

Math 2450: Statistics for Middle School Teachers
3 Credit Hours
Bowling Green State University

COURSE DESCRIPTION/COURSE AIM

In this course, you will be exploring and analyzing some statistics and probability topics and concepts that will be important to you in your role as a middle childhood mathematics teacher. The aim of this course is for you to develop deep understanding of these statistics and probability topics, as well as for you to gain insight into how middle grades students can learn and understand many of these topics and to experience active learning strategies that support reasoning and sense making about mathematics and statistics.

COURSE DELIVERY/INSTRUCTIONAL STRATEGIES

Research shows that students in mathematics classrooms experience more success when a variety of approaches are used to study mathematics. In Math 2450, we'll explore the course concepts with group activities, discussions, interactive lectures, and writing assignments. In this class, it isn't possible to sit passively while you are told what you need to know. You will need to be actively thinking about mathematics and statistics and be prepared to explain these thoughts to your small group and to the class.

REQUIRED RESOURCES/TEXTS

Textbook – *Data Analysis and Probability for Teachers*, Jim Albert. A link to the e-book is provided on Canvas. Access to the textbook is provided free of charge by the author.

Calculator – A graphing calculator with statistical capabilities is required. TI-83 or TI-84 is recommended.

Statistical Software – Access to Fathom, a statistical software package, is required. This software is available for purchase at <http://concord.org/fathom-dynamic-data-software>. (A one-year license for Fathom is available for \$5.25.)

ATTENDANCE, PARTICIPATION, & INTERACTION REQUIREMENTS

Each student is expected to attend every class meeting and be well prepared to participate fully in the day's activities. It is expected that students will be engaged in learning and give their full attention to class activities and discussions at all times.

EVALUATION TECHNIQUES

Tests – Students will complete four in-class tests. Test 4 will be given according to the Final Exam schedule.

Data Analysis Project – Students will complete a data analysis project in small groups and present their project to the class.

Written Assignments – Students may be expected to complete written homework assignments, small group summaries, exit slips, and/or article responses.

GRADING

Attendance, Assignments	10%
Data Analysis Project	10%
Test 1	20%
Test 2	20%
Test 3	20%
Test 4	20%

A = 90–100% B = 80–<90% C = 70–<80% D = 60–<70% F = <60%

MAKE-UP AND LATE ASSIGNMENT/EXAM POLICY

Unless prior arrangements have been made, assignments will not be accepted after the due date, and quizzes and tests cannot be made up. Please contact your instructor as soon as possible if you have an illness or emergency that prevents you from attending class or completing an assignment on time.

COURSE CALENDAR

	Monday	Wednesday	Friday
Week 1	Introduction to the Science of Statistics (D1)	Introduction to the Science of Statistics (D1)	Introduction to the Science of Statistics (D1)
Week 2	Sampling (D1)	Graphing Data (D2)	Graphing Data (D2)
Week 3	Graphing Data using Technology (D2)	Using Graphs to Answer Questions (D2)	More About Graphs (D2)
Week 4	Measures of Center (D3)	Measures of Center (D3)	Test 1 D1, D2
Week 5	Measures of Spread (D3)	Measures of Spread (D3)	Comparing Batches of Quantitative Data (D4)
Week 6	Comparing Batches of Quantitative Data (D4)	The Empirical Rule (D4)	The Empirical Rule (D4)
Week 7	Relationships Between Categorical Variables (D5)	Relationships Between Quantitative Variables (D6-D7)	Measures of Association (D6-D7)
Week 8	Association vs. Causation (D6-D7)	Data Analysis Project Planning Meeting	Test 2 D3, D4, D5
Week 9	Games and Chance (P1)	Games and Chance (P1)	Introduction to Probability (P2)
Week 10	Introduction to Probability (P2)	More About Probability (P2)	Counting Principles (P3)
Week 11	Counting Principles (P3)	Counting Principles (P3)	Test 3 D6, D7, P1, P2
Week 12	Counting Principles (P3)	Data Analysis Project Presentations	Conditional Probability (P5)
Week 13	Conditional Probability (P5)	Probability Distributions (P6)	Probability Distributions (P6)
Week 14	Binomial Distributions (P7)	Binomial Distributions (P7)	Binomial Distributions (P7)
Week 15	Normal Distributions (P9)	Normal Distributions (P9)	Review and Reflection

UNIVERSITY POLICIES

Dropping the Course: During the fall and spring semesters, a student may enroll in a course within seven calendar days from the beginning of classes; fourteen calendar days are allowed for a student to change the grading option without college approval or to drop a course with no record on the transcript. A grade of "W" is given if a student formally withdraws from a course after the drop deadline (see Drop/Add Policy) but before the end of the 12th week of a course in a 15-week session. The student is responsible for filing a course withdrawal request that also notifies the instructor (Withdrawal form) on or before the last day of the 12th week

(http://www.bgsu.edu/catalog/Acad_policies/Acad_policies15.html).

Codes of Conduct and Academic Honesty Policy: The instructor and students in this course will adhere to the University's general Codes of Conduct defined in the *BGSU Student Handbook*. The Code of Academic Conduct (Academic Honesty Policy) requires that students do not engage in academic dishonesty. For details, refer to:

- *BGSU Student Handbook* (<http://www.bgsu.edu/content/dam/BGSU/student-affairs/Student-Conduct/documents/Student-Handbook.pdf>)
- *The Academic Charter*, B.II.H (<http://www.bgsu.edu/content/dam/BGSU/faculty-senate/documents/academic-charter/searchable-academic-charter.pdf>)

Disability Policy: In accordance with the University policy, if the student has a documented disability and requires accommodations to obtain equal access in this course, he or she should contact the instructor at the beginning of the semester and make this need known. Students with disabilities must verify their eligibility through the Office of Accessibility Services, 38 College Park Office Building, 419-372-8495 (phone), 419-372-8496 (fax). (<http://www.bgsu.edu/disability-services.html>)

Student veteran-friendly campus: BGSU educators recognize student veterans' rights when entering and exiting the university system. If you are a student veteran, please communicate with your instructor so reasonable accommodations can be made for absence when drilling or being called to active duty (See <http://www.bgsu.edu/veteran/> for more information).

University Closure: In most cases, the University will not close for winter conditions unless the Wood County Sheriff's Department declares a Level 3 emergency. Information about University wide closures is communicated by the Office of Marketing and Communications, which will notify the University Fact Line, local FM & AM radio stations and the four Toledo television stations. For changes in individual class meetings, please refer to the class Canvas site for postings by the instructor.