# ABSE25 : GEOMETRY 1A

## General Information

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|---|---|
| **Author:** | • Jesus Carino |
| **Course Code (CB01) :** | ABSE25 |
| **Course Title (CB02) :** | GEOMETRY 1A |
| **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) :** | CCC000305244 |
| **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 25 is the first half of a one -year high school level geometry course. In this course the notion of two-dimensional shapes as part of the Euclidian Plane and exploration of transformations of this plane as a way to determine whether two shapes are congruent are formalized. Students use transformations to prove geometric theorems. 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 math. It meets the requirements for a high school diploma. 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:** | • Noncredit |
| **Author:** | |

## Academic Senate Discipline

| | |
|---|---|
| **Primary Discipline:** | • Mathematics-Basic Skills: Non-Credit |
| **Alternate Discipline:** | No value |
| **Alternate Discipline:** | No value |

## Course Development

| Basic Skill Status (CB08) | Course Special Class Status (CB13) | Grading Basis |
| --- | --- | --- |

**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 | 0 |
| 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

ABSE24 - ALGEBRA 1B (in-development)

**Objectives**
- Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.
- Create linear and quadratic equations to solve problems.
- Create equations in two or more variables to represent relationships between quantities.
- Write arithmetic and geometric sequences both recursively and with an explicit formula.
- Identify the effects on a graph by changing part of a function.
- Distinguish between situations that can be modeled with linear functions and with exponential functions.
- Construct linear and exponential functions including arithmetic and geometric sequences from various sources.
- Compare linear, quadratic, and exponential growth.
- Interpret the parameters in a linear or exponential function in terms of a context.
- Display and analyze data statistically.
- Solve simple problems involving theoretical and experimental probability.

### AND

### Advisory

ESL40 - ENGLISH AS A SECOND LANGUAGE LEVEL 4

**Objectives**
- 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.
- Approximate standard American pronunciation well enough to be understood by typical fluent speakers of English.

## 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** | Collaborative Learning |

**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 version of textbook. New OER material added.

**Textbooks**

| Author | Title | Publisher | Date | ISBN |
|---|---|---|---|---|
| Burger, Edward, et. al. | California Geometry | Austin: Holt, Reinhart and Winston, | 2008 | 978-0-03-092345-6 |
| 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

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# Learning Outcomes and Objectives

## Course 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.

## SLOs

**Create formal geometric constructions with a variety of tools and methods. This can be through the use of measurement tools, the use of software, or any other form of visual representation.**
Expected Outcome Performance: 70.0

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

**Apply rigid motion to map corresponding parts of congruent triangles to each other and use triangle congruence criteria (ASA, SAS, and SSS) to demonstrate triangle congruence.**
Expected Outcome Performance: 70.0

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

**Produce proofs of theorems through the appropriate use of mathematical language, with a valid sequence of steps and definitions.**

Expected Outcome Performance: 70.0

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

**Verify experimentally that in a triangle, the angles opposite longer sides are larger, sides opposite larger angles are longer, and the sum of the lengths of any two sides is greater than the length of the remaining side.**

Expected Outcome Performance: 70.0

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

## Additional SLO Information

**Does this proposal include revisions that might improve student attainment of course learning outcomes?**

No

**Is this proposal submitted in response to learning outcomes assessment data?**

No

**If yes was selected in either of the above questions for learning outcomes, explain and attach evidence of discussions about learning outcomes.**

No Value

**SLO Evidence**

No Value

## Course Content

**Lecture Content**

No value

## Laboratory/Studio Content

**Foundations for Geometry (16 hours)**
- Points, lines, and planes
- Segment and angle measurement
- Pairs of angles
- Formulas in geometry
- Midpoint and distance formulas
- Transformations

**Transformational Geometry (17 hours)**
- Reflections Translations and rotations
- Compositions of transformations
- Symmetry
- Dilations

**Geometric Reasoning (14 hours)**
- Inductive reasoning
- Conditionals and deductive reasoning
- Biconditionals and definitions
- Algebraic proof
- Geometric proof

**Parallel and Perpendicular Lines (18 hours)**
- Parallel lines
- Transversals
- Parallel line theorems
- Constructions and problem solving
- Quadrilaterals and parallels
- Proving lines parallel

**Triangle Congruence (18 hours)**
- Properties and angle relationships in triangles
- Congruent triangles
- Triangle congruence: side-side-side (SSS), side-angle-side (SAS), angle-side-angle (ASA), hypotenuse-leg (HL), corresponding parts of congruent triangles are congruent (CPCTC)
- Introduction to coordinate proof
- Isosceles and equilateral triangles

**Properties and Attributes of Triangles (17 hours)**
- Perpendicular and angle bisectors
- Bisectors, medians, and altitudes of triangles
- The triangle midsegment theorem
- Inequalities in one and two triangle

**Total hours: 100**

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## 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 liason?**

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