

**STATE UNIVERSITY OF NEW YORK
COLLEGE OF TECHNOLOGY CANTON, NEW YORK**



**COURSE OUTLINE
FSAD 115 THANATOCHEMISTRY**

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FSAD Program Director**

**SCHOOL OF SCIENCE, HEALTH, AND CRIMINAL JUSTICE
FUNERAL SERVICE ADMINISTRATION**

Created: February 16, 2017

FSAD 115 Thanatochemistry

- A. **TITLE:** Thanatochemistry
- B. **COURSE NUMBER:** FSAD 115
- C. **CREDIT HOURS:** 2
- D. **WRITING INTENSIVE COURSE:** No
- E. **COURSE LENGTH:** 15 weeks
- F. **SEMESTER(S) OFFERED:** Fall
- G. **HOURS OF LECTURE, LABORATORY, RECITATION, TUTORIAL, ACTIVITY:** 2 hours lecture per week.
- H. **CATALOG DESCRIPTION:**
- This course provides a survey of the basic principles of chemistry as they relate to Funeral Service. The focus is on the chemical principles and interactions involved in sanitation, disinfection, public health, and embalming practice.
- I. **PRE-REQUISITES/CO-COURSES:**
- Pre-requisite: Enrollment in the Funeral Services Administration program, or instructor approval.
- J. **GOALS (STUDENT LEARNING OUTCOMES)** at the end of this course the student will:

<u>Student Learning Outcomes (SLO)</u>	<u>Institutional SLO</u>
a. Define the potentially harmful chemicals used in the preparation by listing the major hazardous chemicals involved in preservation of human remains and how they affect the funeral service practitioner	4. Professional competence
b. Be able to describe the function and purpose of the major composite chemicals used in arterial, cavity, and accessory fluids.	4. Professional competence
c. Explain the modes of preservation and decomposition of carbohydrates, proteins, and lipids.	2. Communication 4. Professional competence

e. Explain the proper precautions and storage techniques used in the storage and use of standard chemicals in the preparation room.	2. Communication 4. Professional competence
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K. **TEXTS:**

Professional Trade Schools (2015). *Thanatochemistry*. 1st Edition. Dallas, Texas
Dorn, James M. (2009) *Thanatochemistry: A Survey of General, Organic, and Biochemistry for Funeral Service Professionals*. 3rd Edition. Pearson
Mayer, Robert G. (2011) *Embalming: History, Theory and Practice 5th Edition*. Mc-Graw Hill Education

L. **REFERENCES:** Periodic Table; Trade Chemical Companies materials on fluids; Dr. Taggart's review manual.

M. **EQUIPMENT:** Extron equipped classroom

N. **GRADING METHOD:** A – F

O. **MEASUREMENT CRITERIA/METHODS:**

Quizzes, written assignments, mid-term and final exam.

P. **COURSE OUTLINE:**

- I. Introduction to Chemistry
 - a. Definition of Chemistry
 - b. Types of Chemistry
- II. Properties of Matter & Chemical Bonding
 - a. Definition of Matter
 - b. States of Matter & Their Properties
 - c. Physical & Chemical Changes
- III. Elements, Compounds, & Solutions
 - a. The Periodic Table of Elements
 - b. Common Elements in Embalming & their use.
 - i. Atoms & Ions of an element
 - c. Compounds & Mixtures
 - i. Differences between a compound & mixture.
 - ii. Properties of compounds.
 - iii. Molecules of a compound
 - d. Mixtures
 - i. Solvents & Solutes
 - ii. Homogenous vs Heterogenous
 - iii. Expressing Concentration
 - iv. Diffusion
 - v. Osmosis
 - e. Water
 - i. Universal Solvent

- ii. Hardness & effect on embalming
- IV. Organic Chemistry & Compounds
 - a. Definition of Organic Chemistry
 - b. Definition of Inorganic Chemistry
 - c. Common Organic Compounds used in Embalming
 - d. Chemical Formulas of common organic compounds
- V. Embalming Chemistry and Fluids
 - a Biochemistry
 - i Composition of Human Body
 - 1 Carbohydrates
 - 2 Lipids
 - 3 Proteins
 - b Preservation Actions
 - i. Formaldehyde
 - ii. Alcohols
 - iii. Carbolic Acids
 - iv. Determining Formaldehyde Demand
 - v. Determining ideal solution
 - vi. Determining Concentration of arterial Solution
 - 1 Dilution equation $C*V=C1*V1$
 - c. Decomposition Chemistry
 - i. Autolysis
 - ii. Hydrolysis
 - iii. Definitions of decomposition
 - 1. Fermentation
 - 2. Putrefaction
 - 3. Decay
 - d Embalming Chemicals
 - i. 4 Major types
 - 1. Arterial
 - 2. Cavity
 - 3. Supplement
 - 4. Accessory
 - ii Components of arterial solution
- VI. Other Potentially Hazardous Chemicals
 - a. Comprehensive list review in Embalming book & chemistry book.
- VII. OSHA and HAZCOM
 - a. OSHA Overview
 - i. Founding
 - ii. Purpose
 - b OSHA Rules & Standards
 - i. Hazard Communication Standard
 - ii. Formaldehyde Rule
 - iii. Bloodborne Pathogen Rule
 - iv. Needlestick Protection Act
 - c. Hazard Communication Standard

- i. Training Requirements
- ii. Safety Data Sheets (HAZCOM 2012 Update)
- iii. Labeling requirements
 - 1. Immediate use exemption.
- d. Formaldehyde Rule
 - i. Training requirements
 - ii. Air testing requirements
 - 1. STEL
 - 2. TWA
 - iii. Concern/Violations
 - 1. Compliance
 - 2. Action Level
 - 3. Non-Compliance
 - iv. Remedies to Non-Compliance
 - 1. STEL
 - 2. TWA
 - v. Signs of Formaldehyde Exposure
 - vi. Medical Observation & Removal

Q. **LABORATORY OUTLINE:** N/A

Revised (2/16/2017)