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
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:

<table>
<thead>
<tr>
<th>Student Learning Outcomes (SLO)</th>
<th>Institutional SLO</th>
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<tr>
<td>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</td>
<td>4. Professional competence</td>
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<tr>
<td>b. Be able to describe the function and purpose of the major composite chemicals used in arterial, cavity, and accessory fluids.</td>
<td>4. Professional competence</td>
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<tr>
<td>c. Explain the modes of preservation and decomposition of carbohydrates, proteins, and lipids.</td>
<td>2. Communication</td>
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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

K. TEXTS:

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. Putrefraction
           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

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)