 10) L14 / L15	3/11 (Day 11) L16 / L17
<b>7</b>	3/16 (Day 12) L18	3/18 (Day 13) HW
<b>8</b>	3/23 (Day 14) <b>QUIZ 2</b>	3/25 (Day 15) L19 / L20
<b>No classes this week!</b>	<b>NO CLASS</b>	<b>NO CLASS</b>
<b>9</b>	4/6 (Day 16) L21 / L22 (start)	4/8 (Day 17) L22 (finish) / L23
<b>10</b> "W" deadline (Fri., 4/17)	4/13 (Day 18) HW	4/15 (Day 19) <b>QUIZ 3</b>
<b>11</b>	4/20 (Day 20) L24 / L25	4/22 (Day 21) L26 / L27
<b>12</b>	4/27 (Day 22) L28 / L29	4/29 (Day 23) L30 / L31
<b>13</b>	5/4 (Day 24) L32	5/6 (Day 25) HW
<b>14</b>	5/11 (Day 26) <b>QUIZ 4</b>	5/13 (Day 27) L33 / L34
<b>15</b>	5/18 (Day 28) L35 / L36 / L37 / L38	5/20 (Day 29) L39 / L40 / L41 / L42 / L43
<b>16</b> Holiday (Mon., 5/25)	5/25 <b>HOLIDAY</b>	5/27 (Day 30) HW
<b>17</b> Semester ends (Mon., 6/1)	6/1 (Day 31) <b>FINAL</b>	

**MATH 119: Elementary Statistics; Class #21537; 3 units; MW 8:10-9:35p; MS418 (Mesa)**  
**Ken Kuniyuki; [kkuniyuk@yahoo.com](mailto:kkuniyuk@yahoo.com) or [kkuniyuk@sccd.edu](mailto:kkuniyuk@sccd.edu) (official); (619) 388-2396;**  
**Office Hours: MW 6:30-7:45p, TTh 5:30-6:45p in MS215-P.**

**Website (with complete syllabus): [www.kkuniyuk.com](http://www.kkuniyuk.com) or google "Precalculus Notes"**