Syllabus
Organic Chemistry I
CH 301-02
Fall
MISSISSIPPI VALLEY STATE UNIVERSITY
Course Number: CH 301

E-mail: emby1234@gmail.com (preferred)

Office Hours:
M, W, F 9:00-12 noon
Tu- 11-12 noon
Other times: By appointment.
Departmental Goals: The primary objectives of the natural sciences and environmental health (NSEH) are to,
Develop students who are well prepared for their chosen careers and in the fulfillment of their personal lives in an ever –changing society
Provide opportunities for all students of the university to become familiar with concepts and principals of NSEH,
Offer baccalaureate and master's degree curricula in NSEH

Course Prerequisites: Prerequisite: CH 111 and CH 112; General Chemistry 1 & 2.

Required textbook:

Text Book Organic Chemistry Biological applications, By: John McCurry, 3rd edition

Technology skills:
USE OF TECHNOLOGY
Becoming a holistic transformer is facilitated using tocology. Scholarship and reflective thinking promoted by easy access to information that may include widely varying theories and knowledge related to an extensive array of scientific and educationally related subjects. The same is, of course, true for developing the habits of life-long learner and classroom facilitator. Therefore, the use of technology in various forms will be encouraged in preparing for classroom discussion, scientific inquiry, practical application exercises, and lesson-plan development. Such technology will include, though not be limited to
1. Computerized library searches for information using scientific and educational databases
2. Use of internet to perform in depth searches for information related to appropriate instructional methodology and materials for teaching students in science; and
3. Computer applications useful in instruction and in scientific applications (e.g., simulations, data and word processing).
4 Use of computer programs such as freeware chemsketch to draw different organic compounds

Catalog Course Description:

Structure and bonding of carbon compounds, 13 different families of organic compounds example, aliphatic hydrocarbons and alkyl halides, alcohols, ethers, aldehydes and ketones, amines, carboxylic acids and their derivatives, aromatic hydrocarbons, and stereochemistry of carbon compounds, cycloalkanes, polycylic compounds and typical organic reactions are discussed. Many of the topics in diffrent stages will be in conjuction with the class and lab. Hence it is good to keep up with lecture content those who are just taking labs. I willemail you all the power points inculding those who are just in labs.It is your resonsibility to be aware of the content.

3.000 Credit hours for Lecture class; and plus **1** Credit hour lab CH 301L

Course Goals **(**Student learning outcomes):
The following general course goals are established to meet the purposes of CH 301:
1. Develop fundamental understanding of the organic material classifications and properties
2. Raise awareness of the underlying logic of the presentations and the use of inductive and deductive reasoning.
3. Develop factual report writing skills.
4. Increase scientific vocabulary and facility with common pronunciation related to the use of that vocabulary.
5. Cultivate thoughtful, probing inquiry and discussion.
6 Make them aware of the role of valence electrons in bond formation
7 Study typical four organic reactions
8 Introduce the concept of Lewis acid base theory
9 Introduce the concept of role of polarity in the reaction mechanism.

10. In laboratory, the 1st semester activities are to mainly to provide hands on model exercises and computer assisted molecular building exercises that enhance the understanding of the molecular structure of the various (13 families of) organic compounds. Lab experiments do include and identifying and writing the correct structures of the given 13 families of compounds along with their melting points (if solid) and boiling points (if liquid) and illustrate safe laboratory techniques and practices.Few wet labs are included to teach types of reactions in organic chemistry
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Required textbook:

Organic Chemistry Biological applications, By: John McCurry, 3rd edition. with online interactive activities, online helpful tools for students.
Other hand out that I give you.

Supplementary materials: ACDlab free molecular modeling software from www.acdlabs.com

Other sites: Students are encouraged, if they feel the need to visit appropriate youtube videos related to classs work. I may suggest few of them for you if I find them interesting.

Organic chemistry is hands on type of science. I like to do lot of hands on activities quite often. Please make sure you attend classes regularly and study the problems from end of the chapters. If you have problems in catching up you are most welcome to meet with me during office hours. Please do it in the begining of the semester. I may divide you into many groups to solve problems that you may see in th quizzes , tests etc..

COURSE CONTENT AND TENTATIVE TIME LINE:

Week 1 and 2
Review: Lab Safety seminar. Review of atomic structures of first ten elements, Bohr's model, Energy levels of electrons in an atom, lewis dot structures of elements, molecules like methane
Take home assignment

Week 3 and 4: Chapter 1. Valence bond theory,sp3 hybrid ortal alkanes (methane..decane), Lewis do, strucrures of alkanes sp3 hybridisation in N, P, O and S. Sp2 and Sp hybrid orbitals, Describing Chemical bonds, Molecular orbital theory,drawing Chemical structures.(Dash formulae, condensed formulae.).
Take home assignment :

In class test 1 around September 15

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Week 4 and 6 Chapter 3: Organic compounds: Alkanes and their setreochemistry.13 functional groups, their naming, structures identifications, their properties, isomers, conformations of ethane, Newman projections, eclipsed, staggered conformations, and conformations of other alkanes
Take home assignment

Week 7 -8: Chapter 2: Polar covalent Bonds, Acids and bases.: May like to post one Electronegativity, Dipolemoments, Formal charges, Resonance structures, Acids and bases, and their strength, pka valus of acids and bases, Organic acids and base, Lewis definition of acids and bases, No covalent interation between molecules. Extra: Alkaloids: From coacine to anestethics, fish odor of fish for example is methyl amine, the use of lemon juice (an acid) is to mask the odor of fish methylamine by an acd in lemon..acid base reaction.

Mid term test in class Ch1, 2 and 3

Week 8-9: Chapter 4: Organic compounds. Cycloalkanes and their stereochemistry,naming of cycloalkanes, cis-trans isomerism in cycloalkanes, stability of cycloalkanes: Ring strain,

conformastions of cycloalkanes, conformations of cyclohexane, axial and equatorial bonds in cyclohexane, conformations of monosubstitruted cyclohexanes, conformations of disubstituted cyclohexanes, conformations of polycyclic molecules. Extra: Molecular mechanics & their use in phramaceutical research.
Take home assignments:

Week 10- 11: Chapter 5: Streochemistry at Tetrahedral center. Enantiomers and the tetrahedral Carbon., he reasn for Handendness in Molecules: Chirality; optical activity, Sequene rules for specifying configurations(R or S),

Take home assignment/ in class quiz

Week 12-13: Ch 7 Alkene, Alkynes, nomenclature, cis/trans isomersim, E/Z designation
Ch9 : Aromatic compounds, nomeclaure, stability of benzene

Willbe determined as follows:

	points
~5-10 assignments	200
In class quizzes around 5	100
Midterm test around October 3-7	100
Final exam around December 5-9	200
Attendance	050
Classoom participation	050
Total	750

Evaluation Procedures (grading)

	%
A	> 85
B	>80-84.9
C	>70-79.9
D	>60-69.9
F	<59.9

Laboratory activities (Tentative):

During wet labs around 4-5 it is **mandatory** that you do wear the lab coat and safety glasses. No sandals, No shorts are allowed inside the organic chemistry lab

1 Molecular modelling sets will be used
2*ACD/chemsketch free molecular modeling software.*Courtesy, Advanced Chemistry Development, Inc., www.acdlabs.com.
It helps to have a laptop or visit on campus comutrer assisted lab for such purposes.

Organic chemistry is fun and cab be learnt very easily buiding molecules
starting with
a Baloons
b molecular modeling sets
c chemsketch a free ware www.acdlabs.com
d. attending classses regularly
e doing the home work
f in class participation
g knowing the basis of atoms, bonding (ionic, covalent), Bohr moldel of elements very well ..... CH 111 and CH 112
…….
Lab handouts will be given as and when necessary

Tenative experiments.

(Many a times many lab **activities** will be done on the same day, so that you can finish all lab activities during the same day.).

1 Exposure to the electronic structure of first ten elements (1H to 10 Ne), Bohr's model, **Ladder**
and Lewis dot structure of first tenelements (website webelements.com and Chapter 1 from book and from supplied handouts.)

2 **The hybridization of carbon with 4 Hydrogen** atom with to form Methane using model set and chemsketch and ballons.

3 **Alkanes: Nomenclature**
Building and naming of ten alkanes starting, first with methanee using model set and chemsketch

5 Alkenes
Building and naming of few alkenes usingg model set and chemsketch, cis/trans isomers

6 Alkynes
Building and naming of few alkynes using model set and chemsketch

7 Halo alkanes
Building and naming of few halo alkanes using model sets and chemsketch.

8 Alcohols:
Building and naming of few alcohols using model sets and chemskectch

9 Ethers
Building and naming of few types of ether using model sets and chemsketch

10 Amines
Building and naming of few simple and complex (primary, secondary and tertiary amines using model set and chemsketch

11 Aldehydes:
Building and naming of few simple and complex aldehydes using model set and chemsketch

12 Ketone
Building and naming of few simple and complex ketones using model set and chemsketch

13 Carboxylic acid:
Building and naming of few simple basic organic acids, starting with one carbon. using model set and chemsketch

15 **Wet labs:** Part A . Organic compounds identify few acidic, basic and as neutral compounds.

Label them as polar, nonploar, identify their molecular formale, dash formulae, dipole moment , molecular Part B: Using the provided instruments determine the melting and boling points of few compounds.

16. **Wet labs**:Part A Introduction to Lewis acids and bases: Part B: arrow pushing in Organic chemistry Part C: introduction to pH and pka using following reagents.
$NaOH + HCl$; $Na_2CO_3 + HCl$; $CH_3COOH + Na_2CO_3$

17: Synthesis of cyclohexene. Dehydration of cyclohexanol to cyclohexene. (Elimination reaction)

18 Addition reaction of cyclohexene with Br_2, $KMnO_4$ etc

19. prepation of few ester by substition reaction

20 Aldol condensation

21 Drawing cyclic and polycyclic structures, aromatic compounds using chemsketch

INTELLECTUAL HONESTY:

Students are expected to follow principles of intellectual honesty. A student caught cheating on an exam or quiz will receive zero points for that exam or quiz and will be referred to the Dean of Students' office for appropriate action

Please ask for help early, not when the semester is coming to close. Do it in the begining of the semester.

SPECIAL POLICIES:
Attendance: 1 letter grade for every three unexcused absences.

Cell Phones: To be always turned off during class. If phone goes off student may be asked to leave the classroom with no possibility to make up work.

Classroom behavior: Negative classroom behavior will not be tolerated and can result in student being asked to leave the class.

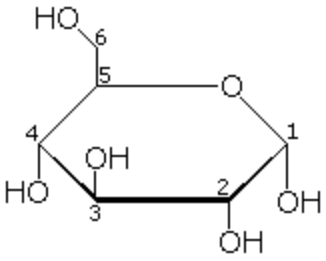
Good attitude goes a long way to help you build a good personality.

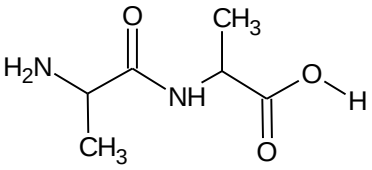
Tardis: 1 letter grade for every five un-excused tardiest.

For **missed** tests, quizzes, assignments talk with me first make prearrangment if you have **athletic** department related trip. Make sure talk me and your with your friends what is taught during your abscence. Be proactive.. One or two assignments missed does not make a big diffrence. Repeatedly missing classes and not turning assigments, not takin g exams online, in class tests will have an impact on your performence. Because of the huge amount of assignments almost every week o, , it is **mandatory** you give them to me on specified date and in class on time. Do not bring them to my office. Do not try drop them late. Be like your peers. It is going to fun.

STUDENTS WITH SPECIAL NEEDS

Mississippi Valley State University is committed to providing reasonable accommodations for students with a documented disability. If you feel you are eligible to receive accommodations for a covered disability (medical, physical, psychiatric, learning, vision, hearing, etc.) and would like to request it for this course, you must be registered with the Services for Students with Disabilities (SSD) program administered by University College. It is recommended that you visit the Disabilities Office located inside the EMAP Computer Lab in the Technical Education (IT) Building to register for the program at the beginning of each semester.
For more information or to schedule an appointment, please contact Mr. Billy Benson, Jr. via phone or email at 662-254-3005 or billy.benson@mvsu.edu.





Glucose **dipeptide**

Let us together make this class fun exciting.

Note: This document does not constitute a contract but a set of guidelines subject to change