CIEE Yucatan, Mexico

Course title: Mayan History, Culture and the Environment
Course code: ENVI 2101 MEME
Programs offering course: Open Campus Block: STEM and Society
Open Campus Track: STEM and Society
Language of instruction: English
U.S. semester credits: 3
Contact hours: 45
Term: Spring Block I 2020

Course Description

The Yucatan is home to the ancient and modern Mayan culture. Students will explore Mayan culture and ecology and how Mayans adapted to their tropical and subtropical forest environments. Further, they will link ancient Mayan culture and agricultural practices to a still little-understood past involving environmental change and ultimately, cultural and demographic collapse. Specifically, students will examine: How Mayan pioneering, establishment and natural resource use impacts the present environment, wildlands protection and biodiversity conservation. What past and current role does biodiversity play in traditional Mayan agriculture and subsistence? How sustainable is present-day Maya farming? What are the impacts of colonialism, tourism and other patterns of cultural and economic exchange? The intellectual disciplines that students will draw on to examine these questions include ecology, anthropology, archaeology, ethnobotany, and environmental studies.

Learning Objectives

By completing this course, students will:

- View history and culture through an environmental and scientific lens, critically examining how history, culture, technology and the environment are inexorably linked
- Explore how the environment is defined by abiotic factors and geological history
- Analyze the environmental conditions that allowed the Mayan civilization to grow in the Yucatán and spread throughout Meso-America.
• Evaluate Mayan science and technological innovations that allowed Mayans to manipulate and exploit their natural habitat
• Consider how Mayan culture was shaped by the environment and whether it led to stewardship or over-exploitation
• Interpret the theory that the Mayan civilization collapsed from climate change and poor use of natural resources
• Relate historical lessons to contemporary Mayan culture and its relationship with the environment

Course Prerequisites
None.

Methods of Instruction

This course is taught through the use of lectures (CIEE instructors and guest speakers), discussions, activities, interviews, readings, and an internet based research project. There are co-curricular visits to local research centers and field sites. CIEE-led lectures, readings, workshops and guided internet and computer research with discussions supply foundational information, concepts, and terminology, and help students make necessary connections. Guest lectures and interviews with environmental researchers and professionals offer unusual opportunities to learn about “on-the-ground” links between Mayan history, culture and environment.

Assessment and Final Grade
1. Workshop Reports 20%
2. Weekly Quizzes 20%
3. Problem Sets 20%
4. Essays on Speakers / Site Visits 20%
5. Participation 20%
TOTAL 100%

Course Requirements

Workshop Reports

Students will undertake a series of internet-based projects linking Mayan history, culture and the environment in novel and innovative ways. Evaluation will be based
on (1) quality of data collection and analysis; (2) individual written reports of 1500 words (3) oral presentations (Powerpoint) for an audience of environmental science or environmental studies peers.

Weekly Quizzes

At the end of each week, students will complete a quiz covering content from that week. There will be three quizzes in total. Quizzes will include True/False, multiple choice, fill in the blank, short and long answer formats.

Problem Sets

Each week, students will complete a set of questions or address problems associated each topic. These may be related to history, culture or the environment and how they interact.

Essays on Speakers / Site Visits

Students will write critical essays addressing topics from invited speakers and site visits. These essays will summarize major elements of the talk or visit, fully explain the environmental history or culture behind it, and extend learning outcomes by further researching associated earth science, environmental challenges and suggested solutions.

Participation

Participation is valued as meaningful contribution in the digital and tangible classroom, utilizing the resources and materials presented to students as part of the course. Meaningful contribution requires students to be prepared in advance of each class session and to have regular attendance. Students must clearly demonstrate they have engaged with the materials as directed, for example, through classroom discussions, online discussion boards, peer-to-peer feedback (after presentations), interaction with guest speakers, and attentiveness on co-curricular and outside-of-classroom activities.
Regular class attendance is required throughout the program, and all absences will result in a lower participation grade for any affected CIEE course. Due to the intensive schedules for Open Campus and Short Term programs, absences that constitute more than 10% of the total course will result in a written warning.

Students who transfer from one CIEE class to another during the add/drop period will not be considered absent from the first session(s) of their new class, provided they were marked present for the first session(s) of their original class. Otherwise, the absence(s) from the original class carry over to the new class and count against the grade in that class.

For CIEE classes, excessively tardy (over 15 minutes late) students must be marked absent.

Attendance policies also apply to any required co-curricular class excursion or event, as well as to any required field placement. Students may not miss placement/work hours at an internship or service learning site unless approved in advance by the Academic Director and placement supervisor. All students must complete all of the requisite 100 minimum work hours on site at the internship or service learning placement to be eligible for academic credit.

Students who miss class for personal travel, including unforeseen delays that arise as a result of personal travel, will be marked as absent. No make-up or re-sit opportunity will be provided.

Attendance policies also apply to any required class excursion, with the exception that some class excursions cannot accommodate any tardiness, and students risk being marked as absent if they fail to be present at the appointed time.

Absences for classes will lead to the following penalties:
N.B. Course schedule is subject to change due to study tours, excursions, or local holidays. Final schedules will be included in the final syllabus provided to students on site.

Weekly Schedule

Week 1

Class 1.1 Introductory Concepts: Environment & its Impact on Culture & History

Students will approach environmental history from several perspectives. First, how does the environment set the stage for culture and civilizations to develop? How have human activities historically depended on and responded to a dynamic natural world? Second, do attitudes toward the natural world change over time, and how have those attitudes shaped cultural, social, and political foundations? Third, how have human ideas, activities, and technologies affected the landscape, and what have been the consequences of those changes?

Workshop - Research a link between environment, culture and history from different places in the world (excluding the Maya in Mesoamerica)
Student Presentations: Environment, Culture and History Case Studies

Watch: Sam Harris 2010. Science Can Answer Moral Questions TEDx Talk https://www.youtube.com/watch?v=Hj9oB4zpHww

Discussion (graded participation): How environment shapes culture and history

Readings:


**Week 2**

**Class 2.1 Climate & Geography of the Yucatán & Mesoamerica**

Setting the Stage for the Mayan Empire. Students will use patterns of global climate to map major biomes. They will examine the unique geological history and geography of the Yucatán Peninsula, Mesoamerica, and how it explains the diversity of ecological life zones found there. They will study the Chicxulub Crater and explain its current impact on water availability. Students will examine current and historic weather data from Mérida to pinpoint periodicity of major climate forces, like wet and dry seasons, frequency of hurricanes and droughts.

Readings:

Yucatán Peninsula: palynological evidence of environmental change. Boletín de la Sociedad Geológica Mexicana, 70(1)

Due: Report on Site Visit

Class 2.2 Workshop: Geological Climate Data & Current Weather Patterns

Discussion (graded participation): How environment sets the stage for culture and civilization

Site Visit Local Geology, Karst Topography, Evidence of Asteroid Impact, Cenote

Readings:


Due: Workshop Written Report

Weekly Quiz 1

Week 3

Class 3.1 Ancient Maya & their Relationship to their Environment

Students investigate how the Maya went from hunter-gathers to a major empire, while interacting with their natural environment. They will consider where agriculture took place, how farms, towns and cities formed, where trade routes developed and how this impacted the environment. They will see the challenges of little rain in many parts of the Mayan Empire and how Mayans coped.

Readings:


Class 3.2 Workshop: How Ancient Mayans Interacted with their Environment

Students will research and report to one another on how ancient Mayans used and cared for their environment. Discussion (graded participation) – Did the ancient Maya interact with their environment sustainably?

Readings:


Due: Essay on Site Visit

Class 3.3 Farming Methods
Students will compare different farming methods, including slash and burn, terrace and raised field farming and how local climate and geography dictated which was used. They see how farming led to considerable loss of soil and soil fertility, and how irrigation led to salinization. Students will explore plants available to Mayans and how this led to their diet and food preparation practices. They will explore how lack of livestock species meant considerable bush meat hunting and how that impacted local wildlife.

Due: Workshop Written Report

Weekly Quiz 2

Week 4

Class  4.1  Ancient Mayan Science & Technology

Students examine different science and technology of the Maya and how they changed Mayan culture. Students will look at medical science, as shaman, use of medicinal plants and bloodletting practices. They will examine the science behind ancient Mayan agricultural practices, like use of ground water, irrigation and selective breeding of cultivars. Site Visit: Mayan Ruin Dzibilchatlun: How Architecture Reflects Science and Culture.

Readings:


Watch:
The Maya - Engineering an Empire
https://www.youtube.com/watch?v=s151jVxpx2E

Class 4.2 Students Explore Ancient Mayan Astronomy

How it impacted agriculture, holidays, concepts of time, cosmology, religion and archeology. They will investigate Mayan chemistry and its application to daily life, including uses in art. Students will learn Mayan math, how to use and its use in the Mayan calendar, naming of children and cultural rituals. Students link technological advances and cultural advances within the ancient Maya, as well. Finally, students will explore what elements of ancient Mayan culture directed, enhanced and limited science and technological innovation.

Readings:


Class 4.3 Workshop

Using online resources, students research what ancient Mayans knew about different aspects of science and technology, including Mathematics, Astronomy, Architecture, Agriculture and others. Students will prepare a Powerpoint presentation on their findings and share them with the rest of the class.

Guest Speaker: Current Mayan contributions to science and technology
Discussion (graded participation): How did ancient Mayan science and technology inform their culture and interactions with their environment?

Readings:


Due: Essay on Guest Speaker's presentation

Due: Workshop Written Report

Weekly Quiz 3

Week 5

Class 5.1 Environment, Culture & Collapse

Students will see how human population growth, consumption and urbanization challenged Mayan culture. They will carefully examine evidence for and against the idea that the demise of the great Mayan civilizations were from an unsustainable relationship with the environment.

Reading:


Watch:


Class 5.2 Mayan Collapse & Disease
Students will consider other theories for the Mayan Empire collapse, including epidemic diseases, severe drought, foreign invasion, trade route collapse or an internal cultural collapse. They will explore how lack of livestock led to susceptibility to smallpox and other viral diseases once Europeans arrived. They will then consider how centuries between the Mayan collapse and European arrivals allowed for considerable ecological renewal.

Readings:


Watch:

Apocalypto (movie)

Class 5.3 Workshop on Why the Mayan Empire Failed

Students use online resources to investigate and evaluate theories for why the ancient Mayan empire failed. They share their findings with one another. They consider how Mayan science and culture were unable to cope with changing environment. Students also investigate the impact of European disease on Mayans during the colonial period. Students discuss if the ancient Maya use their environment sustainably?

Readings:


Due: Essay on Apocalypto: Environmental themes and accuracy of the film
Weekly Quiz 4

Week 6

Class 6.1 European Colonialism

Students investigate the impact of European on Mayan people, science and culture during the colonial period. They will explore the how europeans learned from the Maya at the same time dismantling much of their knowledge. Students will explore how our contemporary understanding of the ancient Maya is informed by the environment they transformed thousands of years ago.

Readings:

Baines, K. and Zarger, R.K., 2017. “It’s Good to Learn about the Plants”: promoting social justice and community health through the development of a Maya environmental and cultural heritage curriculum in southern Belize. Journal of Environmental Studies and Sciences, 7(3), pp.416-424, and


Class 6.2 Modern Mayan Culture

Students explore Mayan culture and society after the European arrival and disease. They trace major historic events from the early Colonial period until now, including how the Mayan relationship with the environment has changed along the way. They explore more recent events, like the Guatemalan civil war, Mayan genocide and Mayan separation/isolation. They go on to see how much of current Mayan culture is informed by the ancient, and how modern science and technology is changing the Maya, as well as their relationship with their environment. Finally, students see how modern society can learn from Mayan traditions and practices to help build a sustainable future.
Readings:


Class 6.3 The Future for the Maya

Guest Speaker: The contemporary Maya and their relationship to the Earth: religion, culture and science. Students will discuss current Mayan attitudes and their impacts on sustainability. Discussion (graded participation): Contemporary Mayan Culture and Environment

Due: Workshop Written Report

Weekly Quiz 5

Course Materials

Readings


Springer

Turner, B.L. II, Klepeis, P. and Schneider, L.C. (2003) Three millennia in the southern Yucatán peninsular region: implications for occupancy, use and carrying capacity. In: