

QUEENSBOROUGH COMMUNITY COLLEGE
CHEMISTRY DEPARTMENT

COURSE OUTLINE

CH-103

CHEMISTRY AND THE ARTS

TEXT:

CHEMISTRY AND ARTISTS' COLORS

By: Orna M. V., Goodstein, M.P.

2ND Edition

Pre-requisites: None

Hours: 3 class hours per week

3 Credit

Course Description:

This course offers a general background in the correlation between Chemistry and the Arts for students whose interests are at the interface of the two disciplines. The unique feature of this course is that the lecture covers the theoretical foundation of the chemical processes pertinent to the technique artists routinely employ in their trade.

Students who successfully complete this course will have a fundamental understanding of their methodology and the materials they use. Another important aspect of this course is that students will be introduced to the science of art preservation, which has become a very important part of their artistic activities. Lectures and class demonstrations are intended to introduce non-science majors to the relevance of chemistry.

Curricula for which the course is required/recommended:

This course is required for the proposed Program in Gallery and Museum Studies. This course is recommended for the students in Digital Arts and Design program and satisfies the laboratory science requirement for the A. A. degree. This course may not be used as part of the mathematics or science concentration in A. A.S.

General Education Objectives:

Use analytical reasoning skills and apply logic to understand the scientific study of materials used in the construction of works of art. Integrate knowledge to qualitatively and quantitatively understand the connection between chemistry and the arts. Identify the problems and use scientific methods learned in the course to find solutions in everyday life.

Course Objectives/ Expected Student Learning Outcomes:

Students are introduced to the relevance of chemistry as well as a fundamental understanding of the materials used in art. Students become knowledgeable in how to properly and safely handle potentially hazardous chemicals that artists use in their daily operation.

Methods by which student learning will be evaluated:

The general guidelines for assessing grades are as follows:

- Examinations, Assignments and Classroom Performance 50%
- Final Examination 30%
- Oral Presentations 20%

The distribution may be changed at the discretion of the individual instructor.

Accommodations for students with disabilities:

Any student who feels that he/she may need an accommodation based upon the impact of a disability should contact the office of Services for Students with Disabilities in Science Building, room 132 (718-631-6257) to discuss his/her specific needs and to coordinate reasonable accommodations for documented disabilities. Students should also contact their instructor privately to discuss their specific needs.

Academic Integrity:

Academic honesty is taken extremely seriously and is expected of all students. All assignments must be the original work of the student (and partners or group, if applicable). All questions or concerns regarding ethical conduct should be brought to the course instructor. "It is the official policy of the College that all acts or attempted acts that are violations of academic integrity be reported to the Office of Student Affairs (OSA). At the faculty member's discretion and with the concurrence of the student or students involved, some cases, though reported to the OSA, may be resolved within the confines of the course and department. The instructor has the authority to adjust the offender's grades as deemed appropriate, including assigning an F to the assignment or exercise or, in more serious cases, an F to the student for the entire course." (Taken from the QCC Academic Integrity Policy, 2/14/2005.)

Attendance/Absence Policy

Attendance will be taken at every class. The Student Handbook states that you will be considered excessively absent from a course and will receive a WU grade if you have been absent for 15% or more of the total number of contact hours for your course. A WU is computed as an F in your GPA.

Students who have valid excuses for missed classes should speak with their instructor and present documentation explaining the reason for the absence. Absences that have been excused by the instructor will not be counted toward a WU grade.

- **If your class meets twice per week:** you will receive a grade of WU if you have a **total of 7 or more** excused and/or unexcused absences.
- **For any lecture that meets only once per week,** you will receive a grade of WU if you have a **total of 4 or more** excused and/or unexcused absences.

Chemistry and the Arts (CH-103)

LECTURE SCHEDULE

<u>CHAPTER</u>	<u>TOPIC</u>	<u>HOURS</u>
1 – 2	Introduction to the course; Introduction to Light and Color	3
3; 4	Visible Light; Bending of Light	3
5; 6; 9.5	The Electromagnetic Spectrum; White Light; Spectra of Light Sources; Luminous Vs Illuminated Objects	3
10; 11; 12	Spectra of Illuminated Objects; Subtractive Vs Additive Color Mixing and Primaries	3
7 - 8	Introduction to Matter and Energy; Atoms and Elements; Excited Atoms; Energy Level and Color	3
	Student Presentation	1
13; 14; 15	Chemical Symbols Formulas, Equations; The Periodic Table	2
	First Exam	1
16	Bonding: Covalent vs. Ionic; Molecules and Compounds: Organic Chemistry; Colored Compounds	2
17	Dyes and Fibers; Dye Adhesion and Mordants; Natural Dyes Indigo, a vat dye; Fiber-Reactive Dyes	3
18	Artists' Pigments and Commercial Pigments	3
19	Paints and Binding Media-Oil, Acrylics, Tempera, Water Colors; Gouache paints	3
	Second Exam	1
20; 21	Black and White and Color Photography	2
22; 23	Ceramics, Glasses, and Glazes Hazards of Artists' Materials	3
Hand-outs	Art Conservation: How scientists preserve and Restore art objects; Authentication of Art Objects Some Famous Forgeries Detected using Chemistry	3
	Final Exam	3