MATH & SCIENCE PROJECT-BASED TEACHING I
CRN TBD – SPRING 2015
PHYS 508 Workshop
1 credit P/NP
Class meets at Lane ESD unless otherwise scheduled

Instructor
Dr. Bryan Rebar
brebar@uoregon.edu, (541) 346-4773
144 Willamette
University of Oregon
Available by appointment

Workshop Dates, Times, and Locations:
Session 1 February 26, 2015 8:00-5:00, 1 hr lunch Lane ESD rooms 3 & 4
Session 2 March TBD 3:30-5:30 PM TBD
Session 3 April TBD 8:00-5:00, 1 hr lunch Lane ESD
Session 4 April TBD 3:30-5:30 PM TBD
Session 5 May TBD 3:30-5:30 PM TBD
Session 5 May TBD 8:00-5:00, 1 hr lunch Lane ESD
Session 5 June TBD 3:30-5:30 PM TBD
Embedded May-June 2015 8 hrs total – varies Your classroom/school

Course Description
This course is designed for in-service 3rd – 8th grade teachers who are participating in the math and science partnership project known as Content in Context SuperLessons (C2SL). Participant teachers are committed to improving their practice. This course will prepare teachers to address the new level of rigor and relevance of the recently adopted Common Core State Standards for Mathematics (CCSSM) and Oregon Science Standards. With the support of math and science content experts, pedagogical coaches, and science, technology, engineering, and mathematics (STEM) industry professionals, and an instructional technology specialist, teachers will build on existing project-based units and develop new project-based units that align with the standards. Teachers will have opportunities to develop lessons, get feedback, receive classroom-embedded support in the delivery of lessons, and share their curricula with other teachers. In addition to developing and piloting a project-based unit, teachers will develop skills for identifying, adapting, developing, and implementing standards-aligned curricula with integration of context and connections to the real-world practice.

Prerequisites
- Bachelor’s degree or higher
- 3 years of teaching experience
- Currently teaching 3rd-8th grade math or science content in the region
• Currently participating in C2SL

Purpose
This course is intended to provide teachers with the support needed towards becoming teacher-leaders who have the skills and expertise to address the new math and/or science standards using a project-based approach. The ultimate goals of this course sequence, which includes two courses, are: (1) elementary and middle school teachers of math and science in districts across Lane County are skilled in developing and implementing standards-aligned curricula with integration of content and connections to real-world practice; (2) teachers have access to a robust offering of lesson guides for implementing projects that have been tested and refined for effectiveness at their grade level, each containing a rich array of support resources for teacher training, preparation, and delivery; (3) students increasingly engage in authentic, standards-aligned projects and meet or exceed grade-level benchmarks in math and science during their elementary and middle school years.

Course Objectives
Throughout the course participant teachers will practice and demonstrate the abilities to:

1. Identify, modify, and develop standards-aligned lessons that make explicit real-world connections and engage students in mathematical, scientific and engineering practices
2. Incorporate evidence-based practices for effective math and science teaching, including the utilization of current technologies and community resources, in order to address the interests and needs of all students
3. Continually reflect on one’s own teaching practices to make improvements
4. Collaborate with other teachers, educators, and professionals in the development, documentation, and delivery of project-based lessons

Course Requirements
This is a pass/no pass course (P/NP). As a graduate level course, a threshold of B-level work is required in order to earn a P. The following components must be satisfactorily completed:

Attendance
Attendance is necessary and mandatory for you to learn and be successful in this course. If circumstances prevent you from attending a given session, please provide the C2SL coordinator, Dara Brennan (dara.brennan@springfield.k12.or.us), and me, the instructor, with advance notice. We will arrange a make-up plan to ensure you keep up.

Participation (60%) – broken down as follows:

Workshop Sessions (30%)
Course meetings will involve a variety of activities along with small and large group discussions. Attendance and participation in these class activities is
expected. Students are expected to come to class prepared with any materials described, such as current curricula.

**Online Community (10%)**
We are working on developing an online forum for exchange of ideas and sharing. You will be expected to participate and share your ideas about to best use this site to support a community of practice for teachers interested in math and science project-based teaching. Details of these expectations will be shared during workshop sessions.

**Instructional Rounds (10%)**
During some of the scheduled sessions, we will visit each other’s classrooms and follow an instructional rounds protocol for observation and reflection. You may be assigned to teach or observe on these days.

**Classroom Embedded Support (10%)**
On an individual basis, we will arrange visits to your school and classroom by C2SL project staff. During these times, staff will serve as instructional coaches and/or co-teachers in order to support the implementation of project-based lessons. Support may involve planning time, teaching time, and/or debriefing time.

**Products (40%)**
Students are expected to enhance and develop a project-based unit as part of a team. The unit must be documented in writing the format presented in the course. Lessons must be aligned with standards. Units may make use of existing materials, and should include sufficient supporting materials (e.g., STEM industry contacts, video links, data tables, etc.) to be useful to teachers who were not involved in the C2SL program. Expansion and refinement of the units will be continued in part II of this course.

**Evaluation**
Expectations and evaluation rubrics for each of the above will be provided in workshop meetings.

**Course Timeline**

<table>
<thead>
<tr>
<th>Month</th>
<th>Activities</th>
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<tbody>
<tr>
<td>February</td>
<td>Introduction to STEM projects, partners</td>
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<tr>
<td>March</td>
<td>Instructional rounds; Examine previous projects; Explore standards</td>
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<tr>
<td>April</td>
<td>Develop projects</td>
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<tr>
<td>May</td>
<td>Pilot/implement project-based lessons; receive classroom embedded support</td>
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<tr>
<td>June</td>
<td>Refine lessons</td>
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Course Materials
Readings, lesson plans, and instructional materials will be made available during the course.

Resources include:

C2SL Project Staff

<table>
<thead>
<tr>
<th>Name</th>
<th>Title/Roles</th>
<th>Email</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bryan Rebar</td>
<td>Director, Science Educator</td>
<td><a href="mailto:brebar@uoregon.edu">brebar@uoregon.edu</a></td>
<td>541-346-4773</td>
</tr>
<tr>
<td>Dara Brennan</td>
<td>C2SL Coordinator</td>
<td><a href="mailto:Dara.brennan@springfield.k12.or.us">Dara.brennan@springfield.k12.or.us</a></td>
<td>541-726-3225</td>
</tr>
<tr>
<td>Dean Livelybrooks</td>
<td>Co-Director, Physics Faculty</td>
<td><a href="mailto:dlivelyb@uoregon.edu">dlivelyb@uoregon.edu</a></td>
<td>541-346-5855</td>
</tr>
<tr>
<td>Tricia Bevans</td>
<td>Math Faculty, Teaching Coach</td>
<td><a href="mailto:tbevans@uoregon.edu">tbevans@uoregon.edu</a></td>
<td>541-346-5633</td>
</tr>
<tr>
<td>Dev Sinha</td>
<td>Math Faculty, CCSSM Expert</td>
<td><a href="mailto:dps@uoregon.edu">dps@uoregon.edu</a></td>
<td>541-346-5627</td>
</tr>
<tr>
<td>Bob Curtis</td>
<td>ESD Curriculum Specialist, Science Teaching Coach</td>
<td><a href="mailto:bcurtis@lesd.k12.or.us">bcurtis@lesd.k12.or.us</a></td>
<td>541-461-8354</td>
</tr>
<tr>
<td>Regine Childs</td>
<td>ESD Curriculum Specialist, Math Teaching Coach</td>
<td><a href="mailto:rchilds@lesd.k12.or.us">rchilds@lesd.k12.or.us</a></td>
<td>541-461-8209</td>
</tr>
<tr>
<td>TBD</td>
<td>Technology Instruction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roger Smith</td>
<td>Physics Graduate Student, Science Content Support</td>
<td><a href="mailto:rsmith13@uoregon.edu">rsmith13@uoregon.edu</a></td>
<td>541-346-4726</td>
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STEM Partners

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<tr>
<th>Partner</th>
<th>Website</th>
<th>Contact(s)</th>
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<tbody>
<tr>
<td>City of Eugene</td>
<td><a href="https://www.eugene-or.gov">https://www.eugene-or.gov</a></td>
<td>Rachel Burr</td>
</tr>
<tr>
<td>Eugene Water and Electric Board (EWEB)</td>
<td><a href="http://www.eweb.org">http://www.eweb.org</a></td>
<td>John Femal</td>
</tr>
<tr>
<td>KPFF Consulting Engineers</td>
<td><a href="http://www.kpff.com">http://www.kpff.com</a></td>
<td>Pete Miller</td>
</tr>
<tr>
<td>Lunar Logic</td>
<td><a href="https://lunarlogic.com">https://lunarlogic.com</a></td>
<td>Todd Edman</td>
</tr>
<tr>
<td>Peace Health Laboratories</td>
<td><a href="http://www.peacehealthlabs.org">http://www.peacehealthlabs.org</a></td>
<td>Laura Lee Feiner</td>
</tr>
<tr>
<td>Spotkin</td>
<td><a href="http://spotkin.com">http://spotkin.com</a></td>
<td>Deborah Fike</td>
</tr>
<tr>
<td>University of Oregon</td>
<td><a href="http://uoregon.edu">http://uoregon.edu</a></td>
<td>Bryan Rebar</td>
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Diversity
This course and university celebrate open inquiry, freedom of expression, and respect for differences. As the instructor, I am committed to upholding these ideals by encouraging the exploration, engagement, and expression of divergent perspectives and diverse identities. By participating in this class, you affirm your commitment to these ideals as well.

Academic Integrity
All students are expected to complete assignments in a manner consistent with academic integrity. Students must produce their own work, acknowledge when collaborative work is
involved and describe their unique contributions, and properly acknowledge and document all sources (lessons, ideas, quotations, paraphrases). Students can find more complete information about the University of Oregon’s Policy on Academic Dishonesty in the University of Oregon Student Handbook.

**Students with Disabilities**
The University of Oregon is working to create inclusive learning environments. If there are aspects of the instruction or design of this course that result in barriers to your participation, please notify me, the instructor, as soon as possible. You are also welcome to contact the Accessible Education Center (AEC) in 164 Oregon Hall at 346-1155 or uoaec@uoregon.edu.

If you are not a student with a documented disability through AEC, but you would like for me to know about class issues that will impact your ability to participate and learn, I encourage you to come visit with me during my office hours so that we can strategize how you can get the most out of this course.

**Equal Opportunity**
I support Title IX and have a duty to report relevant information.

The UO is committed to providing an environment free of all forms of prohibited discrimination and sexual harassment, including sexual assault, domestic and dating violence and gender-based stalking. Any UO employee who becomes aware that such behavior is occurring has a duty to report that information to their supervisor or the Office of Affirmative Action and Equal Opportunity. The University Health Center and University Counseling and Testing Center can provide assistance and have a greater ability to work confidentially with students.

Note: UO employees also have a duty to report child abuse. For those classes and/or processes in which students have historically reported information regarding child abuse, the language can be expanded to provide that notice as well by adding the following statement:

All UO employees are required to report to appropriate authorities when they have reasonable cause to believe that any child with whom they come in contact has suffered abuse or any person with whom they come in contact has abused a child.