

SOC 351 Social Statistics Spring 2022

Instructor: M. David Chunyu, Ph.D., Associate Professor of Sociology
Lecture: Mo We, 3:30PM – 4:45PM, Science Building (SCI) D230
Lab: (Section 1) Fr, 9:00AM – 10:50AM, Science Building (SCI) D326
(Section 2) Fr, 11:00AM – 12:50PM, Science Building (SCI) D326
My Office: Science Building (SCI) B335
Office Hours: Mo, 1:00PM – 3:00PM
We, 1:00PM – 2:00PM
or by appointment for meeting in my office/on Zoom
E-mail: dchunyu@uwsp.edu (please put “SOC 351” in the email subject line)

Course Overview

This course provides a general introduction to statistical techniques for analyzing social science data. Familiarity with statistics is important for the informed citizen because many social policy debates center on the use of statistical information. Statistics is also a necessary tool for those interested in social research, an increasingly important source of employment opportunities for social science majors.

Students will learn techniques for summarizing data, examining relationships among variables, generalizing from samples to populations, and testing statistical hypotheses.

Learning activities of this course will include lectures, watching videos, in-class exercises, lab activities, homework assignments, and exams.

The laboratory portion of the course is designed to complement the lectures by letting students gain hands-on experience carrying out various kinds of statistical exercises. The main activities will be computer-intensive and will take place in a designated computer lab instead of the lecture classroom. Students will learn how to use SPSS Statistics, a widely used statistical software for social scientists. We will mainly be using SPSS to analyze data from the General Social Survey (GSS). From time to time we may also allocate a portion of the lab time for exercises that do not involve computers but are done by hand only.

This course (or PSYC 300) is required for Sociology and Social Work majors.

For Social Work majors, this course also provides them with an opportunity to engage in practice-informed research and research-informed practice, which is one of the Social Work core competencies.

Social Work Competency

All aspects of this course help students work toward the Council on Social Work Education (CSWE) competency of “**practice-informed research and research-informed practice**” for accredited social work programs:

➤ ***Engage in practice-informed research and research-informed practice.***

Social workers understand quantitative and qualitative research methods and their respective roles in advancing a science of social work and in evaluating their practice. Social workers know the principles of logic, scientific inquiry, and culturally informed and ethical approaches to building knowledge. Social workers understand that evidence that informs practice derives from multi-disciplinary sources and multiple ways of knowing. They also understand the processes for translating research findings into effective practice.

Course Learning Outcomes

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

1. Demonstrate appreciation for when, why, and how social statistics are used;
2. Articulate the basic concepts and methodological procedures of data analysis, as well as the logic underlying those procedures;
3. Process, analyze, and interpret data for the social sciences [e.g., the General Social Survey (GSS) data];
4. Use statistical software (e.g., SPSS) to conduct basic data analysis;
5. Apply critical thinking to engage in analysis of quantitative research methods and research findings;
6. Use and translate quantitative research evidence to inform and improve professional practice, policy, and service delivery;
7. Use professional practice experience and theory to inform scientific inquiry and research.

Prerequisites

MATH 90 or equivalent, and SOC 101; or instructor consent.

Generally if you can add, subtract, multiply, and divide, and follow simple rules of logical deduction, then you have the tools necessary to succeed in this course. ***However, it is imperative that you keep up with the progress of the course at all times!*** Due to the extremely technical and cumulative nature of this

course, once you fall behind, it will be very difficult to catch up. Therefore, regular attendance, meticulous notes, and timely completion of class and lab tasks and assignments are essential.

Textbook

The following book is required and has been ordered at the university store (please visit <https://www.uwsp.edu/centers/store/Pages/default.aspx> to get the text rental information):

Chava Frankfort-Nachmias, Anna Leon-Guerrero, and Georgiann Davis. 2020. *Social Statistics for a Diverse Society. 9th Edition*. SAGE Publications, Inc.

Students can also access the textbook supplements (just the supplements, not the textbook) at the student study website: <https://edge.sagepub.com/frankfort9e/student-resources>

Additional Course Materials

Additional course materials (the instructor's lecture slides, videos, datasets and related documentation, review exercises, assignments, exams, etc.) will be delivered online through the online course management system Canvas. You will use your UWSP account to login to the course from the [Canvas Login Page](#). If you have not activated your UWSP account, please visit the [Manage Your Account](#) page to do so.

The instructor will also hand out various types of materials (announcements, review exercises, assignments, supplemental reading, etc.) and play some video clips in class/lab.

Additional Devices and Software

Each student shall get a calculator with the square and square-root functions. This can be either a conventional standalone calculator like a regular scientific calculator, or a calculator application/app on a computer/tablet/mobile device. A graphing calculator won't be necessary. The calculator will be used for class exercises, lab activities, homework assignments, and exams.

The SPSS software is accessible on all campus computers, so in order to use the software students can either go to a campus computer lab in person or use their own computers to get connected to the UWSP remote computer lab virtually at remotelab.uwsp.edu.

- ❖ ***Special note:*** In case students want to use the UWSP remote computer lab remotelab.uwsp.edu, they are recommended to use a PC (with a Windows operating

system) rather than a Mac/iPad (with an Apple operating system), because there has been reports that sometimes Mac/iPad users may have difficulty getting access to the UWSP remote lab.

Grading

A student's final course grade is based entirely on the "TOTAL POINTS" they have earned over the semester. The "TOTAL POINTS" are simply the total crude points a student has accumulated from assignments and exams, plus optional bonus points if applicable, and **summation** is the only mathematical operation used for calculating a student's "TOTAL POINTS". Thus, no percentage, proportion, or division is used in the "TOTAL POINTS" calculation. (***Important note:*** The "Total" column or other automatically generated columns in the "Grades" area of Canvas will **NOT** be used, because they reflect some sort of percentage calculation, which is inconsistent with the grading system of this course. Also see the "Grading Scale" section below.)

A student's max total points consist of the following:

| | | |
|-------------------------------|------------------|------------------|
| ➤ Homework Assignments | 35 Points | |
| ➤ Exams | 60 Points | |
| ❖ <i>1st exam</i> | | <i>15 points</i> |
| ❖ <i>2n exam</i> | | <i>15 points</i> |
| ❖ <i>Final exam</i> | | <i>30 points</i> |
| ➤ Class Participation | 5 Points | |

Max Total = 100 Points

Homework Assignments (35 Points)

There will be weekly homework assignments throughout the semester. Some of the assignment tasks are about manual calculations, while others involve using a computer and the SPSS software to analyze real-world datasets.

Again, in order to use the SPSS software students can either go to a campus computer lab in person (you may have to install SPSS on some of these lab computers yourself if the program hasn't been installed there already, but that is fairly easy to do) or use their own computers to get connected to the UWSP remote computer lab virtually at remotelab.uwsp.edu; and in case students want to use the UWSP remote lab they are recommended to use a PC rather than a Mac/iPad. Students can refer to the instructor's video tutorial in Canvas → "01/24 - 01/30: Introduction to the Course" module → "Lab: Introduction" on how to get connected to the UWSP remote lab. Additional information on the UWSP remote lab is available at <https://www.uwsp.edu/infotech/Pages/ComputerLabs/Remote-Lab.aspx>

All the needed datasets and documentation will be made available in Canvas → “Data” module.

Most weekly assignments will be due on Tuesday in the following week in Canvas, while the last few weeks’ assignments’ due days may vary. Altogether these homework assignments count as 35 points.

Exams (60 Points)

There will be three (3) exams: two midterm exams and one final exam. All exams will be take-home exams and are to be submitted to Canvas. The exam questions will be based on lectures, reading, recorded videos, review exercises, lab activities, and assignments.

The first two exams will be given in the middle of the semester and the exam arrangements will be announced in advance. These two midterm exams may include multiple-choice questions, test problems, and SPSS application problems. Each midterm exam is worth 15 points.

The third and final exam will be given during the final exam week, counting as 30 points. The final exam will **NOT** include SPSS application problems.

To help students prepare for the exams, the instructor will distribute review exercises for each unit. These review exercises are designed to help students digest and reinforce the class learning. Also importantly, these review exercises are very closely tied to the exams, so students are highly recommended to make good use of these review exercises when preparing for the exams.

Take careful note of the exam schedules, especially the date and time of the final exam, because the final exam schedule is usually not the same as the regular class meeting schedule. ***NEITHER EARLIER NOR MAKE-UP EXAMS WILL BE OFFERED EXCEPT IN DOCUMENTED CONFLICTS OR EMERGENCIES.***

Class Participation (5 Points)

As a member of a classroom community, you are expected to come to class and lab, stay the entire class/lab period, and participate fully in each class/lab. At the end of the course, each student will receive a class participation score ranging from 0 to 5 points, based on the instructor’s holistic evaluation of the student’s class participation both quantitatively and qualitatively.

Class/lab attendance is mandatory. The instructor will check attendance periodically, by different means (e.g., calling students’ names aloud, sign-in sheet, silent observation, etc.), and at various points in time (e.g., the beginning of a class/lab period, the middle, the end, etc.). As a result, a student can be recorded as “absent” if they come in late and misses the instructor’s attendance check at the beginning of a class/lab period; the consequence can be the same if a student leaves class/lab early or steps out of the classroom/lab in the middle of a class/lab period. ***Students’ absences will only be excused if (1) the absences are due to COVID-related or other documented reasons and also (2) students have***

communicated with the instructor about such absences in a timely manner. Having many unexcused absences will result in a low score for a student's class participation evaluation.

The quality of a student's class participation will also factor into their class participation evaluation. ***A student with repeated disruptive behavior/causing repeated distractions will receive a low score for their class participation evaluation or will even receive no score at all*** (also see the "Classroom Etiquette" section below). In addition, students shall participate actively in the in-class exercises and lab activities. These in-class/lab activities are designed to help you digest and reinforce the statistical skills taught in this class; at the same time, these in-class/lab activities are also very closely tied to the homework assignments and exams, and so can be vital to your grade points. Therefore, it will be in your best interest to attend every class/lab period and remain engaged during the class/lab meetings. If you make a good effort toward the in-class/lab work, you are most likely to succeed in this class.

Bonus Points (Optional)

There might be opportunities for students to earn extra credits/bonus points.

Grading Scale

Again, a student's final course grade is based entirely on the "TOTAL POINTS" they have accumulated over the semester. Thus, for calculating a student's "TOTAL POINTS", **summation** is the only mathematical operation used; that is, the instructor will simply add up all the points a student has earned from assignments and exams, plus optional bonus points if applicable. No percentage, proportion, or division is used in the "TOTAL POINTS" calculation. (***Important note:*** Again, the "Total" column or other automatically generated columns in the "Grades" area of Canvas will **NOT** be used, because they reflect some sort of percentage calculation, which is inconsistent with the grading system of this course.)

A student's "TOTAL POINTS" will then be converted into their final course grade according to the following scale:

| | |
|-----------------------------|-----------------------------|
| A.....93.00 – 100.00 points | C.....73.00 – 76.99 points |
| A-.....90.00 – 92.99 points | C-.....70.00 – 72.99 points |
| B+.....87.00 – 89.99 points | D+.....67.00 – 69.99 points |
| B.....83.00 – 86.99 points | D.....60.00 – 66.99 points |
| B-.....80.00 – 82.99 points | F.....0.00 – 59.99 points |
| C+.....77.00 – 79.99 points | |

Grade Posting


Students' grade points from assignments and exams, plus optional bonus points if applicable, will be posted in Canvas → "Grades" area as soon as they become available. A distinct grade item will also be created in Canvas → "Grades" area to show a student's "TOTAL POINTS" they have accumulated over the semester. (***Important note:*** One last time, the "Total" column or other automatically generated columns in the "Grades" area of Canvas will **NOT** be used, because they reflect some sort of percentage calculation, which is inconsistent with the grading system of this course. Please also see the preceding

“Grading Scale” section for explanation.) It is a student’s own responsibility to check Canvas regularly and to be kept informed of their own grade status.

UWSP Technology Support

- Visit with a [Student Technology Tutor](#)
- Seek assistance from the [IT Service Desk](#) (Formerly HELP Desk)
 - IT Service Desk Phone: 715-346-4357 (HELP)
 - IT Service Desk Email: techhelp@uwsp.edu

Canvas Support

Click on the  button in the global (left) navigation menu and note the options that appear:

| Support Options | Explanations |
|---|---|
| <p>Ask Your Instructor a Question Submit a question to your instructor</p> | Use Ask Your Instructor a Question sparingly; technical questions are best reserved for Canvas personnel and help as detailed below. |
| <p>Chat with Canvas Support (Student) Live Chat with Canvas Support 24x7!</p> | Chatting with Canvas Support (Student) will initiate a <i>text chat</i> with Canvas support. Response can be qualified with severity level. |
| <p>Contact Canvas Support via email Canvas support will email a response</p> | Contacting Canvas Support via email will allow you to explain in detail or even upload a screenshot to show your particular difficulty. |
| <p>Contact Canvas Support via phone Find the phone number for your institution</p> | Calling the Canvas number will let Canvas know that you're from UWSP; phone option is available 24/7. |
| <p>Search the Canvas Guides Find answers to common questions</p> | Searching the Canvas guides connects you to documents that are searchable by issue. You may also opt for Canvas video guides . |
| <p>Submit a Feature Idea Have an idea to improve Canvas?</p> | If you have an idea for Canvas that might make instructions or navigation easier, feel free to offer your thoughts through this Submit a Feature Idea avenue. |

All options are available 24/7; however, if you opt to email your instructor, your instructor may not be available immediately.

- Self-train on Canvas through the [Self-enrolling/paced Canvas training course](#)

Protecting your Data and Privacy

UW-System approved tools meet security, privacy, and data protection standards. For a list of approved tools, visit this website. <https://www.wisconsin.edu/dle/external-application-integration-requests>

Tools not listed on the website linked above may not meet security, privacy, and data protection standards. If you have questions about tools, contact the UWSP IT Service Desk at 715-346-4357.

Here are steps you can take to protect your data and privacy.

- Use different usernames and passwords for each service you use
- Do not use your UWSP username and password for any other services
- Use secure versions of websites whenever possible (HTTPS instead of HTTP)
- Have updated antivirus software installed on your devices

Expected Instructor Response Times

The instructor will attempt to respond to student emails within 24 hours. If you have not received a reply from me within 24 hours please re-send your email.

Note: If you have a general course question (not confidential or personal in nature), please post it to the Course Q & A Discussion Forum found on the course homepage. I will post answers to all general questions there so that all students can view them. Students are encouraged to answer each other's questions too.

The instructor will attempt to grade assignments within a week, however longer assignments may take me longer to read and assess.

Classroom Etiquette

The classroom is a learning environment and an academic community. All members of this community, students and instructor alike, have a special obligation to preserve an atmosphere conducive to the freedom to teach and to learn. What is essential to preserve such freedom is a culture of respect that honors the rights, safety, dignity, and worth of every individual. For that reason, all members of this community are expected to show courtesy, civility, and respect for one another.

Part of that obligation to maintain a positive learning environment is to ensure that the behavior of any individual does not disrupt the process of teaching and learning. Accordingly, students shall do their best to minimize disruptions that can distract from their own learning and that of their peers. Students are expected to come to class on time and not to leave early except in the case of emergency situations. Please plan your bathroom breaks, food/beverage needs, cell phone calls/texts, work schedules, and other socialization activities around class times to minimize classroom distractions and disruptions. The rule of thumb is that at any moment there should be only one center of attention in the classroom, should it be the instructor, a student, an object, an artifact, a device, or an activity. ***Students with repeated disruptive behavior/causing repeated distractions will receive a low score for their “Class Participation” evaluation or will even receive no score at all*** [also see the section “Class Participation (5 Points)” above].

The instructor reserves the right to restrict a student’s participation in class activities, both in-person and online, if the student behaves in a way that interferes with the academic or administrative functions of the class.

Diversity and Inclusion

UWSP supports an inclusive learning environment where diversity and individual differences are understood, respected, and appreciated. These differences include race/ethnicity, gender, class, political view, religion, color, national origin, sexual orientation, disability, age, marital or family status, as well as personality, learning styles, and life experiences. It is these very differences among us that enrich our learning environment and make us strong. We expect that students, faculty, administrators, and staff will respect differences and demonstrate diligence in understanding how other peoples' perspectives, behaviors, experiences, and worldviews may be different from their own.

Disabilities/Special Needs

UWSP is committed to providing reasonable and appropriate accommodations to students with disabilities and/or special needs. If you have disabilities/special needs affecting your participation in the course and wish to have special accommodations, please contact the Disability and Assistive Technology Center (DATC) on the 6th floor of Albertson Hall (library) as soon as possible. DATC will then coordinate with me in helping you receive the proper accommodations and auxiliary aids. DATC can be reached at 715-346-3365 or datctr@uwsp.edu. You can also find more information here: <http://www.uwsp.edu/datc>.

Academic Support

If a student finds it difficult to keep up with the class progress at any point during the semester, they are recommended to seek help from the instructor immediately in-person, by email, on Zoom, and/or over the phone. When a student comes to meet the instructor in person, the student should bring with her/him all the relevant lecture notes and handout materials either in hard copy or on electronic devices in order to facilitate the Q&A process.

In addition, students may also use help from the tutor(s) and/or join a study group at the Tutoring-Learning Center (TLC). TLC can be reached at 715-346-3568 or tlctutor@uwsp.edu. You can also find more information here: <http://www.uwsp.edu/tlc>. The tutoring/group study support is usually to be arranged directly between students and TLC staff and the instructor may assist with such arrangements when needed.

Academic Integrity

Academic integrity is central to the mission of this institution. Academic dishonesty in any form will not be tolerated and will receive disciplinary sanctions per the UWSP policies. The UWSP policies regarding student academic standards and disciplinary procedures can be found here:

<https://www.uwsp.edu/dos/Pages/Student-Conduct.aspx>. If I observe academic misconduct, or if suspicions of academic dishonesty are reported to me, I will request that the identified parties to discuss the situation, and then the procedures set out in UWS/UWSP Chapter 14 will be followed.

Emergency Preparedness

It is important you familiarize yourself with the UWSP emergency plan and procedures prior to the occurrence of an emergency. Please go to www.uwsp.edu/rmgt for details on all emergency responses at UWSP.

UWSP COVID-19 Policy

Students shall adhere to the university's COVID-related policies which are published on the UWSP COVID-19 information website: <https://www.uwsp.edu/coronavirus/Pages/default.aspx>

Chancellor's Mask Mandate

At the time of this writing, there is a university-wide mask mandate – all students, employees and visitors to any UWSP campus or facility are required to wear face coverings when inside campus buildings and enclosed spaces with others outside of your household.

Please note that unless everyone is wearing a face covering, in-person classes cannot take place. This is university policy and not up to the discretion of individual instructors. Failure to adhere to this requirement could result in formal withdrawal from the class.

Testing and Quarantine Protocol

Student shall also follow the UWSP COVID-19 testing and quarantine protocol as published on the UWSP COVID-19 information website. Please monitor your own health status as well as your contact with other people each day to determine whether you should get tested and/or quarantine.

While the UWSP testing and quarantine protocol is in place, we will need to use assigned seating and a seating chart for our f2f class in order to help with contact tracing; therefore, students will be asked to be sitting in their assigned seats in the classroom.

If students need to be absent from class due to COVID-related reasons, students should communicate their need with the instructor in a timely manner and complete the course requirements virtually in Canvas as instructed.

Students should also be prepared for the possibility of the class shifting to online learning if the instructor needs to be absent or too many students need to be absent at the same time. In any case, students will be notified about class modality change in advance and are still expected to complete the course requirements virtually in Canvas as instructed.

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COURSE OUTLINE

| DATES | TOPICS/ACTIVITIES | READING |
|-------|-------------------|---------|
|-------|-------------------|---------|

Univariate Analysis

| | | |
|---------------|-----------------------------------|------------|
| 01/24 – 01/30 | <i>Introduction to the Course</i> | Chapter 1. |
|---------------|-----------------------------------|------------|

Key Topics:

1. The Research Process and Variables
2. Independent and Dependent Variables
3. Levels of Measurement
4. Discrete and Continuous Variables
5. Descriptive and Inferential Statistics
6. SPSS and UWSP Remote Lab
7. GSS Dataset and Codebook

| | | |
|---------------|------------------------------------|------------|
| 01/31 – 02/06 | <i>Organization of Information</i> | Chapter 2. |
|---------------|------------------------------------|------------|

Key Topics:

1. Frequency Distributions: Frequencies, Proportions, and Percentages
2. Construction of Frequency Distributions by Level of Measurement
3. Grouped Data/Distributions: Stated Limits, Real Limits, Midpoints of Class Intervals
4. Cumulative Distributions
5. Rates
6. Reading Statistical Tables

A Basic Math Review

Appendix F.

Key Topics:

1. Inequality Notations
2. Square and Square Root
3. Order of Operations
4. Solving Linear Equations

02/07 – 02/13 *Measures of Central Tendency* Chapter 3.

Key Topics:

1. Mean, Mode, Median
2. Percentiles
3. The Shape of a Distribution
4. Choosing an Appropriate Measure of Central Tendency

02/14 – 02/20 *Measures of Variability/Dispersion* Chapter 4.

Key Topics:

1. The Importance of Measuring Variability/Dispersion
2. IQV, Range, IQR
3. Variance and Standard Deviation
4. Choosing an Appropriate Measure of Variability/Dispersion

02/21 – 02/23 *Review of Assignments*

02/25 * 1st Midterm Exam *** (Take-Home and in Canvas)**

Bivariate Analysis

02/28 – 03/06 *Bivariate Tables/Cross-Tabulation for Categorical Variables* Chapter 9.

Key Topics:

1. Constructing a Bivariate Table
2. Analyzing a Bivariate Table
3. Properties of a Bivariate Relationship

03/07 – 03/13 *Regression and Correlation for Interval-Ratio Variables* Chapter 12.

Key Topics:

1. Linear Relationships
2. OLS Regression Line
3. R-Squared

4. Pearson's Correlation Coefficient (r)

Preparation for Inferential Statistics

03/14 – 03/20 *The Normal Distribution (Part I)* Chapter 5.

Key Topics:

1. Properties of the Normal Distribution
2. Areas under the Normal Curve
3. Standard (Z) Scores
4. The Standard Normal Table
5. Problem Solving

* 03/21 – 03/27 NO CLASS! NO LAB! HAPPY SPRING BREAK!

03/28 – 03/30 *Review of Assignments*

04/01 * 2nd Midterm Exam *** (Take-Home and in Canvas)**

Inferential Statistics

04/04 – 04/10 *Sampling and Sampling Distributions* Chapter 6.

Key Topics:

1. Population and Sample
2. Probability Sampling
3. The Sampling Distribution
4. The Sampling Distribution of the Mean
5. The Central Limit Theorem

04/11 – 04/17 *Estimation* Chapter 7.

Key Topics:

1. Estimation Defined
2. Confidence Level and Confidence Interval
3. Confidence Intervals for Population Means
4. Confidence Intervals for Population Proportions

04/18 – 04/26 *Testing Hypotheses* Chapter 8.

Key Topics:

1. The Logic of Hypothesis Testing
2. The Five Step Model in Hypothesis Testing
3. One-Tailed vs. Two-Tailed Tests
4. *t* Test and *t* Distribution

04/27 – 05/03 *Analysis of Variance (ANOVA)* Chapter 11.

Key Topics:

1. The Logic of ANOVA
2. The *F* Statistic
3. The Five-Step Model in ANOVA

05/04 – 05/10 *The Chi-Square Test* Chapter 10.

Key Topics:

1. The Logic of Chi-Square Test
2. Calculation of Chi-Square
3. The Five Step Model in Chi-Square Test
4. Follow-Up Analysis (Crosstabulation)
5. Limitations of Chi-Square Test
6. Statistical Significance vs. Substantive Importance

Course Wrap-Up

05/11 – 05/13 *Final Review*

05/16 – 05/17

***** Final Exam *** (Take-Home and in Canvas. NO SPSS!)**

*Unforeseen circumstances may necessitate changes in the course requirements and/or schedules.
Any changes will be announced in advance.*
