EDU 560D: Deeper Learning in Secondary Science
Fall-Winter 2022-23 Syllabus
3 units

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Location: HTH Forum
Course meetings: 1:00-4:00 pm, Fridays

COURSE DESCRIPTION

Building on the foundation set during TED 544.4a, this course is designed to support candidates in developing the foundations of effective subject-specific instructional practice. The core course goals are as follows:

1. Candidates will continue to learn how to create and sustain productive learning environments which facilitate positive relationships between students and their peers, their teachers, their work, and their space.

2. Candidates will learn how to plan, facilitate, and reflect on high-cognitive-demand instructional activities which engage all students in developing discipline-specific knowledge, skills, and understandings.

3. Candidates will learn how to use a range of assessment techniques as a vehicle for tailoring instruction to students' assets, needs, and emerging understandings.

By design, this course will involve a blend of theory and practice. Course readings will be selected to help candidates understand the theoretical and scholarly warrants for specific pedagogical traditions (the "why"), while in-class activities and weekly Put It to Practice assignments will be designed to support application (the "what" and "how"). In the first portion of the course, candidates will engage in learning cycles during which they experience, unpack, plan for, rehearse, and then execute instructional routines which support them in providing access and challenge for all students. In alignment with best practices in teacher education as well as HTH's values, the key theories informing this work will be those of constructivism and situated learning.

As a full sequence of courses focused on both general and subject-specific pedagogy, TED 544.4a and EDU560, will support candidates in developing and demonstrating *novice-level proficiency* of the California Teaching Performance Expectations (TPEs), and will introduce them to several GSE program learning outcomes. The Teaching Philosophy Project serves as the signature assignment for EDU 560; additional assessment evidence will come in the form of Gateway II and the Oral Portfolio Defense, to be completed in the spring.

ESSENTIAL QUESTIONS

- How can we teach cognitively demanding content in ways that support all students in feeling a sense of belonging and allows us to challenge structural inequalities?

- How can we plan and implement instructional activities which allow students to grapple with complex problems and develop conceptual understandings?

- How can we reflect and iterate on our practice in ways which allow us to grow as educators?

LEARNING OUTCOMES

PROGRAM LEARNING OUTCOMES

HTH GSE is committed to developing reflective practitioner leaders who work effectively with colleagues and communities to create and sustain innovative, authentic, rigorous learning environments for all students. This shared vision is articulated in our Institutional Learning Outcomes for all HTH GSE students:

Practice Thoughtful Inquiry & Reflection (IR)

- **Reflective Practice** (IR1): Reflect on and critically analyze their own practice to guide future action.
- **Connection** (IR2): Synthesize and connect relevant theory and scholarship to their practice.
- **Scholarly Inquiry** (IR3): Design, conduct, and share inquiry that addresses essential questions from their practice.

Design Equitable Learning Environments (D)

- **Instructional Design** (D1): Design approaches to learning that emphasize personalization, connect to the world beyond school, and offer access and challenge to all learners.
- **Authentic Assessment** (D2): Design reflective, dialogical approaches to assessment, both formative and summative, to assess student learning and guide instruction.
- **Differentiation** (D3): Design learning experiences that honor student voice and choice and are responsive to cultural, linguistic and neurodiversity in the classroom.

The curriculum for this course is based on the above-listed essential questions and program learning outcomes, as well as a corresponding set of course-level learning outcomes, activities and products. Together, they represent the knowledge, skills, and dispositions for this course.

Course Learning Outcomes mapped to program learning outcomes	**Activities/Products**

❖ Candidates will continue to learn how to create and sustain productive learning environments which facilitate positive relationships between students and their peers, their teachers, their work, and their space. (D1, D3)	➔ Online discussion forums; in-class seminars; Philosophy of Teaching Statement.
❖ Candidates will learn how to plan, facilitate, and reflect on high-cognitive-demand instructional activities which engage all students in developing conceptual understandings. (IR1, D1, D3)	➔ Discussions and PITP assignments; Gateways II
❖ Candidates will learn how to use a range of assessment techniques as a vehicle for tailoring instruction to students' assets, needs, and emerging understandings.	➔ Discussions and PITP assignments; Gateways II

ALIGNMENT WITH THE CALIFORNIA TPEs

This course, in conjunction with clinical practice, will support candidates in learning, applying, and reflecting on the competencies specified by the California Teaching Performance Expectations (TPEs). As part of this process, candidates will receive feedback from program faculty on weekly "Put it to Practice" (PITP) assignments. PITP assignments ensure that coursework supports fieldwork experiences. Each assignment is aligned to specific TPEs and is designed to measure and provide feedback on a candidate's ability to plan, teach, assess and redesign. Additionally, cooperating teachers and fieldwork supervisors align their coaching and feedback to the theory and practice being explored concurrently through the coursework.

Throughout EDU 560D and upon course completion, the following TPE competencies are introduced (I), practiced (P) and/or assessed (A):

- **TPE 1.1** Apply knowledge of students, including their prior experiences, interests, and social-emotional learning needs, as well as their funds of knowledge and cultural, language, and socioeconomic backgrounds, to engage them in learning. (P)
- **TPE 1.3** Connect subject matter to real-life contexts and provide active learning experiences to engage student interest, support student motivation, and allow students to extend their learning. (I, P)
- **TPE 1.5** Promote students' critical and creative thinking and analysis through activities that provide opportunities for inquiry, problem solving, responding to and framing meaningful questions, and reflection. (P, A)
- **TPE 1.8** Monitor student learning and adjust instruction while teaching so that students continue to be actively engaged in learning. (P)
- **TPE 2.2** Create learning environments (i.e., traditional, blended, and online) that promote productive student learning, encourage positive interactions among students, reflect diversity and multiple perspectives, and are culturally responsive. (P)

- **TPE 2.5** Maintain high expectations for learning with appropriate support for the full range of students in the classroom. (I, P)
- **TPE 2.6** Establish and maintain clear expectations for positive classroom behavior and for student-to-student and student-to-teacher interactions by communicating classroom routines, procedures, and norms to students and families. (P, A)
- **TPE 3.2** Use knowledge about students and learning goals to organize the curriculum to facilitate student understanding of subject matter, and make accommodations and/or modifications as needed to promote student access to the curriculum. (P, A)
- **TPE 3.3.** Plan, design, implement, and monitor instruction consistent with current subject-specific pedagogy in the content area(s) of instruction, and design and implement disciplinary and cross-disciplinary learning sequences, including integrating the visual and performing arts as applicable to the discipline. (P, A)
- **TPE 3.4.** Individually and through consultation and collaboration with other educators and members of the larger school community, plan for effective subject matter instruction and use multiple means of representing, expressing, and engaging students to demonstrate their knowledge. (P)
- **TPE 3.7** Model and develop digital literacy by using technology to engage students and support their learning, and promote digital citizenship, including respecting copyright law, understanding fair use guidelines and the use of Creative Commons license, and maintaining Internet. (I, P)
- **TPE 4.8** Use digital tools and learning technologies across learning environments as appropriate to create new content and provide personalized and integrated technology-rich lessons to engage students in learning, promote digital literacy, and offer students multiple means to demonstrate their learning. (I, P)
- **TPE 6.1.** Reflect on their own teaching practice and level of subject matter and pedagogical knowledge to plan and implement instruction that can improve student learning.(P, A)

COURSE MATERIALS

Course Texts **(to be distributed in class and/or on the course Google Classroom site):**

- Cartier, J. L., Smith, M. S., Stein, M. K., & Ross, D. K. (2013). *5 Practices for Orchestrating Productive Task-Based Discussions in Science.* Reston, VA: National Council of Teachers of Mathematics

- Church, Mark, Morrison, Karin, & Ritchhart, Ron. (2011). *Making Thinking Visible: How to Promote Engagement, Understanding, and Independence for All Learners.* Jossey-Bass.

Additional texts (articles, videos, podcasts) will be provided throughout the course.

COURSE ASSIGNMENTS and ACTIVITIES

There will be two assignments per week: 1) a reading assignment to be completed outside of candidates' time in the classroom, and 2) a "Put It To Practice" (PITP) assignment to be implemented in the context of their teaching fieldwork. In addition, each week candidates will be required to upload a post to the assignment-specific discussion forum on the course website. These posts will be about *either* the week's reading *or* the PITP assignment; course instructors will indicate which one is required each week. Candidates are encouraged to respond to each other's commentaries as well as to post their own. **Discussion posts must be uploaded to the Powerschool Learning site no later than noon on the Wednesday prior to class.**

The final assignment for this course is the Teaching Philosophy Project. Gateway II, an end-of-year performance task designed to gauge candidates' progress toward novice-level proficiency of the TPEs, serves as additional evidence of progress and mastery of the domains introduced in EDU 560.

EXPECTATIONS & ASSESSMENT

"If something is worth doing, it is worth doing well." ~ Proverb

Assessment in this course is discourse-based, combining reflection, peer critique, and instructor response. Final papers and overall course participation are assessed in a "student-led comment" format, where the participant presents a self-assessment and the instructor responds. Contributions to discussion forums are not assessed formally, but are assessed for completion and serve as an essential component of the ongoing dialogue with peers and the instructor. The instructors recognize that assessment is a two-way street and invite critique on the course content and process through exit cards following each session and in a course evaluation at the end.

The effectiveness of our learning community depends upon each person's consistent and thoughtful participation. GSE courses are pass/fail. Rather than focusing on grades, we will strive to create our best work. The learning process throughout will be supported through conversation, critique, and multiple opportunities for revision. We will create work that is worth doing and worth sharing, often discussing the idea of the audience and how to make a broader impact on the educational community. Each student's participation in this course will be assessed in accordance with the following criteria:

Pass: Student's class participation and outside work reflect professionalism, effort, and dedication; readings and assignments are completed on time. In order to earn a passing grade, students must achieve the learning outcomes stated on the second page. The final assignments must "meet" or "exceed" the criteria stated on the rubric and students will be required to revise their work if they "approach" the criteria. Students attend every class session, providing advance notice in the event of unavoidable absence and making up for missed work in a timely manner, as approved by the instructor.

Fail: The student makes little to no progress toward completing course assignments, and fails to achieve the learning outcomes for the course. Assignments are missing, or class participation and/or outside work are below average. The final assignments are missing, incomplete, or fail to meet the assignment parameters and/or the standards set by the class. If a candidate misses more than 2 class meetings, she/he will be required to take the course the

following year; this means that the candidate cannot be recommended for his/her Preliminary Credential at the end of year 1. In extreme cases, please talk to the instructors if you must miss class or need an extension.

CREDIT HOURS

This is a 3 credit course (12 weeks). Each credit represents 45 hours of learning, for 135 total hours. There will be 36 hours of face-to-face instruction, 30 hours of out-of-class instructional time (via online forums and tutorial instruction) and 60 hours of out of class work (e.g. readings, assignments, final product, digital portfolio maintenance).

COURSE SCHEDULE

The schedule below outlines the important deadlines to meet throughout the course. More detailed weekly agendas will be distributed at course meetings and posted on Google Classroom.

Session, Date, & Reading	General Outline & Put it to Practice (PITP)
Session 1: November 18 *(All candidates together)* *(Optional) Reading due:* ❑ Ron Berger: "What Educators Get Wrong About Bloom's Taxonomy" ❑ Jal Mehta, "A Pernicious Myth: Basic Before Deep Learning	***Whole group:* Marzano's taxonomy** ***Breakout group (with Math folks):*** ➔ Launching "Test Kitchen" ➔ Redesigning a lesson to increase cognitive demand ➔ **PITP:** ◆ Select a task you or your CT will teach this or next week. Identify 1-2 ways that you can create more opportunities for complex thinking. Come to session 2 ready to share.
FALL BREAK	
Session 2: December 2 *(Session taught jointly with math single subject)* *Reading due:* ❑ 5 Practices for Orchestrating Productive Task-Based Discussions in Science: Chapter 2 (p. 23-44)	**Introducing the Five Practices** (part 1 - participating) ➔ Test Kitchen #1 ➔ CalTPA check-in / Syllabus review ➔ Understanding the Five Practices ➔ **PITP:** ◆ Bring student work for a Selecting & Sequencing workshop next time.
Session 3: December 9 *(Session taught jointly with math single subject)* *Reading due:* ❑ 5 Practices for Orchestrating Productive Task-Based Discussions in Science: Chapter 3 (p. 45-61)	**5 Practices in practice** (part 2 - designing) ➔ Test Kitchen #2 ➔ Selecting and Sequencing student work. ➔ Collaboratively designing a 5 practices lesson to be exhibited next session. ➔ **PITP:** ◆ Continue to work with your team on the 5 practices lesson you will exhibit next week. Complete the lesson planner as a group to prepare for your lesson next week.
Session 4: December 16 *(All candidates together, then breakout with math single subject)*	***Whole group:* Launch Teaching Philosophy Project** ***Breakout group (with Math folks):*** **5 Practices in practice** (part 3 - exhibiting) ➔ Exhibit 5 practices lesson (science group)

Reading due: ☐ Your Lesson Plan won't Save Democracy	➔ **PITP:** ◆ Compose an email to your CT, Sarah, Jenny and one other person that you plan with. In the email, address: 1) What are the 5 practices and why are they a useful tool for the equity drive, student-centered classroom? 2) Which of the 5 practices is a strength of your planning/teaching process? 3) Which of the 5 practices is an area of growth for you in your planning/teaching process? 4) How do you plan to continue growing in your use of the 5 practices? 5) What questions do you still have about them?
WINTER BREAK	
Session 5: January 6 *(All candidates together, then breakout with math single subject)* *Reading due:* ❑ Read another example of the teaching philosophy statement. Note what aspects of the example you hope to include in your own project.	***Whole group:*** Teaching Philosophy Project Rubric **Co-Creation** ***Breakout group:*** ➔ Test Kitchen # 3 ➔ CalTPA check-in ➔ Exhibit 5 practices lesson (math group) ➔ **PITP:** **(Due for Session # 7 - Jan 20th)** ◆ Run a lesson where you utilize the 5 practices. (Bring 8 pieces of student work from this lesson on Jan. 20th.) ◆ If you're feeling ambitious, start drafting your teaching philosophy statement.
Session 6: January 12 ***(Thursday)*** *Reading due:* ❑ 5 Practices for Orchestrating Productive Task-Based Discussions in Science: Chapter 5 (pg. 85-98)	**HTH Classroom Observation *and* Making Thinking Visible Routines** ➔ **Observe Michael Chin at HTH (1:20-2:55 pm)** ➔ Observation Debrief - What strategies did we see? ➔ Visible Thinking Routines deep dive ➔ **PITP:** ◆ **(Due for Session # 7 - Jan 20th)** Run a lesson where you utilize the 5 practices. (Bring 8 pieces of student work from this lesson on Jan. 20th.)

Session 7: January 20 *Reading due:* ❑ Strong, Sarah: "Student-Centered Assessment," from *Hands and Minds, A Guide to Project-Based Learning For Teachers By Teachers.*	**Self-Assessment *and* Peer Critique Using Rubrics** ➔ Review student work, debrief your 5 Practices lesson. ➔ What is a student-centered assessment? ➔ Develop a self-assessment tool or peer critique rubric together. ➔ **PITP:** ◆ Use a self-assessment tool or peer critique rubric in class. Describe how it went and bring 8 pieces of student work.
Session 8: January 27 *Reading due:* ❑ Read pages 101-109 of *Reading for Understanding*	**Scientific Literacy Routines** ➔ Routines for Scientific Literacy (Think alouds, chunked reading, request) ➔ Attend Math/Multiple Subject Standards Presentations ➔ **PITP:** ◆ Run a lesson where you utilize either a student centered assessment or one of our routines for scientific literacy (think alouds, chunked reading, reQuest). Post your lesson plan and a snapshot of student work. ◆ Keep working on your teaching philosophy project!
Session 9: February 3 *(Session taught jointly with math single subject)* *Reading due:* ❑ Review *Grading for Equity Change Ideas* ❑ Identify one change idea you'd be interested in trying ❑ What reservations or questions do you have?	**Grading for Equity, Assessments, and Portfolios** ➔ Test Kitchen # 4 ➔ Grading for Equity ➔ Co-constructing a rubric (High Quality Work) ➔ Assessments - Portfolio Deep Dive ➔ **PITP:** ◆ Draft an email to parents that explains both your grading and assessment strategies. ◆ Bring a draft of your teaching philosophy project to class next week for critique.
Session 10: February 10 *(Session taught jointly with math single subject)* *Reading due:* ❑ n/a	**Teaching Philosophy Peer Critique/Revisions** ➔ Teaching Philosophy Project Critique (whole group) ➔ Test Kitchen # 5 ➔ Teaching Philosophy Project Work Time ◆ Interview Prep, one-on-one check in's ➔ **PITP:**

	◆ Keep working on your teaching philosophy project!
Session 11: February 16 ***(Thursday)*** *(Session taught jointly with math single subject)* *Reading due:* ❑ High Quality Curriculum Menu	***PBL and Leveraging High Quality Curriculum and Technology*** ➔ PBL in STEM ➔ Review High Quality Curriculum Menu ➔ Curriculum Design Challenge ➔ **PITP:** ◆ Keep working on your teaching philosophy project! Final version due next week.
Session 12: February 24 *(All candidates together)* *Reading due:* ❑ Read the calTPA Cycle 2 Assessment Guide: Overview pages only	***Teaching Philosophy Project Exhibition!*** ➔ Bring your finished teaching philosophy project to class, and post on Google Classroom.