

Final Exam (Save the dates!):

12/18/2023, Monday 5:00PM – 7:00PM Collins Classroom Center (CCC 303).

Instructor and Student Hours:

Dr. Senfeng Liang

Email: sliang@uwsp.edu

Office: D356 Science Building

Class time and location: 1:00pm - 2:50pm, Tuesday and Thursday Science Building (SCI) B328.

Student hours: Friday, 9:00am-12:00pm (it may vary; A 24-hour reservation is needed) or by appointment, click [here](#) for actual hours.

If you would like to schedule a meeting with me, please click [this link](#) to reserve a time slot 24 hours in advance. Please write **Math 255_07_ your full name** in the subject of the email. Always use **full official name** in your email (e.g., at the end of an email). **No nick name please!** I may not reply to your email if it fails to follow the format.

Textbook and course materials:

Introduction to the practice of statistics by Moore, McCabe and Craig [ISBN:9781319244446].

Some statistics text may use different (but equivalent) notations and formulas from what are used in this course.

Course handouts and video lectures will also explain what you need to know to understand the assignments.

Prerequisite: Math 95 or equivalent

Student Learning Outcome and Course Objectives:

Students will be able to understand and apply...

The fundamental concepts of statistics in sociology, education, psychology, nursing, business and general research data analysis. These concepts are often considered basic tools for investigating undergraduate and graduate research questions. No previous knowledge beyond fundamental arithmetic is assumed.

General course objectives may include:

- Identify the variables in a data set.
- Identify the values of a variable
- Analyze the distribution of a categorical variable using a bar graph/pie chart.
- Analyze the distribution of a quantitative variable using a stem plot/histogram.
- Identify the shape, center, and spread of the distribution of a quantitative variable.
- Describe the center of a distribution by using the mean/median.
- Describe the spread of a distribution by using quartiles/five number summary.
- Identify outliers by using the 1.5XIQR rule.
- Be able to sketch a Normal distribution for any given mean and standard deviation.
- Be able to apply the 68-95-99.7 rule to find proportions of observations within 1,2, and 3 standard deviations of mean for any Normal distribution.
- Be able to compute areas under a Normal curve using table A.
- Be able to perform inverse normal calculations to find values of a Normal variable corresponding to various areas.
- Be able to extent to which the distribution of a set of data can be approximated by a Normal distribution.
- Describe a sample space from a description of a random phenomenon.
- Apply the five probability rules.

- Describe the probability distribution of a discrete random variable.
- Use the distribution of a discrete random variable to calculate probabilities of events.
- Identify population, population mean and population standard deviation.
- Identify a statistical as pertaining to either a sample or a population.
- Be able to calculate sample distribution.
- Be able to determine when the sampling distribution of X can be modeled using the binomial distribution.
- Be able to calculate the mean and standard deviation of X when it has the $B(n, p)$ distribution.
- Be able to read a binomial table.
- Identify the key characteristics of a data set to be used to explore a relationship between two variables.
- Categorize variables as response variables or explanatory variables.
- Be able to make a scatterplot to examine a relationship between two quantitative variables.
- Describe the overall pattern in a scatterplot and any striking deviations from that pattern.
- Use a scatterplot to describe the form, direction and strength of a relationship.
- Use a scatterplot to identify outliers.
- Identify a linear pattern in a scatterplot.
- Understand the definition of the least-squares regression equation.
- Be able to calculate the residual value.
- Describe a level C confidence interval for a population parameter in terms of an estimate and its margin of error.
- Explain how the margin of error changes with a change in the confidence level C .
- Determine the sample size needed to obtain a specified margin of error for a level C confidence interval for μ .
- Formulate the null and alternative hypotheses of a significance test.
- Describe a common form for the test statistic in terms of the parameter estimate, its standard deviation, and the hypothesized value.
- Define what a P -value is and explain whether a small P -value provides evidence for or against the null hypothesis.
- Write a conclusion from test of significance based on the test's P -value and significance level α .
- Perform a one-sample t significance test and summarize the results.
- Describe a level C confidence interval for a population parameter in terms of an estimate and its margin of error.
- Define what a P -value is and explain whether a small P -value provides evidence for or against the null hypothesis.
- Identify the sample proportion, and sample size, and the count for a single proportion. Use the information to estimate the population proportion.
- Describe the relationship between the population proportion and the sample proportion.
- Identify the standard error for a sample proportion and the margin of error for confidence level C .
- Apply the large sample significance test to test a null hypothesis about the population proportion.
- Determine the sample size needed for a desired margin of error.
- Two-way table

Course Requirements:

1 Tests

There will be multiple tests in this course.

2 Homework, discussions, quizzes, etc.

We may have quizzes and discussions. There will be different types of homework assignments.

Class Responsibilities

1 Attendance and participation:

Attendance and full participation are very important for this course. Absences must be documented either medically or justified by other reasons considered valid by the University. Attendance and participation will be counted and graded. **You are responsible for learning the missed content, all announcements and assignments made in your absence.** Major emergencies will be handled on an individual basis. **Media phone devices are not to be turned on or used during class time.** Activities such as texting messages may result in losing your participation points.

2 Conduct:

I will treat you as professionals and I expect the same in return.

3 Late Homework and make-ups:

No late homework will be accepted unless you have an extremely strong reason (such as accidents, emergencies, medical reasons) (The same is true for tests.) **If you have such a reason, you must ask me via email for any possible permission in advance (or as early as you can). Oral permission is not valid.** Moreover, even if your homework is accepted, you may lose points for being late. All written assignments must be submitted on or before the time/date indicated. You have one day's grace period for handwritten homework assignments. Unless otherwise permitted, there is no grace period for any other assignments, tests, projects, etc.

4 Disability Accommodations:

If you have a documented disability and verification from the Disability Resource Center (DRC) and wish to discuss academic accommodations, please contact me instructor as soon as possible. It is the student's responsibility to provide documentation of disability to Disability Services and meet with a Disability Services counselor to request special accommodation before classes start.

You can click this link for more information: <https://www.uwsp.edu/disability-resource-center/>

5 Religious Beliefs:

Students who sincerely held religious beliefs will be reasonably accommodated with respect to all examinations and other academic requirements. According to UWS 22.03, you must notify the instructor within the first three weeks of classes about specific dates which require accommodation.

6 Policies

UW-Stevens Point values a safe, honest, respectful, and inviting learning environment. To ensure that each student has the opportunity to succeed, a set of expectations for all students and instructors have been developed. This set of expectations is known as the Rights and Responsibilities document, and it is intended to help establish a positive living and learning environment at UWSP. Check here for more information:

https://www.uwsp.edu/dos/Documents/2015_Aug_Community%20Rights%20and%20Responsibilities%20Web.pdf

7 Netiquette Guidelines

Netiquette is a set of rules for behaving properly online. It is our goal to foster a safe online learning environment. All opinions and experiences, no matter how different or controversial they may be perceived, must be respected in the tolerant spirit of academic discourse. You are encouraged to comment, question, or critique an idea but you are not to attack an individual. Working as a community of learners, we can build a polite and respectful course community.

The following netiquette tips will enhance the learning experience for everyone in the course (especially if there is any discussion on Canvas):

- Be positive and supportive.
- Do not dominate any discussion.
- Do not use offensive language. Present ideas appropriately.
- Be cautious in using Internet language. For example, do not capitalize all letters since this suggests shouting.
- Popular emoticons such as ☺ or / can be helpful to convey your tone but do not overdo or overuse them.
- Avoid using vernacular and/or slang language. This could possibly lead to misinterpretation.
- Never make fun of someone's ability to read or write.
- Share tips with other students.
- Keep an "open-mind" and be willing to express even your minority opinion. Minority opinions have to be respected.
- Think and edit before you push the "Send" button.
- Do not hesitate to ask for feedback.
- Using humor is acceptable.

Adapted from:

Mintu-Wimsatt, A., Kernek, C., & Lozada, H. R. (2010). *Netiquette: Make it part of your syllabus*. *Journal of Online Learning and Teaching*, 6(1).

Shea, V. (1994). *Netiquette*. Albion.com. Retrieved from: <http://www.albion.com/netiquette/book/>

8 Academic Integrity:

As a student in this course (and at this university) you are expected to maintain high degrees of professionalism, commitment, and integrity to active learning and participation in this class. You have to follow the following academic honesty policy for this course.

The board of regents, administrators, faculty, academic staff and students of the university of Wisconsin system believe that academic honesty and integrity are fundamental to the mission of higher education and of the university of Wisconsin system. The university has a responsibility to promote academic honesty and integrity and to develop procedures to deal effectively with instances of academic dishonesty. Students are responsible for the honest completion and representation of their work, for the appropriate citation of sources, and for respect of others' academic endeavors. Students who violate these standards must be confronted and must accept the consequences of their actions, that means you may get zero point for an assignment or a test, or even fail the whole course.

Academic misconduct subject to disciplinary action.

(1) Academic misconduct is an act in which a student:

- (a) Seeks to claim credit for the work or efforts of another without authorization or citation;
- (b) Uses unauthorized materials or fabricated data in any academic exercise;
- (c) Forges or falsifies academic documents or records;
- (d) Intentionally impedes or damages the academic work of others;
- (e) Engages in conduct aimed at making false representation of a student's academic performance; or
- (f) Assists other students in any of these acts.

(2) Examples of academic misconduct include, but are not limited to: cheating on an examination (for example, use a cell phone to contact other people during a test); collaborating with others in work to be presented, contrary to the stated rules of the course; submitting a paper or assignment as one's own

work when a part or all of the paper or assignment is the work of another; submitting a paper or assignment that contains ideas or research of others without appropriately identifying the sources of those ideas; stealing examinations or course materials; submitting, if contrary to the rules of a course, work previously presented in another course; tampering with the laboratory experiment or computer program of another student; knowingly and intentionally assisting another student in any of the above, including assistance in an arrangement whereby any work, classroom performance, examination or other activity is submitted or performed by a person other than the student under whose name the work is submitted or performed.

9 *Extra credits*: If you volunteered to show your work on board you earn 0.5 point for each class. **Even if you volunteered twice or more than twice, you earn 0.5 point for each class.** Other opportunities may be possible.

Grading Policy

***Homework 35% ***

Exams 40%

Final exam (It is an accumulative test) 25%

Please note that all homework assignments, quizzes, discussions, and attendance will be treated in the homework category.

<i>Letter Grade</i>	<i>Percentage</i>	<i>Letter Grade</i>	<i>Percentage</i>
A	93-100%	C	73-76.99%
A-	90-92.99%	C-	70-72.99%
B+	87-89.99%	D+	67-69.99%
B	83-86.99%	D	60-66.99%
B-	80-82.99%	F	0-59.99%
C+	77-79.99%		

Important note: In one assignment, you will need to hand copy an Academic Integrity Statement; failing to finish this task properly will give you an F grade for this course. I reserve the right to exercise discretion in raising a students' grade if the final weighted average does not appear to reflect the quality of a student's work. I will not use discretionary judgments to lower a students' final grade. The weighting of the scores may change if it results in a higher percentage for the student. Extra credit opportunities may be given throughout the semester. You should not count on it though since there may be none. I will not round up your percent, for example, 92.94% will give you an A-, rather than an A.

Estimated time needed for this course

Students may need to spend 2-3 hours of preparation outside of class for every hour spent in class. MATH 255 is a four-credit class, so you should expect to spend 8-12 hours each week devoted to studying and preparing assignments for this class besides the regular class hours. **If you have difficulty in meeting or understanding course expectations, please sign in the meeting link or make an appointment with me via email to discuss your issues immediately.**

Extra help (STEM Tutoring)

The STEM Tutoring Program offers FREE tutoring to support you in your STEM classes. The tutors are UWSP students who have done well in their classes and who are here to share their successful study habits and content knowledge to help others succeed. Discussing concepts and practicing problems together clarifies and solidifies

knowledge, and the tutors are eager to study with you. If you have questions about the schedules or would like to make an appointment, please visit CBB 190, or email (tlctutor@uwsp.edu), or call (715) 346-3568.

What	Location	Schedule	Cost
STEM Drop-In Tutoring	CBB 190	No appointment needed – stop by when tutors are available: https://www.uwsp.edu/tlc/Pages/dropInTutoring.aspx .	Free

Other important notes:

1. Grades given during the semester cannot be disputed after 5 days of receiving the grade.
2. After the final test, I may NOT reply to your emails if you ask me to raise your scores.
3. If you need to reschedule the tests/quizzes dates, you must get my permission first (I may or may not give you permission). If you did not contact me before the tests/quizzes and need to reschedule the tests/quizzes, I may not give you permission. Even with permission, partial credits may apply.
4. Calculators may or may not be used, depending on the task.
5. Some assignments may be due on weekends (the goal is to give people more flexibility), however, you are given sufficient time to finish them during weekdays (and before the deadlines). You should try your best to finish assignments early enough so when you have difficulties you have enough time to ask for help.
6. I will try to reply to your emails soon, but please do not expect me to reply to your email on the same day that you send me the email. Sometimes I may need up to 48 hours or longer. I may also not check emails during the evenings, weekends, or Holidays. I may not reply to an email if what was requested in the email is unreasonable (such as asking for points without a good reason).
7. If you identify any errors, or if you have any questions, confusions regarding any aspect of this course, please contact me immediately. It is nearly impossible to make a perfect course, but I will try my best to address your issues and help you make progress on learning.
- 8. The syllabus's content may be included in quizzes or tests.**
9. Some homework assignments may be finished via myopenmath.com (but it will be available on canvas). The integration of myopenmath to Canvas is relatively new to me and I am still learning it. If you have any questions about the online homework questions, please let me know. And I will explore it and try my best to help.
10. The syllabus is tentative, and I reserve the right to interpret and revise it.