

**Mathematizing ESOL 1**

**Course Outline and Schedule**

Math encompasses language and gives learners the skills and confidence they need to succeed in the workforce and higher education. This is the first of a series of courses designed for ESOL teachers who would like to deepen their understanding of math and learn how to integrate math and numeracy skills in their ESOL classrooms. Lessons provide conceptual understanding of math topics around whole numbers, including cultural differences in procedures and notation, and offer strategies for making math accessible for all levels of ESOL learners.

**Course Requirements**:

Each lesson contains several math practice activities, discussion questions, video clips and lesson ideas. Participants are required to carefully review course content and related documents and videos, complete and submit math activities, respond to discussion questions and read the responses of other participants.

The culminating project is a lesson plan where participants will use a rubric to plan a lesson for ESOL students that integrates math and incorporates the key elements of each lesson in this course. The estimated time to complete the course is about **16 – 18 hours**.

Upon completion of the course, all related activities, culminating project, final reflection and evaluation, participants will receive a Certificate of Completion.

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| **Course Instructors**  Sherry Lehane, sherrylehanem@gmail.com  Melissa Braaten, melissa.braaten@gmail.com  **Course registrar**  Ruzica Banovic, ruzica\_banovic@worlded.org | **Course Dates**  January 11 – February 22, 2016  **Time**  Approx. 6 weeks; 16-18 total hours  **Technical assistance**  [**techsupport@worldedu.org**](mailto:techsupport@worldedu.org)  response within 24 hours |

# Course Objectives

By the end of the course, you will be able to:

* compare and contrast math notation in US and other countries
* describe key elements of effective planning for math integration
* articulate the different meaning of subtraction and division
* perform basic operations using U.S. and European algorithms
* scaffold vocabulary needed for teaching related operations with whole numbers for ESOL learners
* reflect on your own teaching vis-à-vis integrating math operations using whole numbers
* create a lesson plan for ESOL learners with integrated math content

# Course Topics and Schedule

**Week 1: January 11 – January 17, 2016**

**Complete Lessons 1 and 2**

**Estimated time to complete: 4 hours**

**Lesson 1: Getting Started**

* Required Software and Course Features
* Course Overview
* Course Objectives
* Course Outline and Schedule
* Course Requirements
* Activity: Introductions
* Lesson Summary

**Lesson 2: Key Concepts for ESOL Math**

### Overview and Objectives

### Where is the Math in Your Life?

### Numerous Notations

* + - Variations in Notation
* Comma or Decimal
* Integration in ESOL Classes
* Pronunciation
* Lesson in Action
* Math Vocabulary
* Guidelines for Language Placement
* Summary of Language Placement
* Contextualizing the Lesson
* Activity: Lesson in Action
* Lesson Summary

**Weeks 2 and 3: January 18 – January 31, 2016**

**Complete Lesson 3**

**Estimated time to complete: 5 hours**

**Lesson 3: Operation Sense with Whole Numbers**

* Overview and Objectives
* What are the Four Operations
* Activity: *The Four Operations*
* A Look at Subtraction
  + - Activity 12 - 5
    - Exploring the Meanings of Subtraction
    - Connecting Addition and Subtraction
    - Counting Up
    - Using a Number Line
    - Different Approaches
    - Contextualizing the Lesson
* Different Algorithms
* Do We Have to Borrow?
* Reflection on the European Method
* A Look at Division
  + - Visual Representation Activity
    - Two Models of Division
    - Math Proficiency
    - Division Algorithms I
    - Another Approach
    - Division Algorithms II
    - Contextualizing the Lesson
    - Activity: Integrating Division into Lessons
    - Lesson Summary

**Week 4: February 1 – February 7, 2015**

**Complete Lesson 4**

**Estimated time to complete: 3 hours**

**Lesson 4: Integrating All Skills**

* Overview and Objectives
* Introduction
* Visual and Spatial Senses
* Key Words
* Unfamiliar Contexts
* Activity: Unfamiliar Contexts
* Simplifying linguistic complexities
* Activity: Simplifying language
* Integrating Math Role Plays
* Activity: Role Play
* Lesson Summary

**Weeks 5 and 6: February 8 – February 22, 2016**

**Complete Lesson 5 & Final Project**

**Estimated time to complete: 4 hours**

**Lesson 5: Course Closure**

* Course Summary
* Final Assignment: Pulling it All Together
* Final Reflections
* Evaluation
* Certificate