

SOC 351 Social Statistics (Section 2)
Fall 2016

Instructor: M. David Chunyu, Ph.D.
Lecture: T R, 12:35PM – 13:50PM, Collins Classroom Center (CCC) 320
Lab: F, 12:00PM – 13:50PM, Trainer Natural Resources (TNR) 356
My Office: CCC 460
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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 for Windows, 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 competency of “**practice-informed research and research-informed practice**” for accredited social work programs.

The competency is:

➤ ***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. use SPSS in conducting basic data analysis;
4. process and analyze some small datasets for social sciences;
5. apply critical thinking to engage in analysis of quantitative research methods and research findings;
6. use and translate 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. *Social Statistics for a Diverse Society. 7th Edition.* SAGE Publications. 2014

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

<https://edge.sagepub.com/frankfort7e/student-resources>

Additional Materials

Certain course materials (lecture slides, datasets, video tutorials, web links, etc.) will be made available for download from the Desire2Learn system (D2L) → “Content” section.

Other course materials, typically the in-class paper handouts (announcements, review exercises, supplementary files, etc.) will ***NOT*** be posted in D2L. 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.

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” is simply the total crude points a student has accumulated from assignments, exams, and class participation, plus optional bonus points if applicable.

A student’s max TOTAL POINTS consist of the following:

- *Assignments* *30 Points*
- *Exams* *60 Points*
- *Class Participation* *10 Points*

Max Total = 100 Points

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 datasets. All the needed datasets will be made available in the “Content” section of D2L. Some of these datasets (e.g., GSS dataset) are also available for download at the textbook publisher’s student study website at <https://edge.sagepub.com/frankfort7e/student-resources>

Students can use any computer in the DUC and LRC 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. *Red/pink/orange 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. All exams will be closed-book, in-class exams. But students are allowed to use a 3X5 notecard and a conventional calculator in the exams. (See "Required Device" above for more information about what kind of calculator is acceptable.)

Two (2) exams will be given in the middle of the semester, each worth 15 points. The exam format will be a combination of multiple-choice questions, test problems, and SPSS application problems.

The final exam will be given on *Wednesday, December 21 at 12:30PM – 2:30PM*, counting as 30 points. The final exam will *NOT* include SPSS application problems.

Take careful note of the exam dates, especially the date and time of the final exam. ***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!

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 meeting. 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*** (e.g., doctor/coach/supervisor’s note, wedding invitation, obituary, subpoena, event itinerary, etc.). Therefore, a simple self-narration of an emergency or a special occasion (e.g., sickness, car failure, celebration, misfortune, family/work emergency, etc.), whether in oral or written forms, cannot be accepted as proper documentation, and the student’s absence in that case will ***NOT*** be excused.

The quality of a student’s class participation may also factor into her/his “Class Participation” evaluation (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, up to 4 Points)

There might be opportunities for students to earn extra credits/bonus points. The total extra credits/bonus points a student could possibly earn for the entire course could be up to 4 points. ***There will be no exception to this 4-point grand total rule.***

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 this "TOTAL POINTS" calculation process.

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 D2L as soon as they become available. In the end, the instructor will also create a separate grade item in D2L to show students' "TOTAL POINTS" (**Note:** *The "Final Calculated Grade" and the "Final Adjusted Grade" columns in D2L will NOT be used.*) It is the students' own responsibility to check D2L regularly and to be kept informed of their own grade status.

Classroom Etiquette

The classroom is a learning environment and community, and as such, it is expected that students do their best to minimize disruptions that can distract from their learning and that of their peers. Students are expected to come to class on time and not to leave except in the case of emergency situations. Please plan your bathroom breaks, cell phone calls/texts, work schedules, and food/beverage needs 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, or an object.

Students with repeated disruptive behavior/causing repeated distractions will receive a low grade for the "Class Participation" evaluation or 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.

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 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 all the relevant lecture notes and handout materials with her/him 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 effective for many students. Tutoring arrangement is to be made separately 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:

<http://www.uwsp.edu/stuaffairs/Documents/RightsRespons/SRR-2010/rightsChap14.pdf>. 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.

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.

Disability Support Services

The Americans with Disabilities Act (ADA) requires educational institutions to provide reasonable accommodations for students with disabilities. For more information about UWSP policies, go to: <http://www.uwsp.edu/stuaffairs/Documents/RightsRespons/ADA/rightsADAPolicyinfo.pdf>. If you have a disability and require classroom and/or exam accommodations, please register with the Disability and Assistive Technology Center and then contact me at the beginning of the course. I am happy to help in any way I can. For more information, please visit the Disability and Assistive Technology Center, located on the 6th floor of the Learning Resource Center (the Library). You can also find more information here: <http://www4.uwsp.edu/special/disability>

COURSE OUTLINE

| DATES | TOPIC/ACTIVITY | READINGS |
|--|---|------------|
| Descriptive Statistics: Univariate Analysis | | |
| 09/06 – 09/09 | Introduction to Statistics and Variables. Populations and Samples Independent and Dependent Variables Levels of Measurement Discrete and Continuous Variables *** Assignment #1 *** | Chapter 1. |
| 09/13 – 09/16 | Organization of Information. Frequencies, Proportions, Percentages, Rates Frequency Distributions, Grouped Distributions, Cumulative Distributions Stated Limits, Real Limits, Midpoints Reading Statistical Tables Math Review *** Assignment #2 *** | Chapter 2. |
| 09/20 – 09/23 | Measures of Central Tendency. Mean, Mode, Median, Percentiles Choice of Measures The Shape of a Distribution *** Assignment #3 *** | Chapter 4. |
| 09/27 – 09/30 | Measures of Variability/Dispersion. IQV, Range, IQR Standard Deviation Choice of Measures *** Assignment #4 *** | Chapter 5. |
| 10/04 – 10/06 | Review of Assignments | |
| 10/07 | *** <i>First Midterm Exam</i> *** (TNR 356) | |

Descriptive Statistics: Bivariate Analysis

| | | |
|---------------|--|-------------|
| 10/11 – 10/14 | Cross-Tabulation for Categorical Variables. Constructing a Bivariate Table Percentaging Tables Properties of a Bivariate Relationship | Chapter 10. |
| 10/18 – 10/21 | Regression and Correlation for Interval-Ratio Variables. Linear Relationships OLS Regression Line R-Squared Pearson's Correlation Coefficient (r) *** Assignment #5 *** | Chapter 13. |

Preparation for Inferential Statistics

| | | |
|---------------|---|------------|
| 10/25 – 10/28 | The Normal Distribution. Properties of the Normal Distribution Z Scores and Raw Scores Z Scores and Proportions *** Assignment #6 *** | Chapter 6. |
| 11/01 – 11/03 | Review of Assignments | |
| 11/04 | *** Second Midterm Exam *** (TNR 356) | |

Inferential Statistics

| | | |
|-------|---|------------|
| 11/08 | Sampling and Sampling Distributions. Population and Sample (again!) Probability Sampling Sampling Distribution Sampling Distribution of the Mean Central Limit Theorem | Chapter 7. |
|-------|---|------------|

11/10 – 11/11 NO CLASS! NO LAB!

* The instructor will be away to participate in a workshop on urban inequality at Brown University.

| | | |
|---------------|--|-------------|
| 11/15 | Sampling and Sampling Distributions (continues). | Chapter 7. |
| 11/17 – 11/22 | Estimation: Confidence Intervals. Confidence Intervals for Population Means Confidence Intervals for Population Proportions *** Assignment #7 *** | Chapter 8. |
| 11/24 – 11/25 | THANKSGIVING! NO CLASS! NO LAB! | |
| 11/29 – 12/02 | Testing Hypotheses. Null and Research Hypotheses The Five Steps in Hypothesis Testing t Test *** Assignment #8 *** | Chapter 9. |
| 12/06 – 12/09 | The Chi-Square Test. Statistical Independence Observed and Expected Frequencies The Chi-Square Distribution | Chapter 11. |
| 12/13 – 12/15 | Final Review | |
| 12/21 | *** Final Exam *** (Wednesday, 12:30PM – 2:30PM, CCC 320, NO SPSS!) | |

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