MATH 307: TOPICS IN ELEMENTARY MATHEMATICS
Ethnomathematics Teaching: Exploring the connections between mathematics and culture in Ghana

Spring Course Abroad Program

READ THIS SYLLABUS CAREFULLY.
YOU ARE RESPONSIBLE FOR KNOWING THIS INFORMATION!

Instructor: Dr. Shelly M. Jones Phone: 860-832-2857
Office: Maria Sanford 312 EMail: jonessem@ccsu.edu
Office Hours: Mondays 12:30 – 1:30 pm
           Tuesdays 10 am – noon and 3 – 4 pm
           Wednesdays 12:30 – 1:30 pm
           Other times by appointment

Class Time: Selected Mondays (see schedule below), 3:05 – 4:20 pm
Class Location: Maria Sanford Room 214

Course Description: Students will study the topics of ethnomathematics and culturally relevant pedagogy. They will have opportunities to explore the history of education in Ghana, the mathematical contributions of the Ghanaiian culture to the field of mathematical sciences, and contemporary Ghanaiian culture. Students will participate in a cross cultural field experience in Ghana where they will conduct classroom observations as well as implement small-group instructional segments to Ghanaiian children.

Prerequisite: Can be used to meet requirements of a major or minor in mathematics only for students seeking elementary, early childhood or middle level certification. Not recommended for use in meeting certification requirements for secondary school mathematics OR Permission of instructor.

Credits: 3 credits. General Education

Goals of Course:
1. Students will demonstrate a basic knowledge of current research related to ethnomathematics and culturally relevant pedagogy.
2. Students will be able to plan and implement a grade-level math lesson.
3. Expose students to contemporary Ghanaiian culture and its place in the global political economy.
4. Increase students' understanding of Africa, in general and Ghana specifically in order to eliminate common stereotypical assumptions about Africa and its citizenry.
5. Deepen students’ critical knowledge of the various dimensions and events that shape Ghanaiian culture.

Course Requirements: Attend and participate in scheduled classes, complete research project, present research project, and submit research article.

University Policies:

A. If you need course adaptations or accommodations because of a disability, if you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible. My telephone number and office hours are given above.

B. In the event of a weather or other emergency curtailment or cancellation of classes, check the CCSU website, listen to WTIC (1080 AM) or call 860-832-3333 for any messages.

C. Academic integrity is the responsibility a student assumes for honestly representing all academic work. Cheating or plagiarism on any assignment will result in a grade of zero.

D. The last day to withdraw from the course is _____________. Cessation of attendance, notice to the instructor, or telephone calls to the Enrollment Center are not considered official notice of a student’s intention to withdraw from the course.

COURSE EVALUATION

1. Six-page double-spaced typed written ethnographic research paper based on literature review and primary research. (40 points)
2. Research presentation. (10 points)
3. Four-page double-spaced typed written reflective paper based on daily journal entries. The goal of the paper is to examine your personal growth and cross-cultural awareness. Students will keep a daily journal that highlights experiences and observations. (15 points)
4. Attendance and participation in daily discussions regarding events and activities; Prior to leaving, during the trip, and after the trip. (20 points)
5. Culturally relevant mathematics lesson plan and reflection. (10 points)
6. Online discussion after trip. (05 points)
TOTAL (100 points)

PREPARATION:
Topics must be determined in consultations with professor prior to departure. Prior to departure, students are expected to become familiar with Ghanaian culture through online sources and assigned articles and books. By the end of the course, each student will write a six-page research paper on a topic that was determined prior to departure.
Prior to departure, students are required to meet once a week and conduct research the other scheduled day of the week. The travel component will occur March 8 – 17, 2019. Students must attend ALL THE ORIENTATION SESSIONS which will occur during the once a week meeting times. Follow-up sessions will be held on campus after the travel component. Students will participate in an online discussion the week after returning and then will submit the four-page reflective essay. The week before final exams, students will present their research. The week of final exams, students will submit research papers.

Prior to leaving, students are required to daily read newspapers. The Ghanaian news may be accessed through www.allafrica.com or http://news.accra-mail.com/index.php. During the trip, students are expected to participate in all aspects of the program. Most evenings will be free time to enable students to interact with the local community.

While in Ghana, faculty of various disciplines from the University of Ghana and Ashesi University will give lectures on several topics. The lectures will introduce the participants to several themes including culture, politics, traditional religion, and education in contemporary Ghana. Other topics could include, the slave trade, pre- and post colonial Ghana, the role of women and its impact on the economy of Ghana, traditional medicine, mental health, the juvenile system, traditional festivals, African dance and music, and African film.

**Cultural Learning Activities**

These objectives will be fulfilled through a critical examination of the literature on the history of education, geography and economics of Ghana and a 10-day field study in Ghana.

This course gives students a global view of Ghana and its people and highlights the importance of studying African worldviews. Various facets of Ghanaian history and culture, including its economy, politics, education, and performing arts will be introduced to students.

The curriculum includes lectures by faculty from Ashesi University, and visits to the W.E.B. DuBois Center, Cape Coast Castle, and Makola Women's Market. The program will cover several themes including the following:

Ghana as Geographical site in Africa and the World. Students will study the geography of Ghana. They will explore how Ghana’s geography contributes to the global economy.

Ghana’s history prior Colonial contact Ghana’s history existed long before the Portuguese arrived on its shores.

Students will participate in a field experience in a Ghanaian school in Lolita.
Contributions to Global Political Economy: For millennia, Africa has interacted with the outside world. This interaction has facilitated many African contributions and exports to the world, such as agricultural products, minerals and other material goods, as well as knowledge and cultural expressions such as music and dance. This interaction has also allowed African societies to benefit from imports from the outside world, such as information and other technologies. Special emphasis will be given to Africa's contributions to and trade with North America.

Representations and Stereotypes of Africa: Popular images of Africa held by many citizens in the United States are based on stereotypes that offer fragmented, often inaccurate images of Africa. Throughout the prepared curriculum, we will be purposefully confronting stereotypes and misrepresentations of Africa that are popularly held by many Americans.

Ghana’s Captive and Colonial History:
Cape Coast/Elmina Castles: Students visit these famous buildings that are World Heritage Sites. Seeing the slave port first hand has a profound effect on most, as they see some of the horrors of the Trans-Atlantic slave trade for themselves. They also come to understand what happens when a nation with such an important history is too poor to protect its resources; and what happens when tourism and history converge.

Rural Life: Traveling through rural villages plays an integral role in the program, as it allows students to broaden their understanding of the different levels at which people in Ghana live. More importantly, the rural visits encourage students to develop an appreciation of what people do with the resources and choices that are open to them. They are encouraged to make forays into much smaller settlements and learn among other topics, issues that relate to education, traditional authority, gender roles, oral history, economic activities, religion, and healing practices.

Impact of “Economic Development”:
The Akosombo Dam: A trip on Lake Volta the largest man-made lake in the world created after the construction of the Akosombo Dam on river Volta takes students to a small island on the lake. Here, the students are able to assess the impact of hydroelectric dams on the local people. Entire villages and lands surrounding them have submerged under the water and virtually destroyed the agricultural economy of the people. The impact becomes obvious when students see children and adults begging for food, women displaying their wares on canoes and paddle from one house to the other. They also see children paddling to school using the river as others use the land.
STUDY ABROAD PROGRAM SCHEDULE

Friday, March 8: Travel day: Leave CCSU for airport.
Saturday, March 9: Arrive in Accra, Ghana
Afternoon – Accra City Tour
Evening – Group dinner
Sunday, March 10: Morning – Breakfast together then: Accra to Lolito

Field experience in Smile Child Academy in Lolito, Volta Region
Monday, March 11: Smile Child Academy – Observe Classes
Evening – Teacher Candidates plan lessons
Tuesday, March 12: Smile Child Academy – Teach lessons
Evening – Plan lessons to co-teach
Wednesday, March 13: Smile Child Academy – Co-Teach lessons
Evening – Free time
Thursday, March 14: Smile Child Academy – Observations
Evening – Debrief with Teacher Candidates
Friday, March 15: Morning – Sogakofe to Accra
Afternoon – Visit Kwame Nkrumah Mausoleum/DuBois Centre & Market Place)
Evening – On your own, Interaction with the local community (possibly university students)

Cape Coast Slave Castle Experience
Saturday, March 16: Early Morning trip to Cape Coast Slave Castle
Afternoon – Lunch & Program review
Evening – Check in at airport for departure

Sunday, March 17: Arrive back in U.S.

*Note – Costs include airfare, accommodations, fees for site visits and some meals.
Travel Vaccines (must have proof of yellow fever vaccine upon arrival)
Spring Schedule:

**Phase I: Pre-Departure On-campus Meetings**

On-campus class meetings will begin on Jan. 28 and end on March 4.
Contact Hours: 12.5

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<tr>
<th>Date</th>
<th>Topic/Activity for Class</th>
<th>Homework/Assignment</th>
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<tbody>
<tr>
<td>Jan. 28</td>
<td>Introductions, Review Syllabus, Answer questions</td>
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<tr>
<td>Feb. 4</td>
<td>CIE visit</td>
<td>Read assigned textbook chapters</td>
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<tr>
<td>Feb. 11</td>
<td>Presentations on Chapter readings</td>
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<tr>
<td>Feb. 18</td>
<td>NO CLASS – President’s Holiday</td>
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<tr>
<td>Feb. 25</td>
<td>Share research on Ghana</td>
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<tr>
<td>March 4</td>
<td>Present Culturally Relevant Math Lesson or Global Math Story Lesson</td>
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**Phase II: Travel Component**

**Friday, March 8:** Travel day: Leave CCSU for airport.

**Saturday, March 9:**
- Arrive in Accra, Ghana
- Afternoon – Accra City Tour
- Evening – Group dinner

**Sunday, March 10:**
- Morning – Breakfast together then: Accra to Lolito

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*Note – Costs include airfare, accommodations, fees for site visits and some meals.
Travel Vaccines (must have proof of yellow fever vaccine upon arrival)
The travel component of the Course Abroad will begin on March 8 and end on March 17. Contact Hours: 25

**Phase III: Post-Travel On-campus Meetings**

On-campus class meetings will begin on March 18 and end on May 6. Contact Hours: 7.5

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<tr>
<th>Date</th>
<th>Topic/Activity for Class</th>
<th>Homework/Assignment</th>
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<tbody>
<tr>
<td>March 18</td>
<td>Online informal discussion, share photos &amp; experiences</td>
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<tr>
<td>March 25</td>
<td>Meet to debrief trip</td>
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<tr>
<td>April 8</td>
<td>Trip Presentations</td>
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<tr>
<td>May 6</td>
<td>Research Presentation</td>
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<td>May 13</td>
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<td>DUE: Research Paper</td>
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**Total Contact Hours: 45**

**Tentitive Reading List:**

Culture of Ghana
- [http://www.loc.gov/rr/international/amed/ghana/resources/ghana-culture.html](http://www.loc.gov/rr/international/amed/ghana/resources/ghana-culture.html)
- [http://www.library.yale.edu/~fboateng/fbhp.htm](http://www.library.yale.edu/~fboateng/fbhp.htm)

Where is Ghana? What is its role in the world?
- [http://www.infoplease.com/ipa/A0107584.html](http://www.infoplease.com/ipa/A0107584.html)

Bruner, Edward 1996

Coe, Cati 2005

Gaines, Kevin 2006

Heath, Carla 1997

Pellow, Deborah 2001
Pellow, Deborah 2003  
New Spaces in Accra: Transnational House. City and Society 15(1) 59-86.

Reed, Ann 2004  
Sankofa Site: Cape Coast Castle and Its Museum as Markers of Memory.  

Ladson-Billings, Gloria. (Autumn, 1995). Toward a Theory of Culturally Relevant  

Tate, William, F. (Summer, 1995). Returning to the Root: A Culturally Relevant  
Approach to Mathematics Pedagogy, Theory Into Practice, Vol. 34, No. 3,  
Culturally Relevant Teaching, pp. 166-173, Taylor & Francis, Ltd.


'Oware': Sankofa. Teaching Children Mathematics, 7.6, 369-75.

Teaching Children Mathematics, 4.9, 502-03.

Optional Readings:

Krus, Jon 2002  
Capital Power and Business Association in Africa Political Economy: A Tale of  
Two Countries Ghana and Nigeria. The Journal of Modern African Studies  
40(3):395-436.

La Ferrara, Eliana 2003  
Kin Groups and Reciprocity: A Model of Credit Transition in Ghana. The  

Lawrence, Benjamin N. 2007  

Lentz, Carol and Paul Nugent 2008  
Ethnicity in Ghana: The Limits of Invention. New York:St. Martin’s Press.

Nkrumah, Kwame 1980  