

**Math 2160: Geometry for Middle School Teachers**  
**3 Credit Hours**  
**Bowling Green State University**

**COURSE DESCRIPTION/COURSE AIM**

In this course, you will be exploring and analyzing topics and concepts related to geometry and measurement that will be important to you in your role as a middle school mathematics teacher. The aim of this course is for you to not only develop deeper understanding of the mathematical topics, but for you to gain insight into how children understand mathematics and to experience active learning strategies that support reasoning and sense making about mathematics.

**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 2160, we'll explore mathematics 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 be prepared to explain these thoughts to your small group and to the class.

**REQUIRED RESOURCES/TEXTS**

*Mathematics for Elementary Teachers with Activities*, 4<sup>th</sup> edition, Sybilla Beckmann, Pearson, 2014.

*Registration in the MyMathLab course for this class is required.* This registration provides students with access to the MyMathLab online homework system and course resources as well as access to an electronic version of the textbook and student activities manual. Paper copies of activities used in class will be provided as needed. MyMathLab registration information is available on Canvas. (*Note: Purchasing a hard copy of the textbook and/or student activities manual is optional.*)

**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/Exams**– Students will complete three in-class written tests and a comprehensive final exam.

**MyMathLab Homework** – Students will complete MyMathLab (MML) homework assignments for each topic/chapter.

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

## GRADING

|  |     |
|--|-----|
| Attendance, MML Homework, Assignments, Quizzes | 15% |
| Test 1   | 20% |
| Test 2   | 20% |
| Test 3   | 20% |
| Final Exam                                     | 25% |

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  | Visualization (10.1)                                      | Angles (10.2)  | Angles (10.2)                                      |
| Week 2  | Angles (10.2)   | Angles and Phenomena in the World (10.3)                         | Circles and Spheres (10.4)                         |
| Week 3  | Polygons (10.5)   | Polygons (10.5)  | Polygons (10.5)                                    |
| Week 4  | Fundamentals of Measurement (11.1)                        | Length, Area, Volume, and Dimension (11.2)                       | Error and Precision in Measurement (11.3)          |
| Week 5  | Converting from One Unit of Measurement to Another (11.4) | Converting from One Unit of Measurement to Another (11.4)        | Areas of Rectangles (12.1)                         |
| Week 6  | Moving and Additivity Principles (12.2)                   | Areas of Triangles (12.3)  | <b>Test 1 (Ch 10-11, 12.1-12.3)</b>                |
| Week 7  | Areas of Parallelograms and Other Polygons (12.4)         | Shearing (12.5)  | Shearing (12.5)                                    |
| Week 8  | Areas of Circles (12.6)                                   | Areas of Circles (12.6)  | Problem Solving Using Perimeter and Area           |
| Week 9  | Approximating Areas of Irregular Shapes (12.7)            | Contrasting and Relating the Perimeter and Area of Shapes (12.8) | Pythagorean Theorem (12.9)                         |
| Week 10 | Pythagorean Theorem (12.9)                                | Polyhedra and Other Solid Shapes (13.1)                          | <b>Test 2 (12.4-12.9, 13.1)</b>                    |
| Week 11 | Patterns and Surface Area (13.2)                          | Patterns and Surface Area (13.2)                                 | Volumes of Solid Shapes (13.3)                     |
| Week 12 | Volumes of Solid Shapes (13.3)                            | Reflections, Translations, Rotations (14.1)                      | Symmetry (14.2)                                    |
| Week 13 | Congruence (14.3)   | Constructions with Straightedge and Compass (14.4)               | Constructions with Straightedge and Compass (14.4) |
| Week 14 | Similarity (14.5)   | Similarity (14.5)  | <b>Test 3 (13.2-13.4, 14.1-14.5)</b>               |
| Week 15 | Area, Volume, and Scaling (14.6)                          | Area, Volume, and Scaling (14.6)                                 | Review for Final Exam                              |

## 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](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.