Course Syllabus

Edit

Imperial Valley College

Statistical Methods in Behavioral Sciences - PSY 214

Instructor Contact

Semester	Winter 2022	Professor	Mark A. Duva, Ph.D.
Course Title/ Catalog #/units	Statistical Methods in Behavioral Sciences PSY 214/4 units	Email	mark.duva@imperial.edu (mailto:mark.duva@imperial.edu)
CRN #	15190	Office	By Appointment
Class Dates	January 3 - February 3, 2022	Phone	(760) 276-3555

Course Description

Quantitative methods in behavioral sciences are considered including: scales of measurement, measures of central tendency and variability, probability and sampling distributions, visual displays of data (graphic methods), frequency tables and percentages; introduction to hypothesis testing, statistical inference and measures of association using t-tests, analysis of variance, correlation, linear regression, and chi-square. Emphasis is placed on use of statistical software for data analysis such as SPSS and Excel and interpretation statistical findings from such analysis. Examples will be used from disciplines including social sciences, psychology, life sciences, health sciences, education and related areas. Typically satisfies the general education quantitative reasoning requirement. (CSU, UC)

Course Objectives

- Upon satisfactory completion of the course with a minimum grade of C, students will be able to:
- differentiate between descriptive and inferential statistics; distinguish the difference between samples and populations
- distinguish among different scales of measurement and the implications for data analysis
- identify the standard methods of obtaining data such as random and representative sampling and the limitations of the techniques
- create frequency distribution tables with proportions and percentiles, summarizing data graphically and numerically
- compute various descriptive statistics used to measure central tendency (i.e. mean, median and mode) and dispersion (i.e. range, variance and standard deviation) of discrete and continuous variable and determine the appropriateness of each of these measures
- apply concepts of sample space and probability, use probability theory as it applies to the concepts of random variables and expected values
- understand binomial and normal distribution and the relation to the Central Limit Theorem and its use in statistical reasoning; construct and interpret confidence intervals
- formulate hypothesis tests involving samples from one and two populations and select the appropriate technique to test the hypothesis and analyze the data

- choose the appropriate parametric (z-test, t-test, F-test, linear regression) or non-parametric tests (chi-square and Mann-Whitney U) to determine levels of significance
- perform hypothesis testing when more than one independent variable is present, one-way vs. two-way analysis of variance, ANOVA, factorial designs
- compute and interpret the coefficients of Spearman's and of Pearson's correlations and levels of significance; and create graphical representations of data using scatter plots
- utilize technology-based statistical procedures to analyze, interpret and create output such as data frames, tables and charts to analyze and interpret data from disciplines including business, social sciences, psychology, life science, health science, and education using one or more popular data analytics programs such as SPSS, Minitab, R and/or Excel

Student Learning Outcomes

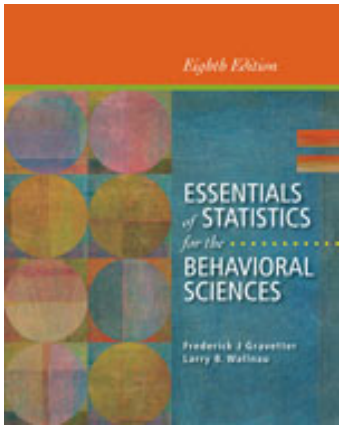
Upon course completion, the successful student will have acquired new skills, knowledge, and or attitudes as demonstrated by being able to:

- identify scales of measurement and implications for data analysis (ILO1, ILO2, ILO3)
- calculate measures of central tendency and dispersion (ILO1, ILO2, ILO3)
- construct and interpret confidence intervals (ILO1, ILO2, ILO3)
- create and test hypotheses of sample data using parametric testing such as linear regression, t-tests, and analysis of variance. (ILO1, ILO2, ILO3)
- understand and apply nonparametric methods such as a chi-square as an alternative to parametric testing. (ILO1, ILO2, ILO3)
- understand, analyze and display data using scatterplots and person correlations. (ILO1, ILO2, ILO3)
- create, analyze and interpret graphical and numerical representations of data from various sources such business, social sciences, psychology, life science, health science, and education. (ILO1, ILO2, ILO3)

Textbook (required)

Gravetter, Frederick & Wallnau, Larry B. (2013). Essentials of Statistics for the Behavioral Sciences, 8th Ed - Wadsworth/Cengage Learning: Belmont, CA.

ISBN-13: 978-1-133-95657-0; ISBN-10: 1-133-95657-2



The authors of the textbook have published many different versions of statistics textbooks with varying levels of difficulty. Some of the books have the same content but different covers because they are international editions. However, only one of the books applies to our course; be sure to obtain the correct one by using the information provided above. Electronic versions of the appropriate textbook are acceptable and perhaps preferable to some.

This is a link to the student companion site for the book. It may be of limited use to some.

https://www.cengage.com/cgi-wadsworth/course_products_wp.pl?fid=M20b&product_isbn_issn=9781133956570&token=004F65A86C93222E93C08E363B5078095DB6D631DAA6CC29B6FADE97 (https://www.cengage.com/cgi-wadsworth/course_products_wp.pl?fid=M20b&product_isbn_issn=9781133956570&token=004F65A86C93222E93C08E363B5078095DB6D631DAA6CC29B6FADE97B7B245A75E(

Course Format, Requirements, and Assessment Methods

The syllabus serves as a chronological guide to the class and may change without notice. This course as listed in the schedule of classes and course catalog is divided into a lecture and laboratory sections. However this Fall semester, the course is being taught asynchronously online and as a result, there will be little distinction between the lecture and lab sections aside from the type of work that is required. The lecture section would be more associated with the passive exposure to material such as studying PowerPoints, watching/listening to recorded lectures or other audiovisual content and the lab section is characterized by more hands-on like such as collecting experimental data and using Microsoft Excel to analyze and interpret data.

The course is broken up into modules and everything for the course will be contained in the Canvas Learning Management System (LMS). Each module represents a small chunk of related information and a new module is available about every two weeks. Although the course is asynchronous, meaning we do not meet at specific times, the start dates and due dates for all work that needs to be completed is the same for everyone in the class. Therefore you need to keep pace as we move through the modules or work will back up, you will miss due dates and lose points. Within each module, there will be tasks for you to engage such as watch videos and recorded lectures, view PowerPoint slides, complete other assignments, work with statistical software, take quizzes and upload end of chapter “homework” problems among others. The modules will become available sequentially as you move through the course. The activities in the modules will have clear due dates. These activities must be completed by those due dates and in the time allotted to receive full credit. In general, there are "Mini" quizzes and assignments that become available as the modules progresses. These should not take more than 15 or 20 minutes to complete. There will also be larger quizzes made available each Friday and are due the following Sunday at 11:59PM. Quiz questions will come from the chapters covered in the modules and in the textbook. The majority of what you need to know for quizzes is explicitly covered in the modules although small portions may be available in the textbook chapters. You are still be responsible for knowing the material from each chapter in its entirety unless otherwise specified. It is your responsibility to pay attention to the due dates for quizzes and assignments as they are made available. An ongoing assignment is the even numbered word problems at the end of the chapters. You are to complete the even numbered problems for two sequential chapters and turn them in on Friday each week starting on Week 1, (i.e. chapter 1 and 2, due 4 days from now and next week Friday chapters 3 and 4 will be due, and so on). Complete the homework in a notebook, take photos or your work and upload them in a link that will provided in Canvas. No work will be accepted over email. Everything must be submitted through the Canvas LMS. ALL assignments, quizzes, exams, and homework have a due date. If you submit any type of work after the due date, a late penalty of 10% per day will automatically be deducted from your score for each day the item is late.

If you find that you are having difficulty with the course, you can seek additional assistance at the various campus support centers. There is/are also an embedded tutor(s) assigned to this course. Having an embedded tutor is a benefit to the class but remember (1) the tutor is not your personal tutor, (2) the tutor is not going to do your work for you, and (3) and the tutor is not involved the grading process. You can earn extra points by regularly attending review sessions offered by the tutors. If you need special accommodations for anything let me know in advance.

Course Grading Based on Course Objectives

An approximate grade/point breakdown for the various methods of evaluation in the course is shown below. Final course grade based on a curve.

Graded Coursework	Grade Breakdown

Quizzes	100 Points	A = 90%
Lab work	100 Points	B = 80%
Chapter Problems	50 Points	C = 70%
Exams	60 Points	D = 60%
Final Exam	40 Points	F = 59% or less
Total	350 Points	

(Example: 350 x 90% = 315= points for the “A”)

(Example: 350 x 80% = 280 points for the “B” and so on)

Out of Class Assignments: The Department of Education policy, also WASC which has adopted a similar requirement state 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.

Attendance

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 (https://www.imperial.edu/library-department)** for details.

- Regular attendance in all classes is expected of all students. A student whose continuous, unexcused absence 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.

Classroom Etiquette

- Electronic Devices: Cell phones and electronic devices must be turned off and put away during class, unless otherwise directed by the instructor.
- Food and Drink are prohibited in all classrooms. Water bottles with lids/caps are the only exception. Additional restrictions will apply in labs. Please comply as directed by the instructor.
- Disruptive Students: Students who disrupt or interfere with a class may be sent out of the room and told to meet with the Campus Disciplinary Officer before returning to continue with coursework. Disciplinary procedures will be followed as outlined in the **General Catalog. (https://www.imperial.edu/library-department)**
- Children in the classroom: Due to college rules and state laws, only students enrolled in the class may attend; children are not allowed.

Online Netiquette

- What is netiquette? Netiquette is internet manners, online etiquette, and digital etiquette all rolled into one word. Basically, netiquette is a set of rules for behaving properly online.

- Students are to comply with the following rules of netiquette: (1) identify yourself, (2) include a subject line, (3) avoid sarcasm, (4) respect others' opinions and privacy, (5) acknowledge and return messages promptly, (6) copy with caution, (7) do not spam or junk mail, (8) be concise, (9) use appropriate language, (10) use appropriate emoticons (emotional icons) to help convey meaning, and (11) use appropriate intensifiers to help convey meaning [do not use ALL CAPS or multiple exclamation marks (!!!!)].

Academic Honesty

Academic honesty in the advancement of knowledge requires that all students and instructors respect the integrity of one another's work and recognize the important of acknowledging and safeguarding intellectual property. There are many different forms of academic dishonesty. The following kinds of honesty violations and their definitions are not meant to be exhaustive. Rather, they are intended to serve as examples of unacceptable academic conduct.

- Plagiarism is taking and presenting as one's own the writings or ideas of others, without citing the source. You should understand the concept of plagiarism and keep it in mind when taking exams and preparing written materials. If you do not understand how to "cite a source" correctly, you must ask for help.
- Cheating is defined as fraud, deceit, or dishonesty in an academic assignment, or using or attempting to use materials, or assisting others in using materials that are prohibited or inappropriate in the context of the academic assignment in question.

Anyone caught cheating or plagiarizing will receive a zero (0) on the exam or assignment, and the instructor may report the incident to the Campus Disciplinary Officer, who may place related documentation in a file. Repeated acts of cheating may result in an F in the course and/or disciplinary action. Please refer to the **General Catalog (https://www.imperial.edu/docs/catalogs-schedules/catalog-archive/2020-2021-catalog/10891-2020-2021-full-ivc-catalog)** for more information on academic dishonesty or other misconduct. Acts of cheating include, but are not limited to, the following: (a) plagiarism; (b) copying or attempting to copy from others during an examination or on an assignment; (c) communicating test information with another person during an examination; (d) allowing others to do an assignment or portion of an assignment; (e) using a commercial term paper service.

Additional Student Services

Imperial Valley College offers various services in support of student success. The following are some of the services available for students. Please speak to your instructor about additional services which may be available.

- CANVAS LMS. Canvas is Imperial Valley College's main Learning Management System. To log onto Canvas, use this link: **Canvas Student Login**. The **Canvas Student Guides Site (https://community.canvaslms.com/community/answers/guides/canvas-guide)** provides a variety of support available to students 24 hours per day. Additionally, a 24/7 Canvas Support Hotline is available for students to use: 877-893-9853.
- **Learning Services (http://www.imperial.edu/courses-and-programs/divisions/arts-and-letters/learning-services-department/)**. There are several learning labs on campus to assist students through the use of computers and tutors. Please consult your **Campus Map (https://www.google.com/maps/place/Imperial+Valley+College/@32.8290487,-115.5078128,17z/data=!4m5!3m4!1s0x80d7678f13f77f27:0xd115.5035534)** for the **Math Lab (https://legacy.imperial.edu/students/computer-labs/math-lab/)**; **Reading, Writing & Language Labs (http://www.imperial.edu/courses-and-programs/divisions/arts-and-letters/learning-services-department/ls-labs/)**; and the **Study Skills Center (http://www.imperial.edu/students/learning-services/study-skills-center/)**.
- **Library Services (https://www.imperial.edu/library-department)**. There is more to our library than just books. You have access to tutors in the **Study Skills Center (https://www.imperial.edu/students/learning-services/study-skills-center/)**, study rooms for small groups, and online access to a wealth of resources.

Disabled Student Programs and Services (DSPS)

Any student with a documented disability who may need educational accommodations should notify the instructor or the **Disabled Student Programs and Services (http://www.imperial.edu/students/dsps)** (DSP&S) office as soon as possible. The DSP&S office is located in Building 2100, telephone 760-355-6313. Please contact them if you feel you need to be evaluated for educational accommodations.

Student Counseling and Health Services

Students have counseling and health services available, provided by the pre-paid Student Health Fee.

- **Student Health Center (http://www.imperial.edu/students/student-health-center/)**. A Student Health Nurse is available on campus. In addition, Pioneers Memorial Healthcare District provide basic health services for students, such as first aid and care for minor illnesses. Contact the IVC **Student Health Center (http://www.imperial.edu/students/student-health-center/)** at 760-355-6128 in Room 1536 for more information.
- **Mental Health Counseling Services (http://www.imperial.edu/students/student-health-center/mental-health-counseling-services/)**. Short-term individual, couples, family and group counseling services are available for currently enrolled students. Services are provided in a confidential, supportive, and culturally sensitive environment. Please contact the IVC Mental Health Counseling Services at 760-355-6310 or in the building 1536 for appointments or more information.

Veteran's Center

The mission of the **IVC Military and Veteran Success Center (https://www.imperial.edu/students/military-and-veterans-success-center/)** is to provide a holistic approach to serving military/veteran students on three key areas: 1) Academics, 2) Health and Wellness, and 3) Camaraderie; to serve as a central hub that connects military/veteran students, as well as their families, to campus and community resources. Their goal is to ensure a seamless transition from military to civilian life. The Center is located in Building 600 (Office 624), telephone 760-355-6141.

Extended Opportunity Program and Services (EOPS)

The Extended Opportunity Program and Services (EOPS) offers services such as priority registration, personal/academic counseling, tutoring, book vouchers, and community referrals to qualifying low-income students. EOPS is composed of a group of professionals ready to assist you with the resolution of both academic and personal issues. Our staff is set up to understand the problems of our culturally diverse population and strives to meet student needs that are as diverse as our student population.

Also under the umbrella of EOPS our CARE (Cooperative Agency Resources for Education) Program for single parents is specifically designed to provide support services and assist with the resolution of issues that are particular to this population. Students that are single parents receiving TANF/Cash Aid assistance may qualify for our CARE program, for additional information on CARE please contact Lourdes Mercado, 760-355- 6448, **lourdes.mercado@imperial.edu (mailto:lourdes.mercado@imperial.edu)**.

EOPS provides additional support and services that may identify with one of the following experiences:

- Current and former foster youth students that were in the foster care system at any point in their lives
- Students experiencing homelessness
- Formerly incarcerated students

To apply for EOPS and for additional information on EOPS services, please contact Alexis Ayala, 760-355-5713, **alexis.ayala@imperial.edu (mailto:alexis.ayala@imperial.edu)**.

Student Equity Program

- The Student Equity Program strives to improve Imperial Valley College's success outcomes, particularly for students who have been historically underrepresented and underserved. The college identifies strategies to monitor and address equity issues, making efforts to mitigate any disproportionate impact on student success and achievement. Our institutional data provides insight surrounding student populations who historically, are not fully represented. Student Equity addresses disparities and/or disproportionate impact in student success across disaggregated student equity groups including gender, ethnicity, disability status, financial need, Veterans, foster youth, homelessness, and formerly incarcerated students. The Student Equity Program provides direct supportive services to empower students experiencing insecurities related to food, housing, transportation, textbooks, and shower access. We recognize that students who struggle meeting their basic needs are also at an academic and economic disadvantage, creating barriers to academic success and wellness. We strive to remove barriers that affect IVC students' access to education, degree and certificate completion, successful completion of developmental math and English courses, and the ability to transfer to a university. Contact: 760.355.5736 or 760.355.5733 Building 100.
- The Student Equity Program also houses IVC's Homeless Liaison, who provides direct services, campus, and community referrals to students experiencing homelessness as defined by the McKinney-Vento Act. Contact: 760.355.5736 Building 100.

Student Rights and Responsibilities

Students have the right to experience a positive learning environment and to due process of law. For more information regarding student rights and responsibilities, please refer to the IVC **General Catalog (https://www.imperial.edu/library-department)** .

Information Literacy

Imperial Valley College is dedicated to helping students skillfully discover, evaluate, and use information from all sources. The IVC Library Department provides numerous information literacy tutorials to assist students in this endeavor.

Anticipated Class Schedule/Calendar

TOPICS	READINGS
Week 1 01/03	
• Introduction to statistics	Ch. 1
• Introduction to statistics	Ch. 1
• Introduction to statistics	Ch. 1
• Frequency distributions	Ch. 2
• Frequency distributions	Ch. 2
Week 2 01/10	
• Measures of central tendency	Ch. 3
• Measures of central tendency	Ch. 3
• Measures of variability	Ch. 4
• Measures of variability	Ch. 4
• z-Scores: Location of scores and the standard distribution	Ch. 5
Week 3 01/17	
• z-Scores: Location of scores and the standard distribution	Ch. 5

- Probability Ch. 6
- Probability Ch. 6
- Introduction to hypothesis testing Ch. 8
- Introduction to hypothesis testing Ch. 8

Week 4 01/24

- Introduction to the *t* statistic Ch. 9
- Introduction to the *t* statistic Ch. 9
- The *t* test for two independent samples Ch. 10
- The *t* test for two independent samples Ch. 10
- The *t* test for two related samples Ch. 11

Week 5 01/31

- The *t* test for two related samples Ch. 11
- Introduction to analysis of variance Ch. 12
- Introduction to analysis of variance Ch. 12
- Repeated Measures and Two factor analysis of variance Ch. 13
- **FINAL EXAM** Comprehensive