

## Elementary Geometry

### MATH-217

CG Section 16WK 11/10/2019 to 04/18/2020 Modified 05/26/2022

## Course Description

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A development of basic concepts of elementary geometry including area, volume, compass and straight-edge constructions, polyhedra, tessellations, motions in the physical world, transformations, congruence and similarity.

### Requisites

For information regarding prerequisites for this course, please refer to the [Academic Course Catalog \(https://catalog.liberty.edu/\)](https://catalog.liberty.edu/).

## Rationale

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Geometry, probability, and statistics along with arithmetic skills have long been recognized as important ingredients in determining how well an individual functions in society. In today's highly complex world, mathematical understanding is more important than ever and is a prerequisite to successful study in many fields. A primary purpose of this course is to provide students with grounding in the rudiments of mathematics that will enable them to successfully cope with the content of modern elementary mathematics.

## Course Learning Outcomes

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Upon successful completion of this course, the student will be able to:

- A. State and apply definitions and theorems related to the various concepts of geometry, probability, and statistics.
- B. Identify two- and three-dimensional geometric figures as well as their properties and relationships.
- C. Demonstrate understanding of the Pythagorean Theorem and its applications.
- D. Demonstrate understanding of transformations such as translation, rotation, reflection, and dilation.
- E. Construct geometric figures and translations using a straight-edge, compass, and protractor.
- F. Show congruence and similarity of geometric figures using definitions, theorems, and constructions.
- G. Compute length, area, surface area, and volume of geometric figures using English and metric units.
- H. Construct graphical representations of statistical data, e.g., box and-whisker, histogram, and stem-and-leaf.
- I. Compute basic probability, measures of central tendency, and measures of dispersion and variation.

### General Education Foundational Skill Learning Outcomes: Technological Solutions and Quantitative Reasoning

1. TSQR 1: Analyze data and inform action through a structured method.
2. TSQR 2: Predict the output based on an input in practical scenarios using technological solutions and/or quantitative reasoning.
3. TSQR 3: Apply the skills needed for successful financial stewardship in various contexts.
4. TSQR 4: Relate technology and quantitative reasoning to participation in God's redemptive work.

## Course Resources

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Click on the following link to view the required resource(s) for the term in which you are registered: [Liberty University Online Bookstore \(https://bncvirtual.com/liberty\)](https://bncvirtual.com/liberty).

### Additional Materials for Learning

- A. Computer with basic audio/video output equipment
- B. Internet access (broadband recommended)
- C. Canvas [recommended browsers \(https://community.canvaslms.com/t5/Canvas-Basics-Guide/What-are-the-browser-and-computer-requirements-for-Canvas/ta-p/66\)](https://community.canvaslms.com/t5/Canvas-Basics-Guide/What-are-the-browser-and-computer-requirements-for-Canvas/ta-p/66)
- D. Staedtler, Precision 6 Inch Student Comfort Compass
- E. Westcott, 6-Inch Plastic 180 Degree Protractor, Clear
- F. Westcott, Non-Shatter Ruler, Clear, 12 Inches
- G. Microsoft Office

## Course Assignments

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### Textbook readings and lecture presentations

### Course Requirements Checklist

After reading the Course Syllabus and [Student Expectations \(http://www.liberty.edu/index.cfm?PID=18202&printpage=y\)](http://www.liberty.edu/index.cfm?PID=18202&printpage=y), the student will complete the related checklist found in the Course Overview.

### Discussions (2)

Discussions are collaborative learning experiences. Therefore, the student is required to provide a thread in response to the provided prompt. Each thread must be at least 200 words and demonstrate course-related knowledge. In addition to the thread, the student is required to reply to 2 other classmates' threads. Each reply must be at least 100 words (CLO: A, B; FSLO: TSQR 1, 2, 4).

### Homework (16)

The student will complete 16 Webassign homework assignments with varying amounts of questions. The student will have multiple attempts to answer each question (CLO: A – I; FSLO: TSQR 1, 2, 4).

### Projects (2)

In the first project, the student will have an opportunity to gather educational data and display the results using an appropriate graph form. The student will then prepare an analysis of his or her results in at least 200 words.

In the second project, the student will use information about the SOL mathematics results from two school districts in Virginia from the past three years from grades 3, 4, and 5. The student will display the data in graph form and then analyze the data (CLO: A, H; FSLO: TSQR 1, 2, 4).

### Quizzes (6)

Each quiz will cover the Learn material for the assigned modules. Each quiz will be open-book/open-notes. (CLO: A – I; FSLO: TSQR 1, 2, 4).

### Quiz: Exams (3)

Each exam will cover the Learn material for the assigned modules. Each exam will be open-book/open-notes and have a 2-hour time limit. Each Exam will contain multiple-choice and short answer questions and will be completed using Webassign. All written work for each exam must be uploaded to the respective Written Work Assignment page. (CLO: A – I; FSLO: TSQR 1, 2, 4).

### Quiz: Final Exam

The Final Exam will cover the Learn material for the assigned modules. The exam will be open-book/open-notes and have a 2-hour time limit. The Quiz: Final Exam will contain multiple-choice and short answer questions and will be completed using Webassign. All written work for the Final Exam must be uploaded to the respective Written Work Assignment page. (CLO: A – I; FSLO: TSQR 1, 2, 4).

## Course Grading

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Course Requirements Checklist	10
Discussions (2 at 40 pts ea)	80
Homework (16 at 10 pts ea)	160
Projects (2 at 40 pts ea)	80
Quizzes (6 at 25 pts ea)	150
Quiz: Exams (3 at 125 pts ea)	375
Quiz: Final Exam	155
<b>Total</b>	<b>1010</b>

## Policies

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### Mathematical Late Assignment Policy

*Mathematical* assignments that are submitted after the due date without prior approval from the instructor will receive the following deductions

1. Late *mathematical* assignments submitted within one week after the due date will receive a 10% deduction.
2. *Mathematical* assignments submitted more than one week late or after the final date of the course will not be accepted.
3. Discussion board assignments submitted within one week after the due date will receive a 10% deduction.
4. Discussion board submitted more than one week and less than 2 weeks late will receive a 20% deduction.
5. Discussion board submitted more than 2 weeks late will not be accepted.
6. Group projects, including group discussion board threads and/or replies, and assignments will not be accepted after the due date.

Special circumstances (e.g. death in the family, personal health issues) will be reviewed by the instructor on a case-by-case basis.

For other assignments, please refer to the standard Late Assignment Policy, below.

### Late Assignment Policy

Course Assignments, including discussions, exams, and other graded assignments, should be submitted on time.

If the student is unable to complete an assignment on time, then he or she must contact the instructor immediately by email.

Assignments that are submitted after the due date without prior approval from the instructor will receive the following deductions:

1. Late assignments submitted within one week after the due date will receive up to a 10% deduction.
2. Assignments submitted more than one week and less than 2 weeks late will receive up to a 20% deduction.
3. Assignments submitted two weeks late or after the final date of the course will not be accepted outside of special circumstances (e.g. death in the family, significant personal health issues), which will be reviewed on a case-by-case basis by the instructor.
4. Group projects, including group discussion threads and/or replies, and assignments will not be accepted after the due date outside of special circumstances (e.g. death in the family, significant personal health issues), which will be reviewed on a case-by-case basis by the instructor.

### Disability Assistance

Students with a disability and those with medical conditions associated with pregnancy may contact Liberty University's Online Office of Disability Accommodation Support (ODAS) at [LUOODAS@liberty.edu](mailto:LUOODAS@liberty.edu) for accommodations. Such accommodations require appropriate documentation of your condition. For more information about ODAS and the accommodations process, including how to request an accommodation, please visit <https://www.liberty.edu/online/online-disability-accommodation-support/> (<https://www.liberty.edu/online/online-disability-accommodation-support/>). Requests for accommodations not related to disabilities or pregnancy must be directed to the Registrar's Office, which generally handles medical needs support.

If you have a complaint related to disability discrimination or an accommodation that was not provided, you may contact ODAS or the Office of Equity and Compliance by phone at (434) 592-4999 or by email at [equityandcompliance@liberty.edu](mailto:equityandcompliance@liberty.edu). Click to see a full copy of Liberty's [Discrimination, Harassment, and Sexual Misconduct Policy](https://www.liberty.edu/media/1226/Liberty_University_Discrimination_Harassment_and_Sexual_Misconduct_Policy.pdf) ([https://www.liberty.edu/media/1226/Liberty\\_University\\_Discrimination\\_Harassment\\_and\\_Sexual\\_Misconduct\\_Policy.pdf](https://www.liberty.edu/media/1226/Liberty_University_Discrimination_Harassment_and_Sexual_Misconduct_Policy.pdf)) or the [Student Disability Grievance Policy and Procedures](http://www.liberty.edu/media/8021/Disability_Grievance_Procedures.pdf) ([http://www.liberty.edu/media/8021/Disability\\_Grievance\\_Procedures.pdf](http://www.liberty.edu/media/8021/Disability_Grievance_Procedures.pdf)).

## Course Attendance

In an effort to comply with U.S. Department of Education policies, attendance is measured by physical class attendance or any submission of a required assignment within the enrollment dates of the course (such as examinations, written papers or projects, any discussion posts, etc.) or initiating any communication with one's professor regarding an academic subject. More information regarding the [attendance policy](https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwiki.os.liberty.edu%2Fdisplay%2FIE%2FOnline%2BAttendance%2BAnd%2BNon-Attendance&data=02%7C01%7Caccollins2%40liberty.edu%7Cd91431fa6ac547056b5408d833029e1a%7Cbf8218eb3024465a9934a39c97251b2%7C0%7C0%7C637315433613719138&sdata=%2BNBTsPOoXuHAPLfISQRugK7cRSuV6UyC7qD3agf3l2k%3D&reserved=0) (<https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwiki.os.liberty.edu%2Fdisplay%2FIE%2FOnline%2BAttendance%2BAnd%2BNon-Attendance&data=02%7C01%7Caccollins2%40liberty.edu%7Cd91431fa6ac547056b5408d833029e1a%7Cbf8218eb3024465a9934a39c97251b2%7C0%7C0%7C637315433613719138&sdata=%2BNBTsPOoXuHAPLfISQRugK7cRSuV6UyC7qD3agf3l2k%3D&reserved=0>) can be found in the [Academic Course Catalogs](https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.liberty.edu%2Findex.cfm%3FPID%3D791&data=02%7C01%7Caccollins2%40liberty.edu%7Cd91431fa6ac547056b5408d833029e1a%7Cbf8218eb3024465a9934a39c97251b2%7C0%7C0%7C637315433613729132&sdata=DjjhMiRBFnF%2B2ZJUC8eBd1OdNb26S9ADukODYsilXIA%3D&reserved=0) (<https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.liberty.edu%2Findex.cfm%3FPID%3D791&data=02%7C01%7Caccollins2%40liberty.edu%7Cd91431fa6ac547056b5408d833029e1a%7Cbf8218eb3024465a9934a39c97251b2%7C0%7C0%7C637315433613729132&sdata=DjjhMiRBFnF%2B2ZJUC8eBd1OdNb26S9ADukODYsilXIA%3D&reserved=0>). Regular attendance in online courses is expected throughout the length of the term. Students who do not attend within the first week of a sub-term by submitting a required academic assignment (such as the Course Requirements Checklist, an examination, written paper or project, discussion post, or other academic activity) will be dropped from the course. Students who wish to re-engage in the course are encouraged to contact Academic Advising to discuss their enrollment options. Students who begin an online course, but at some point in the semester cease attending, and do not provide official notification to withdraw, will be assigned a grade of "FN" ([Failure for Non-Attendance](https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwiki.os.liberty.edu%2Fdisplay%2FIE%2FUnofficial%2BWithdrawals&data=02%7C01%7Caccollins2%40liberty.edu%7Cd91431fa6ac547056b5408d833029e1a%7Cbf8218eb3024465a9934a39c97251b2%7C0%7C0%7C637315433613729132&sdata=MoMvZdPfa69InuhVHMHAVgu59ZP0Fw45xJTU9PIBrU%3D&reserved=0) (<https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwiki.os.liberty.edu%2Fdisplay%2FIE%2FUnofficial%2BWithdrawals&data=02%7C01%7Caccollins2%40liberty.edu%7Cd91431fa6ac547056b5408d833029e1a%7Cbf8218eb3024465a9934a39c97251b2%7C0%7C0%7C637315433613729132&sdata=MoMvZdPfa69InuhVHMHAVgu59ZP0Fw45xJTU9PIBrU%3D&reserved=0>)). Students wishing to withdraw from courses after the official start date should familiarize themselves with the [withdrawal policy](#).

## Grading Scale

A	B	C	D	F
900-1010	800-899	700-799	600-699	0-599

For courses with a Pass/NP final grade, please refer to the Course Grading section of this syllabus for the assignment requirements and/or point value required to earn a Passing final grade.

## Add/Drop Policy

The full policy statement and procedures are published in the [Policy Directory](https://wiki.os.liberty.edu/display/IE/Dropping+and+Adding+Online+Classes) (<https://wiki.os.liberty.edu/display/IE/Dropping+and+Adding+Online+Classes>).

## Honor Code

Liberty University comprises a network of students, Alumni, faculty, staff and supporters that together form a Christian community based upon the truth of the Bible. This truth defines our foundational principles, from our Doctrinal Statement to the Code of Honor. These principles irrevocably align Liberty University's operational procedures with the long tradition of university culture, which remains distinctively Christian, designed to preserve and advance truth. Our desire is to create a safe, comfortable

environment within our community of learning, and we extend our academic and spiritual resources to all of our students with the goal of fostering academic maturity, spiritual growth and character development.

Communities are predicated on shared values and goals. The Code of Honor, an expression of the values from which our Doctrinal Statement was born, defines the fundamental principles by which our community exists. At the core of this code lie two essential concepts: a belief in the significance of all individuals, and a reliance on the existence of objective truth.

While we acknowledge that some may disagree with various elements of the Code of Honor, we maintain the expectation that our students will commit to respect and uphold the Code while enrolled at Liberty University.

Adherence to the principles and concepts established within facilitates the success of our students and strengthens the Liberty community.

The Code of Honor can be viewed in its entirety at <http://www.liberty.edu/index.cfm?PID=19155> (<http://www.liberty.edu/index.cfm?PID=19155>).

## Schedule

When	Topic	Notes
<b>Course Overview</b>	Student Acknowledgements	Course Requirements Checklist
	Technology Integration Set-Up	Interact: Getting Started with WebAssign
<b>Module 1: Week 1</b>	Learn	Read: 1 item Watch: 1 item
	Apply	HW: Polygons Assignment Quiz: Polygons
<b>Module 2: Week 2</b>	Learn	Read: 1 item Watch: 1 item
	Apply	HW: Polyhedra, Measurement, Area Assignment Quiz: Polyhedra, Measurement, Area
<b>Module 3: Week 3</b>	Learn	Read: 1 item Watch: 1 item
	Apply	HW: Surface Area, Volume Assignment Project: Teaching Activity Assignment
<b>Module 4: Week 4</b>	Learn	Read: 1 item Watch: 1 item
	Apply	HW: Surf. Area, Vol. of Circular Solids Assignment Quiz: Surface Area, Volume of Circular Solids
<b>Module 5: Week 5</b>	Learn	Read: 2 item Watch: 2 items

When	Topic	Notes
	Apply	HW: Exam Review: Polygons & Polyhedra Assignment Written Work: Exam – Polygons & Polyhedra Assignment Quiz: Exam – Polygons & Polyhedra
Module 6: Week 6	Learn	Read: 2 items Watch: 1 item
	Apply	HW: Congruence, Similarity Assignment HW: Transformations Assignment Discussion: Important and Difficult Concepts in Geometry
Module 7: Week 7	Learn	Read: 1 item Watch: 1 item
	Apply	HW: Dilations, Coordinate Plane, Distance Assignment Quiz: Dilations, Coordinate Plane, Distance
Module 8: Week 8	Learn	Read: 1 item Watch: 1 item
	Apply	HW: Slope, Linear Equations, Functions Assignment Discussion: Geometry in Real Life
Module 9: Week 9	Learn	Read: 2 item Watch: 2 items
	Apply	HW: Exam Review: Transformations, etc. Assignment Written Work: Exam – Transformations, Similarity, Linear Equations Assignment Quiz: Exam – Transformations, Similarity, & Linear Equations
Module 10: Week 10	Learn	Read: 2 items Watch: 1 item
	Apply	HW: Independent, Dependent Events, Value Assignment HW: Probability Assignment Quiz: Independent, Dependent Events, Expected Value
Module 11: Week 11	Learn	Read: 1 item Watch: 1 item
	Apply	HW: Statistics Assignment Quiz: Statistics
Module 12: Week 12	Learn	Read: 2 item Watch: 2 items

When	Topic	Notes
	Apply	HW: Exam Review: Prob. & Stat. Assignment  Written Work: Exam – Probability and Statistics Assignment  Quiz: Exam – Probability & Statistics
<b>Module 13: Week 13</b>	Learn	Read: 1 item  Watch: 1 item  Explore: 1 item
	Apply	HW: Variation, Graphs Assignment  Project: District SOL Scores Comparison Assignment
<b>Module 14: Week 14</b>	Learn	Read: 2 item  Watch: 2 items
	Apply	HW: Final Exam Review Assignment  Written Work: Final Exam Assignment  Quiz: Final Exam