CHE-257
The Chemistry of Mind-Altering Drugs
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Gustavus Adolphus College

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Textbook: The Chemistry of Mind-Altering Drugs: History, Pharmacology, and Cultural Context, Daniel M. Perrine, ACS books, USA; 1996.

Supplies: In addition to the textbook, there is a course pack that will be made available at the first lab period. You will also need a laboratory notebook and safety goggles/glasses.

Classroom: NHS 305, Nobel Hall

Academic Honesty

Academic honesty in, perhaps, more of an issue in this class than in other chemistry classes. Not only do I expect you to do your own work, you will be asked to do outside research on some of the compounds we will discuss and make. Be certain to clearly cite your references. Citation styles in chemistry are substantially different than other fields, so we will learn how to properly cite material as we go.

By enrolling in this course, you are bound by the Gustavus Honor Code

> "**On my honor, I pledge that I have not given, received, nor tolerated others' use of unauthorized aid in completing this work.**"

Homework:

There will be 4 written lab reports due throughout the term. Take these seriously as they make up 80% of your grade. The course pack will outline how they should be written, and we will discuss style and format during the term. You will also be doing a lot of research that will be presented to the class.

Exams:

There will be no exams.

Grading:

Lab reports.....80%
Class participation.....20%

Course Objectives:

In first two semesters of organic chemistry, we learned the language and many of the reactions that organic molecules undergo. Here, we will use that knowledge to discuss various aspects of medicinal chemistry. In addition, you will learn some of the basics of writing in the discipline of chemistry. While this is not considered a writing class by either the College or me, communication is an important part of any career you may choose. Chemistry communication tends to be very precise (some would say terse), while very detail rich. This is not always easy to do, so we will work on this throughout the term.

In addition to written communication, you will get practice in oral communication as well. Much of the "lecture" content will consist of group presentations. A list of topics and general time-lines will be presented, and each student will join a group. The group will research the topic and present their findings to the class.

When you finish this class, you will have a better understanding of how mind-altering drugs have been used and abused through history, and in some cases, how they have shaped history. You will have a more solid understanding of the biochemical pathways that are disrupted by these drugs. Hopefully, you will have a better understanding of the social and legal implications of drugs use in general.

Course Coverage:

What are "drugs" and what is substance abuse
Neurobiology and anatomy
Drug nomenclature and the clinical trial process
Opiods: Historical context
Opiod mode of action; abuse and addition
Alcohol
Benzodiazepines, Barbiturates, and others
Tobacco; Xanthines (and Kava); Cocaine; Amphetamines
Ergot Alkaloids
Phenethylamines
Dissociatives and THC
Public Policy

We will meet nearly every afternoon for laboratory experiments. You will synthesize common analgesics derived from cocaine (benzocaine and lidocaine), an advanced intermediate for Prozac®, and Zyban®. Each of these projects introduces an advanced technique to expand your skills in laboratory science.