



OTL516: EFFECTIVE MATHEMATICS INSTRUCTION

Credit Hours: 3

Contact Hours: This is a 3-credit course, offered in accelerated format. This means that 16 weeks of material is covered in 8 weeks. The exact number of hours per week that you can expect to spend on each course will vary based upon the weekly coursework, as well as your study style and preferences. You should plan to spend 14-20 hours per week in each course reading material, interacting on the discussion boards, writing papers, completing projects, and doing research.

Faculty Information: Faculty contact information and office hours can be found on the faculty profile page.

COURSE DESCRIPTION AND OUTCOMES

COURSE DESCRIPTION:

This course requires students to demonstrate their ability to articulate concepts to learners, and effectively instruct them in problem solving, reasoning and proof, communication, representation, connections, strategic competence, conceptual understanding, procedural fluency, and productive disposition.

COURSE OVERVIEW:

In this course you will continue with your internship. You will also learn more about research-based effective practices in setting up learning environments and the role of the mathematics teacher and the Professional Learning Community in impacting student achievement.

COURSE LEARNING OUTCOMES:

1. Create effective mathematical instruction and assessment aligned to academic standards and individual needs of learners.
2. Integrate and utilize appropriate tools strategically in mathematical instruction to maximize learning.
3. Utilize multiple data sources and evidence to analyze learning methods, evaluate educational practices, and make adjustments to continually improve learning, growth, and academic achievement.
4. Design instruction and assessment to connect mathematical practices to mathematical content.
5. Link professional growth to the teacher's professional goals.

***See the applicable Colorado State Teaching Licensure Standards at the end of the syllabus.*

PARTICIPATION & ATTENDANCE

Prompt and consistent attendance in your online courses is essential for your success at CSU-Global Campus. Failure to verify your attendance within the first seven days of this course may result in your withdrawal. If for some reason you would like to drop a course, please contact your advisor.

Online classes have deadlines, assignments, and participation requirements just like on-campus classes. Budget your time carefully and keep an open line of communication with your instructor. If you are having technical problems, problems with your assignments, or other problems that are impeding your progress, let your instructor know as soon as possible.

COURSE MATERIALS

Required:

Zimmermann, G., Carter, J., Toncheff, M., & Kanold, T. (2012). *Common Core mathematics in a PLC at work: In high school*. Bloomington, IN: Solution Tree. [CCMPLC HS] ISBN: 9781936765515

OR

Briars, D., Asturias, H., Foster, D., & Gale, M. (2012). *Common Core mathematics in a PLC at work: Grades 6-8*. Bloomington, IN: Solution Tree. [CCMPLCMS] ISBN: 9781936764105

Note: You will choose the textbook level that aligns with your internship placement and/or your future career goals.

All non-textbook required readings and materials necessary to complete assignments, discussions, and/or supplemental or required exercises are provided within the course itself. Please read through each course module carefully.

COURSE SCHEDULE

Due Dates

The Academic Week at CSU-Global begins on Monday and ends the following Sunday.

- **Discussion Boards:** The original post must be completed by Thursday at 11:59 p.m. MT, and Peer Responses posted by Sunday at 11:59 p.m. MT. Late posts may not be awarded points.
- **Critical Thinking:** Assignments are due Sunday at 11:59 p.m. MT.

WEEKLY READING AND ASSIGNMENT DETAILS

MODULE 1

Readings

- Pages 1-26 in *Common Core Mathematics in a PLC at Work: In High School* OR
- Pages 1-27 in *Common Core Mathematics in a PLC at Work: In Grades 6-8*
- Common Core State Standards Initiative. (n.d.). Myths vs. facts. Retrieved from <http://www.corestandards.org/about-the-standards/myths-vs-facts/>
- Common Core State Standards Initiative. (n.d.). Standards for mathematical practice. Retrieved from <http://www.corestandards.org/Math/Practice/>
- Community Training and Assistance Center. (2013). Student learning objectives: SLO framework. Retrieved from <http://www.ctacusa.com/wp-content/uploads/2013/11/SLOFramework.pdf>

- Reform Support Network. (n.d.). Student learning objective library. Retrieved from <https://rtt.grads360.org/#communities/tle-sa/workgroups/slo/slo-library>

Discussion (25 points)

Critical Thinking: NCTM Process Standards and the Strand of Mathematical Proficiency (75 points)

In Week 8, you will submit your final Portfolio Project. Your Critical Thinking assignments will contribute to this final project. Each week you will focus on implementing information from the current module and what you are learning in this class, and using that to collect student learning data for that week in your and your mentor's classroom. This is important because then you can seamlessly integrate each concept and skill we cover here in our CSU-Global classroom into what the mentor teacher in your classroom is already teaching students—rather than having to stop the class each week to teach a specific separate lesson of your own.

For the final Portfolio Project due in Week 8, you will look at all of the student achievement data you have collected each week in order to analyze student learning around your SLO, and then you will reflect on how your teaching impacted student learning in your mentor classroom. This project will be supported by the readings from the text, Modules 1–8, and at least two additional scholarly references of your choice. You can read the full description of this project in the Portfolio Project link in the Module 8 folder. Before beginning this Critical Thinking assignment, thoroughly read through the description for the Portfolio Project.

For Part 1 of this assignment:

- Examine the NCTM Process Standards and the Strand of Mathematical Proficiency.
- This week in your internship, observe the relationship between the process strand and the strand of mathematical proficiency, as you teach.
- Read about instructional screencast software options and Jing software. Screencast software is an effective tool you can also use to provide video tutorials for your own students to support their learning and processing, so it is important to learn how to use it.
- Create a 1-3 minute recording in the screencast software to answer the following: How do these foundational CCSS Mathematics Practices illuminate the new expectations of you, as a Mathematics teacher, versus how you were taught mathematics?

For Part 2 of this assignment:

- Review this week's required readings on writing SLOs.
- In collaboration with your mentor teacher, review the curriculum that will be taught in one course, over the next eight weeks.
- Write a Student Learning Objective (SLO) that aligns with the state standards and spans the content being taught to students over the next six weeks (Modules 2-7). Adhere to the standards from this week's readings on writing SLOs.

NOTE: You will be implementing your own learning in each module of this course to impact student achievement, as it relates to this SLO. You will collect and analyze student learning each week. In the Portfolio Project, you will analyze the impact of your instruction over the last eight weeks, as it relates to the SLO. You will use that information to plan future instruction.

MODULE 2

Readings

- Pages 27-60 in *Common Core Mathematics in a PLC at Work: In High School* OR
- Pages 29-70 in *Common Core Mathematics in a PLC at Work: In Grades 6-8*
- National Council of Teachers of Mathematics. (n.d.). Principles, standards, and expectations. Retrieved from <http://www.nctm.org/Standards-and-Positions/Principles-and-Standards/Principles,-Standards,-and-Expectations/>
- Review one content area guide relevant to your teaching situation: Colorado Department of Education. (n.d.). Guides to the Colorado academic standards in mathematics. Retrieved from <http://www.cde.state.co.us/standardsandinstruction/guidestostandards-mathematics>
- Irvin, J. L., Meltzer, J., & Dukes, M. S. (2007). Student motivation, engagement, and achievement. In *Taking Action on Adolescent Literacy* (Chapter 1). Retrieved from <http://www.ascd.org/publications/books/107034/chapters/Student-Motivation,-Engagement,-and-Achievement.aspx>

Discussion (25 points)

Critical Thinking: Mathematical Practices (75 points)

Choose one of the following two options to complete this week. Do not complete both assignments. Identify your assignment choice in the title of your submission.

Option #1: Mathematical Practices—Video

This week you will collect student learning data related instruction around any of the **eight mathematical practices** to determine if your teaching is impacting the SLO you selected during Module 1.

You will teach or co-teach a lesson with your mentor teacher that involves any of the eight mathematical practices and you *must* record the lesson.

- 1) Upload the video of the lesson to SIBME.
- 2) Watch the lesson and reflect on how you thought the lesson went.
- 3) Compile the following documents into one document and then upload the document into Schoology:
 - a. The SLO you wrote in Module 1 with any changes made based on instructor recommendation.
 - b. A lesson plan written in a self-generated planning template *or* a template from your placement/district of employment that contains at least the following items:
 - i. Identifies the Common Core State Standard(s) targeted in the lesson.
 - ii. Briefly describes the lesson taught or co-taught with your mentor teacher.
 - iii. Describes ways that you integrated at least one of the mathematical practices into the learning tasks.
 - iv. Identifies the feedback strategies used.
 - v. Collects student learning data.
 - b. Write a self-reflection based on watching the SIBME video of how you thought the lesson plan went. In particular, make clear:
 - i. What you saw/heard that indicates that students were learning.
 - ii. What you saw/heard that indicates that students were not learning.
 - iii. What you intend to do next week that builds directly from this lesson.
 - iv. What steps you will take for continuous improvement in the art of teaching.

Your lesson plan and reflection must meet the following guidelines:

- Follow all the *CSU-Global Guide to Writing and APA*, including a title page.

- Your paper must be clearly and well written using excellent grammar and style techniques. Be concise. Be logical. You are being graded in part on the quality of your writing.
- If you need assistance with your writing style, start with Tools for Effective Writing at the CSU-Global Library, accessible from the Library's homepage.

Refer to the Critical Thinking Rubric in the Module 2 folder for more information on expectations for this assignment.

Option #2: Mathematical Practices—Template

This week you will collect student learning data related to instruction around any of the **eight mathematical practices** to determine if your teaching is impacting the SLO you selected during Module 1.

Complete all of sections in the Module 2 template, or in a lesson planning document from your placement/district of employment (make sure it contains at least the following items):

- Copy and paste the SLO you wrote in Module 1 with any changes made based on instructor recommendation.
- Identify the Common Core State Standard(s) targeted in the lesson.
- Briefly describe the lesson taught or co-taught with your mentor teacher.
- Describe ways that you integrated at least one of the eight mathematical practices into the learning tasks.
- Identify the feedback strategies used.
- Collect student learning data.
- Include evidence of lesson implementation.

Remember, you will teach this lesson this week!

In a section for self-reflection, explain your plan for continuous improvement.

- What you intend to do next week that builds directly from this lesson.
- What steps you will take for continuous improvement in the art of teaching.

Your lesson plan and reflection must meet the following guidelines:

- Follow all the *CSU-Global Guide to Writing and APA*, including a title page.
- Your paper must be clearly and well written using excellent grammar and style techniques. Be concise. Be logical. You are being graded in part on the quality of your writing.
- If you need assistance with your writing style, start with Tools for Effective Writing at the CSU-Global Library, accessible from the Library's homepage.

Refer to the Critical Thinking Rubric in the Module 2 folder for more information on expectations for this assignment.

MODULE 3

Readings

- Pages 63-92 in *Common Core Mathematics in a PLC at Work: In High School* OR
- Pages 75-124 in *Common Core Mathematics in a PLC at Work: In Grades 6-8*

Discussion (25 points)

Critical Thinking: Mathematical Domain (75 points)

Choose one of the following two options to complete this week. Do not complete both assignments. Identify your assignment choice in the title of your submission.

Option #1: Mathematical Domain—Video

This week you will collect student learning data related instruction around any **mathematical domain** to determine if your teaching is impacting the SLO you selected during Module 1.

You will teach or co-teach a lesson with your mentor teacher that involves any **mathematical domain** and you *must* record the lesson.

- 1) Upload the lesson to SIBME.
- 2) Watch the lesson and reflect on how you thought the lesson went.
- 3) Compile the following documents into one document and then upload the document into Schoology:
 - a. The SLO you wrote in Module 1 with any changes made based on instructor recommendation
 - b. A lesson plan written in a self-generated planning template *or* a template from your placement/district of employment that contains at least the following items:
 - i. Identifies the Common Core State Standard(s) targeted in the lesson.
 - ii. Briefly describes the lesson taught or co-taught with your mentor teacher.
 - iii. Describes ways that you integrated at least one of the mathematical domains into the learning tasks.
 - iv. Identifies the feedback strategies used.
 - v. Collects student learning data.
 - c. Write a self-reflection based on watching the SIBME video of how you thought the lesson plan went. In particular, make clear:
 - i. What you saw/heard that indicates that students were learning.
 - ii. What you saw/heard that indicates that students were not learning.
 - iii. What you intend to do next week that builds directly from this lesson.
 - iv. What steps you will take for continuous improvement in the art of teaching.

Your lesson plan and reflection must meet the following guidelines:

- Follow all the *CSU-Global Guide to Writing and APA*, including a title page.
- Your paper must be clearly and well written using excellent grammar and style techniques. Be concise. Be logical. You are being graded in part on the quality of your writing.
- If you need assistance with your writing style, start with Tools for Effective Writing at the CSU-Global Library, accessible from the Library's homepage.

Refer to the Critical Thinking Rubric in the Module 3 folder for more information on expectations for this assignment.

Option #2: Mathematical Domain—Template

This week you will collect student learning data related to instruction around any **mathematical domain** to determine if your teaching is impacting the SLO you selected during Module 1.

Complete all of sections in the Module 3 template, or in a lesson planning document from your placement/district of employment (make sure it contains at least the following items):

- Copy and paste the SLO you wrote in Module 1 with any changes made based on instructor recommendation.
- Identify the Common Core State Standard(s) targeted in the lesson.

- Briefly describe the lesson taught or co-taught with your mentor teacher.
- Describe ways that you integrated at least one of the mathematical practices into the learning tasks.
- Identify the feedback strategies used.
- Collect student learning data.
- Include evidence of lesson implementation.

Remember, you will teach this lesson this week!

In a section for self-reflection, explain your plan for continuous improvement.

- What you intend to do next week that builds directly from this lesson.
- What steps you will take for continuous improvement in the art of teaching.

Your lesson plan and reflection must meet the following guidelines:

- Follow all the *CSU-Global Guide to Writing and APA*, including a title page.
- Your paper must be clearly and well written using excellent grammar and style techniques. Be concise. Be logical. You are being graded in part on the quality of your writing.
- If you need assistance with your writing style, start with Tools for Effective Writing at the CSU-Global Library, accessible from the Library's homepage.

Refer to the Critical Thinking Rubric in the Module 3 folder for more information on expectations for this assignment.

MODULE 4

Readings

- Pages 95-128 in *Common Core Mathematics in a PLC at Work: In High School* OR
- Pages 127-154 in *Common Core Mathematics in a PLC at Work: In Grades 6-8*

Discussion (25 points)

Critical Thinking: Formative Assessment (75 points)

Choose one of the following two options to complete this week. Do not complete both assignments. Identify your assignment choice in the title of your submission.

Option #1: Formative Assessment

This week you will collect student learning data related to the continuous improvement of instruction based on **formative assessment results** to determine if your teaching is impacting the SLO you selected during Module 1.

You will teach or co-teach a lesson with your mentor teacher that involves any of the **mathematical domains** and you *must* record the lesson.

- 1) Upload the lesson to SIBME.
- 2) Watch the lesson and reflect on how you thought the lesson went.
- 3) Compile the following documents into one document and then upload the document into Schoology:
 - a. The SLO you wrote in Module 1 with any changes made based on instructor recommendation.
 - b. A lesson plan written in a self-generated planning template or a template from your placement/district of employment that contains at least the following items:

- i. Identify the Common Core State Standard(s) targeted in the lesson.
 - ii. Briefly describes the lesson taught or co-taught with your mentor teacher.
 - iii. Describe instructional strategies that you used to teach the mathematical domain.
 - iv. Identify the feedback strategies used.
 - v. Collect formative assessment data.
 - vi. Analyze the formative assessment data and describe how the results inform your instructional practices.
- c. Write a self-reflection based on watching the SIBME video of how you thought the lesson plan went. In particular, make clear:
 - i. What you saw/heard that indicates that students were learning.
 - ii. What you saw/heard that indicates that students were not learning.
 - iii. What you intend to do next week that builds directly from this lesson.
 - iv. What steps you will take for continuous improvement in the art of teaching.

Your lesson plan and reflection must meet the following guidelines:

- Follow all the *CSU-Global Guide to Writing and APA*, including a title page.
- Your paper must be clearly and well written using excellent grammar and style techniques. Be concise. Be logical. You are being graded in part on the quality of your writing.
- If you need assistance with your writing style, start with Tools for Effective Writing at the CSU-Global Library, accessible from the Library's homepage.

Refer to the Critical Thinking Rubric in the Module 4 folder for more information on expectations for this assignment.

Option #2: Formative Assessment—Template

This week you will collect student learning data related to the continuous improvement of instruction based on **formative assessment results**—to determine if your teaching is impacting the SLO you selected during Module 1.

Complete all of sections in the Module 4 template, or in a lesson planning document from your placement/district of employment (make sure it contains at least the following items):

- Copy and paste the SLO you wrote in Module 1.
- Identify the Common Core State Standard(s) targeted in the lesson.
- Briefly describe the lesson taught or co-taught with your mentor teacher.
- Describe instructional strategies you used to teach at least one mathematics domain.
- Identify the feedback strategies used.
- Collect formative assessment data.
- Analyze the formative assessment data and describe how the results inform your instructional practices.
- Include evidence of lesson implementation.

Remember, you will teach this lesson this week!

In a section for self-reflection, explain your plan for continuous improvement.

- What you intend to do next week that builds directly from this lesson.
- What steps you will take for continuous improvement in the art of teaching.

Your lesson plan and reflection must meet the following guidelines:

- Follow all the *CSU-Global Guide to Writing and APA*, including a title page.

- Your paper must be clearly and well written using excellent grammar and style techniques. Be concise. Be logical. You are being graded in part on the quality of your writing.
- If you need assistance with your writing style, start with Tools for Effective Writing at the CSU-Global Library, accessible from the Library's homepage.

Refer to the Critical Thinking Rubric in the Module 4 folder for more information on expectations for this assignment.

MODULE 5

Readings

- Pages 95-128 in *Common Core Mathematics in a PLC at Work: In High School* OR
- Pages 127-154 in *Common Core Mathematics in a PLC at Work: In Grades 6-8*

Discussion (25 points)

Critical Thinking: Response to Intervention (75 points)

Choose one of the following two options to complete this week. Do not complete both assignments. Identify your assignment choice in the title of your submission.

Option #1: Response to Intervention—Video

This week you will collect student learning data that demonstrates **competency of all students on personalized expectations** to determine if your teaching is impacting the SLO you selected during Module 1.

You will teach or co-teach a lesson with your mentor teacher that involves any of the **mathematical domains** and you *must* record the lesson.

- 1) Upload the lesson to SIBME.
- 2) Watch the lesson and reflect on how you thought the lesson went.
- 3) Compile the following documents into one document and then upload the document into Schoology:
 - a. The SLO you wrote in Module 1 with any changes made based on instructor recommendation
 - b. A lesson plan written in a self-generated planning template *or* a template from your placement/district of employment that contains at least the following items:
 - i. Identify the Common Core State Standard(s) targeted in the lesson.
 - ii. Briefly describes the lesson taught or co-taught with your mentor teacher.
 - iii. Describe how you individualized instruction to ensure competency for at least one student.
 - iv. Identify the feedback strategies used.
 - v. Identifies the feedback strategies used.
 - vi. Collects student learning data.
 - c. Write a self-reflection based on watching the SIBME video of how you thought the lesson plan went. In particular, make clear:
 - i. What you saw/heard that indicates that students were learning.
 - ii. What you saw/heard that indicates that students were not learning.
 - iii. What you intend to do next week that builds directly from this lesson.
 - iv. What steps you will take for continuous improvement in the art of teaching.

Your lesson plan and reflection must meet the following guidelines:

- Follow all the *CSU-Global Guide to Writing and APA*, including a title page.
- Your paper must be clearly and well written using excellent grammar and style techniques. Be concise. Be logical. You are being graded in part on the quality of your writing.
- If you need assistance with your writing style, start with Tools for Effective Writing at the CSU-Global Library, accessible from the Library's homepage.

Refer to the Critical Thinking Rubric in the Module 5 folder for more information on expectations for this assignment.

Option #2: Response to Intervention—Template

This week you will collect student learning data that demonstrates the **competency for all students on personalized expectations** to determine if your teaching is impacting the SLO you selected during Module 1.

Complete all of sections in the Module 5 template, or in a lesson planning document from your placement/district of employment (make sure it contains at least the following items):

- Copy and paste the SLO you wrote in Module 1.
- Identify the Common Core State Standard(s) targeted in the lesson.
- Briefly describe the lesson taught or co-taught with your mentor teacher.
- Describe how you individualized instruction to ensure competency for at least one student.
- Identify the feedback strategies used.
- Collect student learning data.
- Include evidence of lesson implementation.

Remember, you will teach this lesson this week!

In a section for self-reflection, explain your plan for continuous improvement.

- What you intend to do next week that builds directly from this lesson.
- What steps you will take for continuous improvement in the art of teaching.

Your lesson plan and reflection must meet the following guidelines:

- Follow all the *CSU-Global Guide to Writing and APA*, including a title page.
- Your paper must be clearly and well written using excellent grammar and style techniques. Be concise. Be logical. You are being graded in part on the quality of your writing.
- If you need assistance with your writing style, start with Tools for Effective Writing at the CSU-Global Library, accessible from the Library's homepage.

Refer to the Critical Thinking Rubric in the Module 5 folder for more information on expectations for this assignment.

MODULE 6

Readings

- Pages 95-128 in *Common Core Mathematics in a PLC at Work: In High School* OR
- Pages 127-154 in *Common Core Mathematics in a PLC at Work: In Grades 6-8*

Discussion (25 points)

Critical Thinking: Bringing the Real World into the Classroom (75 points)

Choose one of the following two options to complete this week. Do not complete both assignments. Identify your assignment choice in the title of your submission

Option #1: Bringing the Real World into the Classroom - Video

This week you will collect student learning data that demonstrates the **integration of real world relevancy** to determine if your teaching is impacting the SLO you selected during Module 1.

You will teach or co-teach a lesson with your mentor teacher that involves any of the **mathematical domains** and you *must* record the lesson.

- 1) Upload the lesson to SIBME.
- 2) Watch the lesson and reflect on how you thought the lesson went.
- 3) Compile the following documents into one document and then upload the document into Schoology:
 - a. The SLO you wrote in Module 1 with any changes made based on instructor recommendation.
 - b. A lesson plan written in a self-generated planning template *or* a template from your placement/district of employment that contains at least the following items:
 - i. Identify the Common Core State Standard(s) targeted in the lesson.
 - ii. Briefly describes the lesson taught or co-taught with your mentor teacher.
 - iii. Describe ways that you integrated real world relevancy into instruction of any one of the mathematical practices 1-6.
 - iv. Identify the feedback strategies used.
 - v. Identifies the feedback strategies used.
 - vi. Collects student learning data.
 - c. Write a self-reflection based on watching the SIBME video of how you thought the lesson plan went. In particular, make clear:
 - i. What you saw/heard that indicates that students were learning.
 - ii. What you saw/heard that indicates that students were not learning.
 - iii. What you intend to do next week that builds directly from this lesson.
 - iv. What steps you will take for continuous improvement in the art of teaching.

Your lesson plan and reflection must meet the following guidelines:

- Follow all the *CSU-Global Guide to Writing and APA*, including a title page.
- Your paper must be clearly and well written using excellent grammar and style techniques. Be concise. Be logical. You are being graded in part on the quality of your writing.
- If you need assistance with your writing style, start with Tools for Effective Writing at the CSU-Global Library, accessible from the Library's homepage.

Refer to the Critical Thinking Rubric in the Module 6 folder for more information on expectations for this assignment.

Option #2: Bringing the Real World into the Classroom—Template

This week you will collect student learning data that demonstrates the **integration of real world relevancy** to determine if your teaching is impacting the SLO you selected during Module 1.

Complete all of sections in the Module 6 template, or in a lesson planning document from your placement/district of employment (make sure it contains at least the following items):

- Copy and paste the SLO you wrote in Module 1.
- Identify the Common Core State Standard(s) targeted in the lesson.
- Briefly describe the lesson taught or co-taught with your mentor teacher.

- Describe ways that you integrated real world relevancy into instruction of any one of the mathematical practices 1-6.
- Identify the feedback strategies used.
- Collect student learning data.
- Include evidence of lesson implementation.

Remember, you will teach this lesson this week!

In a section for self-reflection, explain your plan for continuous improvement.

- What you intend to do next week that builds directly from this lesson.
- What steps you will take for continuous improvement in the art of teaching.

Your lesson plan and reflection must meet the following guidelines:

- Follow all the *CSU-Global Guide to Writing and APA*, including a title page.
- Your paper must be clearly and well written using excellent grammar and style techniques. Be concise. Be logical. You are being graded in part on the quality of your writing.
- If you need assistance with your writing style, start with Tools for Effective Writing at the CSU-Global Library, accessible from the Library's homepage.

Refer to the Critical Thinking Rubric in the Module 6 folder for more information on expectations for this assignment.

MODULE 7

Readings

- Read Appendix B and revisit pages 31-60 in *Common Core Mathematics in a PLC at Work: In High School* OR
- Read Appendix A and revisit pages 31-70 in *Common Core Mathematics in a PLC at Work: In Grades 6-8*

Discussion (25 points)

Portfolio Project Reminder - Mathematical Practices 7 or 8 (Required activity, but no submission)

This week you will collect student learning data that demonstrates the integration of Mathematical Practices 7 or 8 to determine if your teaching is impacting the SLO you selected during Module 1. If you elected to integrate MP7 or MP8 in your Module 2 assignment, you can either do it again and see how your student data and outcomes are different from Module 2, or you can elect to integrate the MP you did not use (if you integrated MP 7 in Module 2, then integrate MP8 here in Module 7, and vice versa).

You do not have to turn anything in this week, though.

However, you must complete the work and collect the required student data because you will need it for your final Portfolio Project due in Week 8. If you want to complete a lesson plan template or video as you have done in prior modules, you are encouraged to do so. For the Portfolio Project, though, you will not submit either a video or a Module 7 lesson plan. You will need to analyze the student data collected from this week and you will need to create a graphical representation of that data. Keep this in mind as you decide how to implement this lesson about Mathematical Practices 7 or 8.

Option #1: Mathematical Practices 7 or 8—Video

You will teach or co-teach a lesson with your mentor teacher that involves the integration of Mathematical Practices 7 or 8 and you *must* record the lesson.

- 1) Upload the lesson to SIBME.
- 2) Watch the lesson and reflect on how you thought the lesson went.
- 3) Compile the following documents into one document and then upload the document into Schoology;
 - a. The SLO you wrote in Module 1 with any changes made based on instructor recommendation.
 - b. A lesson plan written in a self-generated planning template or a template from your placement/district of employment that contains at least the following items:
 - i. Identify the Common Core State Standard(s) targeted in the lesson.
 - ii. Briefly describes the lesson taught or co-taught with your mentor teacher.
 - iii. Describe ways that you integrated mathematical practice 7 or 8 into the learning tasks.
 - iv. Identify the feedback strategies used.
 - v. Identifies the feedback strategies used.
 - vi. Collects student learning data.
 - c. Write a self-reflection based on watching the SIBME video of how you thought the lesson plan went. In particular, make clear:
 - i. What you saw/heard that indicates that students were learning.
 - ii. What you saw/heard that indicates that students were not learning.
 - iii. What you intend to do next week that builds directly from this lesson.
 - iv. What steps you will take for continuous improvement in the art of teaching.

You do not need to submit your video or reflection, but remember to capture student data for analysis in Module 8 and take note of the steps you will take for continuous improvement.

Option #2: Mathematical Practices 7 or 8—Template

This week you will collect student learning data that demonstrates the integration of real world relevancy to determine if your teaching is impacting the SLO you selected during Module 1.

Complete all of sections in the Module 7 template, or in a lesson planning document from your placement/district of employment (make sure it contains at least the following items):

- Copy and paste the SLO you wrote in Module 1.
- Identify the Common Core State Standard(s) targeted in the lesson.
- Briefly describe the lesson taught or co-taught with your mentor teacher.
- Describe ways that you integrated real world relevancy into instruction of mathematical practices 7 or 8.
- Identify the feedback strategies used.
- Collect student learning data.
- Include evidence of lesson implementation.

Remember, you will teach this lesson this week!

In a section for self-reflection, explain your plan for continuous improvement.

- What you intend to do next week that builds directly from this lesson.
- What steps you will take for continuous improvement in the art of teaching.

You do not need to submit your template or reflection, but remember to capture student data for analysis in Module 8 and take note of the steps you will take for continuous improvement.

MODULE 8

Readings

- Betebenner, D. (2008, February 8). *A primer on student growth percentiles*. Retrieved from http://www.cde.state.co.us/sites/default/files/documents/accountability/downloads/tap/aprimero_nstudentgrowthpercentiles_a.pdf

Discussion (25 points)

Portfolio Project: Self-Reflection and Application (350 points)

This Portfolio Project consists of two parts. Both parts must be submitted in order to receive credit.

Part 1:

Engage in self-reflection for continuous improvement based on data collected over the past six weeks, related to the student learning objective written in Module 1. Complete the following:

- Analyze the student achievement data collected from Modules 2-7.
- Describe what you will teach next based on the student achievement data and/or evidence.
- Create a visual display of the student achievement data collected from Modules 2-7 (tables, graphs, and/or charts, for example).
- Describe the next steps for the students in your class, a group of students, and/or an individual student to ensure *every* student is proficient.
- Describe the next steps for you in improving your skills in differentiating or personalizing your instructional approaches for *all* learners in your classes.

Your paper for Part 1 must meet the following requirements:

- Be 3-5 pages in length, not including the cover page and reference page.
- Support your answers with readings from Modules 1-8 and at least two scholarly journal articles (at least one of which is peer-reviewed). The CSU-Global Library is a great place to find these resources.
- Be sure to follow the *CSU-Global Guide to Writing and APA*. Each paper should include an introduction, a body with at least two fully developed paragraphs, and a conclusion.
- Your paper must be clearly and well written, using excellent grammar and style techniques. Be concise. Be logical. You are being graded in part on the quality of your writing.
- If you need assistance with your writing style, start with Tools for Effective Writing at the CSU-Global Library, accessible from the Library's homepage.

Part 2:

- Based on an analysis of student learning in Part 1, use the unit planning template for Module 8 for teaching mathematics to plan for what you would teach next, ensuring that you address the learning needs of all students.
- Ensure that the plan is driven by your student achievement analysis in Part 1.
- There are unit examples from the Colorado Department of Education Website—https://www.cde.state.co.us/standardsandinstruction/curriculumoverviews-bycontent#MA_. Reference either the Grade 7 Sample Curriculum or the High School Mathematics Sample Curriculum.

Refer to the Portfolio Project grading rubric available in the Module 8 folder for information on grading details.

COURSE POLICIES

Course Grading

20% Discussion Participation
45% Critical Thinking Assignments
35% Final Portfolio Project

Grading Scale	
A	95.0 – 100
A-	90.0 – 94.9
B+	86.7 – 89.9
B	83.3 – 86.6
B-	80.0 – 83.2
C+	75.0 – 79.9
C	70.0 – 74.9
D	60.0 – 69.9
F	59.9 or below

IN-CLASSROOM POLICIES

For information on late work and incomplete grade policies, please refer to our [In-Classroom Student Policies and Guidelines](#) or the Academic Catalog for comprehensive documentation of CSU-Global institutional policies.

Academic Integrity

Students must assume responsibility for maintaining honesty in all work submitted for credit and in any other work designated by the instructor of the course. Academic dishonesty includes cheating, fabrication, facilitating academic dishonesty, plagiarism, reusing /re-purposing your own work (see *CSU-Global Guide to Writing and APA Requirements* for percentage of repurposed work that can be used in an assignment), unauthorized possession of academic materials, and unauthorized collaboration. The CSU-Global Library provides information on how students can avoid plagiarism by understanding what it is and how to use the Library and Internet resources.

Citing Sources with APA Style

All students are expected to follow the *CSU-Global Guide to Writing and APA Requirements* when citing in APA (based on the APA Style Manual, 6th edition) for all assignments. For details on CSU-Global APA style, please review the APA resources within the CSU-Global Library under the “APA Guide & Resources” link. A link to this document should also be provided within most assignment descriptions in your course.

Disability Services Statement

CSU–Global is committed to providing reasonable accommodations for all persons with disabilities. Any student with a documented disability requesting academic accommodations should contact the Disability Resource Coordinator at 720-279-0650 and/or email ada@CSUGlobal.edu for additional information to coordinate reasonable accommodations for students with documented disabilities.

Netiquette

Respect the diversity of opinions among the instructor and classmates and engage with them in a courteous, respectful, and professional manner. All posts and classroom communication must be conducted in accordance with the student code of conduct. Think before you push the Send button. Did you say just what you meant? How will the person on the other end read the words?

Maintain an environment free of harassment, stalking, threats, abuse, insults or humiliation toward the instructor and classmates. This includes, but is not limited to, demeaning written or oral comments of an ethnic, religious, age, disability, sexist (or sexual orientation), or racist nature; and the unwanted sexual advances or intimidations by email, or on discussion boards and other postings within or connected to the online classroom. If you have concerns about something that has been said, please let your instructor know.

Applicable Colorado State Teaching Licensure Standards

SB 191 Teacher Quality Standards (1 CCR 301-87 Section 3.02)	Observable Practices and Evidence, While Demonstrating the Knowledge and Skills of a Mathematics Educator based on the 8.14 Standards
Standard I: Teachers Demonstrate Mastery of and Pedagogical Expertise in the Content They Teach The elementary teacher is an expert in literacy and mathematics and is knowledgeable in all other content	

<p>that he or she teaches (e.g., science, social studies, arts, physical education, or world languages).</p> <p>The secondary teacher has knowledge of literacy and mathematics and is an expert in his or her content endorsement area(s).</p>	
<p>Element a: Teachers provide instruction that is aligned with the Colorado Academic Standards; their District's organized plan of instruction; and the individual needs of their students.</p>	<ul style="list-style-type: none"> • Uses lesson plans that reflect: <ul style="list-style-type: none"> • Opportunities to review prior learning. • Instructional objectives appropriate for students. • Connections to specific learning objectives and approved curriculum. • Implements lesson plans based on: <ul style="list-style-type: none"> • Student needs • Colorado Academic Standards • District's plan of instruction.
<p>Element c: Teachers demonstrate knowledge of mathematics and understand how to promote student development in numbers and operations, algebra, geometry and measurement, and data analysis and probability.</p>	<ul style="list-style-type: none"> • Encourages students to make math connections across content. • Emphasizes to students why they need to learn math content and skills. • Uses instructional strategies that require students to apply and transfer mathematical knowledge to different content areas. • Emphasizes interdisciplinary connections to math.
<p>Element d: Teachers demonstrate knowledge of the content, central concepts, tools of inquiry, appropriate evidence-based instructional practices, and specialized character of the disciplines being taught.</p>	<ul style="list-style-type: none"> • Breaks down concepts into instructional parts and teaches each part using appropriate, effective strategies and/or tools. • Uses instructional materials that are accurate and appropriate for the lesson being taught. • Employs a variety of instructional strategies to address student needs. • Provides explanations of content that are: <ul style="list-style-type: none"> • Accurate • Clear • Concise • Comprehensive. • Engages students in: <ul style="list-style-type: none"> • A variety of explanations and multiple representations of concepts and ideas. • A variety of inquiry methods to explore new ideas and theories.
<p>Element e: Teachers develop lessons that reflect the interconnectedness of content areas/disciplines.</p>	<ul style="list-style-type: none"> • Emphasizes key concepts and connects them to other powerful ideas within the content area. • Connects lessons to other disciplines and/or content areas. • Implements instructional strategies to ensure that instruction:

	<ul style="list-style-type: none"> • Articulates content and interdisciplinary connections. • Integrates literacy skills across content areas. • Clarifies and elaborates on interdisciplinary connections for students. • Employs instructional strategies that include literacy, numeracy, and language development across content areas.
<p>Element f: Teachers make instruction and content relevant to students and take actions to connect students' background and contextual knowledge with new information being taught.</p>	<ul style="list-style-type: none"> • Selects instructional materials and strategies based on their: <ul style="list-style-type: none"> • Relevance to students • Central contexts • Foundational evidence base. • Links lessons to students' prior knowledge. • Encourages and provides opportunities for students to make connections to prior learning. • Delivers lessons and units and uses instructional strategies that: <ul style="list-style-type: none"> • Help students connect to their learning by linking the current lesson with prior knowledge, experiences, and/or cultural contexts. • Provides support that facilitates engagement. • Delivers lessons and uses materials to ensure that students' backgrounds and contextual knowledge are considered. • Provides opportunities for students to self-select tasks that accelerate their learning.
<p>Standard II: Teachers establish a safe, inclusive, and respectful learning environment for a diverse population of students.</p>	
<p>Element e: Teachers provide proactive, clear, and constructive feedback to families about student progress and work collaboratively with the families and significant adults in the lives of their students.</p>	<ul style="list-style-type: none"> • Uses the district identified system to document and report ongoing student achievement. • Communicates with students, parents, and professionals about the learning needs of the students based on an analysis of achievement data.
<p>Standard III: Teachers plan and deliver effective instruction and create an environment that facilitates learning for their students.</p>	
<p>Element c: Teachers demonstrate a rich knowledge of current research on effective instructional practices to meet the developmental and academic needs of their students.</p>	<ul style="list-style-type: none"> • Incorporates evidence-based strategies into lessons. • Individualizes instructional approach to meet unique needs of each student.

<p>Element d: Teachers thoughtfully integrate and utilize appropriate available technology in their instruction to maximize student learning.</p>	<ul style="list-style-type: none"> • Uses available technology to facilitate classroom instruction. • Employs strategies and procedures to ensure that students have equitable access to available technology. • Monitors the use of available technology in the classroom. • Uses available technology to: <ul style="list-style-type: none"> • Enhance student learning. • Develop students' knowledge and skills. • Enhance creative and innovative skills. • Provide engaging and motivating learning experiences.
<p>Element g: Teachers communicate effectively, making learning objectives clear and providing appropriate models of language.</p>	<ul style="list-style-type: none"> • Communicates effectively with students. • Models effective communication skills. • Encourages students to communicate effectively. • Teaches students to be effective communicators. • Provides opportunities for students to practice communication skills.
<p>Element h: Teachers use appropriate methods to assess what each student has learned, including formal and informal assessments, and use results to plan further instruction.</p>	<ul style="list-style-type: none"> • Involves students in monitoring their learning. • Assesses learning outcomes appropriately. • Provides actionable, timely, specific, and individualized feedback about the quality of student work to students. • Teaches students to use feedback to improve their learning.
<p>Standard IV: Teachers reflect on their practice.</p>	
<p>Element a: Teachers demonstrate that they analyze student learning, development, and growth and apply what they learn to improve their practice.</p>	<ul style="list-style-type: none"> • Identifies the classroom/school/district/state data that is available and related to your content area and grade level. • Identifies the data targets. • Identifies the location of the data. • Identifies possible time efficiency ideas for data analysis and use. • Identifies where there is a "data gap" or, in other words, missing data that is needed to improve performance. • Creates "possible collection methods" to collect the needed data. • Analyzes at least one type of data and provides a visual representation of the data results. • Integrates the data findings into instruction to improve student learning.

Element b: Teachers link professional growth to their professional goals.	<ul style="list-style-type: none"> • Uses the Colorado State Model Educator Evaluation System Professional Growth Plan to record up to three professional growth goals aligned with your continued professional needs. • The goals should be specific and measurable. • While each of the goals is important, they should be listed in rank order with the most important listed first. • Also, records the action steps required to address each growth goal.
Element c: Teachers are able to respond to a complex, dynamic environment.	<ul style="list-style-type: none"> • Integrates the student data findings into instruction to improve student learning to meet the needs of the whole child.
	<ul style="list-style-type: none"> • Uses the district identified system to document and report ongoing student achievement. • Communicates with students, parents, and professionals about the learning needs of the students based on an analysis of achievement data.
Standard V: Teachers demonstrate leadership.	
Element a: Teachers demonstrate leadership in their schools.	<ul style="list-style-type: none"> • Utilizes group processes to help colleagues work collaboratively to solve problems and make decisions.
Element b: Teachers contribute knowledge and skills to educational practices and the teaching profession.	<ul style="list-style-type: none"> • Works with colleagues to identify and use research to advocate for teaching and learning processes that meet the needs of all students.
Quality Standard VI: Teachers take responsibility for student academic growth.	
Element a: Teachers demonstrate high levels of student learning, growth and academic achievement.	<ul style="list-style-type: none"> • Lists the standard and the identification of the concept(s), idea(s), and skill(s) for something that students must learn in order to master the standard. • Creates an analytic rubric that identifies the levels of performance for each criterion needed to meet proficiency on the target standard and which clearly articulates the expectations of learning for each criterion. • Creates a way for students to use the feedback that they will be provided to set learning goals for themselves. • Designs an error analysis worksheet for students to use where an explanation can be provided for a skill(s) they are struggling with in becoming proficient on the standard. • Develops a way for students to track progress on their learning goals.

	<ul style="list-style-type: none"> • Provides students with actionable feedback this week on their learning by using the analytic performance rubric developed. • Has students self-assess their learning. • Has students complete an error worksheet. • Provides time in class for students to analyze the feedback and develop learning goals for themselves. These learning goals should support their advancement to the next level of performance. Has students begin to track their progress on the learning goals. • Has students track their progress on their learning goals. • Analyzes the error worksheets and/or progress of students on their learning goals and identifies content areas and skills that need to be reinforced and factors that may interest or motivate students. • Uses the learning data to decide on steps for continual improvement—small group, more practice, reteach, and move to next concept, for example.
<p>Element b: Teachers demonstrate high levels of student academic growth in the skills necessary for postsecondary and workforce readiness, including democratic and civic participation.</p>	<ul style="list-style-type: none"> • Begins with the Colorado Academic Standards to identify critical learning goals for students. • Identifies available assessments that are being used in your district to evaluate student learning throughout the year. • Groups available assessments according to teacher type. • Determines how the results from the selected student learning measures will be scaled for expected growth.
<p>Element c: Teachers demonstrate their ability to utilize multiple data sources and evidence to evaluate their practice, and make adjustments where needed to continually improve attainment of student academic growth.</p>	<ul style="list-style-type: none"> • Groups available assessments from multiple data sources according to teacher type. • Determines how the results from the selected student learning measures will be scaled for expected growth. • Uses the Colorado Microsoft Excel: Measures of Student Learning Tool to analyze the desired learning targets that are expected as a result of instruction.