**Course Number & Title:** EDUC 545 Mathematics, Science, and Social Studies Methods for Students with Disabilities (aka, Characteristics and Instruction of Students with Mild/Mod Disabilities)

**Term & Year:** Winter 2018

**Instructor:** Dr. Leah Wood

**Office Location:** Education (02) Room 108

**Class Location & Time:** Wed 5:10 – 8:00
Education (02) Room 126

**Office Hours:** please sign up using this Google sheet [https://docs.google.com/spreadsheets/d/1KSY_tAkGwFC9k4lSMv9T1uoZ2QzZaehnH53jJUrb0/edit?usp=sharing](https://docs.google.com/spreadsheets/d/1KSY_tAkGwFC9k4lSMv9T1uoZ2QzZaehnH53jJUrb0/edit?usp=sharing) (2 hrs daily, by appointment)

**Email:** awood17@calpoly.edu

**Course Description:** An overview of principles of mathematics and science instruction. Students will investigate state and national Standards in mathematics and science, including core content and practices. Students will develop and implement field-based projects to extend their understanding of designing instruction, teaching, and assessing mathematics and science to K-12 students with mild/moderate disabilities.

**COURSE LEARNING OUTCOMES.** Candidates will know, understand, and be able to:

<table>
<thead>
<tr>
<th>ASSESSMENT</th>
<th>STANDARD</th>
<th>SOE LEARNING OUTCOME</th>
<th>SOE DISPOSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classwork, midterm, guided notes</td>
<td>PS 11, 13; MMS 3, 5</td>
<td>1, 2, 6</td>
<td>1.1, 3.1</td>
</tr>
<tr>
<td>Math case study assignment, midterm, UDL science lessons, guided notes</td>
<td>PS 6, 11, 13; MMS 3, 5</td>
<td>1, 2, 3, 6</td>
<td>1.1, 2.2, 3.1</td>
</tr>
<tr>
<td>Math case study assignment, UDL science lesson</td>
<td>PS 5; MMS 2</td>
<td>1, 2, 4, 6</td>
<td>1.1</td>
</tr>
<tr>
<td>Math case study assignment, UDL science lesson</td>
<td>PS 3; MMS 3</td>
<td>1, 2, 5, 6</td>
<td>1.1, 1.2, 2.1, 2.2, 3.1, 3.2</td>
</tr>
<tr>
<td>Math case study assignment, UDL science lesson</td>
<td>PS 5, 6, 8, 11; MMS 2, 3, 5</td>
<td>1, 2, 4, 6</td>
<td>1.1, 1.2, 2.1, 2.2, 3.1, 3.2</td>
</tr>
<tr>
<td>Math case study assignment, math/science resource binder, UDL science lesson</td>
<td>PS 2, 4; MMS 3</td>
<td>1, 2, 5, 6</td>
<td>1.1, 3.1, 3.2</td>
</tr>
</tbody>
</table>

Note: For each learning outcome, the applicable standard and SOE learning outcome is listed by number (full text provided at the end of syllabus).
Required Text:

Supplementary Text (This text is recommended but NOT required):

Articles:

Websites:
- California Standards: http://www.cde.ca.gov/be/st/ss/
- Common Core State Standards: http://www.corestandards.org
- NCSC Wiki: https://wiki.ncsepcompartners.org/index.php/Main_Page
- The Iris Center Modules: http://iris.peabody.vanderbilt.edu
- ECU MAST Modules: http://mast.ecu.edu
- Autism Internet Modules: http://www.autismininternetmodules.org
- CAST Center (UDL): http://www.cast.org
- National Center for the Social Studies: https://www.socialstudies.org/

Technical Requirements for This Course
1. Candidates must activate their Cal Poly email accounts and check their Cal Poly email multiple times per week. Cal Poly mail may be forwarded to a private account. For assistance with this, go to the main Cal Poly Portal page and click on the “Personal Info” tab (upper right hand corner).
2. Candidates must have access to computers and the Internet in order to complete requirements for this course. A very recent version of Mozilla Firefox or Google Chrome is highly recommended. You may be required to submit video examples of your teaching. The School of Education has equipment you can check out in order if needed (see Drs. Wood for more information).
ASSIGNMENTS/EVALUATION CRITERIA

General requirements:

1. Candidates are expected to be prepared, present, and professional. There will be readings, assignments, and podcasts due for most class sessions. Candidates should check Poly Learn regularly for assignment updates and ongoing course information. Note: Some assignments will be submitted as hard copies, while others will be submitted via PolyLearn. Dr. Wood will clarify the format for submitting each assignment before they are due.

Course Assignments:

- **Guided Notes (20 pts total):** You will be provided these to complete in class for most in-class lectures and for one podcast out of class. You will turn in guided notes each class session to receive credit for in-class participation points.

- **Study Guides (no credit - optional):** You will receive seven study guides across the quarter. Use these to help check your own understanding of the texts, keep you accountable, and drive class discussions.

- **Social Studies Assignments [50 pts - pass/fail]:** You will complete a module on social studies instruction outside of class. Under Course Resources you will find a file with a link to the podcast. View this podcast (it’s about 1 hr and 17 min long) and then choose two assignments at the end of the presentations to complete and submit by Wednesday of Week 4. This assignment includes the integration of literacy and social studies instruction, including the development of vocabulary supports and adapted expository texts (you will learn to adapt any grade level content to a 2nd/3rd grade Lexile Level). Specifically, you will create research and evidence-based instructional materials that align with grade level social studies standards and are accessible for diverse learners. There is a folder under Course Resources with the PPT used to create the podcast as well as supplemental articles.

- **Midterm Exam (50 pts):** Your midterm will be take-home. You may use class resources (books, notes, etc.), but you must do the work on your own. This will be distributed Week 5 and due at the beginning of class Week 6.

- **Math Case Study (100 pts):** For this assignment, you will (a) administering a math screening assessment to a large group of students, (b) analyze data to form a small group of students with similar skill sets and instructional needs, (c) develop unit and lesson objectives that align to the CA State Standards for mathematics, student IEPs, and assessment screening data, (d) develop five lesson plans to teach the skills articulated in your lesson objectives (plans will address needs of diverse learners, including cultural considerations and individualized accommodations and modifications; plans will include research and evidence-based practices for teaching mathematics to students with mild/moderate disabilities, and plans will be systemic; plans will include high and low tech assistive and instructional technologies), (e) develop methods for collecting data and graph data across lessons using Excel, (f) receive feedback from and debrief with your cooperating teacher and a peer on at least two lessons, (g) analyze data and make a data-based instructional decision at the end of your 5-day unit, and (h) write reflections for at least four of your lessons. Portions of this project will be due at different points across the quarter.

- **Inquiry-Based Science Unit Plan [40 pts]:** You will develop an outline of a science unit for teaching a science concept across three to five days. In this project, you will develop the outline of unit plans that are universally designed and could be effective for teaching students with and without disabilities. It is NOT required that you actually teach this unit, but hopefully you can in the spring. Specifically, you will select a grade aligned science standard. You will consider the IEP goals across content areas (including literacy and mathematics) as well as the communication needs, accommodations, and modifications of the students in your classroom. You will develop unit objectives and plan instruction to help students meet those objectives. Include supports for language, consider the students culture and background knowledge, and incorporate evidence and research based practices for teaching science to students with mild/moderate disabilities. You will plan for ongoing lesson assessments and create any data sheets you might use. Additionally, create examples of your materials, including adapted tests, vocabulary supports, and graphic organizers you students may use. This is due by class in Week 11. We'll spend this class sharing these projects and getting feedback from peers.

- **Resource Binder (20 pts):** You will create a resource binder of tool you find useful that you will use in practice. You will come show me your binder during office hours Weeks 9-11 to receive credit for your binder.

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An absolute "curve" will not be used for establishing the grade assigned to candidates in this class. According to the 1998-99 Cal Poly Catalog, the following grading system is in effect:

A  Superior attainment of course objectives 94-100%
A- 90-93%
B  Good attainment of course objectives 84-89%
B- 80-83%
C  Acceptable attainment of course objectives 74-79%
C- 70-73%
D  Poor attainment of course objectives 64-69%
D- 60-63%
F  Non-attainment of course objectives

"Plus" and "Minus" grades will be assigned. A grade of Incomplete (I) will be issued by the instructor only under the most extreme circumstances.

GENERAL GUIDELINES

Please read these guidelines carefully.

1. All assignments submitted to the instructor must be the original work of the candidate and shall not have been submitted for credit in any other course. Unless otherwise indicated by the instructor, all assignments are to be completed by individual candidates, do not share, copy or plagiarize other candidate's work. Collaboration in the form of discussion and input from others, however, is highly encouraged.

2. All assignments must be completed and presented to the instructor on or before the due dates. If assignments are submitted late, students will be eligible to earn up to 50% of the original value of the assignment if turned in within one week of the original due date (by the start of the next week’s class). Note that this means that anything turned in after the start of class the day an assignment is due will receive, at a maximum, 50% of the original grade. It is highly encouraged that you work on course assignments ahead of time; please do not wait until the last minute to complete assignments.

3. Unless specifically directed otherwise, all written assignments must be completed using Microsoft Word and APA guidelines. Most assignments in this course will be submitted as “hard copies” in class.

4. Before submitting any assignments, reread your work to ensure that it reflects the professional quality expected of a teacher. Please do not rely on the Spellcheck function of your computer. Employ good sentence structure and grammar and correct all typing/spelling errors. As teachers, you are models for students. Therefore, you are expected to model appropriate oral and written language in this class.

5. Although many people need to drive sizeable distances to Cal Poly, please arrange to be on-time. Class will start at 5:10. In the event that you will be late, email your instructor in advance.

6. It is University policy to provide, on a flexible and individual basis, reasonable accommodations to candidates who have disabilities that may affect their ability to participate in course activities or to meet course requirements. Candidates with disabilities are encouraged to contact their instructor to discuss their individual needs for accommodations.
### COURSE SCHEDULE, WINTER 2018 (SUBJECT TO CHANGE)

**Note:** Additional information and materials, including podcasts, will be posted weekly on PolyLearn

<table>
<thead>
<tr>
<th>Week</th>
<th>In Class Topics</th>
<th>Readings &amp; Podcasts Due</th>
<th>Assignments Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/10/18</td>
<td>Intro to mathematics: NCTM and CCSSM, Overview of mathematics framework for students with mild/moderate disabilities (math content AND math practices, like problem solving), Impact of disability on math achievement and post-school outcomes, Lesson Planning and Unit Planning with High/Low tech supports to support mathematics learning, Overview of Evidence-Based practices in mathematics.</td>
<td><strong>Readings:</strong>&lt;br&gt;- Ch 1 Van de Walle et al. (2013) PDF – on PolyLearn&lt;br&gt;- NCTM’s Equity Principle PDF – on PolyLearn&lt;br&gt;- NCTM's Equity Principle PDF – on PolyLearn</td>
<td><strong>Podcasts:</strong> NONE&lt;br&gt;<strong>Assignments Due:</strong> Place Guided Notes from class in folder</td>
</tr>
<tr>
<td>1/17/18</td>
<td>Direct Instruction (DI/di) and Active Student Response, Screening and progress monitoring in mathematics (Curriculum Based Measurement, Curriculum Based Assessments), Developmental sequence of early numeracy instruction that builds on prerequisite skills and leads to conceptual understanding through concrete-representational-abstract teaching, Using high and low tech supports to teach early numeracy, Specific research and evidence-based practices for teaching early numeracy to students with mild/moderate disabilities, Teaching mathematical literacy to support diverse students, including students who are emergent bilingual.</td>
<td><strong>Readings:</strong>&lt;br&gt;- SKIM Stein et al. (2006) Ch. 1&lt;br&gt;- Miller &amp; Hudson (2006) PDF – on PolyLearn&lt;br&gt;- Cole &amp; Washburn-Moses (2010) PDF – on PolyLearn&lt;br&gt;- DI/Active Student Response</td>
<td><strong>Assignments Due:</strong> Study Guide #1 (optional), Place Guided Notes from class in folder</td>
</tr>
<tr>
<td>1/24/18</td>
<td>Review early numeracy, Schema-based math problem solving (using research and evidence-based practices to teach grade aligned math practices to students with mild/moderate disabilities), Teaching problem solving with multisensory instruction, High and low-tech approaches to teaching problem solving, Supporting language/iteracy by writing word problems at students’ readability levels, Promoting engagement by incorporating student preferences (likes, student names, cultural considerations).</td>
<td><strong>Readings:</strong>&lt;br&gt;- Stein et al. Ch. 4 &amp; 5&lt;br&gt;- Optional supplemental reading: Van de Walle et al. Ch. 8&lt;br&gt;- Optional supplemental reading: Van de Walle et al. Chs. 9 &amp; 10&lt;br&gt;- Calculation and Word-Problem Interventions for Elementary Students with Mathematics Difficulty <a href="https://www.cec.sped.org/webinar-playback/WEB1511/lib/playback.html">https://www.cec.sped.org/webinar-playback/WEB1511/lib/playback.html</a></td>
<td><strong>Assignments Due:</strong> MATH CASE STUDY Steps 1-2 is DUE, Study Guide #2 (optional), Place Guided Notes from class in folder</td>
</tr>
<tr>
<td>1/31/18</td>
<td>Teaching addition / subtraction: developmental sequence for teaching that builds on prerequisite skills and leads to conceptual understanding through concrete-representational-abstract teaching, Using research and evidence based practices to teach basic computations to students with mild/moderate disabilities (e.g., CRA, task analytic instruction), Using high and low tech supports to teach addition and subtraction, Supporting the language/iteracy needs of learners by supporting math vocabulary, teaching concepts of terms, and writing task analyses at the language level of learners, Promoting engagement by incorporating student preferences (likes, student names, cultural considerations).</td>
<td><strong>Readings:</strong>&lt;br&gt;- Stein et al. Chs. 6, 7, &amp; 8&lt;br&gt;- Optional supplemental reading: Van de Walle et al. Ch. 8&lt;br&gt;- Optional supplemental reading: Van de Walle et al. Chs. 9 &amp; 10&lt;br&gt;- Optional supplemental reading: Van de Walle et al. Chs. 9 &amp; 10&lt;br&gt;- Optional supplemental reading: Van de Walle et al. Chs. 9 &amp; 10</td>
<td><strong>Assignments Due:</strong> MATH CASE STUDY Step 3 is DUE, SOCIAL STUDIES ASSIGNMENT DUE, Study Guide #3 (optional), Place Guided Notes from class in folder</td>
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</tbody>
</table>


**Commented [VM6]:** Introduction/Instruction and thoughtful Practice in Math/Science/Social Studies Instructional Strategies: PS: 13.1, 13.2, 13.3 and M/M 5.1, 5.3<br>Continued Practice of other strategies and standards in special education: PS: 5.1, 5.2, 5.3, 6.3<br>M/M: 5.2

**Commented [VM7]:** Introduction/Instruction and thoughtful Practice in Math/Science/Social Studies Instructional Strategies: PS: 13.1, 13.2, 13.3 and M/M 5.1, 5.3<br>Continued Practice of other strategies and standards in special education: PS: 3.1, 3.3, 6.3, 9.2, 11.4, 13.1, 13.2<br>M/M: 3.1, 5.2

**Commented [VM8]:** Introduction/Instruction and thoughtful Practice in Math/Science/Social Studies Instructional Strategies: PS: 13.1, 13.2, 13.3 and M/M 5.1, 5.3<br>Continued Practice of other strategies and standards in special education: PS: 11.4, 13.1, 13.2<br>M/M: 3.1, 5.2

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| Week 5: 2/7/18 | - Multiplication / Division: developmental sequence for teaching that builds on prerequisite skills and leads to conceptual understanding through concrete-representational-abstract teaching  
- Using research and evidence based practices to teach basic computations to students with mild/moderate disabilities (e.g., CRA, task analytic instruction)  
- Using high and low tech supports to teach multiplication and division  
- Supporting the language/literacy needs of learners by supporting math vocabulary, teaching concepts of terms, and writing task analyses at the language level of learners  
- Promoting engagement by incorporating student preferences (likes, student names, cultural considerations)  
- Teaching word problem solving for multiplication and division  
- Supporting language/literacy by writing word problems at students' readability level |
|---|---|
| **NO FACE TO FACE CLASS THIS WEEK (CEC)** | Readings:  
- Stein et al. Chs. 9, 10, & 11  
- Optional supplemental reading: Van de Walle et al. Ch. 9  
Podcasts:  
- Schema Based Math Problem Solving - Multiplicative  
- Watch/Re-watch the Problem Solving Podcast on Addition/Subtraction if needed |
| **Study Guide #4** (optional) | Place Guided Notes from class in folder |

| Week 6: 2/14/18 | - Fractions / Decimals / Percent and Ratio: developmental sequence for teaching that builds on prerequisite skills and leads to conceptual understanding through concrete-representational-abstract teaching  
- Using research and evidence based practices to teach fractions/decimals/percent ratios to students with mild/moderate disabilities (e.g., CRA, task analytic instruction)  
- Using high and low tech supports to teach fractions/ratios/decimals/percent ratios (e.g., Quisinairre rods, virtual number lines)  
- Supporting the language/literacy needs of learners by supporting math vocabulary, teaching concepts of terms, and writing task analyses at the language level of learners  
- Promoting engagement by incorporating student preferences (likes, student names, cultural considerations) |
|---|---|
| **Readings:**  
- Agrawal & Morin (2016) (PDF on PolyLearn)  
- Stein et al. Chs. 12, 13, & 14  
- Optional supplemental reading: Van de Walle et al. Chs. 15, 16, & 17  
Podcasts:  
- Fractions podcast |
| **Midterm Exam Due** | **MATH CASE STUDY Step 4 is DUE**  
**Study Guide #5** (optional)  
Place Guided Notes from class in folder |

| Week 7: 2/21/18 | - Time / Money / Measurement / Data Analysis: developmental sequence for teaching that builds on prerequisite skills and leads to conceptual understanding through concrete-representational-abstract teaching  
- Using research and evidence based practices to teach time/money/measurement/data analysis to students with mild/moderate disabilities (e.g., model-lead-test, example/non-example training)  
- Using high and low tech supports to teach time/money/measurement/data analysis (e.g., digital and analog clocks, response cards, real money, graphs)  
- Supporting the language/literacy needs of learners by supporting math vocabulary, teaching concepts of terms, and writing task analyses at the language level of learners  
- Promoting engagement by incorporating student preferences (likes, student names, cultural considerations) |
|---|---|
| **Readings:**  
- Stein et al. Chs. 15, 16, 17, & 18  
Podcasts:  
- Percents & Decimals lesson plan podcast  |
| **Study Guide #6** (optional) | --- |
| Week 8: 2/28/18 | - Geometry and pre-algebra: developmental sequence for teaching that builds on prerequisite skills and leads to conceptual understanding through concrete-representational-abstract teaching  
- Using research and evidence based practices to teach geometry and pre-algebra to students with mild/moderate disabilities (e.g., model-lead-test, example/non-example training, task analytic instruction)  
- Using high and low tech supports to teach time/money/measurement/data analysis (e.g., virtual manipulatives, graphic organizers)  
- Supporting the language/literacy needs of learners by supporting math vocabulary, teaching concepts of terms, and writing task analyses at the language level of learners  
- Promoting engagement by incorporating student preferences (likes, student names, cultural considerations) | Readings:  
- Stein et al. Chs. 19 & 20  
Podcasts: NONE | Study Guide #7 (optional) |
| --- | --- | --- | --- |
| Week 9: 3/7/18 | - Introduction to science inquiry (research and evidence based practices for teaching science to students with mild to moderate disabilities)  
NGSS: an in-depth exploration of the State standards and the framework that includes the content and practices of science  
- Methods for teaching science that promote engagement through multisensory learning  
- Considering and addressing diverse learning needs when designing science units  
- Developing adapted science texts that support the literacy needs of diverse learners | Readings/Podcasts:  
- Spend 30 min exploring the Next Generation Science Standards website | Resource Binder Video DUE (anytime between now and Week 11) |
| Week 10: 3/14/18 | - Instructional planning in science and inclusion  
- Co-teaching/collaborating to teach dynamic science lessons  
- Working with peers to teach inclusive science lessons  
- Reviewing research based practices for teaching Social Studies to students with mild to moderate disabilities | Readings:  
- Spaulding & Flanagan (2014) - PDF on PolyLearn  
- Moorehead & Grillo (2013) - PDF on PolyLearn  
- Carter et al. (2015) - PDF on PolyLearn  
Podcasts: NONE | |
| EXAMS Week 11: 3/21/18 | - Take-home final exam due  
- Share case studies  
- Share Science UDL projects | Final Exam DUE  
Science Unit DUE  
MATH CASE STUDY Steps 5-7 DUE | |
STANDARDS FOR EDUCATION SPECIALIST MILD/MODERATE DISABILITIES CREDENTIAL

Program Standard 2: Professional, Legal, and Ethical Practices
Program Standard 3: Educating Diverse Learners
Program Standard 4: Effective Communication and Collaborative Partnerships
Program Standard 5: Assessment of Students
Program Standard 6: Using Educational and Assistive Technology
Program Standard 7: Transition and Transitional Planning
Program Standard 8: Participating in IEPs and Post-Secondary Transitions Planning
Program Standard 9: Preparation to Teach Reading/Language Arts
Program Standard 10: Preparation to teach Emergent Bilingual students
Program Standard 11: Typical and Atypical Development
Program Standard 12: Behavioral, Social and Environmental Supports for Learning
Program Standard 13: Curriculum and Instruction of Students with Disabilities
Program Standard 14: Creating Healthy Learning Environments

Mild/Moderate Standard 1: Characteristics of Students with Mild/Moderate Disabilities
Mild/Moderate Standard 2: Assessment Evaluation of Students with Mild/Moderate Disabilities
Mild/Moderate Standard 3: Planning and Implementing Mild/Moderate Curriculum & Instruction
Mild/Moderate Standard 4: Positive Behavioral Support
Mild/Moderate Standard 5: Specific Instructional Strategies for Students with Mild/Moderate Disabilities
1. University Learning Objectives (ULOs) supported by the course.
   - Think critically and creatively.
   - Communicate effectively.
   - Work productively as individuals and in groups.
   - Use their knowledge and skill to make a positive contribution to society.
   - Make reasoned decisions based on understanding of ethics, a respect for diversity, and an awareness of issues related to sustainability.
   - Engage in lifelong learning.
Appendix A: Task Analysis for Math Case Study (100 pts)

Step 1. You will screen students and form instructional groups based on skill level. Try and form a group of 2-5 students. It’s ok to use an existing group, but still ask your TC for the opportunity to screen to determine the skill levels of your groups.

Step 2. Once you have screened your large group and selected a smaller group, read the students’ current IEP goals for mathematics. Write a brief summary (1 page) that describes the major areas of needs for math instruction based on (a) the IEP and (b) your screening data (8 pts). DUE WEEK 2

Step 3. Write learning objectives that are aligned to the CCSS, the students’ IEP goals, and are directly related to the assessment data you obtained. Your plans can focus on more than one objective, but be reasonable in your selection. Probably you will focus on one to two objectives across the eight lessons (teaching all target objectives within each of the eight lessons). They must be measurable and objective, as you will collect and graph data across students across the eight lessons. You will submit a list of the learning objectives across the eight lessons and a brief justification for how these objectives were (a) derived from the assessment data, (b) aligned to the IEP, and (c) aligned to the CCSS (12 pts). DUE WEEK 4

Step 4. Develop five lesson plans using the template provided on Poly Learn. You and your mentor teacher can work out a teaching schedule (one lesson per day, two times a week will most likely be your schedule). Lesson plans must address the five guidelines from Miller and Hudson (2006; see Week 2 materials on PolyLearn): (a) various modes of representation; (b) appropriate teaching structures; (c) language structures (particularly for supporting needs of Emergent Bilingual students); (d) integrating real-world applications; and (e) providing explicit instruction. You will submit these five lesson plans (40 pts). WRITTEN LESSONS DUE WEEK 6

Step 5. You will aim to teach these lessons over a three-week period, and you will be observed by a peer from class (one lesson) and your mentor teacher (any one of your lessons that has not been observed by a peer). They will fill out an observation/feedback form, which will be available on Poly Learn. They will turn these forms into you directly, and you will submit both feedback forms. (12 pts) OBSERVATION FORMS DUE WEEK 11

Step 6. You will write a brief reflection following at least four of your lessons. You will include responses to: (a) what went well, (b) what do I need to adjust, (c) what did I learn from the feedback I received (if applicable). You will submit these four reflections. (12 pts) DUE WEEK 11

Step 7. You will collect ongoing progress monitoring data that provides a direct measure of your lesson objectives across all five lessons for each of your students. You will turn in any permanent products or data sheets used to collect data. Make copies of permanent products so your students can keep the original. Black out any student names. In addition to turning in the raw data, you will create a graph of your data (one graph per objective) that you will maintain throughout the lesson. Graphs will include real student data, and you will have one graph per student. You will draw a trend line and aim line on your graph and make an instructional decision. You will need one baseline data point on your graph, which you can get the first day you teach. Use this point to begin your aim and trend line. You will make an instructional decision based on this data, and you will write a brief 1-page statement that summarizes the data and justifies your instructional decision. (16 pts) DUE WEEK 11
Appendix B: Task Analysis for UDL Science Unit Plan (40 pts)

Step 1. Select and describe standards. Consult with your mentor teacher and select a NGSS science topic that aligns with the grade band of a small or large group of students in your major placement and has not been taught previously this year. In a table, list the (a) practices, (b) disciplinary core ideas, and (c) cross-cutting concepts that you will address in your unit plan. (5 points)

For example:

<p>| NGSS Science Topic for ___ Grade Band: |</p>
<table>
<thead>
<tr>
<th>Practices</th>
<th>Disciplinary Core Ideas</th>
<th>Cross-Cutting Concepts</th>
</tr>
</thead>
</table>

Step 2. Gather information about IEP goals and pertinent modifications / accommodations. In a table, make a list of considerations you should make related to ELA, math, on-task behavior, communication, etc. Additionally, include a row or column for modifications and accommodations. You can combine information about students in each cell. Use a coding system (numbers, pseudonyms) for yourself so you remember who has which goal/consideration. You can write abbreviated versions of goals, but be sure to include anything that might apply to a science lesson (e.g., answer questions, identifying vocabulary, making calculations, communicating to peers and adults). (5 points)

For example:

<table>
<thead>
<tr>
<th>IEP Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELA</td>
</tr>
<tr>
<td>Math</td>
</tr>
<tr>
<td>Communication</td>
</tr>
<tr>
<td>Behavior</td>
</tr>
<tr>
<td>Modifications</td>
</tr>
<tr>
<td>Accommodations</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Answering WH questions in 4/5 opportunities (S1)</td>
</tr>
<tr>
<td>Identifying vocabulary with 80% accuracy (S3)</td>
</tr>
</tbody>
</table>

Step 3. Develop unit objectives. First, write a concept statement that you want students to master. Next, develop two or three objectives that will demonstrate understanding of the concept statement. (5 points)

For example:

Concept statement for a 5th grade unit on matter and its properties might be: When two or more substances mix, a new substance with different properties can form.

Unit objectives related to the concept statement: (a) Given 8 unit vocabulary words and definitions related to chemical reactions, students will match words to definitions with 90% accuracy for two days; (b) Given a variety of chemical substances (e.g., vinegar, baking soda) and related task analyses for the demonstrations, students will demonstrate and orally describe the chemical process that occurs in 3 out of 3 opportunities; (c) Given a list of comprehension questions read aloud to the students, students will answer correctly given a word and picture bank in 8 out of 10 opportunities.

Step 4. Develop the unit plan. Using one planning sheet, list and describe objectives, materials, core activities, evidence and research-based practices, and progress monitoring plan for each day in the unit. You must include a description of how you would teach core vocabulary, provide adequate background knowledge, include a demonstration, model, or experiment, and encourage students to ask and answer questions related to the primary topic. Students should ultimately be able to demonstrate knowledge (not just passively follow steps of a task analysis). Your unit plan should span at least three days, but it can span more if you think it is needed. You may develop your own template, as long as these components are well described. This can be combined into one table, or you could use a format like the one below. (20 points)

For example:
### Unit Plan

<table>
<thead>
<tr>
<th>Day 1</th>
<th>Lesson Objective:</th>
<th>Core Vocabulary:</th>
<th>Materials:</th>
<th>Teacher input / Guided Practice / Independent Practice:</th>
<th>Description of Progress Monitoring:</th>
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<th>Teacher input / Guided Practice / Independent Practice:</th>
<th>Description of Progress Monitoring:</th>
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<th>Day 3</th>
<th>Lesson Objective:</th>
<th>Core Vocabulary:</th>
<th>Materials:</th>
<th>Teacher input / Guided Practice / Independent Practice:</th>
<th>Description of Progress Monitoring:</th>
</tr>
</thead>
</table>

**Step 5.** Related materials. Include any materials you would need for this lesson. This might include picture cards of core vocabulary, PowerPoint presentations to build background knowledge, URLs of YouTube clips or other related websites, photos of lists of the hands-on materials you would use (be realistic and include materials you could actually access), etc. You should also include any data sheets and task analysis for demonstrations/experiments that you might use. (5 points)

You are NOT required to teach this unit. Your grade will result solely from your instructional design of the unit. I strongly encourage you to work closely with your mentor teacher in developing the big ideas of this unit to ensure the likelihood that you are able to teach this in the Spring Quarter during your student teaching. You will have invested the time and energy in preparing this, and you will develop a plan that directly addresses the needs of your students, and I hope this gives you a leg up for your last stretch of the program!