



Course title:	Advanced Statistics	
Course #/term:	SW 673, Fall 2022	
Time and place:	Fridays 9:00 am to 12:00 pm, IN-PERSON	
Credit hours:	3	
Prerequisites:	None	
Instructor:	Professor Cristina Bares, Ph.D., M.S.W., M.S., M.B.A.	
Pronouns:	She, her, hers	
Contact info:	Email: cbb@umich.edu	Phone: (734) 615-2582
	Students may expect a response to email within 72 hours (not counting weekends).	
Office:	2736	
Office hours:	By appointment through https://calendly.com/cbb_um/30min	

1. Course Statement

This course is designed to introduce students to statistics and statistical methods. It is intended and designed for students who already have some familiarity with statistics. Students in this course will acquire the skills to create and comprehend statistical reports related to program evaluation and research practice. Students will be able to assess the value and limitations of measures of central tendency (means, medians, and modes) rates, and statistical estimates such as correlations and regression parameters. This course will help students develop the ability to use advanced quantitative methods to describe and analyze real world situations in social work settings and to make ethical inferences and decisions based on the statistical results. Students will learn to choose methods of statistical analysis to improve social policy decisions, service delivery, and intervention programs. Students will learn to understand and use appropriate language with their statistical analyses to clarify meaning and to explain the inferences (e.g., causal inferences) that can be appropriately made from specific data.

a. Course objectives and competencies

1. Analyze extant research for its use and abuse of outcomes and measures of social justice, social change, and diversity.

2. Construct rates, means, proportions and other simple statistics and interpret them appropriately.
3. Ethically use and ethically report on the results of statistical analyses.
4. Identify appropriate simple statistical methods to use in policy and program evaluation situations.
5. Conduct basic statistical analyses of common policy and program evaluation situations.
6. Use basic descriptive statistics and test simple hypotheses to help answer policy or evaluation questions.
7. Construct meaningful and readable charts, tables, and graphs of appropriate data.
8. Prepare written, oral and visual reports for different audiences using simple and appropriate statistical language.

b. Course design

This course will use textbook readings, journal articles, lectures, computer lab exercises, applied statistical exercises, case studies, and small group exercises to convey relevant content. Students should have access to a computer with internet access to retrieve online material (textbook and other readings) and to be able to use virtual sites to have access to statistical software.

c. Intensive focus on PODS

This course integrates PODS content and skills with a special emphasis on the identification of theories, practice and/or policies that promote social justice, illuminate injustices and are consistent with scientific and professional knowledge. Through the use of a variety of instructional methods, this course will support students developing a vision of social justice, learn to recognize and reduce mechanisms that support oppression and injustice, work toward social justice processes, apply intersectionality and intercultural frameworks and strengthen critical consciousness, self-knowledge and self-awareness to facilitate PODS learning.

2. Class Requirements

a. Text and class materials

The textbook is freely available online (citation and url link below) and a pdf copy will be available on our Canvas site.

Illowsky & Dean, 2020. Introductory Statistics.

<https://openstax.org/details/books/introductory-statistics>

We will use R to conduct statistical analyses. Students will be required to download R to their computers from this website:

cran.r-project.org

- To fully engage in the course topic and become a competent and skilled social work practitioner, it is expected that students will complete all required readings.
- Required readings completed ahead of each class session will allow students to more fully understand and engage with the class material.
- All readings are available in Canvas under the relevant week.

b. Class schedule

We will follow the following class schedule. Each reading listed here should be completed prior to the relevant class. Assignments listed are due prior to the class meeting; exact due dates are available through Canvas. Changes to the schedule will be communicated through a Canvas announcement at least a week in advance.

Week	Topic & Reading	Assignment
1. (wk. of 8/29/22)	Introduction to Course & to Social Work Research Review statistical concepts and examples of existing social work research, explore misuses, examine how widely the inclusion of social justice, social change, and diversity occurs in research. <ul style="list-style-type: none">• <i>Awad et al., 2016</i>• <i>Soboçan et al., 2019</i>	Read syllabus, prepare readings, assess your knowledge, & engagement assignment
2. (wk. of 9/5/22)	Assessing Research Review what makes for 'good' research. <ul style="list-style-type: none">• <i>Wakefield et al., 1998</i>• <i>Eggertson, 2010</i>• <i>Quantitative Research Assessment Tool</i>	Prepare readings and engagement assignment
3. (wk. of 9/12/22)	Introduction to Univariate Analyses Accurate, valid interpretation of statistics. <ul style="list-style-type: none">• <i>Textbook, Ch. 1 and 2</i>	Prepare readings, Getting Started with R , and engagement assignments

4. (wk. of 9/19/22)	<p>Univariate Analyses: Hands on Application of simple statistics using R, including choosing appropriate statistical tests, using existing data.</p>	Descriptive Statistics assignment
5. (wk. of 9/26/22)	<p>Univariate Analyses: Reporting Presentation and ethical statistical practice of univariate analyses and beyond.</p> <ul style="list-style-type: none"> • <i>Morgan, Ch. 2</i> • <i>Ethical Guidelines for Statistical practice, ASA 2018</i> 	Quiz 1
6. (wk. of 10/3/22)	<p>Introduction to Bivariate Analyses Review of appropriate methods, including but not limited to correlations, bivariate analyses, and regression analyses.</p> <ul style="list-style-type: none"> • <i>Textbook, Ch. 12</i> 	
7. (wk. of 10/10/22)	<p>Bivariate Analyses: Hands on Hands-on practice; conduct descriptive, univariate analyses, and correlations.</p>	
8. (wk. of 10/24/22)	<p>Bivariate Analyses: Reporting Interpretation and reporting of results.</p> <ul style="list-style-type: none"> • <i>Morgan, Ch. 5</i> • <i>Morgan, Ch. 7, 8</i> • <i>OWL reading on creating APA tables</i> 	
9. (wk. of 10/31/22)	<p>Introduction to Mean and Group Comparisons Review appropriate methods, including but not limited to mean and group comparisons.</p> <ul style="list-style-type: none"> • <i>Textbook, Ch. 9, 10</i> 	Bivariate Analyses assignment
10. (wk. of 11/7/22)	<p>Mean and Group Comparisons: Hands on Hands-on practice; conduct descriptive and simple statistical analyses.</p>	
11. (wk. of 11/14/22)	<p>Introduction to OLS Regression</p> <ul style="list-style-type: none"> • <i>Textbook, Ch. 12</i> 	Group Comparison assignment, Quiz 2
12. (wk. of 11/28/22)	<p>Beyond OLS Regression</p> <ul style="list-style-type: none"> • <i>Tutz, 2012</i> 	

13.(wk. of
12/5/22)

Final presentations. Students will present a written report that they've worked on during the semester. A brief, in-class presentation will be part of this assignment.

Final Data Analysis
assignment

c. Assignments

Below is a brief description of each assignment for this course and the points that each assignment contributes to students' overall grade. More detailed instructions and a rubric for each assignment are available on our Canvas site. Students are expected to read the description here and in Canvas. All assignments are to be submitted through Canvas. **No emailed assignments are accepted.** Due dates on syllabus. No make-up assignments or extra credit is available for any assignments. Late assignments will be penalized: 1 point per day will be deducted for assignments that are turned in passed the deadline listed on the syllabus.

Engagement Assignments (Course Objectives 1, 2, 3, 4, 5)

This course includes engagement assignments as you complete some of the module content. These engagement assignments are brief assignments that you should do while completing course readings or watching a video to learn a new skill. These assignments are due on the same week that the content will be reviewed in class.

Assess Your Statistics Knowledge. This assignment includes problems taken from our class textbook that will help you assess your statistics knowledge. It is a good idea to complete this assignment early on in the semester to ensure you have a working knowledge of the topics we will work with this semester. If there are topics that the assessment shows you could improve on, I will provide **supplemental** materials for you to complete on your own. 1 point

Reflection on Social Work Research. This assignment asks that you reflect on the research recommendations in two of our course readings. 5 points

What Makes for Good Research? This assignment asks that you find two articles to apply a research evaluation tool to. 5 points

Definitions – Chapter 1. This assignment lists research methods and statistical concepts to define. 5 points

Working with R – Part I and II. These two assignments require that you show your ability to create and work with a coding script in R. 5 points each

3) Descriptive Statistics (Course Objectives 2, 3) 10 points

In this assignment, students will analyze data provided by the instructor and conduct descriptive analyses using R. Students will turn three documents for this assignment: their R script, a table with the results, and a write up of the results.

4) Bivariate Analyses (Course Objectives 2, 3) 10 points

In this assignment, students will analyze data provided by the instructor and asked to conduct and interpret univariate and multivariate analyses. Students will turn in three documents for this assignment: their R script, a table with the results, and a write up of the results.

5) Group Comparison (Course Objectives 2, 3, 4, 5) 10 points

In this assignment, students will analyze data that evaluates the effectiveness of a social service program using appropriate statistical methods and ethically report on the results. The data for this assignment will be provided by the instructor several weeks ahead of the assignment. Students will turn in three documents for this assignment: their R script, a table with the results, and a write up of the results.

6) Final Data Analysis (Course Objectives 1-8) 15 points

In this assignment, students will work on a novel research question with data provided by the instructor (or other data is access is possible), analyze data to answer that question, and write up the results. A sbrief in-class presentation will be part of this assignment.

Quizzes (Course Objectives 4,5,6,7) 10 points, each

There will be two quizzes during the semester to test students' knowledge of concepts covered in class. Quizzes will be available in Canvas and will occur during our scheduled class times. Questions and reviewing of content to be tested in the quiz will be entertained up to a week prior to the quiz but not on the day of the quiz.

Class participation 10 points

All students will actively participate in class throughout the semester by asking and answering questions, by participating in class discussions, and by contributing to online discussion and activities.

d. Attendance and class participation

Attendance at each class meeting is expected. Class participation is part of student's final grade. All students are expected to be active participants in each class session and to contribute to class discussions and class activities. In-class assignments that students miss due to missing a class cannot be made up. When students miss class they will lose the chance to earn participation points.

Students who are absent for 2 or more classes will receive a full letter grade deduction at the end of the semester. If students miss a class, it is their responsibility to find missed material on our Canvas site and to make arrangements with a classmate to get the notes, handouts, or other materials. Students will find readings, course handouts, and assignment instructions on our Canvas site for this class. Individual meetings for missed classes will not be available.

e. Grading

The total number of points that students earn is based on the successful completion of the above assignments and class participation. Students should pay careful attention to the rubric available on Canvas for each element used to grade each assignment. The number of total available points will be used to determine the letter grade students earn at the end of the semester. No make-up assignments or extra credit is available. Late assignments will be penalized: 1 point per day will be deducted for assignments that are turned in passed the deadline listed on the syllabus.

A 96-100%	A- 93-95%	B+ 90-92%
B 86-89%	B- 83-85%	C+ 80-82%
C 76-79%	C- 73-75%	D <72%

f. Class Recording and Course Materials

Audio and video recording of in-class lectures and discussions is prohibited without the advance written permission of the instructor. Students with an approved accommodation from the Office of Services for Students with Disabilities permitting the recording of class meetings must present documentation to the instructor in advance of any recording being done. The instructor reserves the right to disallow recording for a portion of any class time where privacy is a special concern. If the instructor chooses to record a class, they will decide which classes, if any, are recorded, what portion of each class is recorded, and whether a recording is made available on the course management website. On days

when classes are recorded, students will be notified a recording is occurring. Class recordings and course materials may not be reproduced, sold, published or distributed to others, in whole or in part, without the written consent of the instructor.

g. COVID-19 Statement

For the safety of all students, faculty, and staff on campus, it is important for each of us to be mindful of safety measures that have been put in place for our protection. By returning to campus, you have acknowledged your responsibility for protecting the collective health of our community. Your participation in this course on an in-person/hybrid basis is conditional upon your adherence to all safety measures mandated by the state of Michigan and the University, including maintaining physical distancing of six feet from others, and properly wearing a face covering in class. Other applicable safety measures may be described in the Wolverine Culture of Care and the University's Face Covering Policy for COVID-19. Your ability to participate in this course in-person/hybrid may be impacted by failure to comply with campus safety measures. Individuals seeking to request an accommodation related to the face covering requirement under the Americans with Disabilities Act should contact the Office for Institutional Equity. If you are unable or unwilling to adhere to these safety measures while in a face-to-face class setting, you will be required to participate on a remote basis. I also encourage you to review the Statement of Student Rights and Responsibilities and the COVID-related Addendum to the Statement of Student Rights and Responsibilities.

h. Health-Related Class Absences

Please evaluate your own health status regularly and refrain from attending class and coming to campus if you are ill. You are encouraged to seek appropriate medical attention for treatment. School of Social Work students who miss class due to illness of any kind will be given opportunities to access course materials online or provided with alternative learning opportunities. Please notify me by email about your absence as soon as practical, so that I can make accommodations. Please note that documentation (a doctor's note) for medical excuses is *not* required.

Additional School and University policies, information and resources are available here: <https://ssw.umich.edu/standard-policies-information-resources>. They include:

- *Safety and emergency preparedness*
- *Mental health and well-being*
- *Teaching evaluations*

- *Proper use of names and pronouns*
- *Accommodations for students with disabilities*
- *Religious/spiritual observances*
- *Military deployment*
- *Writing skills and expectations*
- *Academic integrity and plagiarism*