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Teaching, Learning, and Leading with Schools and Communities

School of Education, Loyola University Chicago Fall Semester 2017

Graduate Sequence 4 - Elementary

TLSC 421: Teaching Science in Elementary Classrooms

Sequence 4 - Instructor Information

Name: Anne Pacion

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Office Hours: by Appointment

Sequence 4 - Information

Dates: August 31 – December 16, 2017

Days: Thursday

Times: 9:00 – 11:00 AM Cudahy Hall Room 314

School-Site Location: Goudy Elementary School 5120 N Winthrop Ave, Chicago, IL

Module Descriptions

421 Module Description

One way to think about teaching science is to understand science as a culture. People who are scientifically literate can talk, think, act, and identify within the community of science. They understand the beliefs, ways of knowing, and central assumptions that constitute science. They understand how science is constructed, communicated, and used. We will spend our time together exploring what it means to learn and do science and engineering in different contexts. We will also reflect upon the possible implications for teaching science and creating opportunities for all students to participate in the culture of science.

421 IDEA Objectives

During this module, through large and small group instruction and discussion, hands-on learning experiences, fieldwork, and reflection, you will work toward the following *essential* instructional objectives:

- Gaining a broader understanding and appreciation of science as an intellectual and cultural activity
- Learning how to find and use resources for answering questions or solving problems
- You will also work toward the following *important* instructional objectives:
- Developing specific skills, competencies, and points of view needed by teaching professionals
- Learning to apply course material in the classroom setting

421 Essential Questions:

- How have others defined scientists and what are the implications of various understandings and misunderstandings of science?
- What is culturally relevant teaching in science?
- How might teachers meet the needs diverse learners through acknowledging and building upon their prior experiences, beliefs and values?
- How might informal learning resources support and enhance science curriculum, as well as provide relevancy to student's learning?
- How are science, technology and engineering related; how are they distinct?
- How have the Next Generation Science Standards impacted science and engineering education?

421 Essential Understandings

EU 3 Candidates will understand that effective educators use research and evidence-based practices to design instruction that includes the alignment of goals, objectives, assessments and instructional strategies to meet the individual needs of students.

EU 6 Candidates will understand that effective educators apply deep understanding of both content and pedagogy to provide developmentally appropriate instruction to all students.

EU 8 Candidates will understand that effective educators explicitly integrate the teaching of reading, writing, communication and technology across content areas.

EU 11 Candidates will understand that effective educators maintain and utilize global perspectives and international-mindedness when engaging in teaching, learning and leading, including the awareness and application of the social, cultural, inter-cultural and linguistic facets of student achievement.

As Part of this sequence, candidates will:

EU3 K1 Identify what constitutes research and evidence-based practices related to designing and implementing instruction. (c1G) (IB)

EU3 K2 Explain the scope and sequence in relevant standards (national, IL, CCSS). (c1A)

EU3 K3 Explain how to adjust scope and sequence in standards-based curriculum maps to meet the needs of diverse learners. (c1A) (IB)

EU6 K1 Describe the important facts and central concepts, principles, and theories associated with their certified content areas. (b1B, b1G)

EU6 K2 Identify the content standards and the scope and sequence of the subject area of their certified content areas. (b1B)

EU6 K3 Describe how their subject is related to other disciplines. (b1D) (IB)

EU6 K7 Describe content-specific instructional strategies.

EU6 K8 Explain the various models of co-teaching and the procedures for implementing them across the curriculum. (h1G) (IB)

EU6 K9 Describe how to conduct and interpret appropriate content specific assessments. (g1A, g1G)

EU6 K10 Describe appropriate technologies to enhance student learning (b1F, c1E) (IB) **EU11**

K2 Describe how global issues can be infused into instructional practice to inspire inter-cultural awareness and international mindedness. (i1G) (IB)

EU11 K6 Describe how instruction utilizes transdisciplinary/interdisciplinary units to incorporate inquiry into multiple perspectives, diverse cultures, and global issues.

EU3 S1 Consult academic texts or journals to read current research on designing instruction (i1A) (IB)

EU 3 S2 Incorporate research and evidence-based practices into the design of instruction (e.g. UbD, IB, SIOP and UDL). (e2K, i1A) (IB)

EU3 S3 Use standards-based curriculum maps (e.g. UbD) to design units and lessons to meet the needs of diverse learners. (c2J, c2B) (IB)

EU 3 S8 Select relevant instructional content, materials, resources and strategies for differentiated, universally designed instruction and sheltered instruction. (c2J, e2G) (IB)

EU6 S1 Integrate connections between their content area and the other content areas. (b2F, c2E) (IB)

EU6 S2 Use students' prior knowledge and experience to introduce new subject-area related content. (a2B, b1G, c2D) (IB)

EU6 S5 Create and select activities that are designed to help students develop as independent learners and complex problem-solvers. (a1B, e2A, e2D) (IB)

EU6 S6 Evaluate, select, and integrate a variety of research-based strategies such as inquiry, cooperative learning, discussion, discovery, problem-based learning, and direct instruction into a coherent lesson design. (c2J, e2A, i1A) (IB)

EU6 S7 Make developmentally appropriate choices in selecting teaching strategies to assist diverse learners in meeting instructional strategies. (a2C, b1E) (IB)

EU6 S8 Use effective co-planning and co-teaching techniques to deliver instruction to all students. (c2J, e2I, h2E) (IB)

EU6 S9 Demonstrate the ability to recognize and value student diversity and the differences in how students learn and provide instruction to accommodate such diversity. (a1A, a2A, b2E, b1E, c2J, e2E) (IB)

EU6 S10 Use questions and questioning to assist all students in developing skills and strategies in critical and high-order thinking, inquiry, and problem solving. (b2C) (IB)

EU6 S11 Use resources and multiple representations of content effectively, including technology, to enhance student learning. (b2A, b2B, b2D, b2E, b2G) (IB)

EU6 S12 Reflect and analyze past lessons to improve in the future. (i2C) (IB)

EU11 S2 Plan instruction to support students' structured inquiry into global issues to inspire inter-cultural awareness and international mindedness. (b2C) (IB)

EU11 S6 Collaborate to build and sustain a classroom and school environment that incorporates and values cultural, inter-cultural, linguistic and global diversity and issues. (a2D, g2D, h2A) (IB)

EU11 S7 Engage in different ways of knowing within or across various disciplines. (b2B) (IB)

Conceptual Framework

This course embodies the conceptual framework –*Social Action through Education*– of the School of Education (SOE) at Loyola University Chicago. As teachers, we recognize our connection to students as individuals and as members of a larger community. We serve others (students as well as families and communities) by creating experiences that encourage creative, moral and intellectual development. Leaders in our classrooms and larger school communities, we must consider how education can be transformational and how we might be agents of change. In this course sequence, we will explore what it means to hold high expectations for all learners that include academically challenging, personally and socially relevant knowledge and complex learning skills. In order to successfully provide opportunities for youth to meet these expectations, we must also be committed to reflecting on our own practice and to continually developing our own knowledge, skills and professional dispositions.

Dispositions

Each sequence and module in the Teaching and Learning with Schools and Communities Program (TLSC) focuses on several professional dispositions. Candidates are offered opportunities to receive feedback on their dispositional growth. The teacher candidate commits to appropriate professional and interpersonal behaviors in this module by:

421 Dispositions Assessment:

- D4 demonstrating professionalism and reflective practice in collaborating with teachers, students, administrators, families, and communities to improve achievement for all students. (9N) (IB)
- D5 participating in ongoing professional development, reading, and research in order to deepen their knowledge and expand their repertoire of skills. (9O) (IB)
- D7 valuing and utilizing the unique identities and backgrounds of all students, families and communities as essential assets in learning environments. (9L, 9N) (IB)

- D9 demonstrating that authentic literacy instruction is the responsibility of all teachers, across all disciplines and grade levels. (2H,6A)(IB)
- D15 valuing and promoting curiosity, creativity, and life-long learning in students. (IB)

Diversity

Course instructors strive to facilitate an inclusive environment respectful of all members of the class community with appreciation and respect for age, ability, color, creed, cultural background, ethnicity, gender identity or expression, national origin, race, religious affiliation or spiritual affinity, sexual orientation, socioeconomic class, or other status. If you are a student who requires any special considerations, please inform the instructor during the first week of class.

Sequence Four Professionalism and Participation Policies:

It is expected that teacher candidates in Sequence Four partner sites will demonstrate high levels of professionalism and responsibility in all aspects of their work in this sequence. In order to complete the module assessments and requirements in a satisfactory manner, candidates must be present for all sessions, while in partner classrooms, sequence instructional sessions on campus and at any informal partner sites. In the event of approved absences, candidates should contact their professors and school sites in the manner that is requested by the administration at the respective schools. The following guidelines for participation will be considered in the module grades.

Professional Attitude and Demeanor Part I

- 2-Always prompt and regularly attend sessions. (no absences or tardies)
- 1-Rarely late and regularly attend sessions (No more than 1 absence).
- 0-Often late and/or poor attendance at sessions (More than 2 absences).

Professional Attitude and Demeanor Part II

- 2-Always prepared for sessions with assignments and required materials.
- 1-Rarely unprepared for sessions with assignments and required materials.
- 0- Often unprepared for sessions with assignments and required materials.

Level of Engagement in Class

- 2-Always a willing participant. Contributes by taking initiative, offering ideas and asking questions in sessions, small groups and classroom sessions.
- 1-Often a willing participant. Contributes by taking initiative, offering ideas and asking questions in sessions, small groups or classroom sessions
- 0-Rarely a willing participant. Rarely contributes to sessions by taking initiative, offering ideas or asking questions.

Integration of Readings into Classroom Participation

- 2-Often cites from readings; use readings to support points.
- 1-Occasionally cites from readings; sometimes use readings to support points.
- 0-Rarely cite from readings; rarely use readings to support points.

Listening Skills

- 2-Listens when others talk, both in groups and in sessions. Incorporate or build off

of the ideas of others.

- 1-Listens when others talk, both in groups and in sessions
- 0-Rarely listens when others talk, both in groups and in sessions.

Course Evaluation

Grading

All assignments will be graded using the rubrics posted on Sakai and LiveText throughout the semester. Each assignment will be calculated into the total number of points for the course. The number of points earned will be divided by the number of points possible, and a letter grade will be assigned using the scale below.

Assignments and readings are due on the dates listed on the course syllabi unless permission to hand them in late is given. Conflicts with an assignment deadline should be discussed and resolved prior to the assignment's due date. Late work will only be accepted under special circumstances (e.g., family emergency, illness). Please *contact your professor* in person or by phone or email *prior to any given due date* to discuss assignment extensions requests. Failure to do so in a timely manner will result in significant grade deductions. **Computer or technical problems are not an acceptable excuse for late work.**

Unless otherwise noted, all assignments must be typed. Please double-space your work and use 12 point font. Attend closely and carefully to spelling and grammar. If referencing course or other textual materials, please follow American Psychological Association style guidelines (APA – 6th edition). You can access the APA style manual through Loyola University Chicago's libraries or online at <http://www.apastyle.org>.

Also, as a reminder, all assignments in this course will be submitted via **LiveText**. Please make certain you have activated your LiveText account if you have not already done so.

Grading Scale:

| | |
|-----------|-----------------|
| A | 93 - 100 |
| A- | 90 - 92 |
| B+ | 87 - 89 |
| B | 83 - 86 |
| B- | 80 - 82 |
| C+ | 77 - 79 |
| C | 73 - 76 |
| C- | 70 - 72 |
| D | 61 - 69 |
| F | 60 - 0 |

TLSC 421 Assignments

Greater detail and rubrics will be provided for all assignments on Sakai.

Course Participation – 20%

I expect you will attend each class session and arrive on time. I expect you to make regular and thoughtful contributions to class activities, discussions, and group projects for your own learning and those of others. I also expect you to arrive prepared for class through careful reading and reflection and timely completion of assignments.

During each course session you will earn points for your participation. Lack of participation, late arrival, and lack of preparation will impact your earned points. You will not be able to earn participation points if absent.

Science Talk – 15%

This assignment asks you to *formatively* assess your students on their understanding of specific science topics, the types of experiences or knowledge bases they draw upon to make sense of the world, and what they wonder about or have questions about in connection to science. This assignment is a great opportunity to learn about and from your students and think about how what they know and want to know can inform your science lessons/units.

Engineering Education Essay – 15%

You will be learning about the disciplines of science and engineering, how they relate and differ. This assignment asks you to apply your understandings as you prepare to work with elementary aged students.

Weekly Reading Responses – 20%

You will respond to readings each week, reflecting on and making sense of the experiences you have during this module.

Sequence Four Summative Assessment

Teacher candidates will utilize their disciplinary knowledge of literacy, mathematics, science and social studies instruction to illustrate what they have learned about teaching strategies, instructional materials, methods and assessments for effective content area instruction. The summative assessment makes up 10% of the final grade for each Sequence 4 course.

Required Texts, Readings and Resources

TLSC 421

*The latest edition of the textbook is being purchased by the library so will be available as an e-book for students and faculty.

<https://www.routledge.com/Teaching-Science-to-Every-Child-Using-Culture-as-a-Starting-Point-3rd/Settlage-Southerland-Smetana-Lottero-Perdue-Settlage/p/book/9781138118966>

<http://ngss.nsta.org/ngss-videos.aspx>

<https://inquiryproject.terc.edu/index.html>

<http://ambitioussciencelearning.org/>

<https://www.eie.org/>

<http://stemteachingtools.org/news/2016/short-course-how-to-develop-3d-formative-assessments-for-the-science-classroom>

http://blogs.edweek.org/teachers/coach_gs_teaching_tips/2015/01/rapid_release_of_responsibility_you_do_we_do_i_do.html

Settlage, J. & Southerland, S.A. (2012). *Teaching science to every child: Using culture as a Starting Point*

IDEA Course Evaluation Link for Students

Each course you take in the School of Education is evaluated through the IDEA Campus Labs system. We ask that when you receive an email alerting you that the evaluation is available that you promptly complete it. To learn more about IDEA or to access the website directly to complete your course evaluation go to: <http://luc.edu/idea/> and click on **STUDENT IDEA LOGIN** on the left hand side of the page.

Dispositions

All students are assessed on one or more dispositional areas of growth across our programs: ***Professionalism, Inquiry, and Social Justice, Fairness, and the Belief that All Students Can Learn.*** The instructor in your course will identify the dispositions assessed in this course and you can find the rubrics related to these dispositions in LiveText. Disposition data is reviewed by program faculty on a regular basis. This allows faculty to work with students to develop throughout their program and address any issues as they arise.

LiveText

All students, except those who are non-degree, must have access to LiveText to complete the benchmark assessments aligned to the Conceptual Framework Standards and all other accreditation, school-wide and/or program-wide related assessments. You can access more information on LiveText here: [LiveText](#).

Syllabus Addendum Link

www.luc.edu/education/syllabus-addendum/

The above link directs students to statements on essential policies regarding *academic honesty, accessibility, ethics line reporting* and *electronic communication policies and guidelines*. We ask that you read each policy carefully.

This link will also bring you to the full text of our conceptual framework that guides the work of the School of Education – ***Social Action through Education.***