

ABSE26 : GEOMETRY 1B

General Information

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| Author: | <ul style="list-style-type: none">Jesus Carino |
| Course Code (CB01) : | ABSE26 |
| Course Title (CB02) : | GEOMETRY 1B |
| Department: | ABSE |
| Proposal Start: | Spring 2025 |
| TOP Code (CB03) : | (4930.62) Secondary Education (Grades 9-12) and G.E.D. |
| CIP Code: | (53.0201) High School Equivalence Certificate Program. |
| SAM Code (CB09) : | Non-Occupational |
| Distance Education Approved: | No |
| Will this course be taught asynchronously?: | No |
| Course Control Number (CB00) : | CCC000340633 |
| Curriculum Committee Approval Date: | 05/08/2024 |
| Board of Trustees Approval Date: | 07/16/2024 |
| Last Cyclical Review Date: | 05/08/2024 |
| Course Description and Course Note: | ABSE 26 is the second half of a one-year high school level geometry course. In this course students investigate similarity and use similarity in the right triangle to define trigonometric ratios. They investigate circles and prove theorems about them. Connecting to their prior experience with the coordinate plane, they prove geometric theorems using coordinates and describe shapes with equations. Students extend their knowledge of area and volume formulas for three dimensional shapes. This course is designed to meet the needs of students who wish to begin their study of geometry and to earn high school credit in mathematics. Laboratory 100 hours. Note: This is a self-paced course in an open-entry, open-exit lab environment. Successful completion of the course results in 5 high school credits. |
| Justification: | Mandatory Revision |
| Academic Career: | <ul style="list-style-type: none">Noncredit |
| Author: | |

Academic Senate Discipline

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| Primary Discipline: | <ul style="list-style-type: none">Mathematics-Basic Skills: Non-Credit |
| Alternate Discipline: | No value |
| Alternate Discipline: | No value |

Course Development

Basic Skill Status (CB08)

Course is a basic skills course.

Allow Students to Gain Credit by Exam/Challenge

Course Special Class Status (CB13)

Course is not a special class.

Pre-Collegiate Level (CB21)

Not applicable.

Grading Basis

- Grade Only

Course Support Course Status (CB26)

Course is not a support course

Transferability & Gen. Ed. Options

General Education Status (CB25)

Not Applicable

Transferability

Not transferable

Transferability Status

Not transferable

Units and Hours

Summary

Minimum Credit Units (CB07) 0

Maximum Credit Units (CB06) 0

Total Course In-Class (Contact) Hours 100

Total Course Out-of-Class Hours 0

Total Student Learning Hours 100

Credit / Non-Credit Options

Course Type (CB04)

Non-Credit

Noncredit Course Category (CB22)

Elementary and Secondary Basic Skills.

Noncredit Special Characteristics

No Value

Course Classification Code (CB11)

Other Non-Credit Enhanced Funding.

Variable Credit Course

Funding Agency Category (CB23)

Not Applicable.

Cooperative Work Experience

Education Status (CB10)

Weekly Student Hours

| | In Class | Out of Class |
|------------------|----------|--------------|
| Lecture Hours | 0 | 0 |
| Laboratory Hours | 100 | 100 |
| Studio Hours | 0 | 0 |

Course Student Hours

| | |
|--|-----|
| Course Duration (Weeks) | 18 |
| Hours per unit divisor | 54 |
| Course In-Class (Contact) Hours | |
| Lecture | 0 |
| Laboratory | 100 |
| Studio | 0 |

Total 100

Course Out-of-Class Hours

Lecture 0

Laboratory 0

Studio 0

Total 0

Time Commitment Notes for Students

This is a self-paced course in an open-entry, open-exit lab environment.

Units and Hours - Weekly Specialty Hours

| Activity Name | Type | In Class | Out of Class |
|---------------|----------|----------|--------------|
| No Value | No Value | No Value | No Value |

Pre-requisites, Co-requisites, Anti-requisites and Advisories

Advisory

ABSE25 - GEOMETRY 1A (in-development)

Objectives

- Make a variety of formal geometric constructions using a variety of tools.
- Experiment with transformations in the plane.
- Understand congruence in terms of rigid motions.
- Explain triangle congruence in terms of rigid motion.
- Prove theorems about lines and angles, triangles, and parallelograms.

AND

Advisory

ESL40 - ENGLISH AS A SECOND LANGUAGE LEVEL 4

Objectives

- Demonstrate mastery of grammatical structures studied at a level sufficient to pass unit tests and the divisional grammar mastery test for this level.
- Converse at a functional level adequate for everyday use on the campus and in the community.
- Demonstrate understanding of the majority of face-to-face speech, recorded, and live dialogues in standard dialect at a normal rate, although some repetition may be required.

Entry Standards

Entry Standards

Course Limitations

Cross Listed or Equivalent Course

Specifications

Methods of Instruction

Methods of Instruction Independent Study

Methods of Instruction Multimedia

Methods of Instruction Lecture

Out of Class Assignments

N/A

Methods of Evaluation

Rationale

Other Completion of individualized contract

Exam/Quiz/Test Assessments at the end of each chapter

Exam/Quiz/Test Unit exams

Exam/Quiz/Test Final exam

Textbook Rationale

No updated editions of Common Core textbooks are available.

Textbooks

| Author | Title | Publisher | Date | ISBN |
|--------|-------|-----------|------|------|
|--------|-------|-----------|------|------|

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|-------------------------|---------------------|--|--|--|
| Burger, Edward, et. al. | California Geometry | | | |
|-------------------------|---------------------|--|--|--|

Austin: Holt, 2008 978-0-03-092345-6
Reinhart and
Winston,

Ron Larson and Laurie Boswell Big Ideas Math Geometry Big Ideas Learning 2014 978-160840-8399

Other Instructional Materials (i.e. OER, handouts)

| | |
|---------------------------|--|
| Description | Instructor-generated materials covering the mathematics being studied, along with handouts duplicated from books obtained with copyright permission. |
| Author | No value |
| Citation | No value |
| Online Resource(s) | No value |

Materials Fee

No value

Learning Outcomes and Objectives

Course Objectives

Explain similarity in terms of similarity transformations.

Prove theorems involving similarity.

Define trigonometric ratios and solve Problems involving right triangles.

Explain and use formulas for determining the volume and surface area of solids.

Visualize relationships between two-dimensional and three-dimensional objects.

Use coordinates to prove simple geometric theorems algebraically.

Apply theorems about circles.

SLOs

Identify and describe relationships among inscribed angles, radii, and chords.

Expected Outcome Performance: 70.0

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| ABSE NCR AHS Diploma | Apply mathematical ways of thinking to real world issues and challenges using mathematical modeling and problem solving techniques. |
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ABSE
NCR Adult Basic
Education Compute and solve real world problems using basic operations with whole numbers, fractions, decimals, and percents.

ILOs
Core ILOs Use quantitative and/or analytical mathematical skills to solve problems and to interpret, evaluate, and process information and data to draw logical conclusions and support claims.

Define similarity of two objects by a sequence of similarity transformations that maps one exactly onto the other and apply the definition to prove similarity of triangles. Expected Outcome Performance: 70.0

ABSE
NCR AHS Diploma Apply mathematical ways of thinking to real world issues and challenges using mathematical modeling and problem solving techniques.

ABSE
NCR Adult Basic
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ILOs
Core ILOs Use quantitative and/or analytical mathematical skills to solve problems and to interpret, evaluate, and process information and data to draw logical conclusions and support claims.

Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle. Expected Outcome Performance: 70.0

ILOs
Core ILOs Analyze and solve problems using critical, logical, and creative thinking; ask questions, pursue a line of inquiry, and derive conclusions; cultivate creativity that leads to innovative ideas.

Use quantitative and/or analytical mathematical skills to solve problems and to interpret, evaluate, and process information and data to draw logical conclusions and support claims.

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Prove the Pythagorean Theorem using triangle similarity. Expected Outcome Performance: 70.0

ILOs
Core ILOs Analyze and solve problems using critical, logical, and creative thinking; ask questions, pursue a line of inquiry, and derive conclusions; cultivate creativity that leads to innovative ideas.

Use quantitative and/or analytical mathematical skills to solve problems and to interpret, evaluate, and process information and data to draw logical conclusions and support claims.

ABSE
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ABSE
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Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems. Expected Outcome Performance: 70.0

ABSE
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ILOs
Core ILOs Use quantitative and/or analytical mathematical skills to solve problems and to interpret, evaluate, and process information and data to draw logical conclusions and support claims.

Derive and use trigonometric ratios for special right triangles. Expected Outcome Performance: 70.0

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| <i>ILOs</i> Core ILOs | Analyze and solve problems using critical, logical, and creative thinking; ask questions, pursue a line of inquiry, and derive conclusions; cultivate creativity that leads to innovative ideas. |
| | Use quantitative and/or analytical mathematical skills to solve problems and to interpret, evaluate, and process information and data to draw logical conclusions and support claims. |

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| <i>ABSE</i> NCR AHS Diploma | Apply mathematical ways of thinking to real world issues and challenges using mathematical modeling and problem solving techniques. |
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| <i>ABSE</i> NCR Adult Basic Education | Compute and solve real world problems using basic operations with whole numbers, fractions, decimals, and percents. |
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Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g. using the distance formula.

Expected Outcome Performance: 70.0

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| <i>ABSE</i> NCR AHS Diploma | Apply mathematical ways of thinking to real world issues and challenges using mathematical modeling and problem solving techniques. |
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| <i>ABSE</i> NCR Adult Basic Education | Compute and solve real world problems using basic operations with whole numbers, fractions, decimals, and percents. |
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| <i>ILOs</i> Core ILOs | Use quantitative and/or analytical mathematical skills to solve problems and to interpret, evaluate, and process information and data to draw logical conclusions and support claims. |
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Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.

Expected Outcome Performance: 70.0

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| <i>ABSE</i> NCR Adult Basic Education | Compute and solve real world problems using basic operations with whole numbers, fractions, decimals, and percents. |
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| <i>ILOs</i> Core ILOs | Use quantitative and/or analytical mathematical skills to solve problems and to interpret, evaluate, and process information and data to draw logical conclusions and support claims. |
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Demonstrates that the effect of a scale factor k greater than zero on length, area, and volume is to multiply each by k , k^2 , and k^3 , respectively determine length, area and volume measures using scale factors.

Expected Outcome Performance: 70.0

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| <i>ABSE</i> NCR Adult Basic Education | Compute and solve real world problems using basic operations with whole numbers, fractions, decimals, and percents. |
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| <i>ILOs</i> Core ILOs | Use quantitative and/or analytical mathematical skills to solve problems and to interpret, evaluate, and process information and data to draw logical conclusions and support claims. |
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Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.

Expected Outcome Performance: 70.0

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| <i>ILOs</i> Core ILOs | Use quantitative and/or analytical mathematical skills to solve problems and to interpret, evaluate, and process information and data to draw logical conclusions and support claims. |
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Course Content

Lecture Content

No value

Laboratory/Studio Content

Similarity (16 hours)

- Ratio and proportion
- Ratios in similar polygons and triangle similarity
- Properties of similar triangles and proportional relationships
- Similarity in the coordinate plane

Right Triangles and Trigonometry (20 hours)

- Similarity in right triangles
- Pythagorean theorem and special right triangles
- Trigonometric ratios and angle measures
- Solving right triangles
- Angles of elevation and depression
- Law of sines and law of cosines

Extending Perimeter, Circumference, and Area (20 hours)

- Developing area and perimeter formulas
- Composite figures
- Perimeter and area in the coordinate plane
- Effects of changing dimensions proportionally
- Geometric probability

Spatial Reasoning (24 hours)

- Solid geometry
- Representations of three-dimensional figures
- Formulas in three dimensions
- Surface area
- Volume

Circles (20 hours)

- Lines that intersect circles
- Arcs, chords, and sectors
- Inscribed angles
- Angle and segment relationships in circles
- Circles in the coordinate plane

Total hours: 100

Additional Information

Is this course proposed for GCC Major or General Education Graduation requirement? If yes, indicate which requirement in the two areas provided below.

No

GCC Major Requirements

No Value

GCC General Education Graduation Requirements

No Value

Repeatability

Repeatable

Justification (if repeatable was chosen above)

Non-credit courses

Resources

Did you contact your departmental library liaison?

No

If yes, who is your departmental library liaison?

No Value

Did you contact the DEIA liaison?

No

Were there any DEIA changes made to this outline?

No

If yes, in what areas were these changes made:

No Value

Will any additional resources be needed for this course? (Click all that apply)

- No

If additional resources are needed, add a brief description and cost in the box provided.

No Value