STEM 112: Place-based Integrated Science (Panama)

Semester: JTerm
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Course Description:
Through direct observation and investigation of the natural world, this course will use place-based pedagogies to help students gain greater understanding of physical, earth, and life science concepts as well as mind and body interactions and development. Additionally, the course will explore the history of scientific ideas and the interactions of science, technology, and society.

Course Objectives/Standards
By the end of this course, students will:

1. Collect and use observations/data/evidence to articulate accepted interpretations about physical science concepts.
2. Collect and use observations/data/evidence to articulate accepted interpretations about life science concepts.
3. Collect and use observations/data/evidence to articulate accepted interpretations about earth science concepts.
4. Use observations and experiences to articulate accepted interpretations of cognitive and physical development.
5. Discuss socio-scientific issues using informed nature of science & technology views including interactions among science, technology, and society.

Scientific Literacy AOI Outcomes:
This course will explicitly address the following outcomes of the scientific literacy AOI:

1. Apply the methods of science for the generation, collection, assessment, and interpretation of scientific data and/or phenomena.
2. Use scientific methods and ways of thinking to solve problems.
3. Describe scientific theories on cognitive and behavioral, intellectual, or physical development.
4. Articulate the interrelationship of the development of human societies with the natural world around them.
5. Articulate the relevance of science to the global community in order to serve as active stewards for the natural environment.

Tentative Texts:
- Select readings from
  - Greater Good Science Center at UC Berkeley ([https://greatergood.berkeley.edu](https://greatergood.berkeley.edu))
  - Mindful.org ([https://www.mindful.org](https://www.mindful.org))

Student accommodations:
If you have a documented disability that may affect your ability to participate fully in the course or if you require special accommodations, you are encouraged to speak with the instructor so that appropriate accommodations can be arranged. You may also contact Disability Services at 271-1835 and they will work with the instructor to meet accommodations.

Academic Dishonesty
Plagiarism and cheating are taken very seriously. Any incident of either offense will result in failing the course. See Drake University’s Policies here: [http://www.drake.edu/dos/handbook/academic.php](http://www.drake.edu/dos/handbook/academic.php). If you still have questions, ask! You will not be given the benefit of doubt after the offense has occurred.

Assignments and Grading
- Nature Investigations (Standards 1-3) (AOI Outcomes 1 & 2):
  - This course will actively model the scientific enterprise. Therefore, we will spend time observing the natural world in our place. You will be required to use the observations/data/evidence you collect in these investigations to support verbal and written explanation of scientific concepts.
- Physical and Cognitive (Mind/Body) Reflections (Standard 4) (AOI Outcome 3):
  - To explore cognitive and physical development within our place, we will focus inwardly to better understand our own thinking and bodies. To do this, we will engage in movement and mindfulness practices as well as regularly discussing scientific concepts underlying these practices. Your task will be to reflect in writing on your own practices, experiences, and connections to course readings and discussions.
- Science, Technology, and Society Reflections (Standard 5) (AOI outcomes 4 & 5):
  - We will be exploring and discussing how nature, science, technology, and society co-evolve. Your task will be to reflect in writing on the progress of
these entities, make explicit connections among the entities, and illustrate your thinking with examples.

**Final Grades**
Each standard is worth three points (12 points total). Grades will be assigned using the following scale:

- 15 = A
- 14 = A-
- 13 = B+
- 12 = B
- 11 = B-
- 10 = C
- <7 = F

**Rubric:**
Each standard is worth three points (12 points total).

- A three indicates that the standard is demonstrated consistently, succinctly, clearly, and is well supported by readings and direct observation. A three makes many accurate connections between the observations and pertinent course concepts. A three is free from errors and demonstrates exemplary work well beyond minimum requirements.
- A two indicates that the standard has been met at a basic level.
- A one indicates that the standard has been attempted, but is inaccurate or incomplete in some way.
- A zero indicates severe problems or that a standard has not been addressed.

**Course Outline:**
- See Itinerary

***All parts of this syllabus are subject to change. Any changes will be intended to add clarity to expectations or to respond to emerging learning needs. Any major changes will be noted in class.***