NGSS Part II: Using Personalized, Proficiency-Based Learning to Help ALL Students Master the NGSS

Course Syllabus—Fall 2016

3 graduate credits through Saint Michael's College

Instructor: Elizabeth Mirra
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Location: CVEDC Colchester, VT

Meeting Dates and Times:
September 28th 4-8pm
October 17th 4-8pm
November 14th 4-8pm
December 12th 4-8pm
Plus online learning experiences

Course Description:

We are in exciting times in education. We have new science standards that are causing us to think differently about how science instruction is delivered and what is taught, our classrooms are becoming more diverse creating teaching challenges we haven't faced before, and we have new state guidelines requiring us to personalize learning and evaluate students based on their mastery of proficiencies. So how do we do this and what can it look like in a science classroom?

Course Objectives:

Participants will learn:

- How *NGSS*, personalization, and proficiencies intersect and support one another.
- The hallmarks of three-dimensional learning prescribed by the *Framework* and the *NGSS*.
- How *NGSS* can be assessed to determine mastery of proficiencies in classrooms and schools that allow for personalization.
- How to develop proficiency scales aligned to the NGSS and the resources that are available for determining what proficiency looks like for a *NGSS* standard.
- How to move classrooms and schools along the continuum toward creating personalized, proficiency-based learning environments.
- How to design units and incorporate instructional strategies that allow us to meet the needs and ensure the success of diverse student groups including economically disadvantaged students, students with disabilities, English language learners, and gifted and talented students.
- What this type of learning environment can look and sound like by exploring detailed case studies from classrooms.
- What this can look like in each participant's classroom or school. Each participant will leave the course with an instructional sequence personalized to their classroom for implementing these ideas during the next school year.

Required Readings and Materials:

- *NGSS For All Students* (will be provided to each participant at the first class meeting)
- *Developing Assessments for the Next Generation Science Standards* (available through the National Academies Press as a free download)
- *The Next Generation Science Standards* (available online)
- *A Framework for K-12 Science Education* (available through the National Academies Press as a free download)

Course Requirements:

Class Attendance and Participation	25%
Assignment Completion	25%
NGSS Instructional Sequence	25%
Online Participation	25%

Class Expectations:

Since we have a limited amount of face-to-face time in this course, it is critical that everyone is ready to work at 4pm, comes prepared for class, and fully participates in the activities.

Online Expectations:

Your posts should be well thought-out and clearly show you've not only completed the required reading, but also reflected on the content of the reading as it applies to your professional practice. Posts that meet this requirement are typically several well-organized paragraphs. You are encouraged to ask questions to deepen your understanding when posting. For our online forum to be an effective learning environment, it is important that you post by the due-date and take the time to read through the posts of others. Responses should also be well thought-out and ideally will be conversational. For every discussion thread, everyone should respond at least twice to what others have said.

Vermont Core Teaching Standards

Standard 7: Planning for Instruction: The teacher plans instruction that supports every student in meeting rigorous learning goals by drawing upon knowledge of content areas, curriculum, cross-disciplinary skills, and pedagogy, as well as knowledge of learners and the community context.

Standard 8: Instructional Strategies: The teacher understands and uses a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections, and to build skills to apply knowledge in meaningful ways.

Vermont Core Leadership Standards

Standard 2: An education leader promotes the success of every learner by advocating, nurturing, and sustaining a school culture and instructional program conducive to learning and staff professional growth.

COURSE SCHEDULE	
Week 1 (4 hours)	**CLASS: Wednesday, September 28th 4-8pm** • Introductions • Review Syllabus & Course Expectations • CVEDC 2.0 • What is Three-Dimensional Learning? • How do NGSS, Personalized Learning and Proficiency-Based Learning intersect?
Week 2 (4 hours)	Read chapters 1-3 (pg 1-27) in *NGSS for All Students* PROMPT: What are some of your new insights about the vision and development of the NGSS? **Post by 10/2 and respond to at least two other posts by 10/5**
Week 3 (4 hours)	Read chapters 4-5 (pg 29-42) in *NGSS for All Students* and Appendix D: "All Standards, All Students" in the *Next Generation Science Standards* PROMPT: Reflect on the effective classroom strategies for creating equitable learning environments. Which do you feel are strengths of your classroom and/or school? Which do you feel could be improved in your school and/or classroom? **Post by 10/9 and respond to at least two other posts by 10/12**
Week 4 (4 hours)	**CLASS: Monday, October 17th 4-8pm** • What do we mean by "personalized learning"? • What are some first steps we can take to move towards personalized learning in our science classrooms?
Week 5 (4 hours)	Read chapter 15 (pg 193-202) and chapters 6-7 (pg 43-82) in *NGSS for All Students* PROMPT: For EITHER chapter 6 OR 7: Use the questions on pg 193-194 as well as pg 196 (for chapter 6) or pg 197 (for chapter 7) to guide your reflection on the chapter of your choosing. **Post by 10/23 and respond to at least 2 other posts by 10/26**
Week 6 (4 hours)	Read chapters 8-10 (pg 83-138) in *NGSS for All Students* PROMPT: For EITHER chapter 8, 9, OR 10: Use the questions on pg 193-194 as well as pg 198 (for chapter 8), pg 199 (for chapter 9), or pg 200 (for chapter 10) to guide your reflection on the chapter of your choosing. **Post by 10/30 and respond to at least 2 other posts by 11/2**

Week 7 (4 hours)	Read chapters 11-12 (pg 139-169) in *NGSS for All Students* PROMPT: For EITHER chapter 11 OR 12: Use the questions on pg 193-194 as well as pg 201 (for chapter 11) or pg 202 (for chapter 12) to guide your reflection on the chapter of your choosing. **Post by 11/6 and respond to at least 2 other posts by 11/9**
Week 8 (4 hours)	**CLASS: Monday, November 14th 4-8pm** *Please come to class knowing which NGSS Performance Expectation(s) you would like to focus on for your final project* • Where do we find evidence of personalized instruction and proficiency-based learning in the *NGSS for All Students* vignettes? • How do we develop proficiency scales aligned to the NGSS? • What can classroom assessments aligned to the NGSS look like?
Week 9 (4 hours)	Read chapters 13-14 (pg 171-192) in *NGSS for All Students* PROMPT: How has your thinking about what it means to teach science and what it means to teach science well changed as you've read *NGSS for All Students*? What do you now see as the hallmarks of good science teaching? **Post by 11/20 and respond to at least 2 other posts by 11/23**
Week 10	**Thanksgiving Weekend**
Week 11 (4 hours)	Develop instructional sequence • Incorporate classroom strategies for creating equitable learning environments • Incorporate strategies for personalized, proficiency-based learning • Use the EQUIP rubric as a guide
Week 12 (4 hours)	**CLASS: Monday, December 12th 4-8pm** • PLCs—providing feedback on draft instructional sequences using the EQUIP rubric
Week 13 (4 hours)	Revise instructional sequence, proficiency scale, and assessment as needed and submit to instructor by 12/21. Prompt: What classroom strategies for creating equitable learning environments have you tried and/or do you plan to try? What steps have you taken or do you plan to take in the future to move towards a more personalized proficiency-based classroom? **Post by 12/18 and respond to at least 2 other posts by 12/21**

All coursework must be completed and submitted to the instructor no later than December 21, 2016.