UNC
WORLD VIEW

Scholar of Global Distinction Program

Course

Quantitative Literacy MAT 143

Authors

Amanda Davis (Forsyth Technical Community College)

Amanda Klinger (Davidson-Davie Community College)

Course Description

This course is designed to engage students in complex and realistic situations involving the mathematical phenomena of quantity, change and relationship, and uncertainty through project- and activity-based assessment. Emphasis is placed on authentic contexts which will introduce the concepts of numeracy, proportional reasoning, dimensional analysis, rates of growth, personal finance, consumer statistics, practical probabilities, and mathematics for citizenship. Upon completion, students should be able to utilize quantitative information as consumers and to make personal, professional, and civic decisions by decoding, interpreting, using, and communicating quantitative information found in modern media and encountered in everyday life.

Number of Students Enrolled in Course:

Maximum of 50 students between two classes

Module Description

This global module will focus specifically on the Southern European in the Mediterranean region. Students will learn dimensional analysis through international conversions and magnitude of numbers through economic data. They will also explore relationships and change in various types of data relevant to the region. From historical relics to contemporary media outlets, students will construct graphs and calculate measures of center and dispersion. Students will compare and contrast the financial situations in the United States and different countries in the region, with a focus on potential travel.

Student Global Learning Outcomes:

1. Engage in virtual discussions with students from the Southern European region to build cultural awareness.
2. Utilize technology to analyze data from countries in the Southern European region.
3. Demonstrate an understanding of the complexities of traveling to the Southern European region.

Global Learning Activities:

Instructor will introduce the countries of the Southern European region through media, research, and class map study. For all activities in the module, students will work individually or in groups.

- Activity One: Introduction to the region
- Activity Two: Virtual exchange
- Activity Three: Travel plan
- Activity Four: World data comparison
- Optional Activity: Study abroad

Activity 1: Introduction to the region of Southern Europe

Objectives:

Students will use various methods to research the prominent mathematicians and their contributions in the region. They will also be introduced to the geography, history, and culture of Southern Europe.

Procedures:

The instructor will provide a copy of a map of Southern Europe for the students to study and review. Students will have a short quiz to complete a blank copy of the same map to familiarize themselves with the geography of the region.

Students will have a google slides escape room to complete including the following:

- A matching activity between the picture and name of a mathematician and their country and major contribution to mathematics.
- A visual game to determine which countries might fit in a larger country.
- A page requiring students to find the population of 5 countries and comparing these using percent.
- Students will research the calorie count for two dishes from southern Europe and find the proportion of the daily recommended calories that the meal uses.

Resources:

- Southern Europe Maps
- Article- Top Ten European Mathematicians
- Serious Eats: European Recipe Reference
- Google slides activity for students

Introduction to Southern Europe Rubric	
	Points
Completing map of Southern Europe	20
Google Slide Assignment	
Matching mathematicians	15
Estimating area slides	30
Population comparison	20
Calorie research slide	15
Total Points	100

Activity 2: Building cultural competency through engagement with people from the Southern European region.

Objectives: Students will directly observe cultural differences while having conversations with various individuals from the region.

Procedures:

- Students will use the informal questions from the following list to establish personal connection and common ground with the other participants.
    1. What time are your classes offered in the day?
    2. What courses are you taking - specifically what math courses are offered?
    3. What is your favorite type of music or local artists?
    4. How far is your commute from your home to your school?
    5. How many hours of screen time do you have in a typical day?
    6. What is your favorite local meal?
    7. What is the average age of the students in your classes?
    8. How much time do you spend studying for courses per week?
    9. What do you typically do for fun?
    10. What sports do you participate in or enjoy watching?
- Students will develop an introductory statement including their day-to-day activities to share with the global participants and record as video to share with counterparts in Greece.

Follow-up and Assessment:

Students will write a brief personal reflection given informal prompts about the virtual conversations.

Virtual Exchange- Dimensional Analysis Rubric	
	Points
Video 1-Introductory statement of introduction (day to day activities)	10
Reflection on similarities/differences	20

Choose at least 7 questions from the resources provided	10
Video 2- Ask questions to students abroad	20
Convert answers and discuss	50
Total Points	100

Activity 3: Building cultural competency through a travel plan to a Southern European country.

Objectives:
Students will create a travel plan to a specific country in the region.

Procedures:
- Students will create a travel itinerary for a specific country including the length of stay, travel destinations, and travel specifics such as meals, lodging, ground transportation, and sightseeing tours using the travel website Wanderlog
- Students will calculate conversions for time, temperature, currency, distance, and liquid measure.
- Students will prepare a packing list based on relevant weather data, cultural specifics, and travel length.
- Reflection questions:
  - Does your budget exceed a reasonable amount for a vacation? Explain.
  - You will experience jet lag on this trip. When you land in your destination, what time will your internal clock think it is? What time will it actually be?
  - How much currency will you need to purchase in your destination country to travel? How much will this cost in US dollars?
  - What will the average temperature be in your destination country during your travel dates in both Fahrenheit and Celsius degrees? How does that compare to the US temperature?

Follow-up and Assessment:

- Students will engage in peer review and discussion of presentations.
- Students will write a personal reflection on their experience.

Travel Plan Rubric	
	Points
Create specific itinerary for 9 travel days	25
Travel destinations	
Meals	
Lodging	
Ground Transportation	
Sight-Seeing tours	
Calculate conversions	40
Packing list	15
Peer review/discussion	10
Personal reflection	10
Total Points	100

Activity 4: Building global competency through the use of global data.

Objectives:

Students will compare and contrast relevant population and immigration data between Greece and the United States. Students will consider variables that might have a linear relationship with life expectancy and consider the data within five major cities in each country.

Procedures:

- Instructor will share the following articles with students to preview ahead of class. Several videos from the resources will be shown during class to understand firsthand accounts of immigration to both Greece and the United States.

    Stories of immigration to the US

    Stories of Immigration to Greece

- Students will examine the life expectancy of the countries.
- Students will collect data on the change in population for Greece and the United States over the past ten years.
- Students will use online tools to display data and look for patterns.
    Follow-up and Assessment:

- Students will create a google presentation for their graphical analysis. LINK
- The last slide of the presentation will be a reflection on the project.

Global Data and Immigration Rubric	
	Points
Google slide project	
Definitions	10
Video Analysis	10

Grecian population research with time-series graph	30
Immigration comparisons	20
Finding absolute and relative change of population	20
Reflection	10
Total Points	100

Optional Activity: Building cultural competency through study abroad to a Southern European country.

Objectives:
Students will travel to a Southern European country with a sanctioned study abroad program at their institution.

Procedures:
- This trip will take place during or immediately following the course.
- The program will include a nine-day excursion to a Mediterranean country in Europe for cultural immersion.

Follow-up and Assessment:
- Students will have a travel journal with daily reflection questions.
- Students will create a video individually or as a group sharing their experiences.

Resources and references used in the creation of the module (e.g., books, articles, etc.)

- https://www1.cuny.edu/sites/global/facultystaff/coil-collaborative-online-international-learning/
- https://www.cia.gov/the-world-factbook/
- https://www.gapminder.org/
- https://mathigon.org/
- https://www.nationmaster.com/country-info/compare/European-Union/United-States
- https://www.worldometers.info/world-population/
- https://data.worldbank.org/indicator/SP.DYN.LE00.IN
- https://www.travelriskmap.com/#/planner/map/medical
- https://ourworldindata.org/covid-vaccinations