



KIIS Greece, Winter 2024-2025

CHEM 475 Chemistry and Art in Greece for Science Majors

Instructor: Dr. Rosalynn Quiñones

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Instructor's office hours: on-site and by appointment

Syllabus subject to change

1. Course Description:

This 3-credit course is designed for science majors. We will study the interaction between chemistry and art in a study abroad experience in Greece. Daily activities will consist of field trips to museums, art galleries, other geographical features, and “hands-on” experiences. In lectures and discussions, we will examine some basic principles of light, color, and chemistry. These principles will be used to investigate artists' materials including pigments, dyes, binders, solvents, varnishes, and native metals used by the Greeks. In ancient Greek art, the philosophers held a theoretical view of color and art while the artists were more pragmatic in their production of art. Following this introduction, causes of deterioration will be explored. Scientific methods to analyze works of art including microscopic analysis and techniques using X-rays, ultraviolet, and infrared light will be introduced. Finally, conservation and restoration topics will be addressed with a particular focus on clay, pottery, ceramics, and metals in Greece. Another important topic that will be discussed in Greece is the beginning of chemistry in Greece such as the naming of the compounds, the periodic table, and the atoms which was an idea from the ancient Greeks.

2. Overall KIIS Program Student Learning Outcomes:

KIIS Study Abroad Mission Statement:

KIIS provides high-quality education abroad programs for students from all diverse backgrounds that promote deep international learning, are integrated into the curriculum, and encourage critical and creative thinking. Our goal is to help students understand the wider world and develop personal and professional skills for lifelong enrichment. We strive to go beyond generalizations and cultural stereotypes to help foster a nuanced appreciation of the world in which we live.

Students participating on KIIS study abroad programs aim to:

- 1) Understand contemporary issues of their host country/countries (i.e. KIIS program location).
- 2) Develop skills to interact comfortably in a global setting.
- 3) Understand other cultures.

Prior to your KIIS study abroad program, and again at the conclusion of your program, KIIS will ask each student to a) answer a few multiple-choice questions, and b) write a short reflective essay (two paragraphs in length) related to the elements detailed above. There is no right or wrong answer, and your responses will not affect your grade in any way. The purpose of the exercise is to help KIIS measure the effectiveness of its study abroad programs.

3. Course Objectives and Specific Learning Outcomes:

1. Students will acquire a deep experience in chemistry and other relevant areas of science.
2. Students will develop a basic understanding of analytical issues concerning chemistry and how it can be related to art including metals, clay, and ceramics.
3. Students will obtain, utilize, and assimilate information from the body of work known as chemical literature.
4. Students will exploit different types of art renovations including destructive and nondestructive techniques.
5. Students will consider the beginning of chemistry in Greece such as the naming of the compounds, the periodic table, and the atoms which was an idea from the ancient Greeks.
6. Students will compose a document about art restoration in Greece; its chemistry, restoration techniques, and proper procedures

4. Major Topics covered in the Course:

TENTATIVE SCHEDULE

Lecture 1: Beginning of chemistry

Lecture 2: Properties of light and color including color mixing

Lecture 3: Atomic structure and Periodic table

Lecture 4: Naming metals and their compounds including naming compounds

Lecture 5: Materials used in art such as Ceramics and polymers

Lecture 6: Techniques used for cleaning works of art

Lecture 7: Case studies of art restorations



pubs.rsc.org

[*Class will include additional group excursions listed on KISS website*](#)

Online Resources:

<https://edu.rsc.org/resources/collections/chemistry-and-art/ancient-greek-art>

Changes Disclosure:

The included schedule of class assignments and events is tentative and subject to change. Any changes announced during the program supersede the contents of this outline. When possible, two days' notice will be given when a date for a graded assignment is changed. It is **always** the student's responsibility to keep abreast of changes to the syllabus.

5. Fulfillment of General Education Requirement: This course fulfills the science requirement for Marshall University and may do the same at other schools. The course may also be taken for science major credit (please contact the professor for science major requirements).

6. Required Readings and Materials:

Study Material

Required readings and PowerPoints will be made available electronically and in hard copy. Readings must be completed by the dates given in the syllabus.

A WebSpace *OneDrive* will be utilized in this class. Please check your *OneDrive* regularly before leaving to Greece. Your homework, resources, useful websites, grades, and announcements will be posted there.

Textbooks:

Students will be expected to read the following books (or e-books) before and during the study abroad experience. The science textbooks (1, 2) were written for conservators who have no prior chemistry training. These books can be found in Amazon:

1. The Conservation Unit of the Museums and Galleries Commission. *Science for Conservators Vol. 1: An Introduction to Materials*, 2nd ed.; Routledge: New York, 1992.
2. The Conservation Unit of the Museums and Galleries Commission. *Science for Conservators, Vol. 2: Cleaning*, 2nd ed.; Routledge: New York, 1992.

7. Graded Assignments:

Journal Assignment. Each student must complete daily Journal Reflections (starting from the day of your travel to Greece) each of approximately one page. Journal Reflections must draw connections between scientific and art ideas. The final reflection, due before the departure from the airport, is to explore how the course will help individuals to better understand the relationship between science and art. Daily journaling will be based on key features and concepts; these will range from observation to responding to an experience. This journal will be part of the assessment of this course. The Journal Questions are keyed to the travel experience and connect the course material to the site visit experiences. Questions focus on the relevance of art for the scientists at the time and, where relevant, to the current culture. The journals will be handed in for grading at the beginning of the longer bus trip and promptly returned to provide feedback. Students will need to buy a composition notebook to make class annotations before departure from the USA.

Class Assignments. Class assignments will be given daily assignments to complete before the lecture. Either worksheets, presentations, answering questions with short answers, or math questions will be utilized to assess your knowledge of the class topics.

Participation. Group discussions will be scheduled daily to ensure active learning for all students. Students are expected to attend every class and participate in out-of-class activities as directed by the instructor. Attitude: students must be willing to remain open-minded to cultural differences. In-class participation and participation in the field trips are highly recommended.

Instrument Oral Presentation. Students are required to give an oral presentation about an instrument that is commonly used for art conservation either nondestructive or destructive. This presentation will evaluate presentation skills, oral skills, critical thinking, ability to handle questions, explanation of the instrument, and audience engagement. (5 – 7 mins presentation)

Final Paper and Oral Presentation. At the end of the term, each student will be required to present an in-depth case study of a recent art restoration (paint, ceramic, etc) in both an oral presentation (10 – 12 mins presentation) and a written report (8 to 10 pages report).

Course Point Allocation	
Daily Journal	150 pts
Class assignments	450 pts
Student Attitude/ Participation	50 pts
Instrument oral presentation	50 pts
Final paper and oral presentation	200 pts
Total	900 pts

Grade Scale

Grade Chart	
100-90 %	A
89-80 %	B
79-70 %	C
69-60 %	D
59-0 %	F

8. Attendance Policy:

KIIS program participants are expected to be punctual to and in attendance at all classes, presentations, meetings, and required excursions, and to remain with the program for the full academic period. Unexcused absences from classes and/or mandatory meetings will result in a lowering of the student's final grade, as will excessive tardiness. Multiple unexcused absences could result in expulsion from the program. Any absence from an academic class session must be excused for medical reasons.

9. Disability Accommodation:

KIIS will make every reasonable effort to provide accommodations for program participants with special needs or disabilities, but we cannot guarantee that we will be able to do so. Be aware that many foreign countries do not have comprehensive legislation comparable to the Americans with Disabilities Act (ADA). As a result, businesses and other establishments operating in foreign countries may not be able to provide accommodations.

If you have a disability accommodation need, we recommend you contact your KIIS Campus Representative, <https://www.kiis.org/about-kiis/contact-us/campus-representatives/> early in your program selection process so that s/he has time to discuss any specific needs, including which KIIS programs may be best suited. You also are welcome to contact KIIS Assistant Director, Maria Canning, maria.canning@wku.edu, to discuss your disability accommodation needs (e.g. housing, transportation, excursions, class schedule, etc.).

Immediately after acceptance, notify KIIS Assistant Director, Maria Canning, or KIIS Admissions and Enrollment Specialist, Haley McTaggart, haley.mctaggart@wku.edu, if you have a special need or disability that might require any form of accommodation abroad. Failure to notify KIIS may prevent you from participating on your KIIS program.

If you require any accommodations abroad, you must provide KIIS Assistant Director, Maria Canning, or KIIS Admissions and Enrollment Specialist, Haley McTaggart, an accommodation

letter from your home campus' disability accommodation office that lists the accommodations you are eligible to receive. Please do not request accommodations directly from your KIIS Program Director or other KIIS Faculty; the KIIS Office will notify your KIIS Program Director and/or Faculty after we have received your above accommodation letter.

In some cases, you may need to make arrangements for a caregiver to join you on your KIIS program, should your physician, campus disability accommodation office, or KIIS make such a recommendation or require it.

10. Title IX / Discrimination & Harassment:

Recent attention to gender discrimination and sexual harassment at colleges and universities reminds us of the importance of adhering to standards of ethical and professional behavior. KIIS Study Abroad is committed to supporting and encouraging safe and equitable educational environments for our students, faculty, and program directors. Students, faculty, and program directors are required to be civil and treat each other with dignity and respect. As such, harassment and/or discrimination of any kind will not be permitted or tolerated.

Sexual misconduct (sexual harassment, sexual assault, and sexual/dating/domestic violence) and sex discrimination are violations of KIIS policies. If you experience an incident of sex/gender-based discrimination, harassment and/or sexual misconduct, you are encouraged to report it to a) KIIS Assistant Director, Maria Canning (+1-859-200-1000) or KIIS Executive Director, John Dizgun (+1-270-227-2288), b) WKU's Title IX Coordinator, Ena Demir (270-745-6867 / ena.demir@wku.edu) or WKU's Title IX Investigator, Michael Crowe (270-745-5429 / michael.crowe@wku.edu). Please note that while you may report an incident of sex/gender based discrimination, harassment and/or sexual misconduct to a KIIS program director and/or faculty member, KIIS program directors and faculty are considered "Responsible Employees" of Western Kentucky University and MUST report what you share to WKU's Title IX Coordinator or Title IX Investigator.

If you would like to speak with someone who may be able to afford you confidentiality, you may contact WKU's Counseling and Testing Center, <https://www.wku.edu/heretohelp/> at 270-745-3159.

For more information on KIIS Title IX, see <https://www.kiis.org/students/health-safety/title-ix-clery/>; additional Title IX resources can be found here <https://www.wku.edu/titleix/titleixbrochure2020.pdf>.

Everyone should be able to participate on a KIIS program, attend a KIIS event, or work in a KIIS environment (e.g. KIIS office) without fear of sexual harassment or discrimination of any kind. Be respectful of each other.

11. Academic Honesty Policy:

Cheating, plagiarism (submitting another person's material as one's own) or doing work for another person which will receive academic credit are all impermissible. This includes the use of unauthorized books, notebooks, or other sources in order to secure or give help during an examination, the unauthorized copying of examinations, assignments, reports, term papers, or

the presentation of unacknowledged material as if it were the student's own work. Disciplinary action may be taken beyond the academic discipline administered by the faculty member who teaches the course in which the cheating took place.

12. A Warning:

Please be aware that some of the material in this class may trigger disturbing thoughts or memories. Many of the works of art are explicit or nudes. Please feel free to step out of class if you feel uncomfortable or threatened.