Description of the Course and its Place in the MSW Program

Course Description:
This course is designed to introduce students to statistics and statistical methods. It is designed for students who have little or no familiarity with statistics and who may want to learn at a relatively slow pace. Students in this course will acquire the skills to comprehend simple statistical reports that apply to social policy and programs. Students will be able to assess the value and limitations of rates, measures of central tendency, and variability. This course will help students develop the ability to use simple quantitative methods to describe real world situations in social work settings and to make inferences based on the statistical results associated with those methods to improve social policy decisions and service delivery programs. Students will learn to use appropriate language with their statistical analyses to clarify meaning and to explain the inferences that can be made from specific data. Finally, students will learn to construct meaningful charts, tables, and graphs for various audiences and provide text that is appropriate for the audience of the analysis.

Course Content:
This course focuses on learning the direct application of analytical skills. Students will review and use simple rates, averages, and other statistics. Students will conduct, interpret, and present statistical analyses to various audiences. Students will receive a brief introduction to the theoretical foundations of descriptive and inferential statistics. Students will practice the appropriate choice of statistics based on available data, the problem to be addressed, and the audience for the analysis. Students will learn the importance of the difference between causality and correlation. Students will learn to apply statistical techniques to problems in policy analysis and evaluation.

Course Objectives:
Students will be able to:
• construct rates, averages, and other simple statistics and interpret them appropriately
• identify appropriate simple statistical methods to use in common policy and program evaluation reports;
• apply basic statistical techniques to common policy and program evaluation situations;
• use basic descriptive statistics and test simple hypotheses to help answer policy or evaluation questions.
• construct meaningful and readable charts, tables, and graphs of appropriate data;
• prepare written, oral and visual reports using appropriate statistical language.

Relationship to Four Curricular Themes:
Multiculturalism and Diversity: Students will develop the capacity to identify ways in which gender, race, ethnicity, social class, age and other forms of social stratification and disenfranchisement in community related issues influence and are affected by the decisions made from statistical analyses and related methodologies.
Social Change and Social Justice: The ability to assess policies and programs analytically is necessary if the social work profession is to play an important role in shaping the outcome of ongoing program and policy debates to reflect issues in social change and justice. This course provides students with the capacity to understand and
influence the role statistical analysis and the interpretation of such analysis play in the formation and implementation of policy, practice and program development.

**Promotion and Prevention**: Prevention and promotion activities are difficult to evaluate and therefore raise special challenges in statistical analysis. It is important to expose students to the language of statistics so that they may comprehend useful and appropriate statistical techniques for different problems. In this way they may analyze and evaluate promotion and prevention activities prior to the development, implementation, and analysis of any relevant policy issue or initiative that they encounter in the course of their professional activities.

**Social Science**: Social workers need to be able to identify statistical methods that optimize a combination of rigor and feasibility. Social workers should also examine the ways in which social science data is translated into current policy and practice and the consequences (both positive and negative) which emerge. This course provides students with the capacity to understand and influence the role statistical analysis plays in the formation and implementation of policy, practice and program development.

**Relationship of this Course to Social Work Ethics and Values**: Ethical standards of research methods (NIH guidelines), social work practice (NASW Code of Ethics) and evaluation practice (Program Evaluation Standards) will be used to review issues commonly confronted in the statistical analysis of policy and evaluation.

### Particulars of the Fall, 2004 Course

<table>
<thead>
<tr>
<th>Course</th>
<th>SSW 673</th>
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<tbody>
<tr>
<td>Instructor</td>
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<tr>
<td>Class Time</td>
<td>Wednesdays, 9am-12pm</td>
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<tr>
<td>Class Location</td>
<td>SSW Building—B696, computer classroom</td>
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<tr>
<td>Office Hours</td>
<td>Tuesday 12:00-1:45 and appointments can easily be made by email</td>
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**Source Materials, Core Texts:**

**Required for Purchase and Available at local college bookstores:**

Please bring your textbooks to class.


The **Basic Practice of Statistics** is an important backup reference for students. Our lectures will not follow the book specifically because we will be using social work examples. But every concept discussed in class is also presented in the book. **Please use it.** Our class web site will also have links to numerous on-line statistics textbooks. These can be very useful to you if you can’t figure out what Moore is saying about a particular topic or if there’s something about his style that you don’t like. Just look up any book online, find the chapter with the same topics as we are discussing (all statistics textbooks have more or less the same chapters) and see if you like or understand the alternative presentation better.

**Interpreting Basic Statistics** is a workbook that uses examples appropriate for social work.
Available for Purchase if you need help with SPSS:


**Data Analysis with SPSS** is recommended for anyone who is completely unfamiliar with SPSS and with statistical programs in general, who thinks that they may have problems grasping basic program concepts (we go over everything in class), or who needs a security blanket just to make sure that the answers are available right by the computer.

Our class “assets” will all be managed through our CTools web site. Readings, assignments, background materials, handouts, and the class schedule are all available on the class web site. The class schedule on the website will always have the appropriate files attached before class time. To find our site, go to the Wolverine Access and look for your classes. Alternatively, go to ctools.umich.edu and sign in. You will need your uniqname and kerberos password to get inside the page. Only students registered for this class will have access to the web site. Weekly lecture notes, announcements, practice problems, and helpful documents will be on the site.

### Weekly Class Schedule  SSW 673—Fall, 2005

<table>
<thead>
<tr>
<th>Date</th>
<th>Theme</th>
<th>Activities</th>
<th>Readings (Please read before the start of class)</th>
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</table>
| **Week 1**  
Sept. 7th | What matters in statistics?  
Getting to Data,  
Reviewing percentages and the very basics  
Interpreting simple rates  
Statistics=Power, a picture is worth a thousand numbers.  
Talking about statistics | Opening up SPSS, introduction to SPSS | EVERYONE---PLEASE READ “TO THE STUDENTS” pages xx to xxv. His summary agrees with my basic philosophy of teaching and understanding statistics. Read Chapter 2 for next week |
| **Week 2**  
Sept. 14th | How Much Can One Variable Tell Us?  
Further introduction to SPSS, ongoing work with data sets,  
Measures of central tendency and description, variability, frequency distributions | Moore, Chapter 2  
Read Chapter 1 for next week | |
| **Week 3**  
Sept. 21st | Working with single variable analysis  
Understanding the features of data sets, simple graphs: pie charts, bar charts, histograms, etc. | Moore, Chapter 1  
Read Chapter 4 and Chapter 6 for next two weeks | |
| **Week 4**  
Sept. 28th | Introducing two variable relationships  
Correlations, cross tabulations, Gender differences in Distributions, scatterplots | Moore, Chapter 4,  
Moore, Chapter 6 | |
| **Week 5**  
Oct. 5th | Working with two variable relationships  
Creating tables and other visual representations of two variable analyses. | Moore, Chapter 4,  
Moore, Chapter 6  
Read Chapter 3 and | |
<p>| <strong>Week 6</strong>  | <strong>Oct. 12th</strong> | The Methodological Foundation—If statistics don’t tell you “the truth”, what do they tell you? Why you can’t report the results of statistical analysis with certainty | Understanding Normal distributions The difference between a population and a sample Sampling Distributions Experiment | Chapter 10 for next two weeks Moore, Chapter 3 Moore, Chapter 10 Read Chapter 11 for next week |
| <strong>Week 7</strong>  | <strong>Oct. 19th</strong> | Probability Theory | Independence, conditionality, and other problems in probability | Moore, Chapter 11 Read Chapter 13, Chapter 14 and Chapter 15 for next two weeks |
| <strong>Week 8</strong>  | <strong>Oct. 26th</strong> | Expressing confidence in estimates, Using significance to help make decisions | Confidence intervals, Introduction to tests of significance, the power of a test | Moore, Chapter 13 Moore, Chapter 14 Moore, Chapter 15 |
| <strong>Week 9</strong>  | <strong>November 2nd</strong> | Continuation of Week 8 | | Moore, Chapter 13 Moore, Chapter 14 Moore, Chapter 15 Read Chapter 16 and Chapter 17 for next week |
| <strong>Week 10</strong> | <strong>Nov. 9th</strong> | Review Inference; Concrete Statistical Methodology with Social Work Applications | Tests for a population mean, comparing two samples, tests for social service impacts. | Moore, Chapter 16 Moore, Chapter 17 Read Chapter 18 and Chapter 19 for next week |
| <strong>Week 11</strong> | <strong>Nov. 16th</strong> | Review Inference Continued | Tests for a population proportion, comparing two proportions, | Moore, Chapter 18 Moore, Chapter 19 Read Chapter 20, Chapter 22 and Chapter 5 for next two weeks |
| <strong>Week 12</strong> | <strong>Nov. 23rd</strong> | No Class | | |
| <strong>Week 13</strong> | <strong>Nov. 30th</strong> | It’s a big World Out There; Comparing More than Two Groups What’s the Point (estimation)? | Boss-ANOVA, inference for Two-Way Tables--Chi-Square; Special emphasis on crosstabs, chi square tests, and further investigations Practicing with single variable regression and with multiple variable regression | Moore, Chapter 20 Moore, Chapter 22 Moore, Chapter 5 Read Statistical Thinking Revisited, pages 630 to 632 for next week |
| <strong>Week 14</strong> | <strong>Dec. 7th</strong> | Spillover, Review, Synthesis, Questions An exercise in report writing using good analysis and good statistical language. | Statistical Thinking Revisited, pages 630 to | |</p>
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<tr>
<th>Statistical Thinking Revisited</th>
<th>632</th>
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| **Week 15**  
Dec. 14<sup>th</sup> | Final Problem Set-short and long problems |
<p>| | Starts at 9:10am in classroom, due at noon. Make sure to bring Interpreting Basic Statistics workbook with you |</p>
<table>
<thead>
<tr>
<th>Date</th>
<th>Assignment: The start day of each assignment is listed. Assignments are due by 11:45pm the following Tuesday.</th>
<th>Point Value</th>
</tr>
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</table>
| Week 1 (Sept. 7th) | Assignment 1 start:  
Exercise 1 in IBS, 1, 3, 5, 10  
Exercise 6 in IBS, 1,2, 3, 5  
Exercise 7 in IBS, 1, 2, 6, 8  
673assn1yourfirstandlastname.doc | 10          |
| Week 2 (Sept. 14th) | Assignment 2 start:  
Exercise 4 in IBS, 1, 2, 3, 6, 13  
Exercise 10 in IBS, 1, 2, 3, 6, 10,  
Exercise 12 in IBS, 2, 7, 11  
673assn2yourfirstandlastname.doc | 10          |
| Week 3 (Sept. 21st) | Assignment 3 start:  
Graph Assignment on the Web  
673assn3yourfirstandlastname.doc | 10          |
| Week 4 (Sept. 28th) | Assignment 3 start:  
Graph Assignment on the Web  
673assn3yourfirstandlastname.doc | 10          |
| Week 5 (Oct. 5th) | Assignment 4 start:  
Crosstabulation Exercise—document on the web  
673assn4yourfirstandlastname.doc | 10          |
| Week 6 (Oct. 12th) | Assignment 5 start:  
Exercise 16 in IBS, 3, 4, 5, 6, 7, 11  
Exercise 17 in IBS, 1, 2, 3, 5, 7, 8, 9, 10  
Exercise 18 in IBS, 2, 4, 7, 8, 9, 12  
673assn5yourfirstandlastname.doc | 10          |
| Week 7 (Oct. 19th) | Assignment 6 start:  
Exercise 33 in IBS, 1, 3, 4, 5  
Exercise 34 in IBS, 1, 2, 3, 5, 7, 9, 10, 13  
673assn6yourfirstandlastname.doc | 10          |
| Week 8 (Oct. 26th) | Assignment 7 start:  
Exercise 37 in IBS, 1, 2, 3, 5, 9, 10, 11  
Reporting hypothesis testing—document on the web  
673assn7yourfirstandlastname.doc | 10          |
| Week 9 (Nov. 2nd) | Assignment 8 start:  
Exercise 38 in IBS, 1, 2, 3, 5, 9, 10, 11  
673assn8yourfirstandlastname.doc | 10          |
| Week 10 (Nov. 9th) | Assignment 9 start:  
Exercise 39 in IBS, 1, 2, 3, 5, 9, 10, 11  
673assn9yourfirstandlastname.doc | 10          |
| Week 11 (Nov. 16th) | Assignment 10 start:  
Exercise 40 in IBS, 1, 2, 3, 5, 9, 10, 11  
673assn10yourfirstandlastname.doc | 10          |
Assignments will be turned in to the CTools web site as Word documents. A sample format for the assignments is on the web. Please follow file naming conventions (see above-there is a two point penalty for an incorrect file name on an assignment—if I turned in assignment # 1, for example, the file name would be 673assn1sherriekossoudji.doc), file format conventions, and deadlines. Assignments will be turned in by the student and will be returned by the instructor electronically through the CTools site. The instructor and class will practice the assignment process the first day of class. If any student has difficulty understanding CTools, classes on its uses are available through the university. Please take care of any CTools problems in a timely manner.

Late Assignments for projects and papers are accepted only with a penalty. A late assignment will be assessed a 25% penalty (this means an 8 point assignment will get a maximum of 6 points, etc. Assignments cannot be turned in more than one week late. If an assignment is more than one week late, 0 points will be given. No makeups or changes can be made for assignments, exams, or problem sets.

Final Course Grades Are Based on Total Points: A+ = 98-100, A = 94-97, A- = 90-93, B+ = 87-89, B = 82-86, B- = 78-81, C+ = 75-77, C = 70-74, not passing = <70
When you turn in this file, you acknowledge that you have carefully read the syllabus, that you understand everything in the syllabus, and that if you did have any questions, you asked them in lecture, discussion, or office hours. Please make sure that you are very clear about your own responsibilities in this class. Also, please make sure that you are very clear about the ramifications of your actions in this class. Do not lose points or get a lower grade than you expected because you didn’t pay attention to information in the syllabus, in lecture, or in discussion. If you turn in this file PROPERLY, you will receive 8 points. If you do not turn in this file PROPERLY, you will receive 0 points.

Save this single page to a WORD document called contract-yourfirstnameandlastname.doc. Substitute your own first and last name in the file name. As an example, if I turned one in, the filename on my document would be contract-sherrie_kossoudji.doc. **If the file name is not correct you will not get credit for this assignment.** Submit this signed document as your assignment to the CTools web site. The assignment is called “Syllabus Contract”.

I, (fill in your name here), have completely read the syllabus. I understand its content, and I have asked any questions that I needed to avoid any confusion and to be aware of the ramifications of my actions in this class.

I understand that if I plagiarize any work in this class that I will fail the course.

I understand that my attendance in class is expected and that I am responsible for anything that I missed if I did not attend lecture or discussion.

I understand that if I wait until the last minute to submit an assignment, a computer glitch could prevent me from turning in the assignment on time. I understand that late assignments only receive 80% of available points.

I understand that if I do not turn this contract as specified in the instructions, I will not receive the points for this assignment.

This affidavit is signed electronically by the fact that it has been turned into to the CTools site using my kerberos password,

This affidavit is signed electronically by the fact that it has been turned into to the CourseTools site using my kerberos password,

(fill in your full name here)

(fill in the date here).