

Applied Toxicology

G6635 ESH 331

Spring 2006

Dr. Sharon D'Orsie

JMC 242: Tuesdays January 17- May 9, 2006

1 PM- 6:45 PM: lecture + laboratory + dinner break

Dinner Break will be from 4:30 to 5:30 PM. In general, Dr. D. will eat at the Brooks Dining Hall, and is happy for company. Commuting students can eat dinner for \$7.75 for cash, and \$6.75 "Husky Bucks", on your USM card. You may also bring your meal, and eat at the JMC, or go somewhere else. ☺

Office Hours: Monday noon- 3 PM, or by appointment 780-5552

Home: 839-2733; Cell: 653-7690

106 Bailey Hall

smdorsie@usm.maine.edu

This course introduces students pursuing careers in environmental science, engineering and safety to the basics of organic chemistry and the basics of toxicology. Organic chemistry emphasis includes prevalence, identification, and nomenclature. Toxicology concepts include dose-response, target organs, and biological mechanisms. Emphasis is on how to use, understand, and interpret readily available public information in the toxicological literature.

Learning objectives:

- Name organic chemical compounds
- Describe characteristics for chemical families
- Understand toxicological principles, for example: dose-response, acute versus chronic disease/condition and target organ effects.
- Access and apply toxicological literature

Text: Required:

Klaasen, C.D. and Watkins, J.B. (ed.) *Casarett and Doull's Essentials of Toxicology* (2003) New York: McGraw-Hill, Inc.

ISBN: 0-07-138914-8

Dr. D's Rules of the Course:

1. I expect you to be in class, and participate. In the unlikely event that I must miss class, I will do everything within my power to let you know in advance of the class. I expect the same courtesy.
2. Work is due on a class day. If you fail to turn in your work, I will accept it in my ESP mailbox up until 4 pm on Thursdays, but you will lose a point.
3. Do not send me work electronically, unless you are really in a horrible pickle and a jury would judge it "cruel and unusual punishment" for me not to receive it. Because I will lose it in the electronic jungle.
<Being in traction for a skiing accident is one example of a qualifying event.>

Schedule: subject to change due to weather, guest speakers and van availability

Tuesday January 17:

Class introductions

Review of syllabus and schedule

Topic of the day: Saturated hydrocarbons:

- Bonding
- Derivatives
- Alkanes
- Structural formulas and isomerism
- IUPAC naming
- Physical properties
- Chemical properties

Class lab: exercises on formulas with partner

<Due at the end of class>

Tuesday January 24:

Unsaturated hydrocarbons

- Alkenes and cycloalkenes
 - Names
 - Isomerism
 - Physical properties
 - Chemical properties
- Alkynes

- Aromatics
 - Names
 - Physical properties
 - Chemical properties
 - Fused ring

Class lab: exercises with partner on formulas

<Due at the end of class>

Distribute Rubric for Field Trip Reports

Tuesday January 31: Field trip to the Joint AIHA/ASSE Meeting

Tuesday February 7: *Exam on Saturated and Unsaturated Hydrocarbons worth 15 points*

Had in Field Trip Report: Joint AIHA/ASSE meeting for 5 points

Lecture on Principles of Toxicology (Read Chapter 2 and 3 of your Text following the lecture)

Library orientation for “the Best of Toxicology”

Tuesday February 14: *Exam on Principles and Mechanisms of Toxicology for 15 points*

Class lab: using and understanding a Material Safety Data Sheet

Investigating an old chemistry set

Distribute rubric for class results due 2/28 for 5 points

Tuesday February 21: Winter Break: no class

Tuesday February 28: Alcohols, Phenols and Ethers; Aldehydes and ketones

- Bonding
- Structure
- Nomenclature
- Properties

Class lab: Exercises with partner on formulas

Hand in Lab results/report from February 14 for 5 points

Receive rubric for Assignment on Target Organ Toxicity (10 points)

Skim Unit 4 on “Target Organ Toxicity”

Tuesday March 7: *Exam on Alcohols, Phenols, Ethers, Aldehydes and Ketones for 10 points*

Lecture on Carboxylic acids, esters, amines and amides
Class worktime on Assignment for Target Organs

Tuesday March 14: Guest speaker: Dr. Anthony Tomassoni: Medical Director of the Northern New England Poison center, the regional poison center serving Maine, NH and Vermont. He is board certified in both Emergency Medicine and Medical Toxicology.

Read chapters 31, 32 and 33 in anticipation. Note: this preparation and session will help you with the “plan a murder” assignment.

Class presentations on Target Organ Toxicity (10 points)
Handout “A Civil Action” (preparation)

Tuesday March 21: View “A Civil Action”
Complete and hand in worksheet for 5 points.

Tuesday March 28: Spring Break: no class

Tuesday April 4: Pesticides/Ecotoxicology
Receive Rubrics for Design of Toxicity Testing: assignment started in class, and handed in April 11 for 5 points
Read Chapters 22 and 29
Receive Rubrics for “Lady Beatrice/Lord Bentley Plan a Murder.” Due May 2 for 15 points

Tuesday April 11: Field trip to Idexx; dinner at Dr. D’s
Hand in assignment for Design of Toxicity Testing for 5 points
Receive Rubrics on Measurement for next week’s lab

Tuesday April 18: Vapors and solvents/Metals
Laboratory exercise on measurements; complete assignments due Tuesday April 25 for 5 points
Field trip report: Idexx (5 points)

Tuesday April 25: Field trip to Wise Toxicology Center
Hand in assignment on measurements (5 points)

Tuesday May 2: *Class Presentations on “Lady Beatrice/Lord Bentley Plan a Murder.”*

Hand in Toxicology Center Field Trip Report

Tuesday May 9: Make-up day

Grading

This course will not use plus or minus grading.

90-100 points = A

80-89 points = B

70-79 points =C

60-69 points =D

Below 60 points = F

All grades will be posted on Blackboard, along with any announcements or supplemental material. The Blackboard web site for this class may be found at <http://www.courses.maine.edu>.

ADA: Support for Students with Disabilities – Students who may need assistance due to a disability are encouraged to contact the Office of Support for Students with Disabilities, Luther Bonney 242. Phone: 780-4706, TTY: 780-4395.

Grades point total:

February 7	15 point exam 5 point field trip report
February 14	15 point exam
February 28	5 point lab report from 2.14
March 7	10 point exam
March 14	10 point class presentation: Target Organ
March 21	5 point worksheet on “A Civil Action” include research
April 11	5 point lab report from 4.4
April 18	5 point field trip report
April 25	5 point lab on measurements
May 2	5 point field trip report 15 point class presentations “Plan a murder”

Total points: 100 points