

Math 350 - Spring 2021 Syllabus

Professor:	Dr. Nathan Wetzel		Office:	SCI D352
Office Hours	T R	10 - 10:50 am	Phone:	x4127
	M W F	11 - 11:50 am		
	or by arrangement			
Classroom times	Math/ME 350 (CCC 213)	MT RF	8 - 8:50 am	
	Math 357 (CCC 213)	T RF	9 - 9:50am	
	Math 112	Online		

We will only have one final exam and it will be on Thursday, May 20 from 10:15 am - 12:15 pm.

Text: Introduction to the Practice of Statistics, 8th Ed. by Moore and McCabe.

Supplemental Material: I will be making use of Activity Based Statistics by Scheaffer, etal. and Workshop Statistics by Rossman. There is a study guide for our text, and there are also software manuals which accompany our text. Other useful texts: *Statistics* by Freedman, Pisani, Purves and Adhikari. Any of a multitude of texts titled Intro to Stats or Elementary Stats. *MINITAB Mini-Manual* - published by MINITAB Software or *MINITAB Handbook* Published by Duxbury press.

Calculators and Computers: A calculator will be necessary in this course (one which calculates means and standard deviations) and may be used on exams. If you are going to purchase a calculator for this course, please see me for recommendations. The TI-83 or 84 would be particularly helpful. The computer software MINITAB will be used extensively in this course.

Prerequisites: Math 121

Course Goals: Student are expected to understand statistical concepts, probability and how to teach these topics. We will cover the first 9 chapters of our text. Chapter 1 - *Looking at Data - Distributions*, Chapter 2 - *Looking at Data - Relationships*, Chapter 3 - *Producing Data*, Chapter 4 - *Probability: The Study of Randomness*, Chapter 5 - *Sampling Distributions*, Chapter 6 - *Introduction to Inference*, Chapter 7 - *Inference for Distributions*, Chapter 8 - *Inference for Proportions*, and Chapter 9 - *Analysis of Two-Way Tables*. Critical understanding of the concepts will be necessary. Extra material may be discussed and when necessary, notes will be distributed. Thinking is required. See the attached pages for how this course relates to the Wisconsin Standards for Teacher Development and Licensure. Finally, you should keep all of your materials from this class. In particular, the Test Criticisms/Constructions and the Projects may make good material for your teaching portfolio.

Evaluation: You will be evaluated based on Daily Homework, Assignments, Projects/Presentations, Test Criticisms and Constructions, and a Final Exam. As of the first day of class we will not have in-class quizzes or tests (however, this policy is subject to change). Attendance is expected at every class meeting. It is the student's responsibility for making prompt arrangements with the instructor for making up assigned work. Late work will have a 10% reduction in points for each weekday late and after 5 days will be given a 0. Daily Homework is NOT accepted late.

As with most math courses, it is very important to DO problems. As a student, **your** responsibility is first, to seriously attempt to do all of the problems. If you succeed at all of them, go surf the Internet, play a video game, or study for another class. (I put this in here so that you will know that I don't assume that this is your only class - it will only seem like I assume this.) However, if you identify difficulties, your second responsibility is to resolve the difficulties with help from the text, friends, me, etc.

Most days I will give a list of Daily Homework problems. These are labeled Set 1.1a, Set 1.1b, Set 1.2a, etc. When I write a Set on the notes, you should consider it assigned and the "Must do" part is due at midnight on that day. Daily Homework is NOT accepted late. I will gradually drop half of these Daily Homework sets. The "Suggested" part is completely optional.

Grading: Grades will be based on the following percentages Daily Homework-8% Assignments-30%, Projects/Presentations-30%, Test Criticisms + Constructions-24%, Final-8%. A weighted average will be computed and if it is $\geq 93\%$ then the grade will be an A, if it is $\geq 90\%$, then the grade will be at least an A-, if it is $\geq 87\%$, then the grade will be at least an B+, if it is $\geq 83\%$, then the grade will be at least an B, if it is $\geq 80\%$, then the grade will be at least an B-, etc.

The instructor reserves the right to exercise discretion in raising a student's grade if he feels that the final weighted average does not properly reflect the quality of a student's work (for example, because of one low exam score). The instructor will not use discretionary judgments to lower a student's final grade. Exceptions to the grading policy above will only be considered if submitted in writing and verbally before the drop deadline. For example, you may petition in writing to submit an essay which would substitute for a portion of the second test, but this should be done before the second test.

Incompletes: A grade of incomplete may be given when circumstances arise which are beyond the student's control and the student is unable to complete the course AND the student is passing when the circumstances arise.

General Course Policies:

1. Homework may be submitted via email but only in pdf format.
2. If we have them, in-class tests and quizzes must be ONLY your own work.
3. Unless otherwise specified, I encourage you to work together on homework, assignments, projects and test criticisms. However, the work you turn in should be your own. Duplicate copies will have their score divided by the number of copies.
4. My general policy is not to allow make-up tests or quizzes. An exception *may* be made provided you make your request in advance of the test or quiz. In "emergency" situations call the department office (x2120) BEFORE the test. Exceptions are made, but never without advance notice. You must be prepared to document your absence.
5. Appeal of grading should be submitted in writing within 5 days of receiving the evaluation.
6. Special consideration may be made for students with disabilities. See <http://www.uwsp.edu/disability/>
7. Other UWSP Community Rights and Responsibilities can be found at <http://www.uwsp.edu/dos/Documents/CommunityRights.pdf>
8. Special consideration may be made for students with disabilities.
9. No electronic cigarettes are allowed in my/our classroom.

Suggestions:

- Read the book.
- Attend class.
- Keep up on the problems.
- Ask Questions before class.
- Ask Questions during class.
- Ask Questions after class.
- Ask Questions of classmates.
- DO NOT fall behind

Questions and/or homework may be submitted with e-mail to nwetzl@uwsp.edu

Signature Assignment for InTASC

Part of Project 3 will be the Signature Assignment for the InTASC requirement for the School of Education. This Project involves

- You creating and implementing a lesson plan
 - for small groups of students
 - involving probability
 - incorporating active learning and problem solving
- Assessing your students
 - with a formative assessment
 - and a summative assessment
 - and providing feedback to your students

The Assessment part of this project will be the Signature Assignment and this will incorporate the Knowledge, Dispositions and Performance items in InTASC Standard 6: Assessment.

All of the Mathematics Majors have the following Program Learning Outcomes

1. Problem Solving:
 - (a) Students can create mathematical models
 - (b) Students can apply problem solving techniques in new situations.
2. Mathematical Techniques: Students will demonstrate a set of mathematical techniques and be able to use them in appropriate situations.
3. Patterns: Students can recognize, characterize and generalize patterns using mathematical language.
4. Communication: Students can accurately interpret, clearly write and orally express mathematical concepts in a variety of settings including algebra and mathematical analysis. This includes mathematical terminology, mathematical theorems and mathematical proofs.
5. Connections:
 - (a) Students will recognize and articulate how mathematical ideas interconnect
 - (b) Students will recognize and articulate how to apply mathematical ideas in contexts outside of mathematics.

Math 350 will help students in Learning Outcomes 1b, 2, 3, 4, 5a and particularly in 5b.

How Math 350 Develops a Wisconsin Teacher.

To receive a license to teach in Wisconsin, an applicant shall complete an approved program and demonstrate proficient performance in the knowledge, skills and dispositions under certain standards required by the Wisconsin DPI: see InTASC (see http://www.ccsso.org/sites/default/files/2017-12/2013_INTASC_Learning_Progressions_for_Teachers.pdf) Math 350 helps in the following standards.

Standard 4: Content Knowledge The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches and creates learning experiences that make these aspects of the discipline accessible and meaningful for learners to assure mastery of the content.

- Essential Knowledge
 - 4(j) The teacher understands major concepts, assumptions, debates, processes of inquiry, and ways of knowing that are central to the discipline(s) s/he teaches.
 - 4(k) The teacher understands common misconceptions in learning the discipline and how to guide learners to accurate conceptual understanding.
- Dispositions
 - 4(o) The teacher realizes that content knowledge is not a fixed body of facts but is complex, culturally situated, and ever evolving. S/he keeps abreast of new ideas and understandings in the field.
 - 4(r) The teacher is committed to work toward each learners mastery of disciplinary content and skills.
 - The student/teacher is committed to continuous learning and engages in professional discourse about statistical knowledge and children’s learning in the discipline.
- Performances
 - 4(a) The teacher effectively uses multiple representations and explanations that capture key ideas in the discipline, guide learners through learning progressions, and promote each learners achievement of content standards.
 - 4(b) The teacher engages students in learning experiences in the discipline(s) that encourage learners to understand, question, and analyze ideas from diverse perspectives so that they master the content.
 - 4(c) The teacher engages learners in applying methods of inquiry and standards of evidence used in the discipline.
 - 4(e) The teacher recognizes learner misconceptions in a discipline that interfere with learning, and creates experiences to build accurate conceptual understanding.

Standard 6: Assessment The teacher understands and uses multiple methods of assessment to engage learners in their own growth, to monitor learner progress, and to guide the teacher’s and learner’s decision making.

- Knowledge
 - 6(j) The teacher understands the differences between formative and summative applications of assessment and knows how and when to use each.
 - 6(k) The teacher understands the range of types and multiple purposes of assessment and how to design, adapt, or select appropriate assessments to address specific learning goals and individual differences, and to minimize sources of bias.
- Dispositions
 - 6(s) The teacher is committed to providing timely and effective descriptive feedback to learners on their progress.
 - 6(t) The teacher is committed to using multiple types of assessment processes to support, verify, and document learning.
- Performance

- 6(a) The teacher balances the use of formative and summative assessment as appropriate to support, verify, and document learning.
- 6(b) The teacher designs assessments that match learning objectives with assessment methods and minimizes sources of bias that can distort assessment results.
- 6(e) The teacher engages learners in multiple ways of demonstrating knowledge and skill as part of the assessment process.
- 6(g) The teacher effectively uses multiple and appropriate types of assessment data to identify each student's learning needs and to develop differentiated learning experiences.

Standard 8: Instructional Strategies The teacher understands and uses a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections, and to build skills to apply knowledge in meaningful ways.

- Knowledge
 - 8(j) The teacher understands the cognitive processes associated with various kinds of learning (e.g., critical and creative thinking, problem framing and problem solving, invention, memorization and recall) and how these processes can be stimulated.
 - 8(m) The teacher understands how multiple forms of communication (oral, written, non-verbal, digital, visual) convey ideas, foster self expression, and build relationships.
- Dispositions
 - 8(p) The teacher is committed to deepening awareness and understanding the strengths and needs of diverse learners when planning and adjusting instruction.
 - 8(q) The teacher values the variety of ways people communicate and encourages learners to develop and use multiple forms of communication.
- Performances
 - 8(b) The teacher continuously monitors student learning, engages learners in assessing their progress, and adjusts instruction in response to student learning needs.
 - 8(c) The teacher collaborates with learners to design and implement relevant learning experiences, identify their strengths, and access family and community resources to develop their areas of interest.
 - 8(d) The teacher varies his/her role in the instructional process (e.g., instructor, facilitator, coach, audience) in relation to the content and purposes of instruction and the needs of learners.
 - 8(e) The teacher provides multiple models and representations of concepts and skills with opportunities for learners to demonstrate their knowledge through a variety of products and performances.
 - 8(f) The teacher engages all learners in developing higher order questioning skills and metacognitive processes.