University of California – Riverside
Graduate School of Education
Winter, 2019
Imagining Teaching: Science-Mathematics Emphasis: Education 03
Section 1
3 Units
Instructor: Michael Towne
Tuesday, 4:10-6:00
Sproul 1357
Sproul 2201
Tuesday, 6:00-7:00
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Education 3: Imagining Teaching: Science-Mathematics Emphasis

COURSE OVERVIEW

CATALOG COURSE DESCRIPTION
This course considers images of teaching produced in popular culture, professional writing, and personal recollections, and how the images impact and reflect teaching in schools. This course addresses topics related to teaching mathematics and science in the K-12 classroom.

Course Pre-requisites: No Prerequisites

COURSE OBJECTIVES
• To observe, and participate in public school classrooms to gain insight into the profession
• To focus on the interactions between teachers and students
• To develop understanding of the effect of outside influences on student achievement
• To view education/teaching from a teacher’s perspective and its role in society

LEARNING OUTCOMES
• Students develop written analysis of academic papers.
• Students familiarized with standards-based instruction and the California Common Core Mathematics Standards and the Next Generation Science Standards.
• Students observe and assess classroom practice using analytic techniques.
• Students introduced to lesson design and planning.

UCR-GSOE POLICIES

STUDENTS WITH DISABILITIES POLICY
If you have a disability or believe you may have a disability, you can arrange for accommodations by contacting Services for Students with Disabilities (SSD) at 951-827-4538 (voice) or specserv@ucr.edu (email). Students needing academic accommodations are required to register with SSD and provide required disability-related documentation. If you have approved accommodation(s), you are advised to notify your instructor privately.

ATTENDANCE POLICY
GSOE takes seriously the need for students to attend and actively participate in classes; class absences and lack of participation undermine the learning process. Students who miss more than 20% of the course meeting are strongly urged to withdraw from the course. Instructors may also fail such students, except in the case of documented serious illness or immediate family emergency. Missing portions of classes, through persistent late arrival or early departure, can count toward the “more than 20% of class time.”
ACADEMIC HONESTY POLICY
Students are expected to conduct themselves and their work in a manner consistent with UCR’s policy on academic integrity. Academic misconduct includes, but is non limited to, cheating, fabrication and plagiarism (e.g., using another’s work or ideas without giving credit- intentionally or unintentionally). Submitting your own work more than once (e.g. for this class and another class, without both instructors’ knowledge and permission) is also a form of academic dishonesty and will result in an F. If you are at all unsure of what constitutes plagiarism or other forms of academic dishonesty, consult the UCR website for more information: http://conduct.ucr.edu. Please familiarize yourself with UCR’s policies and procedures regarding academic integrity, published in full in the General Catalog at http://catalog.ucr.edu.

WRITING POLICY
The Graduate School of Education believes that all students should exit its program with strong writing skills. As such, the quality of written composition as well as content will be factored into grades on students’ papers for all education classes.

COURSE POLICIES

ELECTRONIC COMMUNICATION POLICY
As a default, I will be sending class emails to your UCR email, as it is also the email UCR staff will use when sending you important emails. Plus, it will help get you into the habit of using a more professional email for school and for potential future work. When sending me an email, please include your last name, followed by the course number, and followed by the purpose of the email in the subject heading (Example: Safie – ENV102 – Question about Final Exam). Keep in mind that I will respond within 24 hours during the week and within 48 hours on the weekend unless the email is sent during my office hours, at which time you will get an almost immediate response.

BEHAVIOR/CONDUCT
• Please arrive to class on time.
• UCR is a smoke-free campus. Smoking is not allowed on campus.
• No cell phones in class. Please step outside to make or receive a call.
• Please be considerate and attentive during presentations and discussions. Do not text, draw or use your computer during presentations and discussions. Exceptions include the use of electronic devices for note-taking.
• Please be respectful of others while setting up desk space. Do not create an obstacle course with all your belongings. Cooperating with one another is the best way to make the most of limited space.
• Please properly dispose of all trash. We are all responsible for the maintenance of our campus and classrooms.
• Please use appropriate language when sharing thoughts and opinions. We all have our own views, but the goal is to create an environment that encourages dialogue and personal growth.

LATE PAPERS/ASSIGNMENTS
Late assignments will be accepted up to 3 days beyond due date, but will be decreased in total points by 10% unless accompanied by documentation that excuses the late assignment. If accompanied by a legitimate excuse, the assignment will not be decreased by 10% during the time period the excuse covers. Examples of acceptable excuses are:
• Illness with a doctor’s note
• Having to care for an ill loved one
• Having a death in the family
• Being involved in a car accident

Communication is key to your success. If something happens, please let me know and we can work through your options for success in the course.
UCR ACADEMIC RESOURCE CENTER (for undergraduate students)
The Academic Resource Center (ARC) is the central resource for academic support at UCR. All
students are strongly encouraged to visit the ARC, which is staffed by professional and student
employees who are well trained to provide academic support and dedicated to fostering
academic excellence. Resources provided by the ARC include Tutoring, Supplemental
Instruction, Study Skills Workshops, as well as several peer mentoring programs. Participating
in these services is most useful to students when used pro-actively for academic enrichment.
Visit arc.ucr.edu or call 951-827-3721 for more information about hours, location and the
schedule of services.

COURSE RESOURCES: This is a weekly list of the reading material you will be responsible for. All
readings are available through the UCR Library or the CDE website.

Readings: While reading the assigned course materials for each week, please consider the
following:
  a) On which points do you agree with the author(s), and why? Alternatively, on which points
do you disagree, and why?
  b) How might you incorporate the ideas raised in the reading into your thinking about
teaching AND into your actual practice as a teacher?
  c) During your observations in your assigned classroom and as you observe the class videos,
what do you see that corroborates the views of the authors of papers we have read? What
do you see that contradicts what you have read?

ASSIGNMENTS
  a) **Course Journals (5):** Due via e-mail by the beginning of class on due dates.

    How to submit Journal Assignments:
    Email to mtown001@ucr.edu with your essay attached as a Word Document attachment.
    Please place in Subject Line the following –
    Educ3_LastName_FirstName_Journal1
    Substituting your last and first names and the appropriate journal number.

    What to include in your Journal Assignment:
    As you complete your hours in a classroom and view the assigned videos, you will become
aware of different issues. Your task is to write a brief essay (400-600 words) connecting
your observations to one or more of the journal articles read in class the previous week and/or
the class discussions. This is an informal paper, but still should conform to APA
guidelines for citation and format. Be brief and focused. The main point is to apply what
you have learned in class through readings or discussions to your observation. It is
important to develop your classroom observation skills through informed reading and
reflection.

    **Written Papers (2):** Due via e-mail by the beginning of class in week 6 (Paper 1
Observation) and week 9 (Paper2 Reflection).
b) How to submit Written Papers:
Email to mtown001@ucr.edu with your essay attached as a Word Document attachment.
Please place in Subject Line the following – Educ3_LastName_FirstName_Paper1
Substituting your last and first names and the appropriate paper number.

What to include in your paper:
Each written paper should be between 3-5 pages in length and conform to APA guidelines.
The purpose of these papers is to put the course readings in dialogue with your observations in the classroom and our discussions in class. The expectation for this paper is to engage in academic discussion, critique and observation of classroom practice informed by academic research. Details provided in class two weeks before due date. These are formal papers that need to conform to APA guidelines.

c) 5E Lesson Plan Group Project: Each student will be assigned to a group of three students to develop a single lesson plan using the 5E Lesson Planning Guide. Each member will be required to turn in one written section of the plan (an Explore/Explain section or an Elaboration Section). The group is responsible for turning in one complete lesson plan, which includes each of the three individual sections written by each member of the group (Explore/Explain or Elaborate) plus the Engage and Evaluate sections, written collaboratively by the group. Finally, the group is responsible for presenting to the class how they would teach the proposed lessons. Details given in class.

d) Field Experience and Video Observation with Analysis: Students are expected to complete 1-2 hours of field experience per week (minimum total 15 hrs for the quarter) and a total of 1-2 hours of on-line video observations (minimum total 15 hrs for the quarter) with analysis (combined total minimum hours; 30 hours) over the course of 10 weeks. Hours are to be completed on a weekly basis with no more than 2-3 hours in any given week. Since there may be times when you may need to make-up time from a previous week due to school closure, you need to plan and realize the weekly 1-2 hours is expected and NO more than 2-3 hours per week is allowed. These field experience and video analysis hours will be reported on a bi-quarter basis (a copy of your field log is due on week 6 and the original-final field log is due on week 10). The weekly 3 hours combined in the field and on-line video observations with analysis is a major component of the “exploration” into teaching, failure to complete fieldwork hours, submit verification OR failure to participate in classes as outlined in the syllabus could not earn a grade above a C-.
**Readings and/or relevant lesson materials**

**Week 1**
A New Generation of Standards in California
California Adopted Standards
California NGSS (Adopted 2014)  California CC Math (Adopted 2013)
California Adopted Frameworks
California Mathematics Framework  California Science Framework (Adopted 2016)
Executive Summary: Math Framework
Video: The rationale behind NGSS  Video: The rationale behind CCSS Mathematics
https://youtu.be/SEc1ENq3FSs  https://youtu.be/gM6gCzuSRhw

**Week 2**


**Week 3**


**Week 4**


**Week 5**


Videos
Common Core State Standards an introduction
http://www.youtube.com/watch?v=9IGD9oLofks&lr=1

The Importance of Mathematical Practices
http://www.youtube.com/watch?v=m1rxkW8ucAI&feature=player_embedded

**Week 6**


**Week 7**


**Week 8**


**GRADING SCALE**

**Grading:**
- A = 94 - 100%,
- A- = 90 - 93%,
- B+ = 87 - 89%,
- B = 84 - 86%,
- B- = 80 – 83%,
- C+ = 77 – 79%
- C = 74 – 76%
- C- = 70 – 73%
- D = 60 – 69%
- F = below 60%

**COURSE GRADING REQUIREMENTS**

**Assessment Weights:**

Course Journals (5) 15%
Written Paper 1 15%
Written Paper 2 20%
Lesson Plan Project 20%
Field and Video Experience 30%
Total 100%
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<tr>
<th>Date</th>
<th>Topics</th>
<th>Readings To Be Discussed</th>
<th>Assignments Due</th>
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| Week 1    | **Intro to EDUC 3 Course** (The View on Teaching)                      |                                                  | a) Read the syllabus posted on iLearn,  
| 1/08/19   | **Introduction to CCSS and NGSS**                                      |                                                  | b) Bring it to the class                                                        |
|           | **View Video Cases 251 and 806**                                       |                                                  |                                                                                 |
| Week 2    | 1/15/19 *What is good math and science teaching?*                       | Battey (2013)                                    |                                                                                 |
|           | **Introduction to 5E Lesson Planning.**                               |                                                  |                                                                                 |
|           | **Class Demonstration**                                                | Van Zee, et al (2001)                            |                                                                                 |
|           | **View Video Cases 808 and 1047**                                      |                                                  |                                                                                 |
| Week 3    | 1/22/19 *What knowledge is necessary for math and science teachers?*  | Ball et al. (2008)                               | Journal #1                                                                      |
|           | **View Video Cases 614 and 261**                                       |                                                  |                                                                                 |
| Week 4    | 1/29/19 *How can teachers teach in ways that are engaging?*           | Gallenstein (2005)                               | Journal #2                                                                      |
|           | **Detailed Instructions for Paper 1**                                 |                                                  |                                                                                 |
|           | **View Video Cases 703 and 1049**                                      | Hayden (2011)                                    |                                                                                 |
| Week 5    | 2/05/19 How have we tried to reform math and science education?        | Lee, Quinn & Valdés (2013)                       | Journal #3                                                                      |
|           | **Intro to Lesson Plan Format (MH)**                                   |                                                  |                                                                                 |
|           | **View Video Cases 292 and 297**                                       | Osborne (2014)                                   |                                                                                 |
| Week 6    | 2/12/19 Technology in the math and science classroom                   | Wachira et al. (2008)                           | 1. Written Paper 1  
<p>|           | <strong>View Video Cases 173 and 988</strong>                                       | Goos et al. (2003)                               | 2. Submit a COPY of your Fieldwork hours (you should have 15-20 hrs at this time) |
| Week 7    | 2/19/19 <em>How do teachers assess (evaluate) learning?</em>                Senk et al. (1997)                              | Journal #4                                       |
|           | <strong>Detailed instructions for paper 2.</strong>                                | Morgan &amp; Watson (2002)                           |                                                                                 |
|           | <strong>View Video Cases 309 and 1015</strong>                                      |                                                  |                                                                                 |</p>
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<th>Week 8</th>
<th>Learning to Teach: Pre-service &amp; Beginning Teacher Education</th>
<th>Davis et al. (2006)</th>
<th>Journal #5</th>
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<td>2/26/19</td>
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<td>Borko et al. (2000)</td>
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<td><strong>View Video Cases 26 and 68</strong></td>
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<td>Week 9</td>
<td>Learning to Teach: Modeling a Math/Science Lesson Group Presentation</td>
<td>Benefits of lesson planning – posted on iLearn</td>
<td>Written Paper 2</td>
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<td><strong>View Video Cases 1033 and 1070</strong></td>
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<td>Week 10</td>
<td>Learning to Teach: Modeling a Math/Science Lesson Group Presentation</td>
<td>Benefits of lesson planning – posted on iLearn</td>
<td>Comp. Fieldwork Hours Written Lesson Plan</td>
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<td><strong>View Video TBA</strong></td>
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