PALS-077: ALGEBRA SUPPORT FOR STUDENTS WITH LEARNING DIFFERENCES (FORMERLY LNSK-077)

Effective Term
Fall 2022

BOT Approval Date
12/16/2021

Discipline
PALS - Personalized Academic Learning Skills
Course Number
077

Course Title
Algebra Support for Students with Learning Differences (formerly LNSK-077)

Short Title
Algebra Support for LD

Credit Status (CB 04)
D - Credit - Degree applicable

Units

Lecture Units
1.50

Lab Units
0.50

Total Units
2.00

Hours

Lecture Contact Hours
24-27
Out of Class Hours Lecture
48-54

Lab Contact Hours
24-27
Out of Class Hours Lab
0.00

Total Contact Hours
48 - 54

Total Out of Class Hours
48 - 54

Total Student Learning Hours
96 - 108

Distance Education
No

Catalog Description

This course is designed to provide small group and/or individualized instruction and intervention strategies to students identified with learning differences or with significant difficulty in algebra. Offered as pass/no pass only. (formerly LNSK-077)

Codes

TOP Code (CB 03)

1799.00 - Other Mathematics

CIP Code

27.0102 - Algebra and Number Theory.

Student Accountability Model (SAM) Priority Code (CB 09)

E - Non-Occupational

Noncredit Category (CB 22)

Y - Credit Course

Repeatability Code

No

Grading Option

P/NP only

Minimum Qualifications

Minimum Qualifications	And/Or
Learning Assistance or Learning Skills Coordinators or Instructors, and Tutoring Coordinators (Masters Required)	End

CSU Area(s)

IGETC Area(s)

Learning Objectives

Learning Objectives

Learning Objective
1. Evaluate and simplify algebraic expressions using Order of Operations
2. Translate and solve word problems and equations
3. Construct and read graphs, maps and charts
4. Solve geometric and measurement problems
5. Analyze expressions and word problems
6. Model math test taking strategies appropriate for functional limitation
7. Explore, select, and model appropriate compensatory learning strategies for functional limitation.
8. Demonstrate mastery of individualized learning objectives as prescribed in individual study plan

Learning Outcome Information

Course Learning Outcomes

Learning Outcome
Practice active learning and demonstrate measurable progress of course level learning outcomes defined in their educational study plan.
Communicate effectively with instructors, staff and fellow students using appropriate methods of technology and select appropriate learning and compensatory strategies.

Evaluate and simplify basic algebraic expressions with whole numbers, fractions, decimals, percents and exponents using Order of Operations.
Consider options and generate alternative approaches.

Program Learning Outcomes

Learning Outcome
Analyze and critically evaluate functional limitations, select appropriate compensatory learning strategies, and evaluate use adaptive technologies appropriate for their individual remediation needs.
Communicate effectively with instructors, staff and fellow students using appropriate methods of technology and select appropriate learning and compensatory strategies.
Demonstrate personal responsibility, identify personal needs and goals, and select appropriate resources necessary to meet them.
Practice active learning and demonstrate measurable progress of course level learning outcomes defined in their educational study plan.

Institutional Learning Outcomes

Aesthetic Awareness: The student will identify and evaluate how aesthetic expression leads to an appreciation of social and cultural context as well as the values of art and nature.
Communication: The student will effectively express and exchange ideas through listening, speaking, reading, writing, visual works, and other modes of interpersonal expression.
Critical Thinking: The student will analyze problems, gather and synthesize relevant information, evaluate ideas, information, and evaluate alternative points of view to create, innovate and implement effective solutions.
Cultural Awareness and Humility: The student will demonstrate knowledge of and sensitivity toward individuals of diverse ethnicity, age, gender, sexual orientation, and religious affiliations, as well as toward those individuals with diverse abilities and socio-economic classes to respectfully interact with individuals of diverse perspectives, beliefs and values while being mindful of the limitation of their own cultural frameworks.
Information and Technology Literacy: The student will access, interpret, evaluate, and apply relevant information sources and digital media effectively, and in an ethical and legal manner.
Scientific Awareness: The student will apply the scientific method of inquiry to assess potential solutions for real-life challenges by employing science-based knowledge and methodologies in daily life.
Social Awareness: The student will recognize and analyze the interconnectedness of global, national, and local concerns, analyzing cultural, political, social, and environmental issues from multiple perspectives and appreciate similarities and differences among cultures.
Personal
and Professional Responsibility
Civic

Content

Course Lecture Content

1. Algebraic expressions using Order of Operations
    a. Evaluate variables and simplify
    b. Factor and solve expressions with more than one term
    c. Simply expressions using Order of Operations
        i. Whole number expressions with variables
        ii. Expressions with exponents and variables
2. Word problems and expressions
    a. Translate word problems into math expressions
    b. Solve selected problems using alternative learning strategies
    c. Evaluate word problems and develop methods for eliminating unimportant information
3. Graphs, maps and charts
    a. Identify and evaluate important information on graphs, tables, and charts
    b. Develop compensatory strategies for reading graphs, tables, and charts
    c. Plot points and create graphs
    d. Find equations for a given set of points
    e. Calculate and measure angles
4. Geometric and measurement problems

   a. Select and apply correct formulas for solving various geometric problems
   b. Convert measurements between English and metric systems
   c. Develop compensatory techniques for solving measurement problems
5. Expressions and math problems
   a. Task analyze expressions
   b. Task analyze word problems
6. Math test taking strategies appropriate for functional limitation
   a. Analyze functional limitations
   b. Explore and select compensatory test taking strategies
7. Appropriate compensatory learning strategies for functional limitation
   a. Analyze functional limitations
   b. Use compensatory math learning strategies to solve problems
   c. Individual study plan

Special Topics

1. Algebra Strategies
2. Dealing with Data
3. Maps, Charts, and Graphs
4. Solving Word Problems Strategies
5. Geometry
6. Using calculators

Course Lab Content

1. Algebraic expressions using Order of Operations
   a. Variables and simplify
   b. Expressions with more than one term
   c. Order of Operations
      i. Whole number expressions with variables
      ii. Expressions with exponents and variables
2. Word problems and expressions
   a. Word problems translation into math expressions
   b. Alternative learning strategies
   c. Word problems and methods for eliminating unimportant information
3. Graphs, Maps and Charts
   a. Information on graphs, tables, and charts
   b. Compensatory strategies for reading graphs, tables, and charts
   c. Points and graphs
   d. Equations for a given set of points
   e. Angles
4. Geometric and measurement problems
   a. Formulas for solving various geometric problems
   b. Measurements conversion between English and metric systems
   c. Compensatory techniques for solving measurement problems
5. Expressions and math problems
   a. Expressions task anaysis
   b. Word problems task analysis
6. Math test taking strategies appropriate for functional limitation
   a. Functional limitations
   b. Compensatory test taking strategies
7. Appropriate compensatory learning strategies for functional limitation
   a. Functional limitations
   b. Compensatory math learning strategies to solve problems
   c. Individual study plan

Special Topics

1. Algebra Strategies
2. Data

3. Maps, Charts, and Graphs
4. Solving Word Problems Strategies
5. Geometry
6. Calculators

Methods of Instruction

Method

Class/small group discussions and activities

Integration

Class/small group discussions and activities may be used to teach problem solving, math as a language, and/or terminology.

Method

Demonstration and guided practice

Integration

Demonstration and guided practice may be used to teach techniques for solving algebra problems and/or the use of adaptive technology.

Method

Directed Study

Integration

Directed study may be used to create an individual study plan and select compensatory study strategies and/or appropriate tutorials.

Method

Lab assignments

Integration

Individualized lab assignments may be used to target identified areas of weakness in algebra and graphing.

Methods of Evaluation

Method

Class Participation

Integration

Students will be evaluated for participation in guided practice exercises, lab and/or tutorial activities, and class discussion.

Method

Class Work

Integration

Students will be evaluated for demonstrated measurable progress in translating, evaluating, and solving algebra problems, story problems, and graphing, and using compensatory strategies as prescribed in their individual study plans. Class work is evaluated and students are provided feedback during each class and/or lab.

Integration

Students will be evaluated on their comprehension of algebraic concepts, measurements, graphing and test-taking using pre and post assessments.

Assignments

Assignment Type
Other

In-class and/or outside of class
In-class
Outside of class

Formative or Summative
Formative

Assignment
Using one of the methods presented in class:
Simplify 4x – x + 5x using alternative LD strategies and/or color coding.
Factor 3x2 + 17x + 10 using alternative LD strategies and/or color coding.
Task analyze how you will simply the expression x/x+4 – x/5.
Simplify (¼)2 + 23 using a task analysis method.

Assignment Type
Reading

In-class and/or outside of class
In-class
Outside of class

Formative or Summative
Formative

Assignment
Task analyze and solve the following story problem.
You need to add a wheelchair ramp to your home. The height of the porch is 4 feet. The maximum incline you can safely negotiate is 15 degrees. How long should you build the ramp?
Translate and solve the problem the sum of two consecutive numbers is 23.
Translate the algebraic expression x + 4 = -8 into words.

Course Materials

Textbooks
McMullen, C. (2020), Master Essential Algebra Skills Practice Workbook with Answers: Improve your Math Fluency. (Zishka Publishing) ISBN-13 : 978-1941691342, ISBN-10: 194169134X

Open Educational Resources
MyOpenMath

Class Size Information

Class Size
15

Class Size Category
J - Specialty lab

Diversity and Inclusion

Explain how diversity and inclusion(e.g., gender, culture/race, sexuality, etc.) is infused into the course.

Diversity and inclusion are considerable factors to the revision. We offer an inclusive course where all students are welcome to participate and be part of. The literature readings, videos, and PowerPoint materials that are infused in the course foster diversity from multicultural and intersectional perspectives. The course content shows relevance to how students' age, race, gender, social class, language, sexual orientation, dis(ability) and regionality and nationality influence students' learning.

Describe how assignments, instruction, evaluation, course content, and interactions are contextualized for diverse learners promoting an equitable course.

Weekly assignments, discussion posts, homework and final project were analyzed and given attention to align with promoting an equitable course to students. The goal is to support all students, meet where they are at and have the students reflect on their cultural frame of reference and connect their own personal experiences. Students are also presenting information critical to the learning objectives that provides a diverse perspective to the instructional material.

Interactions

Explain how the course will incorporate student-to-student interaction.

Students will incorporate student- to- student interaction through discussion posts. Each student is given the opportunity to respond responsively and collaboratively to the posts of other students. Students will also work in group activities.

Explain how the course will incorporate instructor-to-student interaction.

Lectures will be delivered in online format. Online lectures and discussions are utilized. Through weekly announcements, the instructor sends out announcements using multimedia where students can respond by acknowledging the announcements or posing relevant questions about the announcement. An optional zoom meeting is provided for students to take advantage of in case there are questions and clarifications. The instructor will participate in the discussion post and encourage students to make connections between course concepts. The instructor encourages students to utilize accommodations and strategies while working on activities for the course.

Explain how the course will incorporate student-to-content interaction.

To learn algebra concepts and skills, students will reference accessible and ADA compliant materials such as assigned textbooks and handouts, written lecture materials or transcripts of lectures, illustrative images, charts and graphs, video or audio lectures, narrated PowerPoint presentations, embedded or linked multimedia content (such as films, YouTube videos, podcasts, etc), and student created or curated content

Explain how the course will incorporate student-to-self interaction (metacognitive).

The course emphasizes on algebra support and strategies . The course will help students who need an algebra refresher course and students who need to strengthen algebra foundation skills. Students will be able to apply math strategies. Students will work on exercises based on ability level.

Key: 2047