Internationalizing the Curriculum Project
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CHM138 Chemistry for Allied Health—3 Credits

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- Course Description: Students study the chemistry of caves that are found through out the world. A few examples of various types of caves are lava caves, sea caves, ice caves, and solution caves. Such caves are found on exotic islands such as the British Island of Staffa and in countries such as Capri, Italy, Japan, Korea, Kenya etc. Students form teams and pose as chemists, mathematicians, and cave explorers. Each team is provided with a few essential tools and some money in US dollars. They pretend to spend 2 weeks in a foreign land and obtain information with respect to many aspects of this new country. A final report is submitted to a hypothetical Ministry of Tourism and Information.
- Required Text: *Elements Of General, Organic, and Biological Chemistry, John R. Holum*

International Component Summary

Content Areas Which Include International Material/Components

Acids and bases, Equilibrium reactions, Role of water as a solvent, acid and base strengths, p_H and acidity in rain water

Description of Supplemental Material and How Integrated in Course

Internet: Resources for information on caves and its locations http://www.pbs.org; http://www.acs.org and http://www.amazingcaves.com are some examples

Special Assignments and Activities

A typewritten term paper was submitted electronically.
Project was posted on the Blackboard class website
Discussions were held for 2 hours on cave formation and the role of chemistry in cave formation
Active learning through team carousel discussions
Introduced writing in CHM138 curriculum
Introduced diversity in CHM138 curriculum

Successess and Special Challenges

Successes: Student participation and active learning; research in library helps broaden the scope and knowledge of students instead of mere textbook information
Challenges: Intense nature of the course added time constraints

Tips/Suggestions to Instructor

More active learning techniques; a poster session; invite a speaker and have classroom discussions with the speaker

INTRODUCTION
CHM 138, CHEMISTRY FOR ALLIED HEALTH

The project involves the study of caves and the role of acid-base chemistry in cave formation. Caves are found throughout the world. There are various types of caves such as solution caves, lava tubes, sea caves, ice caves etc. Caves are found on exotic islands such as the British Island of Staffa and in countries such as Capri, Italy, Japan, Korea, Kenya etc. Your team must explore interesting topics such as preservation and restoration of cave art and cave culture. The project is of collaborative nature and you should work in teams. In each team, students perform roles such as those of chemists, mathematicians and cave explorers. Each team will be asked to (virtual) tour 2 weeks in a foreign country and obtain information with respect to many aspects. Each teams is required to submit a detailed report of their exploration to the Ministry of Tourism and Information (the instructor, in the present case). There is no page limit to this report. The report must be double spaced, in Times New Roman font, font size 12 or 14.

The students research the country also with respect to its customs & traditions, important holidays, important personalities, culture, cuisine, language, wildlife, plant life, currency, people etc. They also must comment on cave art and pollution such as acid rain. They also should investigate whether any efforts were taken towards art restoration in the cave.

CHM 138 TERM PAPER

ROLE OF CHEMISTRY IN CAVES

The requirements of the project are listed below.

1. Choose a name or logo for your team. (5 points)
2. Choose a cave in a country other than United States. (5 points)
3. Research the country with respect to its customs & traditions, important holidays, important personalities, culture, cuisine, language, wildlife, plant life, currency, people etc. (10 points)
4. Study the formation of the chosen cave. (Outline the important chemical processes that led to the formation of this particular cave.) (20 points)
5. Did an explorer discover the cave? If yes, who was it? (2 points, if applicable)
6. Is it open to public? (2 points, if applicable)
7. Name any TWO characteristic features of the cave. (5 points)
8. If possible, obtain a picture of the cave (from a book or Internet). Scan the picture or copy it as an image. Make sure you acknowledge the source appropriately. (5 points)
9. Comment on the cave art in the chosen cave. Does it reflect on any particular historical event or tradition of the country? (5 points, if applicable)
10. Is there any effort towards art restoration in the cave? (5 points, if applicable)

If points from steps 5, 6 and 9 are not applicable, these 14 points will be redistributed as follows.

Step 3 17 points

Step 4 27 points

The project report must be typewritten and submitted electronically as an attachment. Your project will be posted on Bb website of CGCC for future classes. (Remember - You have to scan images with appropriate references.) Make sure that you acknowledge all team members and sources of reference.