SOC 607 – LOGIC AND ANALYSIS OF SOCIAL RESEARCH I

Dr. Susan L. Caulfield
Office: Sangren 2509
Office tel #: Voice Mail: 387-5291
E-Mail Address: sue.caulfield@wmich.edu

Office Hours:
T: 4:00-6:20
Office Hours:
T: 2:00-3:45;
W: 4:00-5:30;
R: 2:00-5:00 and by appointment

COURSE DESCRIPTION: This course is designed to introduce the student to a variety of statistical techniques that are integral to an understanding of social science. Knowledge of these techniques allows for a more thorough understanding of others’ research, especially as reported in journals and government publications. In addition, these techniques are used in a number of research settings, including academic, non-profit organizations, for-profit research institutes, and local, state and national governmental agencies. Finally, knowledge of the techniques addressed in this course is designed to serve as the necessary foundation knowledge for enrollment in SOC 621, the second data analysis course in the Sociology graduate programs. Learning these statistical techniques will be accomplished through several tasks, which include: homework assignments, a semester long individual project, student-led discussions, in-class work, work with SPSS, and examinations. Both descriptive and inferential statistics will be examined, as will univariate, bivariate and multivariate situations.

All of the topics could be courses in and of themselves; therefore, students should expect to receive a survey of the various techniques, with emphasis on a) assumptions about the data, b) research applications, c) mechanics/equations, and d) limitations of the method. A combination of conceptual tools, calculation formulas, and computerized analysis will be the method used in developing a full understanding of the different statistics. No prior use of SPSS is assumed. However, given that the 21st millennium is here, it is assumed that students have a familiarity and comfortability with a computer. Students will find it necessary to keep up with all readings and assignments. Quantitative techniques involve a building block process. Failure to understand the initial "layer" of material will result in difficulties at all subsequent "layers."

LEARNING OBJECTIVES: The primary goal for this course is that students will develop an understanding of basic statistical techniques, both how to interpret them and how to apply them in the field. It is imperative that students not only understand these techniques, but that they understand when certain techniques are applicable and when they are not. At the completion of this course, it is anticipated that each student will have skills in, if not mastered, the following learning objectives:
- graphically present simple quantitative data (including charts and tables)
- demonstrate an understanding of measures of both central tendency and variability, and see their importance as descriptive statistics
- demonstrate an understanding of significance testing, through the use of z-tests, t-tests, f-tests, chi-square, correlation and regression analysis
- demonstrate an understanding of bivariate and multivariate regression analysis
- utilize and balance both computation and interpretation of statistical techniques
- understand how different techniques are applicable to different types of data
- understand the limitations of using statistical techniques to know about the social world
- be able to draw defensible conclusions from the analyses

**TEACHING PHILOSOPHY:** It is my belief that many people are rarely pushed to utilize their full potential and that, given an opportunity, each of us is capable of further developing our gifts, talents, and skills. Importantly, I believe that people do their best work when they are self-directed, given opportunities to try new things, allowed to fail, encouraged to assess their progress, and facilitated through their own process of learning. I approach learning as something done best when individuals are given opportunities to solve problems and to develop their critical thinking skills. This means at times that some students will feel as though they are flailing about and unsure of what they are doing. It is at these times that it is best to trust that continued effort will bring desired results. I believe that learning is less about the final product (i.e., grade or amount of new information) as it is about the process of discovering ways in which we learn, ways in which we can improve, and ways in which we can make contributions to our field of interest. My overall hope is that students will become life-long learners and that the information and skills addressed in this course will become important components in their academic, and non-academic, toolbox.

**FRAMING THE COURSE/CLASSROOM EXPERIENCE:** It is important when any group begins working together that there is clarity on the goals and expectations for the group's work. The time you spend with your peers outside of the classroom, and the time we spend in the classroom are important components of the overall learning experience. To aid in making these experiences as beneficial as possible, there are principles to be followed by everyone, students and professor alike.

First, **it is important that everyone shows up and is fully present.** This means present beyond merely the physical sense of the term. It means being focused on the work of SOC 607, whether that work is centered, at the time, on lecture, discussion, demonstration, etc. It means that each of us must leave our other concerns, issues, dilemmas, etc., outside the classroom door. This
does not mean that these other things are not important to people; instead, it means that everything has a time and a place and we must honor the time that is set aside for this class.

Second, **it is important that we conduct ourselves with honor and integrity.** This means that each of us will take personal responsibility for what we do and be held accountable for what we do. To move from a place of integrity includes being truthful without using blame or judgment, being cognizant of others and their feelings or beliefs, and speaking for ourselves, not putting words in other people's mouths.

Third, **it is important that none of us collude with negativity.** This essentially means that we will not make negative statements about people, tasks, or events, because negativity keeps us in the past, rather than allowing us to move forward and make progress in the adventure of learning. (For example, "I don't like statistics because I once had a bad math experience," will not be an acceptable stance for a person to assume.)

Fourth, **it is unacceptable to engage in "third party-ing."** This means that there will be no discussions where the focus is to share one's perceptions of another person's actions and, invariably, seek allies for one's own position. Our practice will be that we will not say anything about a third party that we would not say to that person. It is disrespectful to create a discussion that involves someone who is not present to define/state his or her own position.

Fifth, **each of us agrees that we should be actively engaged in our education.** This means that we will come to each class meeting or base group meeting willing to participate. We will each share ownership in what occurs in any meeting, and be willing to share our perspectives, respectfully disagree with each other, and come to our own conclusions. This also means that each of us will avoid passivity and procrastination, both of which can lessen our learning experience and put either ourselves or other class members at risk on an assignment.

Sixth, **each of us is responsible for our own inclusion.** This means that none of us is a mind reader, nor can anyone else be expected to know what another person needs. Needs that can arise during a course include the need for clarity, the need for additional help on certain skills, the need for instructions to be repeated, the need to address conflict with class members, or the need to check in on expectations and goals. Importantly, the first step to meeting any need is going to the person and stating what is needed. By being responsible for our own inclusion, we can often get our needs met earlier and also keep small problems from turning into large problems.

Seventh, **each of us will promote a “both/and” rather than an “either/or” perspective.** Issues about the social world are never simple. It is a rare instance, indeed, when we can place any topic into an either/or perspective (e.g., right vs. wrong). Instead, we will endeavor, at all times, to allow for more than one perspective to be legitimate, to be possible, to be allowed to be heard.
Eighth, each of us agrees not to impose “our stories” on others. All too often, since people see the social world from their own perspective, they try to impose that perspective on other peoples' lives. For example, assuming that someone is lazy because they need help reflects the perceiver's idea of laziness more than it reflects anything about the person being observed.

Ninth, each of us will accept that conflict is co-created. This means that with the rare exception, if we are in conflict with someone, we hold some responsibility for that conflict. Our role in the conflict might range from unintentionally misleading, miscommunicating, or misunderstanding another to having made attributions about another person that are not true, yet bring consequences to subsequent interactions. If someone is not sure how they may have played a role in any conflict, the first step is to "check-in" with the other(s) and ask for clarification on what they perceived as having happened.

Tenth, each of us agrees to trust the process. All of us are creatures of habit and most of us do not like it when we do not do well at a given task. However, much of life is more of a process than an outcome and rarely do we get anywhere without doing the work. This course will bring up moments of discomfort. It is important to trust that much planning has gone into the course and that people not only survive the course, some even excel in it.

Of course, it is possible that any one of us might slip on occasion regarding the course principles. If that does happen, and you are aware of it, attempt to rectify it as soon as possible. If it happens with another person, be respectful in approaching them about it.

**REQUIRED ITEMS:** Caulfield, S.L. (2005). *SOC 607 Course pack*. Bookstore, Bernhard Center, WMU.
One 3 ½ " diskette.
Calculator, preferably with square root key, square function, and power function (avoid graphing calculators, if possible).

**MATERIAL ON RESERVE AT THE EDUCATION LIBRARY:**
(These can be found under Caulfield and SOC 607)
GRADE REQUIREMENTS: There are 1000 points available in the class. To earn the grade of A, one needs to accumulate 930-1000 points; 880-929 = BA; 830-879 = B; 780-829 = CB; 730-779 = C; 680-729 = DC; 600-679 = D; and less than 600 = E.

COURSE ASSIGNMENTS: There will be regular out-of-class assignments, including weekly homework assignments and the individual semester-long project. In addition, students will present to the entire class on the reading material each week. These assignments will involve computer work, hand calculations, a combination of both, and interpretation. Statistics can only be learned through practice. Therefore, the course is structured such that students get plenty of practice. Individual homework assignments comprise a total of 40% of the final grade in this course, while the semester-long individual project comprises a total of 30%. Lastly, there are three examinations, which comprise a total of 30%, at 10% each.

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Points</th>
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<tbody>
<tr>
<td>Homework Assignments</td>
<td>400</td>
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<tr>
<td>Individual Semester-long Project</td>
<td>300</td>
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<tr>
<td>Three Examinations</td>
<td>300</td>
</tr>
<tr>
<td>Total Possible Points</td>
<td>1000</td>
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HOMEWORK POLICY: Homework assignments are given on a weekly basis. In order to not lose points, the assignment must be turned in at the beginning of class on the due date. Any homework that comes in late (after 4:00 on the date due, but prior to noon on the subsequent Friday) will be eligible for only half the points earned (e.g., there were 40 points possible, you lost 6, which equals 34; 34 is divided in 2 and you earn 17 points for that assignment). After the subsequent Friday, late homework is not accepted. Also, late homework may not be resubmitted. A graded homework assignment, initially turned in on time, may be resubmitted in an attempt to earn back 50% of the points originally lost. However, any homework resubmissions must be written on new paper and accompanied by the original graded homework, in order to be considered for additional points. The chart below depicts the homework policy. While written with homework #1 as an example, the same policy holds for all homework assignments, with “week 1” denoting the stated due date for the homework.

<table>
<thead>
<tr>
<th>Week 1 - Tuesday</th>
<th>Week 1 - Friday</th>
<th>Week 2 - Tuesday</th>
<th>Week 3 - Tuesday</th>
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</thead>
<tbody>
<tr>
<td>HW#1 Due at 4:00</td>
<td>HW#1 Late, due</td>
<td>HW#1 Graded and</td>
<td>HW#1 Resubmits</td>
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<td></td>
<td>by noon [(points</td>
<td>Returned</td>
<td>Due at 4:00</td>
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HOMEWORK ASSIGNMENTS: Assignments in SOC 607 are due at the beginning of class on the assigned date. Late assignments will be heavily penalized [See the Homework Policy above]. These assignments are important not only in terms of points to be maintained, but they are also important as the foundation pieces for learning the material in this course. That is, there is a very tight integration between these assignments, the learning objectives, and the material on which you will be evaluated. It is imperative, therefore, that you begin work on these assignments early in the process. Some of them will require computer work and output. Due to the busy-ness of labs and lives, it is in your best interest to do this work in a time frame that will allow you to (1) have access to office hours should you have questions; (2) make mistakes in the learning process; and (3) get necessary output in a timely fashion. In addition, pay careful attention to the questions/tasks presented to you. It is ridiculous to lose points for skipping a section of required work. If you do have questions, check with the professor as she has the best idea on what is being asked of you. If you are confused, but do not know what question to ask, just ask for help. Please note that office hours are set aside for you to seek help regarding course work. The assignments are designed to build upon previous work. Should you have difficulty with an assignment, please be sure to seek clarity before moving on to the next assignment. However, if you do not have time to seek help, do as much work as possible and TURN IT IN ON TIME. It is better to lose only some points, rather than to lose them all. Most of the weekly homework assignments will be evaluated. That is, you will be graded on whether or not you determined the correct answer to the problem. Many of the problems used in these assignments are taken from the course pack section, entitled “Exercises for Homework and Practice.” The SPSS aspects of assignments will rely on either the data sets included with the Sweet and Grace-Martin text or data sets provided to you by the professor. In approaching homework assignments, it is important that you not try to equate the number of points an assignment is worth with the amount of time that may be required to properly complete the assignment. Unfortunately, time, effort, and possible points are not always comparable in this course. Different material will require different amounts of work. Different people will require different amounts of time. Therefore, do not handicap yourself by trying to fit the work into some predetermined time frame. Give yourself plenty of time to work with the material in a constructive and productive manner.
In addition, there may be homework assignments that are assessed, rather than evaluated. That is, you will not lose points if you complete the assignment. For these assignments, there is rarely a single correct answer. Instead, what is being assessed is your ability to problem solve, or your ability to draw on the knowledge you have gathered over the course of the semester.

**YES, THE MATERIAL IS NEW:** For many of you, statistics will seem like you have taken a trip to outer space. You will be confused by the need for the statistics, the formulae for the statistics, and the process of interpreting the outcomes of statistical analyses. This is normal! Many of you have never been asked to compute most of these formulae and/or substantively interpret them. Therefore, you might initially lose more points than you would desire. It does get better. Remember that practice is a sure way to master any technique, and has proven to be very beneficial in the field of statistics. So, embrace the weird, give yourself extra time to do the unfamiliar, and trust that you will gain invaluable skills.

**MAKE-UP POLICY:** Make-up exams will NOT be given, unless under exceptional, documented circumstances; furthermore, the decision always rests with the professor. Missed assignments and examinations will result in a loss of all possible points.

**ACADEMIC INTEGRITY:** All persons are expected to do their own work. Failure to do so will result in a loss of all points for the respective activity. While students are encouraged to study in groups, they are expected to turn in individual work. You are responsible for making yourself aware of and understanding the policies and procedures in the Graduate Catalog (pp. 26-28) that pertain to Academic Integrity. These policies include cheating, fabrication, falsification and forgery, multiple submission, plagiarism, complicity and computer misuse. If there is reason to believe you have been involved in academic dishonesty, you will be referred to the Office of Student Conduct. You will be given the opportunity to review the charge(s). If you believe you are not responsible, you will have the opportunity for a hearing. You should consult with me if you are uncertain about an issue of academic honesty prior to the submission of an assignment or test.

**EXTRA CREDIT POLICY:** Should any extra credit work be available, it will be announced in class and made available to everyone. No individual extra credit assignments will be made. In order to earn extra points on extra credit assignments, the work must be turned in at the
beginning of class on the due date. No late extra credit work will be accepted. Unlike homework, extra credit work may not be resubmitted.

**THE SEARCH FOR ANONYMITY**: For ALL assignments and examinations, identify yourself with the last 4 digits of your social security number, preferably in the top, upper, right-hand corner of the first page of assignments. Please do not write your name on anything you turn in for evaluation.

**POLICY REGARDING THE POSTING OF GRADES**: Due to changes in University policy, grades may not be posted by any part of a student’s social security number. In this course, any posting of grades will be done with WebCT, thus insuring confidentiality of all data.

**USE OF OFFICE HOURS**: Students are encouraged to make use of office hours as a time to ask for clarification or elaboration of course material, or to discuss other matters related to statistical analysis and/or sociology. The stated office hours (upper right section of page 1 of the syllabus) are set-aside for the sole purpose of helping students. Please take advantage of this opportunity.

**CLASS CANCELLATION POLICY**: In the event that class is canceled, either for weather or illness of the professor, students are expected to come to the next class meeting having read the material for both class meetings, and having completed any assignments due on those dates. Any updates regarding course material and/or assignments will be posted to the course WebCT site.

**COMMUNICATION POLICY**: Students are expected to keep in contact so as to be aware of any changes to class assignments or other announcements. This communication will primarily take place via the WebCT page for the course; therefore, students must activate and use their WebCT page. This requires use of your Bronco ID.

**CELL PHONE POLICY**: If you must carry a cell phone to class, please be considerate of everyone in the class and have your phone either turned off or set so as it does not make any noise. It is unacceptable for anyone to make or receive cell phone calls during class time. Should you need your phone for emergency purposes, please have it set on vibrate and should you need to take a call, please make it a point to leave the classroom before talking on the phone and, should a presentation be in progress, please wait until it is a more suitable time to leave the room.
## COURSE SCHEDULE

<table>
<thead>
<tr>
<th>DATE</th>
<th>TOPIC</th>
<th>READING</th>
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</table>
| 1.4  | Introduction to course  
Review of basic math and the scientific method | C-pack: 1-67 |
| 1.11 | Levels of measurement  
Frequency distributions  
Measures of central tendency | C-pack: 68-111  
S & G-M: Ch 1 & 2 |
| 1.18 | Measures of variability  
Normal distributions and standard scores  
Summarizing descriptive statistics | C-pack: 112-151  
S & G-M: Ch 3 |

### DESCRIPTIVE STATISTICS

- **Stage 1 – Preliminary Paper Due Today, 1.18**

  - 1.25 SPSS and descriptive statistics  
  Sampling distributions and standard error of the mean  
  C-pack: 153-167  
  S & G-M: Ch 4

### SIGNIFICANCE TESTING

- **EXAMINATION #1 (1.4 THROUGH 1.18)**
  - Introduction to hypothesis testing  
  C-pack: 168-194  
  S & G-M: 87-90  
  Point estimates and interval estimates  
  Significance testing with one score or one sample

  - 2.8 Significance testing with two samples  
  SPSS and significance testing  
  C-pack: 168-194  
  S & G-M: 121-123

- **Stage 1 Final Paper Due Today, 2.8**

  - 2.15 Bivariate table analysis  
    Measures of association  
    Chi-square analysis  
    C-pack: 195-221  
    S & G-M: 90-96

  - 2.22 Significance testing with two variables  
    Levels of measurement and related tests

- **NO CLASS – SPRING BREAK!**

- **EXAMINATION #2 (1.25 THROUGH 2.22)**
  - Testing relationships with interval and ratio data
### [March 14th, last day to withdraw without academic penalty]

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>C-pack</th>
<th>S &amp; G-M</th>
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<tbody>
<tr>
<td>3.15</td>
<td>Introduction to correlation analysis</td>
<td>222-237</td>
<td>96-102</td>
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<td>Correlation and levels of analysis</td>
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<tr>
<td>3.22</td>
<td>Bivariate regression</td>
<td>238-260</td>
<td>131-139</td>
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<td><strong>Stage 2 Paper Due Today, 3.22</strong></td>
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<tr>
<td>3.29</td>
<td>Multivariate regression</td>
<td>TBA</td>
<td>139-148</td>
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<tr>
<td>4.5</td>
<td>Analysis of variance</td>
<td>261-274</td>
<td>113-123</td>
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<td>Path analysis</td>
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<td>4.12</td>
<td>SPSS and multivariate analysis</td>
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<td>Ch. 8</td>
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<td><strong>Stage 3 Paper and Poster Due Today, 4.12</strong></td>
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<td>4.19</td>
<td><strong>EXAMINATION #3 (3.8 THROUGH 4.12), 5:00-7:00 p.m.</strong></td>
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