IMPERIAL VALLEY COLLEGE

## Basic Course Information

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|---|---|---|---|
| Semester: | Spring 2022 | Instructor Name: | Allyn Leon |
| Course Title & #: | Math 119, Elementary Statistics | Email: | allyn.leon@imperial.edu |
| CRN #: | 20058, 20059 | Webpage (optional): | imperial.instructure.com |
| Classroom: | N/A | Office #: | 2760.2 (but home for now) |
| Class Dates: | 2/14/2022 - 6/10/2022 | Office Hours (Zoom): | Mon/Wed: 1:30pm to 2:00pm<br>Tues/Thurs: 9:45am to 11:15am |
| Class Days: | N/A | Office Phone #: | 760-355-6523 |
| Class Times: | N/A | Emergency Contact: | Email me or call/text office phone |
| Units: | 4 | Class Format: | Online |

## Course Description

The use of probability techniques, hypothesis testing, and predictive techniques to facilitate decision-making. Topics include descriptive statistics; probability and sampling distributions; statistical inference; correlation and linear regression; analysis of variance, chi-square and t-tests; and supervised use and practice in the application of technology for statistical analysis including the production of graphics, finding confidence intervals, test statistics, and regression lines, as well as the interpretation of the relevance of the statistical findings; Probability Theory, such as counting principles, conditional probability and the Poisson distribution. Applications using data from disciplines including business, social sciences, psychology, life science, health science, and education. (C-ID MATH 110) (CSU/UC)

## Course Prerequisite(s) and/or Corequisite(s)

Appropriate placement as defined by AB705 or, MATH 098 or MATH 091 with a grade of “C” or better.

## Student Learning Outcomes

By the end of this course, given a problem or a set of problems, the student will demonstrate problem solving strategies by identifying an appropriate method to solve a problem, correctly set up the problem, perform the appropriate analysis and computation, and share their interpretation of the conclusion or the outcome, using correct grammar or in an oral presentation.

## Textbooks & Other Resources or Links

**Recommended Textbook:** Elementary Statistics Using Excel, 6th Edition, by Mario Triola, Pearson Publisher.
The OPTIONAL textbook is available at the bookstore or online. There are also numerous online resources in Canvas.

Calculator: A basic calculator, like a TI-30 (costs around $10) is recommended, or you can go with a graphing calculator, like the TI-83 or TI-84, and there are also various apps that you can use instead; it really depends on what other math or science classes you plan on taking later on. You NEED a calculator of some sort to do the work on the tests.

## Course Objectives

Through various activities and assessments:

1. Distinguish among different scales of measurement and their implications.
2. Interpret data displayed in tables and graphically.
3. Apply concepts of sample space and probability.
4. Calculate measures of central tendency and variation for a given data set.
5. Identify the standard methods of obtaining data and identify advantages and disadvantages of each.
6. Calculate the mean and variance of a discrete distribution.
7. Calculate probabilities using normal and t-distributions.
8. Distinguish the difference between sample and population distributions and analyze the role played by the Central Limit Theorem.
9. Construct and interpret confidence intervals.
10. Determine and interpret levels of statistical significance including p-values.
11. Interpret the output of a technology-based statistical analysis.
12. Identify the basic concept of hypothesis testing including Type I and II errors.
13. Formulate hypothesis tests involving samples from one and two populations.
14. Select the appropriate technique for testing a hypothesis and interpret the result.
15. Use linear regression and ANOVA analysis for estimation and inference, and interpret the associated statistics.
16. Make use of Chi-square distributions to analyze counts.
17. Use appropriate statistical techniques to analyze and interpret applications based on data from disciplines including business, social sciences, psychology, life science, health science, and education.
18. Apply concepts of probability theory, such as counting principles, conditional probability and the Poisson distribution.

## Course Requirements and Instructional Methods

**Quizzes:** Each unit (or module) has a set of specified skills to learn, along with study materials and "quizzes" to help you practice these skills. Each module has one quiz. Quizzes are your chance to practice, to make mistakes, to learn. Making mistakes is part of the process of learning math and is expected. There are an **unlimited** number of attempts on quizzes and these assignments will be available for the entirety of the course. There are due dates listed for each of these assignments to **help keep you on pace** to complete the class by the last day.

**Project(s):** There will be four projects involving the use of technology (such as Google Sheets, Minitab, StatDisk, or Microsoft Excel). More information will be provided through Canvas. These projects will fulfill specific skill objectives and a rubric will be provided (in Canvas) detailing how to fulfill the requirements for this category.

**Exams:** Each of the first three units will end with an exam on the skills covered. There are four main units. Material from the fourth unit will be included in the final. The exams are your chance to show you have learned the skills that your grade will be based on. You will **NEED** to submit your work for MOST problems, so make sure to review the rubric for each skill and show work that explains your solution. If you do not submit or upload work for your exam exercises I will not be able to verify the skill completed. Exam grades will "count" once the written work is graded. **How to show your work?** You will take pictures of the work you did and upload them into Canvas, or create a document that has the steps and upload that.

**Note:** Do not log out in the middle of an exam or your score will be automatically recorded. If you run into a problem with this, please contact me right away.

**Out of Class Assignments:** The Department of Education policy states that one (1) credit hour is the amount of student work that reasonably approximates not less than one hour of class time and two (2) hours of out-of-class time per week over the span of a semester. WASC has adopted a similar requirement.

## Course Grading Based on Course Objectives

Your grade will be calculated based on the following items:

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|---|---|---|
| 10 Quizzes @ 10 points each | 100 points | ~16.67% |
| 4 Projects @ 25 points each | 100 points | ~16.67% |
| 4 Exams @ 100 points each | 400 points | ~66.67% |
| ***Total*** | ***600 points*** | ***100%*** |

Your final grade will be based on the following points and percentages:

| | | |
|---|---|---|
| 90% to 100% | 540-600 points | A |
| 80% to 89% | 480-539 points | B |
| 70% to 79% | 420-479 points | C |
| 60% to 69% | 360-419 points | D |
| Below 60% | Below 360 points | F |

The **Canvas Gradebook** is where you want to go to check your grades and progress. You can do this at any time to get an idea of how you are doing in the class.

## Other Course Information

Last day to add the class: Saturday 02/26/2022
Last day to withdraw from the class with a "W": Saturday 05/14/2022

## IVC Student Resources

IVC wants you to be successful in all aspects of your education. For help, resources, services, and an explanation of policies, visit http://www.imperial.edu/studentresources or click the heart icon in Canvas.

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## Anticipated Class Schedule/Calendar

| Date or Week | Activity, Assignment, and/or Topic | Assignment Dates |
|---|---|---|
| Week 1<br>Feb 14 - Feb 20 | Orientation/Syllabus Quiz **(DUE THURSDAY 2/17)**, Module 0 | Syllabus Quiz |
| Week 2<br>Feb 21 - Feb 27 | Sampling and Data, Module 1 | Quiz 1 |
| Week 3<br>Feb 28 - Mar 6 | Descriptive Statistics Part 1, Module 2 | Quiz 2 |
| Week 4<br>Mar 7 - Mar 13 | Descriptive Statistics Part 2, Module 3 | Quiz 3<br>Project 1 |
| Week 5<br>Mar 14 - Mar 20 | Probability Topics Part 1, Module 4 | Quiz 4<br>Exam 1 |
| Week 6<br>Mar 21 - Mar 27 | Probability Topics Part 2, Module 5 | Quiz 5 |
| Week 7<br>Mar 28 - Apr 3 | Discrete Random Variables, Module 6 | Quiz 6 |
| Week 8<br>Apr 4 - Apr 10 | Normal Distributions, Module 7 | Quiz 7<br>Project 2 |
| Week 9<br>Apr 11 - Apr 17 | Confidence Intervals, Module 8 | Quiz 8<br>Exam 2 |
| Week 10<br>Apr 18 - Apr 24 | SPRING BREAK | SPRING BREAK |
| Week 11<br>Apr 25 - May 1 | Hypothesis Testing for 1 Sample, Module 9 | Quiz 9 |
| Week 12<br>May 2 - May 8 | Hypothesis Testing for 2 Samples, Module 10 | Quiz 10 |
| Week 13<br>May 9 - May 15 | Hypothesis Testing Roundup | Project 3<br>Exam 3 |
| Week 14<br>May 16 - May 22 | Correlation and Regression, Module 11 | Quiz 11 |
| Week 15<br>May 23 - May 29 | Analysis of Variance, Module 12 | Quiz 12 |
| Week 16<br>May 30 - June 5 | Review for Final | Project 4 |
| Week 17<br>June 6 - June 10 | Final Exam | Final Exam |

**THE SYLLABUS QUIZ IS DUE BY 11:59 PM ON THURSDAY 2/17/2022. IF THE SYLLABUS QUIZ IS NOT COMPLETED BY THEN, YOU WILL BE DROPPED FROM THE CLASS.**

## Course Policies

- A student who fails to attend the first meeting of a class or does not complete the first mandatory activity of an online class will be dropped by the instructor as of the first official meeting of that class. Should readmission be desired, the student's status will be the same as that of any other student who desires to add a class. It is the student's responsibility to drop or officially withdraw from the class. See General Catalog for details.
- Regular attendance in all classes is expected of all students. A student whose continuous, unexcused absences exceed the number of hours the class is scheduled to meet per week may be dropped. For online courses, students who fail to complete required activities for two consecutive weeks may be considered to have excessive absences and may be dropped.
- Absences attributed to the representation of the college at officially approved events (conferences, contests, and field trips) will be counted as 'excused' absences.
- *Attendance in an online class is more than just logging in*
    - You will need to make sure that you log in and check announcements regularly
    - There are weekly readings and assignments that need to be done in a timely manner
    - There will be exams completed online in Canvas as well
    - **The Syllabus Quiz counts as an attendance check for the first week**
    - **The Syllabus Quiz is due by 11:59 pm on Thursday, 2/17/2022**
    - **If you do not complete The Syllabus Quiz on time, you will be dropped from the class**