Sequence 4 - Elementary
TLSC 231: Teaching Science & Writing in Elementary Classrooms

**Instructor Information**

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**Partner School**

The Metropolitan School of Panamá

**Dates:**

January 17th – March 13th, 2017
including a Panamá City, Panamá study trip March 4th – March 13th

**Module Description**

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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 in different contexts. Our explorations will take us from school classrooms to informal learning institutions around Chicago and Panamá City to broaden our conceptions of the work of “scientists” and what it means to engage in scientific inquiry. Through these experiences, we will reflect upon the possible implications for teaching science and creating opportunities for all students to participate in the culture of science.

**Objectives and Goals**

**231 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

231 Essential Questions:

1. What is “science”? What is “engineering”? What are the implications of various understandings and misunderstandings of these disciplines?
2. How do one’s own experiences with science impact teaching and learning?
3. How do teachers meet the needs of culturally and linguistically diverse learners through acknowledging and building upon their prior experiences, beliefs and values?
4. How do teachers simultaneously support learners’ science and language development and learning? What additional considerations are necessary for emergent bilingual students?
5. How do informal learning resources support and enhance science curriculum, as well as provide relevancy to student’s learning?
6. How have the Framework for K-12 Science Education and the Next Generation Science Standards (NGSS) impacted elementary science education?
7. How does the science component of the International Baccalaureate (IB) Primary Years Program (PYP) support the goals outlined in the Framework for K-12 Science Education and NGSS?

231 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.

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 K9 Describe how to conduct and interpret appropriate content specific assessments. (g1A, g1G)
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 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 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 S11 Use resources and multiple representations of content effectively, including technology, to enhance student learning. (b2A, b2B, b2D, b2E, b2G) (IB)
EU11 S7 Engage in different ways of knowing within or across various disciplines. (b2B) (IB)

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:

231 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)
- D17 Demonstrating professionalism through personal responsibility and accountability related to attendance, participation and communication.

**Sequence Four Professionalism and Participation Policies:**

It is expected that teacher candidates in Sequence Four schools and informal 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. In the event of an absence, candidates should contact their professors and partner sites as soon as possible. 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.

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**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.
**Sequence Four Summative Assessment**

*Greater detail and rubrics will be provided for the summative assignment on Sakai.*

*The summative assessment counts 20% toward all course modules in Sequence 4.*

While completing the modules in this sequence, teacher candidates will engage in a structured interdisciplinary inquiry with specific connections to science and civic issues. Teacher candidates will have the opportunity to engage in both scientific and social science/historical inquiry, while utilizing relevant literacy practices. This structured inquiry will highlight common themes between the disciplines of science and social studies that have local, national and global connections. It should also serve as a model for what teacher candidates will design later for their own students in Sequences 6-8.

Candidates will choose a topic of interest and importance to them to investigate. They will use the inquiry-based approaches of TLSC 231 and TLSC 232 to investigate their particular issue of scientific and civic import, and they will pull on a range of informational texts and the skills of argumentation emphasized throughout this sequence. The goal of this assessment is to demonstrate a strong command of the content areas of science and social studies and the skills of academic writing. The nonfiction notebook will be used to gather, record and organize acquired information and experiences.

- **Sequence Four Summative Assessment Part 1: Inquiry Plan Defense**

A developmental step while working on the sequence four summative assessment is to develop and present a plan to your peers with the goal of getting productive feedback. The plan must include your researchable question, a rationale for how it addresses an issue of both scientific and civic importance and initial designs for data collection (including sources and modes of collection). The inquiry plan will be presented to peers and the course instructor to receive constructive feedback regarding the feasibility of their investigation and discussion of other possible data or resources that might assist their investigation.

### Grading Scale:

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<tr>
<td>A</td>
<td>93 - 100</td>
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<tr>
<td>A-</td>
<td>90 - 92</td>
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<tr>
<td>B+</td>
<td>87 - 89</td>
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<td>B</td>
<td>83 - 86</td>
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<td>B-</td>
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<td>C+</td>
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<td>C</td>
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<td>C-</td>
<td>70 - 72</td>
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<tr>
<td>D</td>
<td>61 - 69</td>
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<td>F</td>
<td>60 - 0</td>
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- **Sequence Four Summative Assessment Part 2: Inquiry Project Check-in**
A developmental step while working on the sequence four summative assessment is to analyze and synthesize the data you are collecting from various evidence artifacts, and draw evidence-based claims. A template is provided to assist you in this process.

- **Sequence Four Summative Assessment Part 3: Inquiry Product & Reflection**
You will create a personal website (or other product approved by the instructor) that creatively communicates all aspects of the project and credits all references and sources used in your research. You will also complete a written critical reflection about the experiences of completing the project using specific prompts.

**TLSC 231 Assignments**
*Greater detail and rubrics will be provided for all assignments on Sakai.*

**Course Participation – 10%**
I expect you will attend each class session and arrive on time, fully prepared for class through careful reading and reflection and timely completion of assignments. I also expect you to make regular and thoughtful contributions to class activities, discussions, and group projects for your own learning and those of others. 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. **See course participation rubric above for scoring information.** You will not be able to earn participation points if absent.

**Panamá City Inquiry Notebook – 15%** Candidates will keep a notebook and add to it throughout the Panamá City trip as they brainstorm, respond, reflect and collect personal ideas.

**Science Talk – 15%**
This assignment will ask you to *formatively* asses students from our partner school 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.

**Science & Language Integration Project – 15%**
Through this project, you will explore the language demands and opportunities embedded in the NGSS science and engineering practices, and how elementary students use language to construct and communicate meaning in their science classes. You will also begin to incorporate principles and strategies for teaching culturally and linguistically diverse learners that they were introduced to in the TLLSC Exploration Phase (Sequences 1-3).

**Reading Responses – 25%**
This assignment will ask you to make sense of the assigned readings. Throughout the course, you will be asked to respond to broad questions or ideas and how they pertain to learning, doing and teaching science.
Sequence Four Summative Assessment – 20%
See description above.

Required Texts, Readings and Resources

TLSC 231
***Note that this ebook is available for free download at [www.nap.edu](http://www.nap.edu)

***Note that an ebook is available on reserve through Lewis Library

All other resources for TLSC 231 will be provided on Sakai.

School of Education Policies and Information

Conceptual Framework
*Our mission is social justice, but our responsibility is social action through education.*

This module focuses on the policies and practices that impact the instruction and assessment of diverse students in urban schools, emphasizing the role of the teacher in making educational decisions and advocating for students. Additionally, candidates must demonstrate understanding of educational policy and critically evaluate practices in a variety of classroom and school settings.

IDEA Course Evaluation
Students can access IDEA course evaluations at this link: [http://luc.edu/idea/](http://luc.edu/idea/)

LiveText
Students can access LiveText at this link:

Diversity
This module calls on candidates to meet the needs of diverse learners, and to make diversity the substance of the content that they will teach. This will be demonstrated in their coursework and relationships with classmates and instructors as well as in emerging professional relationships and knowledge of professional planning and instruction with the administration, faculty, students and families at the school and informal site.
Please use the following link [http://luc.edu/education/syllabus-addendum/] to find university policies on:

- Academic Honesty
- Accessibility
- Conceptual Framework
- EthicsLine Reporting Hotline
- Electronic Communication Policies and Guidelines