



College of Education

Vision:

Equity & Excellence in Education

Mission:

The College of Education at CSULB is a learning and teaching community that prepares professional educators and practitioners who promote equity and excellence in diverse urban settings through effective pedagogy, evidence-based practices, collaboration, leadership, innovation, scholarship, and advocacy.

CALIFORNIA STATE UNIVERSITY, LONG BEACH

College of Education

Department of Teacher Education

Course Syllabus Spring 2021

EDEL 462: Teaching/learning mathematics: K-8

Dr. Zhonghe Wu

Instructor Information:

Name: Dr. Zhonghe Wu

E-mail: Zhonghe.wu@csulb.edu

Course: EDEL 462 - 06 (11343) Teaching and Learning Mathematics, K-8

Format: Synchronous, Thursday, 4:00 – 6:45pm (PST)

Technical support: helpdesk at (562) 985-4959, and helpdesk@csulb.edu

Office Hours: Virtual office: 9:00 – 10:00 AM Each Friday Or appointment by Email

Course Description:

Prerequisite: Admission to the Multiple Subject Credential Program

Learning theories, research-based instructional practices of teaching mathematics to all students in diverse classrooms. Minimum of ten hours of fieldwork in classrooms where at least 25% of the students are classified as English learners. Letter grade only (A-F).

Course URL: <http://beachboard.csulb.edu>

Required Text:

An. S. & Wu. Z. (2020). Teaching Elementary and Middle School Mathematics Using the MSA Approach: Model, Strategy, and Application (**5th Edition**). Irvine, CA: Education for All.
<http://www.educationforatoz.com/store/index.php?route=product/category&path=59>

California Department of Education (2016). *Mathematics Framework Chapters - Common Core for Mathematics*. Sacramento, CA: California State Department of Education.

<http://www.cde.ca.gov/ci/ma/cf/mathfwchapters.asp>

Suggested Reading:

Tomlinson, C. (1996). *Differentiating instruction for mixed-ability classrooms* [An ASCD professional inquiry kit]. Alexandria, VA: ASCD.

California Department of Education (2016). *California 2016 Science Framework for California Public Schools Kindergarten Through Grade Twelve*. Sacramento, CA: California State Department of Education. <https://www.cde.ca.gov/ci/sc/cf/documents/sbepolicyteachsci.pdf>

Sousa, D & Pilecki, T. J. (2018). *From STEM to STEAM: Brain-Compatible Strategies and Lessons That Integrate the Arts*. Thousand Oaks, CA: Corwin

Program Student-based Learning Outcomes

The following Program Outcomes (POs) are aligned with the Multiple Subject Credential Program SLOs which are based on the *Teaching Performance Expectations* (TPEs, revised and adopted June 2016); Common Core State Standards (revised March 2013); and RICA Content Specifications (Domains I-V, revised 2007). Upon successful completion of the course, students will demonstrate the following:

SLO 1-Lesson Design and Assessment

1. Written lesson plan that is clear, complete, and standard-based (TPE 3.1)
2. Lesson plan that includes an appropriate three-part objective (content, level of cognition, proving behavior) (TPEs 3.3, 4.1, 5.8)
3. Lesson plan that includes a formative assessment tool and clear plan for summative assessment that allows students to demonstrate mastery in a variety of ways (TPE 3.4, 5.1)
4. Lesson plan that includes a step-by-step approach to the instructional sequence, procedures aligned with the lesson objective and appropriate task analysis (TPE 4.4)
5. Include plans for engaging students, modeling, active participation, and checks for understanding (TPE 1.4, 1.8, 3.3, 4.7)
6. Lesson plan includes differentiated instruction (materials and/or proving behavior) for English Learners and at least one other identified subgroup at tiers 1 & 2 (TPE 1.4, 1.6, 3.5, 3.6, 4.4, 5.7, 5.8)
7. Lesson plan includes opportunities for students to actively think critically and work collaboratively (TPE 1.5, 4.6)
8. Lesson goals and instructional strategies are based on student learning needs (TPE 1.1, 3.2, 4.2)
9. Lesson plan incorporates appropriate and available technology (TPE 3.7, 3.8, 4.7, 4.8)

SLO 2-Lesson Implementation and Assessment

1. Lesson is taught in alignment with specified standards (TPE 4.3)
2. Objective/Learning Target is clearly communicated to all students (TPE 3.1, 3.2, 4.4)
3. Materials are prepared and utilized effectively (TPE 4.3)
4. Appropriate pacing is used to teach the lesson and monitor for student learning (TPE 1.5, 4.3, 4.4, 4.7)
5. A variety of questioning and active participation (overt and covert) strategies are used throughout the lesson (TPE 4.3)
6. The results of active participation strategies are used to make adjustments to the instruction (TPE 1.8, 5.1, 5.2)
7. Students are engaged in self-assessment (TPE 4.5, 5.3)
8. Uses appropriate wait time during questioning (1.5, 1.6)

9. Effectively implements appropriate and available technology (TPE 3.7, 3.8, 4.7, 4.8, 5.3)

SLO 3-Classroom Management and Environment

1. Teaches, reteaches, or reinforces rules, procedures, and routines (TPE 2.1, 2.2, 2.6)
2. Applies appropriate reinforcement techniques throughout the lesson (structure, approximation, extinction, consequences) (TPE 2.3, 2.5)
3. Effectively implements proactive and positive classroom management techniques (TPE 2.1, 2.3, 2.5, 2.6)
Implements appropriate strategies to maintain student motivation (TPE 1.3, 2.3, 2.5, 2.6)

SLO 4-Professionalism

1. Arrives on-time and prepared to engage in instruction (TPE 6.8)
2. Conducts regular reflection on performance (TPE 6.1)
3. Establishes professional learning goals (TPE 6.3)
4. Learns to communicate effectively and collaborate with all stakeholders (other teachers, administrators, support staff, parents, community members) (TPE 6.4)
5. Models ethical conduct of teaching professionals, including use of technology and digital media (TPE 6.5, 6.6)
6. Learns how to engage with parents (TPE 1.2, 2.6, 5.5, 6.4) activity: how to show parents how to do a read-aloud

Course Student-based Learning Outcomes

A. Creating & maintaining effective environments for student learning

1. Identify the characteristics of effective mathematics programs, including principles of education equity, multicultural education, and linguistic diversity (M1). Utilize differential instruction, create, and maintain effective environments to support all students in learning mathematics through active participation. (SLO 1, SLO 2)
2. Select tools and technology enhancements to support the learning of mathematics including computers, calculators, and software. Use web-based online resources for teaching and learning, and professional growth and development. (SLO 1, SLO 2)

B. Understanding & organizing subject matter for student learning

1. Demonstrate knowledge of the psychological principles of the teaching/learning process that aligned with California Common Core State Standards (CCSS) for Mathematical Practices. (SLO 1, SLO 2) (M2)
2. Design instruction for elementary and middle school mathematical content, including the development of mathematics curriculum in alignment with the Mathematics Framework for California Public Schools, the California Common Core State Standards (CCSS) for Mathematics. (SLO 1, SLO 2) (M3)
3. Plan and demonstrate strategies of teaching to the Common Core State Standards for Mathematics, utilizing models of explicit instruction, interactive instruction, and implicit instruction emphasizing the 5E model, the three-phase model, international math approaches, concept attainment model, cooperative learning, Cognitively Guided Instruction, and the problem-based learning model. (SLO 1, SLO 2)

C. Planning instruction & designing learning experiences for all students

1. Design instruction that includes differentiated instruction for English Learners. (SLO 1)
2. Design instruction for elementary and middle school mathematical content that includes appropriate accommodations and modifications for the continuum of students with mild/moderate to moderate/severe disabilities. (SLO 1)
3. Select or design and demonstrate hands-on techniques for the use of concrete models, visual representations, and other instructional materials to support all students in learning. (SLO 1)

4. Design instruction that includes opportunities for students to actively think critically and work collaboratively (SLO 1)
5. Utilize a variety of assessments to identify individual student learning needs and to support students in achieving mathematical proficiency in concepts and procedures, problem solving, communicating, reasoning, modeling, and data analysis. (SLO 2)

D. Developing as a professional educator:

1. Observe and participate in an elementary or middle school classroom and enhance teaching ability in field experiences. (SLO 2, SLO 4)
2. Integrate different perspectives in teaching and learning mathematics such as international, integrated STEM or multi-cultural perspectives. (SLO 1, SLO 2, SLO 3)

Clinical 2 Courses – EDEL 442, EDEL 452, EDEL 462, EDEL 472, SCED 475

Candidates will be asked to submit a time log of the alternative fieldwork on S4 @ The Beach by the end of the semester. To submit the time log, candidates must indicate the total number of hours they spent for the alternative fieldwork each course.

Information on how to complete the time log can be found on the Office of Clinical Practice website at www.csulb.edu/ocps4.

Grade & Assignment Requirements:

Class discussion (14 x 5 = 70 points)

Teaching is a collaborative profession, and interaction synchronously is important for this profession. In this class, we will have a weekly online live session for the interaction. For those of you who do not have the opportunities to participate synchronous live session, you will need to review the record and submit a page summary to earn the credit.

Autobiographical Pictures and & Essay (20 points)

1. A 3-5-page formal autobiographical philosophy of mathematics education.
 - Address your beliefs about mathematics education and discuss the influence of your family and culture on your attitude and beliefs of learning math (6 pts).
 - Reflect on some pivotal experience in your own learning of mathematics with “aha” moment, literature assignment. What was the impact of these experiences on your attitudes toward the learning of math, and towards teaching mathematics? Analyze and reflect on the experience now, how do you make sense of them as a teacher? (7 pts)
2. Draw a colored picture.
 - That reflects your experience with math learning and feeling about math OR “aha” moment, along with one or two paragraphs of description of the pictures. (7 pts)

Integrating Children Literature in Teaching Math (10 pts)

Find One children literature book that directly relate to K-8 math content areas and design lesson using Power Point (see detailed information on BeachBoard. **Grade level will be assigned.**

STEM Moment (15 pts)

Search and analyze resources in math, science, engineering, technology, and arts and design one task of the STEAM Moment (K-5) using screencast or video. The screencast/video should be around 8 minutes.

In class: the MSAW Model Assignments and Teaching (group work 9 x 10 = 90 points)

To be familiar with the MSA approach, group work will be assigned in each week (a total of 9 weeks) during the class to complete MSAW content work sheet based on the mathematical content and practice standards. There is no make up for this assignment.

Homework from chapters (12 x 5=60)

Take assigned questions from the text and submit to the Dropbox.

Fieldwork (65 points) – Alternative Mode for 10 Hours of Fieldwork

(1). **Part 1: Observe and reflect on Math Video Lessons (15 points)** - Four Hours of Fieldwork. Select Two math video lessons for observation and reflection. Detailed information will be provided during the instruction.

(2) **Part 2: Assessment (30 points) – Case study of Assessment)** - Four Hours of Fieldwork
Be familiar with Smarter Balanced Assessment System (SBAC) and create a case study of assessment. FOUR steps for this assignment: 1) select four questions, 2) provide the test to a student (or a group of students) that could be neighbor or family kids, 3) analyze the results and create a case study, and 4) share in class. Detailed information will be provided during the instruction. **Grade level depends on availability.**

(3) **Part 3: MSA Model Teaching and Discussion (20 points)** - Two Hours of Fieldwork

1) (15 points): Combine MSA and manipulatives and design a power point lesson that includes all lesson components (grade level for the lesson will be assigned). You should create a narrated multimedia presentation such as a Google Slides, Prezi, for sharing with your peers. Your presentation should explain (audio narration), demonstrate and include visual images of at least two concepts and connections across grade levels for the learning progression your group is assigned. On your last slide create an exit ticket for at least three questions that focus on assessing students' conceptual understanding, procedural fluency, and real-world application. Post your work to Discussion Board.

2) (5 points): Comments on at least TWO of your peers' work by providing constructive feedback (150 words for each). **Grade level will be assigned.**

Your Showcase (20 points)

The purpose of this assignment is to provide you with professional growth as well as additional resources that help you teach mathematics and other subjects. The TPE Elements Checklist should be a good reference for this assignment.

The Final: Signature Assignment – Lesson plan design (20 points)

Detailed information will be provided during the semester. **Grade level will be assigned.**

Evaluation and Grading

EDEL 462 has a total of 370 points, distributed as:

Classroom activity (14 x 5 = 70 points)
Autobiographical Essay (20 points)
Integrating Children Literature in Teaching Math (10 points)
STEAM Moment (15 points)
The MSAW Model Assignments (9 x 10 = 90 points)
Assessment project (30 points)
Homework from chapters (12x5 = 60)
Fieldwork (65 points)
 Video lessons observation (15 pts)
 Case study of assessment (30 pts)
 Teaching based on MSA Modeling (20 pts)
Your Showcase (20 points)
The Final: Lesson plan - Signature Assignment (20 points)

Total: 370 points

Course Grading:

90-100% = A
80-89% = B
70-79% = C
60-69% = D

Course Policies

Class Participation

Your participation is critical to our collective success. Successful student participation includes but not limited to:

- Participating in Zoom meetings
- Participating in BeachBoard Discussions: Content of discussion will be announced during the instruction.

Assignment Submission

All assignments will be submitted in the Dropbox on BeachBoard. **Assignments submitted after the due date and time will be considered late and unacceptable, and grade points will be deducted.** Work turned in late will earn 20% less per each class. For example, an assignment worth 20 points maximum that is turned in one class late will earn only 16 points maximum; two classes late will only earn 12 points, etc. In the case of illness or emergencies, and you are not sure you will make a due date, contact instructor immediately. Your document must be in MSWord for me to open it. If you have special request, please content to instructor.

Communication Strategy

Throughout this online course, the instructor will communicate with students regularly through email and the office hours. The instructor will respond to each email from students within 24 hours.

Quality Criteria for Written Assignments

Assignments must be typed or word-processed and submitted to the Dropbox. Accuracy of spelling, grammar and punctuation, and final presentation form will be considered.

E-mail

The CSULB campus email account, <first.lastname@student.csulb.edu>, is the default avenue of communication at CSULB. Active use of your CSULB campus email is essential for sending and receiving information related to this course and for university-wide business. Please be sure that your BeachBoard account is set to use your university campus email account. For assistance, contact the CSULB Technology HelpDesk (phone# 562-985-4959 or helpdesk@csulb.edu), also at http://www.csulb.edu/divisions/aa/academic_technology/thd/.

Statement Regarding Students with Disabilities

Students with a disability or medical restriction who are requesting a classroom or academic accommodation should contact the Bob Murphy Access Center (BMAC) located in the Student Success Center, #110, or by phone at 562-985-5401 or via email at BMAC@csulb.edu. The BMAC will work with the student to identify a reasonable accommodation in partnership with appropriate academic offices and medical providers. We encourage students to reach out to BMAC as soon as possible. It is the student's responsibility to notify the instructor in advance of the need for accommodation related to a university-verified disability.

University Policy

Institutional Academic Policy

<http://www.csulb.edu/divisions/aa/research/our/information/policies/cheating/>

Standards of appropriate online behavior will be maintained.

Withdrawal Policy: See University Schedule of Classes and/or University Catalog.

University Support Service on Campus

Student Affairs Services and Programs for Students

<http://web.csulb.edu/divisions/students/programs.html>

Student Affairs: Student Emergency Intervention and Wellness Program

The CSULB Student Emergency Intervention and Wellness Program (part of the *Basic Needs Program*) is a comprehensive initiative that identifies and immediately serves some of CSULB's most at-risk students, which include our displaced students, food insecure students and students experiencing an emergency or crisis, such as the following:

- Student Emergency Grant

- The Meals Assistance Program (Feed a Need)

- Short-Term Emergency Housing Program

Criteria for eligibility include: Be an enrolled CSULB student; Be able to demonstrate an urgent financial need (Supporting documentation is helpful where appropriate); and Must have exhausted all sources of financial assistance and aid.

http://web.csulb.edu/divisions/students/studentdean/emergency_grant/

Sexual Assault, Rape, Dating/Domestic Violence, & Stalking

Title IX prohibits gender discrimination, including sexual harassment and sexual misconduct. If you have experienced sexual harassment, sexual assault, rape, dating/domestic violence, or stalking, the campus confidential Victim's Advocate is available to help. Jaqueline Urtez (e:

advocate@csulb.edu, p: (562) 985-2668) can provide **free** and **confidential** support,

accommodations, and referrals for victims without having to report the assault to campus

authorities. While students are welcome to discuss assaults with faculty, both faculty and teaching

assistants are mandatory reporters who are required to report all incidents of sexual harassment/misconduct to the Title IX office for follow-up and possible investigation. Students who do wish to report the assault for possible investigation may contact the confidential victim's advocate, who can help them through the reporting process, or they can report the assault directly to the Title IX Office by completing an online reporting form at <https://www.csulb.edu/equity-diversity/title-ix> or contacting the Office of Equity & Diversity at OED@csulb.edu

Tentative Schedule

Date	Topics	Assignments & Due dates
1/21 Online & Zoom	Course Overview Discussion: <ul style="list-style-type: none"> ✓ Components of effective teaching ✓ What help students learn mathematics? 	Autobiographical Essay (1/27) Reading Ch. 1 & 2
1/28 Online & Zoom	Ch. 1 & 2: Mathematics Methods & MSA approach <ul style="list-style-type: none"> ✓ Learning progression & CCSSM & CA framework ✓ Model of Teaching 	Ch1 Content Practice (2) and Pedagogical Practice (2, 3) (2/3) Ch2 Content Practice (3: 23x24) and Pedagogical Practice (3, 5) (2/3) Reading: Ch. 3 & 4
2/4 Online & Zoom	Ch. 3 & 4: Assessment & Technology <ul style="list-style-type: none"> ✓ Fieldwork: Case study of Assessment ✓ Fieldwork: Observe and reflect on Math Video Lessons ✓ Differentiated instruction ✓ Integrating Children Literature in Teaching Math 	Ch3 Content Practice (4) and Pedagogical Practice (2, 3) (2/10) Ch4 Content Practice (1, 3) and Pedagogical Practice (1) (2/10) Fieldwork: Case study of Assessment (4/7) Fieldwork: Observe and reflect on Math Video Lessons (4/7) Integrating Children Literature in Teaching Math (2/10) Reading: Ch. 5
2/11 Online & Zoom	Ch. 5: Early number <ul style="list-style-type: none"> ✓ Sharing Integrating Children Literature ✓ STEAM Moment and PBL² ✓ MSAW 1 	Ch5 Content Practice (2, 3b) Pedagogical Practice (4, 6) (2/17) STEAM Moment (1) (2/17) Reading: Ch. 6

2/18 Online & Zoom	Ch. 6: Whole numbers <ul style="list-style-type: none"> ✓ Sharing STEAM moment: ✓ Manipulatives and its role ✓ Fieldwork: MSA Model Teaching and Discussion ✓ MSAW 2 	Ch6 Content Practice (2, 4) Pedagogical Practice (2a, 3a, 4a) (2/24) Reading Ch. 7
2/25 Online & Zoom	Ch. 7: Fraction Concept <ul style="list-style-type: none"> ✓ MSAW 3 	Ch7 Content Practice (4a, 4b, 4) Pedagogical Practice (9) (3/3) Reading Ch. 8
3/4 Online & Zoom	Ch. 8: Fraction Operation <ul style="list-style-type: none"> ✓ MSAW 4 	Ch8 Content Practice (5, 6), Pedagogical Practice (1, 2) (3/10) Reading Ch. 9
3/11 Online & Zoom	Ch. 9: Fraction, decimal, and percent <ul style="list-style-type: none"> ✓ MSAW 5 	Ch9 Content Practice (1: 0.4 and 0.34, 14) and Pedagogical Practice (2) (3/17) Reading Ch. 10
3/18 Online & Zoom	Ch. 10: Ratio, proportion, and percent <ul style="list-style-type: none"> ✓ MSAW 6 	Ch10 Content Practice (3, 6a, 6c) and Pedagogical Practice (6) (3/24) Reading Ch. 11
3/25 Online & Zoom	Ch. 11: Algebraic thinking & Algebra <ul style="list-style-type: none"> ✓ Update: Assessment project and field work ✓ MSAW 7 	Ch 11 Content practice (7, 9) and Pedagogical Practice (6) (4/7)
4/1	Spring Recess	Spring Recess
4/8 Online & Zoom	Ch. 12: Geometry & Measurement <ul style="list-style-type: none"> ✓ MSAW 8 	Ch 12 Content practice (2) and Pedagogical Practice (5) (4/14) Fieldwork: MSA Model Teaching and Discussion (4/14) Fieldwork: Observe and reflect on Math Video Lessons (4/14) Fieldwork: Case study of Assessment (4/14)
4/15 Online	Probability and statistics,	Showcase - Teaching methods and resources (5/13)

& Zoom	<ul style="list-style-type: none"> ✓ Case study of assessment presentation schedule ✓ Signature Assignment ✓ MSAW 9 Showcase - Teaching methods and resources	Signature Assignment (5/13)
4/22 Online & Zoom	Sharing case study of assessment	Sharing case study of assessment
4/29 Online & Zoom	Sharing case study of assessment	Sharing case study of assessment
5/6 Online & Zoom	Sharing case study of assessment	Sharing case study of assessment
5/13 Final Online & Zoom	Sharing case study of assessment Signature Assignment	Sharing case study of assessment Signature Assignment