

**SOC 351/551 Social Statistics (Section 1)**  
**Fall 2019**

**Instructor:** M. David Chunyu, Ph.D., Associate Professor of Sociology  
**Lecture:** Tu Th, 9:30AM – 10:45AM, Collins Classroom Center (CCC) 330  
**Lab:** Fr, 9:00AM – 10:50AM, Trainer Natural Resources (TNR) 356  
**My Office:** CCC 460  
**Office Hours:** Tu Th, 1:00PM – 1:50PM; Fr, 1:00PM – 2:50PM; or by appointment  
**Phone:** (715) 346-2038  
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**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 sample to populations, and testing statistical hypotheses. Class time will include lectures, in-class exercises, and lab activities.

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), but we will also have experience with other software and datasets. From time to time we may also allocate a portion of the lab time for exercises that do not involve computer but are done by hand only.

This course is required for Sociology and Social Work majors. The prerequisites for this course are MATH 90 or equivalent, and SOC 101. But 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 assignments are essential.

## 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. Appreciate when, why, and how statistics are used;
2. Comprehend the basic concepts, terminology, and procedures of data analysis, as well as the logic underlying those procedures;
3. Process and analyze the General Social Survey (GSS) data and other data sets for social sciences;
4. Use SPSS in conducting 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 practice, policy, and service delivery;
7. Use practice experience and theory to inform scientific inquiry and research.

## Textbook

The following book is required and has been ordered at the university bookstore:

Chava Frankfort-Nachmias and Anna Leon-Guerrero. 2018. *Social Statistics for a Diverse Society*. 8th Edition. SAGE Publications.

Students can also access the textbook supplements at the student study website:

<https://edge.sagepub.com/frankfort8e/student-resources>

## Additional Course Materials

Certain course materials (the instructor's lecture slides, datasets and related documentation, video tutorials on using computer software, etc.) will be made available for download from Canvas.

The instructor will also hand out various types of materials (announcements, review exercises, assignments, supplemental reading, etc.) and play some video clips in class (these videos provide important illustrative information related to the lectures and they are different and separate from the video tutorials on using computer software). These in-class handouts and video clips will **NOT** be posted in Canvas. The extra hard copies of the in-class handouts, if available, can still be picked up from the wall basket outside the instructor's office CCC 460. But the video clips that are played in class will **NOT** be shared with students after class.

## Required Device

Each student shall get a calculator with a square and square-root key. A regular scientific calculator should suffice. A graphing calculator won't be necessary.

Calculators will be used for in-class exercises, homework assignments, and exams. Particularly because the students will need to use the calculator for exams, ***cell phones shall NOT be used as replacement for calculators. Cell phones will NOT be allowed in exams.***

## Grading

A student's final course grade is based entirely on the "TOTAL POINTS" s/he has earned over the semester. The "TOTAL POINTS" are simply the total crude points a student has accumulated from assignments, exams, and class participation, plus optional bonus points if applicable (also see the "Grading Scale" section below about the calculation of a student's "TOTAL POINTS").

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

➤ <b><i>Homework Assignments</i></b>	<b><i>30 Points</i></b>	
➤ <b><i>Exams</i></b>	<b><i>60 Points</i></b>	
❖ <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**10 Points*

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*Max Total = 100 Points*Homework Assignments (30 Points)

There will be a series of homework assignments depending upon the progress of the course. Some of the assignment tasks are about manual calculations, while others involve using a computer and SPSS software to analyze real-life datasets. All the needed datasets will be made available in Canvas.

Students can use any computer in the DUC and Albertson Hall (library) PC labs to work on the computerized assignments (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).

All these homework assignments are to be submitted *in hard copy, NOT as electronic files*. Students shall complete the assignments using blue or black pens/pencils. *Red/reddish/pink/orange/yellow colors are strictly prohibited on the assignment sheets except for the instructor's own grading marks.*

The assignments will have different due dates, grade points, and penalty rules for late submission, which will be either announced in class or specified on the assignment sheets. These homework assignments altogether count as 30 points.

Exams (60 Points)

There will be three (3) exams: two midterm exams and one final exam. All exams will be closed-book, in-class exams, but students will be allowed to use a full-length letter-sized two-sided note sheet and a conventional calculator during the exams (see "Required Device" above for more information about what kind of calculator is acceptable). The exam questions will be based on lectures, reading, review exercises, lab activities, and assignments.

The first two exams will be given in the middle of the semester, and the exam dates 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 on *Tuesday, December 17 at 10:15AM – 12:15PM, in CCC 330*, counting as 30 points. The final exam will **NOT** include SPSS application problems.

To help students prepare for the exams, at the end of each chapter/section the instructor will hand out the hard copies of the pertinent review exercises in class (also see "Additional Course Materials" above about the in-class handouts). 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.** [See “Class Participation (10 Points)” below for more information about what qualifies as proper documentation.]

#### Class Participation (10 Points)

***Please be aware that this class has a very stringent attendance/participation policy. Your class participation will be evaluated both quantitatively and qualitatively.***

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. Thus, class/lab attendance is mandatory and 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 s/he comes 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. Every “absent” record can potentially have a negative impact on the student’s grade.

Students are allowed three unexcused absences over the course of the semester. ***Each additional unexcused absence will result in a three (3)-point deduction*** from the student’s total grade. For example, if a student has totally five (5) unexcused “absences” then s/he will be penalized for her/his 4th and 5th “absences” and lose 6 points; that means in the end that student can only earn 4 points for class participation. If a student has totally eight (8) “absences” then s/he will be penalized for her/his 4th, 5th, 6th, 7th, and 8th “absences” and lose 15 points; that means not only will the student earn no point at all for class participation, but s/he will also receive ADDITIONAL PENALTY and so further jeopardize her/his total course grade. See below for some illustrations. ***There is no limit on how many points a student can lose due to “absences”.***

<u>No. of Unexcused Absences</u>	<u>Class Participation Grade</u>
0 ~ 3	10 points (full credit earned)
4	7 points (= 10 points minus 3 points)
5	4 points (= 10 points minus 6 points)
6	1 point (= 10 points minus 9 points)
7	-2 points (= 10 points minus 12 points)
8	-5 points (= 10 points minus 15 points)
9	-8 points (= 10 points minus 18 points)
10	-11 points (= 10 points minus 21 points)

Students’ absences will only be excused for ***documented*** reasons. Students’ absences will not be excused ***unless the instructor receives the proper documentation in hard copy or as an electronic file so that the***

***instructor can keep it in his record.*** Proper documentation can be a doctor/coach/supervisor/adviser’s note/memo, a court order/subpoena, wedding invitation, obituary/visitation/funeral notice, event itinerary, etc. Therefore, a simple self-narration of an emergency or a special occasion (e.g., sickness, car failure, misfortune, family/work emergency, celebration/festivity, vacation, etc.), whether in oral or written forms, whether given weeks in advance or in the last minute, cannot be accepted as proper documentation, and a student’s absence in that case will **NOT** be excused. ***AGAIN, A SELF-NARRATION DOES NOT COUNT AS DOCUMENTATION.***

The quality of a student’s class participation will also factor into her/his “Class Participation” score. ***Students with repeated disruptive behavior/causing repeated distractions will receive a low grade for the “Class Participation” evaluation or will even receive no grade 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 meeting. If you make a good effort toward the in-class/lab work, you are most likely to succeed in this class.

***Once again, this class has a very strict attendance/participation policy, which students are required to comply with.***

#### 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” s/he has 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, exams, and class participation, plus optional bonus points if applicable. No percentage, proportion, division, or any “out of (a base number)” concept is involved in the “TOTAL POINTS” calculation.

A student’s “TOTAL POINTS” will then be converted into her/his 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, exams, and class participation, 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" s/he has accumulated over the semester. (**Note:** *The "Total" column in Canvas → "Grades" area will NOT be used.*) It is a student's own responsibility to check Canvas regularly and to be kept informed of her/his own grade status.

### **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, or an activity. ***Students with repeated disruptive behavior/causing repeated distractions will receive a low grade for the "Class Participation" evaluation or will even receive no grade at all*** [also see the section "Class Participation (10 Points)" above].

***The instructor reserves the right to request a student to leave the classroom or have the security personnel remove the student from the classroom 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](mailto:datctr@uwsp.edu). You can also find more information here: <http://www.uwsp.edu/datc>.

### **Use of Technology**

*Any form of audio or video recording in the classroom is strictly prohibited.* If a student has a legitimate need to record the instructor's talk in audio or video, then the student shall obtain the pertinent accommodation authorization **AND** the instructor's permission beforehand.

### **Academic Support**

If a student finds it difficult to keep up with the class progress at any point during the semester, s/he is recommended to seek help immediately from the instructor in-person, by email, 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 can also use help from the tutor(s) at the Tutoring-Learning Center (TLC), which has proven beneficial for many students in this class before. TLC can be reached at 715-346-3568 or [tlctutor@uwsp.edu](mailto:tlctutor@uwsp.edu). You can also find more information here: <http://www.uwsp.edu/tlc>. The tutoring arrangement is to be made strictly between a student and TLC staff and does not necessarily involve the instructor.

### **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 come to my office 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](http://www.uwsp.edu/rmgt) for details on all emergency responses at UWSP.

*(Continue to next page)*

## COURSE OUTLINE

DATES	TOPICS/ACTIVITIES	READING
<b>Univariate Analysis</b>		
09/03 – 09/06	<p><i>Introduction to Statistics and Variables</i></p> <p><u>Key Topics:</u></p> <ol style="list-style-type: none"> <li>1. The Research Process</li> <li>2. Independent and Dependent Variables</li> <li>3. Levels of Measurement</li> <li>4. Discrete and Continuous Variables</li> <li>5. Descriptive and Inferential Statistics</li> </ol> <p>*** Assignment #1 to Be Handed Out ***</p>	Chapter 1.
09/10 – 09/13	<p><i>Organization of Information/Data</i></p> <p><u>Key Topics:</u></p> <ol style="list-style-type: none"> <li>1. Frequency Distributions: Frequencies, Proportions, and Percentages</li> <li>2. Construction of Frequency Distributions by Level of Measurement</li> <li>3. Grouped Data/Distributions: Stated Limits, Real Limits, Midpoints of Class Intervals</li> <li>4. Cumulative Distributions</li> <li>5. Rates</li> <li>6. Reading Statistical Tables</li> </ol> <p><i>A Basic Math Review</i></p> <p><u>Key Topics:</u></p> <ol style="list-style-type: none"> <li>1. Inequality Notations</li> <li>2. Square and Square Root</li> <li>3. Order of Operations</li> <li>4. Solving Linear Equations</li> </ol> <p>*** Assignment #2 to Be Handed Out ***</p>	Chapter 2.
09/17 – 09/20	<p><i>Measures of Central Tendency</i></p> <p><u>Key Topics:</u></p> <ol style="list-style-type: none"> <li>1. Mean, Mode, Median</li> <li>2. Percentiles</li> </ol>	Chapter 3.

3. The Shape of a Distribution
4. Choosing an Appropriate Measure of Central Tendency
5. Compute a (Numeric) Median for Grouped Data

\*\*\* Assignment #3 to Be Handed Out \*\*\*

09/24 – 09/27

*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

\*\*\* Assignment #4 to Be Handed Out \*\*\*

10/01 – 10/03

*Review of Assignments*

**10/04**

**\*\*\* First Midterm Exam \*\*\* (TNR 356)**

### **Bivariate Analysis**

10/08 – 10/11

*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

\*\*\* Assignment #5 to Be Handed Out \*\*\*

10/15 – 10/18\*

*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 ( $r$ )

\*\*\* Assignment #6 to Be Handed Out \*\*\*

**\* 10/17**

**TBA**

### Preparation for Inferential Statistics

10/22 – 10/25	<i>The Normal Distribution</i>	Chapter 5.
	<u>Key Topics:</u> <ol style="list-style-type: none"> <li>1. Properties of the Normal Distribution</li> <li>2. Areas under the Normal Curve</li> <li>3. Standard (Z) Scores</li> <li>4. The Standard Normal Table</li> </ol> <p>*** Assignment #7 to Be Handed Out ***</p>	
10/29 – 10/31	<i>Review of Assignments</i>	
<b>11/01</b>	<b>*** Second Midterm Exam *** (TNR 356)</b>	

### Inferential Statistics

11/05 – 11/08	<i>Sampling and Sampling Distributions</i>	Chapter 6.
	<u>Key Topics:</u> <ol style="list-style-type: none"> <li>1. Population and Sample</li> <li>2. Probability Sampling</li> <li>3. The Sampling Distribution</li> <li>4. The Sampling Distribution of the Mean</li> <li>5. The Central Limit Theorem</li> </ol> <p>*** Assignment #8 to Be Handed Out ***</p>	
11/12 – 11/15	<i>Estimation</i>	Chapter 7.
	<u>Key Topics:</u> <ol style="list-style-type: none"> <li>1. Estimation Defined</li> <li>2. Confidence Level and Confidence Interval</li> <li>3. Confidence Intervals for Population Means</li> <li>4. Confidence Intervals for Population Proportions</li> </ol> <p>*** Assignment #9 to Be Handed Out ***</p>	

11/19 – 11/26                      *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

\*\*\* Assignment #10 to Be Handed Out \*\*\*

\* 11/28 – 11/29                      NO CLASS! NO LAB! HAPPY THANKSGIVING!

12/03 – 12/06                      *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

12/10 – 12/13                      *Final Review*

**12/17                      \*\*\* Final Exam \*\*\* (Tuesday, 10:15AM – 12:15PM, CCC 330, NO SPSS!)**

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

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