**PSYCHOLOGY RESEARCH AND DATA APPLICATIONS**

**PSY 350**

**Winter 2023**

Instructor: Christine Smith, Ph.D. (pronouns: She/her/hers)

Office: 2221 AuSable Hall

Drop in and chat or come for help:

T/TH: 11:30-12:30

By appointment: both in person and via Zoom.

Phone: (616) 331-2424

Email: [SmithC@GVSU.edu](mailto:SmithC@GVSU.edu)

Course prerequisites: PSY 101 or HNR 234, STA 215 or STA 312, PSY 300 (taken either before this course or together with it).

Note: This course is subject to the GVSU policies listed at

<http://www.gvsu.edu/coursepolicies>

**Course Overview**

This course is designed to enhance your ability to organize, summarize, analyze, and visualize data in the context of psychological research. You will develop your ability to apply information in the interest of solving important problems by engaging in various hands-on activities. In addition, you will learn how to effectively communicate quantitative findings both visually and in writing.

Regardless of your future career goals, the skills you will develop in this course will be of great value to you. Well-developed data literacy skills are essential for those of you planning on going on to graduate school, but they are equally important for those of you who plan to start your career immediately after you graduate. Effectively working with data both in terms of understanding it and communicating its meaning to others (both in writing and visually) is a crucial and marketable skill.

**Required Reading**

All required readings will be posted on the course website.

**Learning Objectives**

This course is designed to help students develop their skills in the following areas:

Quantitative reasoning: Understanding, critiquing, managing, interacting with, and analyzing data

Communication: Relaying information about data, orally, in writing, and graphically

After successful completion of this course, students will be able to:

(1) interpret the results of correlational and experimental designs.

(2) assess reliability and validity quantitatively.

(3) identify and apply a variety of descriptive and inferential statistical tests appropriate for analyzing psychological data.

(4) explain orally, in writing, and graphically, the findings of psychological research.

It is the instructor’s goal that students become proficient in each of these key areas. Evaluations are designed to assess proficiency in these areas.

**Evaluation**

**Worksheets.** Each week we will complete worksheets designed to allow you to practice the material we are covering in class. These are low stakes assignments designed to ensure needed skills are being gained. The two lowest scoring worksheets will be dropped.

**Quizzes.** There will be one quiz per unit (for all units except the last). The purpose of the quizzes is to help you check your understanding of course material and make sure you are keeping up with the material.

**Lab reports.** Each unit will involve completion of a brief (approximately two to three page) report detailing the method and results of the analysis for each lab.

**Presentations.** In the last unit of the course, students will develop a research question that can be tested using existing data. In small groups, they will present the results of their analysis.

**Lab practical.** Instead of a traditional final exam, you will be asked to demonstrate your understanding of course concepts and skills in a lab practical. This means that you will be given a data set and asked to analyze and answer questions about it, working independently, during class time.

**Late policy.** Deadlines are provided to help ensure that students make progress towards course completion. Students with extenuating emergency or health circumstances should reach out to the instructor via email as soon as possible. In general, late worksheets and quizzes are not accepted (but I do drop the lowest two scoring worksheets).

**Point breakdown by category.**

**Worksheets:**

|  |  |
| --- | --- |
| **ASSIGNMENT** | **POINTS** |
| Worksheets | 90 |
| Quizzes | 4\*30 = 120 |
| Lab Reports | 4\*30 = 120 |
| Presentation | 30 |
| Lab Practical | 50 |

**Grading Scale**

|  |  |  |
| --- | --- | --- |
| **GRADE** | **POINTS** | **PERCENT** |
| A | 463-500 | 93%-100% |
| A- | 448-462 | 90%-92% |
| B+ | 433-447 | 87%-89% |
| B | 413-432 | 83%-86% |
| B- | 398-412 | 80%-82% |
| C+ | 383-397 | 77%-79% |
| C | 363-382 | 73%-76% |
| C- | 348-362 | 70%-72% |
| D+ | 333-347 | 67%-69% |
| D | 298-332 | 60%-66% |
| F | <297 | <60% |

**Disability Accommodation**

Any student in this class who has special needs because of a learning, physical, or other disability, please contact me and Disability Support Services (DSS) at (616) 331-2490. It is the student’s responsibility to request assistance from DSS.

**Academic Honesty**

**Unless otherwise noted, all work for this course should be independently completed. Students should take special care to provide proper citation of sources when submitting written work. Adopting words, passages, figures/graphs, or ideas without citation is plagiarism and will be treated as such per GVSU guidelines. Furthermore, students should not self-plagiarize, that is, reuse their own work from another course. The penalties for academic dishonesty range from zero on that assignment to failure in the course.**

**A note about collaboration: Collaborative work is sometimes allowed in this course. Collaborative work means sharing ideas with your peers. Collaboration does not mean giving completed work to your peers to use. If you have questions about what kind of collaboration is allowed, please talk to the instructor.**

For additional details on academic honesty, please see the [student code](https://www.gvsu.edu/policies/category.htm?categoryId=2D0C8EF7-9959-9B01-959C403E725313F3).

**Course Calendar**

**Unit 1: Wrangling and Exploring Data**

**Week 1: Introduction to the Course**

Review of the syllabus and key course relevant concepts (e.g., SPSS/Excel). Generate a data set.

**Week 2: Importing and Interacting with Data.**

Creating a codebook,

Worksheet 1

**Week 3: Describing and Visualizing Frequency Claims & Writing Methods and Results Sections**

Worksheet 2 and Quiz 1

**Unit 2: Assessing Measurement Quality and Testing Association Claims**

**Week 4: Measurement & Effect Sizes, Tests of Association: Correlation and Chi-Square**

Worksheet 3

Unit 1 Lab Report Due Friday @ 5:00 PM

**Week 5: Confidence Intervals**

Worksheet 4

**Week 6: Constructing Total Scores and Reliability Validity for Measured Variables**

Worksheet 5

Quiz 2

**Unit 3: Methods of Testing Causal Claims and Group Differences**

**Week 7: Probability and Null Hypothesis Testing**

Worksheet 6

Unit 2 Lab Report Due Friday @ 5:00 PM

**Week 8: Independent and Paired Samples t-tests**

Worksheet 7

**Week 9: Spring Break**

**Week 10: One-way ANOVA**

Worksheet 8

Unit 3A Lab Report Due Friday @ 5:00 PM

**Week 11: Factorial ANOVA**

Worksheet 9

Quiz 3

**Week 12: Simple Regression**

Worksheet 10

**Week 13: Multiple Regression**

Worksheet 11

**Week 14: DIY Analyses**

Quiz 4

Unit 3B Lab Report Due Friday @ 5:00 PM

**Week 15: Final Presentations**

**A Google sign-up sheet will be made available**

**Week 16: Lab Practical**

**1:00 Class Tuesday April 25: 12-1:50**

**2:30 Class Thursday April 27 2-3:50**